Product Catalog

- AS-i Masters/Gateways/Links/Scanner
- AS-i Slaves
- AS-i Accessories/Diagnostics/Development
- Other Fieldbuses
- AS-i Safety

Bihl + Wiedemann

Automatisierungstechnik

The AS-Interface Masters

Edition: August 2006

Dieses Zertifikat wird aufgrund einer Herstellererklärung und der Baumusterprüfung eines Referenzproduktes nach der Prüfungsordnung für AS-Interface Master durch das Prüflabor am Steinbeis Transferzentrum Leipzig erteilt.

Die Verantwortung für das Produkt, seine Funktion und seine Sicherheit verbleibt beim Hersteller.

This certificate is issued on the basis of a manufacturer's declaration and the type test of a reference product. The test was conducted by the Test Laboratory at the Steinbeis Transferzentrum Leipzig in accordance with the association's test requirements for AS-Interface Master.

The responsibility for the product, its function and its safety lies with the manufacturer.

AS-International Association e.V. erteilt der Firma
AS-International Assoc., a registered German association, assigns to the company

Bihl +Wiedemann GmbH

in/at D 68199 Mannheim

ein / a

Zertifikat
Certificate

für die AS-Interface Produkte / for the AS-Interface products

V2.1 Einfach- und Doppel-Master als Control oder Gateway zu Profibus-DP, DeviceNet oder CANopen

V2.1 Single and Double Master as Control or Gateway to Profibus-DP, DeviceNet or CANopen

Die Produkte haben eine der folgenden Bezeichnungen
The products have one of the following product numbers

BW1307, 1309, 1310, 1249, 1251, 1252, 1244, 1245, 1272, 1334, 1335, 1336, 1448, 1449

Die Produkte wurden entsprechend der Complete Specification V.2.11 und dem Masterprofil M3 der AS-International Association entwickelt.

The products have been developed according to the association's Complete Specification V.2.11 and to the master profile M3.

Nummer der Zertifizierungsurkunde (ZU-Nr.):
Number of the Certification Document (ZU-Nr.):

47701

Odenthal, 12. März 2003

Otto Madelung

AS-International Association
Zertifizierungsstelle - Certification office

Who is Bihl+Wiedemann?

**Bihl
+ Wiedemann**

Automatisierungstechnik

The Company

Bihl+Wiedemann GmbH is a highly specialised internationally active company of engineers. It was founded on the 1st of April 1992 in Mannheim by Jochen Bihl and Bernhard Wiedemann right after graduating in electrical engineering at the Technical University of Darmstadt.

The idea was the development and production of electronic components for automation, especially fieldbus communication.

Today there are 2 main fields of activity:

Client specific developments and productions for fieldbus communication

Our special fields of activity are the common national and international fieldbus systems like:

- **AS-i,**
- **Bitbus,**
- **CAN and CAN-Derivats like DeviceNet, CANopen, CANrho etc.,**
- **CC-Link,**
- **CS 31,**
- **ControlNet,**
- **Ethernet TCP/IP,**
- **InterBus,**
- **Modbus, Modbus Plus,**
- **PROFIBUS (FMS, DP, PA)**

We support our customers, and development, marketing or distribution departments with development projects with fieldbus systems.

We carry out developments even for rough environments or for the hazardous area. We carry out plans from the initial idea through to the finished serial product, including a high EMC, all the tests compulsory for the CE-sign and certification by the respective fieldbus user organization. In addition to that, we can manufacture ourselves the products in low to medium volume and deliver them to our clients in accordance with their respective packaging regulations.
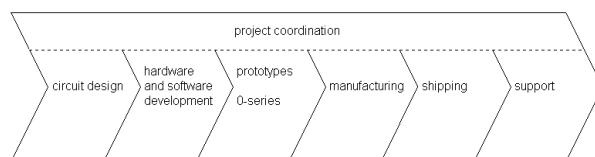
Thus customers have got the advantage to let manufacture in case of little and medium quantities.

We offer services for all the steps in between as well: If you'd like to fabricate the product devised by us yourself, we will supply everything from the circuit design to the preparation and integration of software or the construction of prototypes. We carry out the tests for the CE-sign and take the device through the certification. Do you want to place an order for only part of the job? No problem, we take over any stage regarding software and hardware.

By the way: Development departments always are to busy or have got insufficient work. Bihl+Wiedemann offers an solution for this problem. If you are in many projects we support you if you cannot do it yourself.

AS-i products

The own AS-i products - especially AS-i Masters and AS-i Gateways - have become quickly the main pillar of Bihl+Wiedemann. A range of more than 70 AS-i Masters and AS-i Gateways has been invented based on an own AS-i master technology. That is why Bihl+Wiedemann describes itself as "AS-i Master". The product range is wided by AS-i slaves to interface complex devices e.g. analog modules, or AS-i slaves for frequency inverters.

As specialists in AS-i Bihl+Wiedemann offers a hotline service to help developers and users of AS-i products.

If there are any questions concerning AS-i contactus, we provide a solution for your problem.

Our sales partner within Germany and abroad near your location are qualified people to turn to.

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www.bihl-wiedemann.de   We reserve the right to change any data   Mannheim, 8.8.06   page 7

Bihl+Wiedemann

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In General

There's always one that fits....

AS-i Masters are the heart of each AS-i application. They are the link to the superior system and therefore the most complex node of the AS-i. Bihl+Wiedemann - The AS-i Masters - offers a wide range of AS-i Masters to give the user the best solution for each application. If it is necessary to connect AS-i to a special PLC, PC or some other CPU, Bihl+Wiedemann has got the right AS-i Master.

If you need up to now there is a range of more than 70 different types of AS-i Masters available with a wide variety of interfaces to the host system:

AS-i Gateways/Links

AS-i Gateways act as a Master for the AS-i and as a slave for the higher level fieldbus, e.g. PROFIBUS, InterBus, CAN, Ethernet. From the point of view of the higher level fieldbus the AS-i Gateway acts as a fieldbus slave with modular I/O, which converts the data between the AS-i and the superior fieldbus system. AS-i Gateways offer the best possible solution to connect decentral AS-i networks to a specific PLC via a fieldbus. AS-i Gateways with "AS-i Control" functionality can optional preprocess the AS-i data within the gateway.

AS-i Control

Beside using the Bihl+Wiedemann AS-i Masters as Gateways can be used as stand-alone-controllers for small AS-i applications. There is no need for an additional PLC.

AS-i Masters for PC based automation

The technology within PC systems (both hardware and software) has developed greatly with the price reduction in the industry. This is one reason why PC based systems have been used in ever wider applications, including industrial automation. In addition automation solutions have increasing access to PC based systems for graphical representation and control. In particular the connection between PC system and fieldbus offers the possibility for very powerful and inexpensive solutions. The high-quality industrial I/O devices are put to use decentrally while the PC is used as an efficient hard- and software basis for the purposes of control and visualization. The use of AS-i with PC systems is facilitated by the range of interface possibilities such as PCs in combination with soft PLCs, own application software. Especially in that field Bihl+Wiedemann offers the all common hard- and software interfaces for PC based automation with AS-i.

PCI Board with 2 AS-i Masters

Identical operation of all Masters and Gateways

In spite of this big range of different AS-i Masters and AS-i Gateways, all devices are operated identically. This means: A person who knows one Bihl+Wiedemann AS-i Master can operate them all.
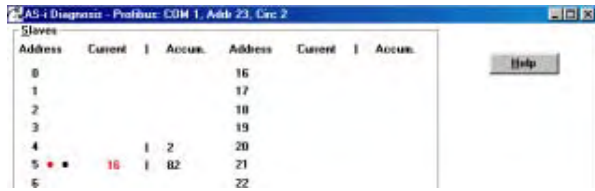
Starting-up, debugging and setting up of the AS-i parameters on the AS-i can be accomplished by using only push-buttons, LEDs and display. With the help of the push-buttons and the display, slave addresses can be programmed, several faulty AS-i slaves can be detected and actual configurations on the AS-i network can be stored. Integrated status-LEDs inform the user of the current operating condition at any time.

All AS-i Masters and AS-i Gateways can be put into operation with the use of the windows software "AS-i Control Tools". The PC software communicates with the AS-i Master via the serial or parallel interface of the PC. The communication uses the protocol of the respective fieldbus (PROFIBUS, DeviceNet, Modbus, B+W-Protocol etc.). E. g. putting an AS-i/PROFIBUS Gateway into operation with a PC requires only a simple PROFIBUS Mastersimulator. That way, the Gateways can be operated even with notebooks via the respective fieldbus interface, without there being a need for additional expensive hardware.

Advanced AS-i diagnostics

Bihl+Wiedemann AS-i Masters offer AS-i diagnostics which go far beyond the standard diagnostics of the AS-i specification. With Bihl+Wiedemann AS-i Masters it is no problem to detect occasionally occurring configuration errors at the AS-i. Furthermore there is the possibility to judge the quality of the data communi-

cation on the AS-i cable. And all that without any additional expert tools.

Display of error counter and configuration errors with the help of the AS-i Control Tools

AS-i according to specification 3.0

Easy design, dramatically reduced installation costs, high integrity and good diagnostics, these are different reasons that effected the success of AS-i as the simplest automation networking solution. But good things can still be improved. For this reason the AS-International Association completed the new AS-i specification 3.0 as early as 1998 to integrate further requirements of the market into the system.

Already today Bihl+Wiedemann can offer AS-i Masters according to the specification 3.0. Some V3.0 AS-i Master are compatible with the existing standard AS-i Masters. As long as you do not use the functions of the new specification the V3.0 AS-i Masters run as V2.04 Masters. The user does not notice any difference. Regarding to the downwarded compatibility the following points have to be mentionend:

• The AS-i Masters can be used with old slaves.
• Existing PC software can be used.

When will the rest of B+W Masters be deliverable as V3.0 Masters?

In Bihl+Wiedemann AS-i Masters the change to specification 3.0 is achieved by means of using a new software only.

The advantages are obvious:

• The change of existing products to V3.0 is very simple.
• You can resort to established hardware.

This means that finally V3.0 AS-i masters and gateways can be made available to your requirements very quickly.

AS-i Control

"AS-i Control" Mini-PLC for AS-i

Bihl+Wiedemann AS-i Masters can be delivered with or without mini-PLC.

AS-i Control, the firmware integrated in B+W AS-i Masters[1], forms together with the AS-i a powerful mini-PLC. Equipped with commercial AS-i I/O modules it can control up to 256 inputs/outputs.

In combination with B+W AS-i Masters according to the new specification 3.0 AS-i Control supports also the extension to 62 AS-i slaves per AS-i network, the evaluation of AS-i peripheral faults as well as the automatic data exchange with AS-i analog modules according to the standardized profile 7.3.

In that way up to 248 digital inputs and outputs and 124 analog values can be processed via AS-i.

Integrated in an AS-i Master with serial interface AS-i Control is the ideal mini-PLC for stand alone solutions for smaller machines or plants.

Using AS-i Control in Gateways, i. e. the AS-i/PROFIBUS DP Gateway, you are capable to preprocess the actuator-sensor-data within the Gateway. This way the hierarchically higher PLC

is relieved. Thus AS-i Control helps decentralizing the control task.

Typical applications are the fast execution of time critical operations directly within the Gateway.

Complete parts of plants or machines can be controlled independently by the Gateway.

Implemented in PC boards AS-i Control relieves the PC from the time critical control tasks. With the PC boards AS-i PCI Board with 2 AS-i Masters, AS-i PC2 and AS-i PC104 with AS-i Control the control program is running on the AS-i board so that the PC processor is not stressed by the hard real time requirements of a control task. The full efficiency of the PC can be used for visualizing data, archiving data, etc.

The PLC program for AS-i Control can be edited with a commercial PC and is downloaded to the AS-i Master afterwards. The following programming tool is available: the easy-to-use Windows software AS-i Control Tools for commissioning and programming AS-i Control in IL.

Mini-PLC Description	
programm memory (EEPROM)	16 KB (AS-i PCi board 4 KB)
data memory (bit/byte flags)	8 KB
remanent data memory	128 Bytes
cycle time (1 KBit /1000 word instructions)	1,8 ms/2,0 ms up to 16 ms/18 ms depending on device
Processing	
control commands	very close to STEP5™
additional operations	call of AS-i Master functions
flags/registers	8K
number of counters/timers	1024 each
counter resolution	16 bit
programmable time values	1 - 40950 ms
inputs/outputs	up to 248 I, 248 O, 124 analog values via AS-i slaves
Programming	
programming languages	AWL
programming device	PC
programming platforms	Windows 95/98, Windows NT, Windows 2000
programming tools	AS-i Control Tools
bus connections	PROFIBUS, Modbus, ISA, PC104, PCI

Accessories:

- Software AS-i Control Tools for AS-i master in stainless steel (art. no. BW1602, see page 62)
- Software AS-i Sim (art. no. BW1902, see page 63)

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1. AS-i Master is used here as a generic term for AS-i Gateways, AS-i PC boards and other AS-i Masters.

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AS-i Gateways act as a Master for the AS-i and as a slave for the higher level fieldbus. From the point of view of the higher level fieldbus the AS-i gateway acts as a fieldbus slave with modular I/O. The modules of this fieldbus slave can be mounted decentrally and are connected via the intelligent AS-i cable. If you substitute the I/O modules by one or more AS-i gateways you can use the AS-i slaves right at the place where the actuators and sensors are located. In that way there is no parallel wiring between the respective fieldbus I/O module and the sensors and actuators. Installation and cable costs can be reduced again in this way because the AS-i concept is to optimize the networking of binary sensors and actuators. With AS-i it is also very easy to prepare a whole machine in your factory, separate it into several parts and rebuild it very quickly at your customer's site. This installation can even be done by the end user because of the quick and simple installation.

Field housing in IP20

You can built up parts of plants decentrally and put them together as logical units with the help of AS-i gateways. With the superior fieldbus system big distances, e.g. from the cabinet to the application, can easily be bridged. An AS-i gateway which is located in the application offers the possibility to interface AS-i to the respective PLC. No matter which PLC the machinery builder has to use the structure of the plant from the AS-i gateway to the sensors and actuators remains constant. In that way the planning, installation, commissioning and documentation can be the same with every machinery.

Only the communication between the PLC and the AS-i gateway changes. For these reasons Bihl+Wiedemann has developed AS-i Gateways to the following fieldbus systems:

- **PROFIBUS DP**
- **InterBus**
- **DeviceNet**
- **CANopen**
- **CANrho**
- **Ethernet TCP/IP**
- **Modbus Plus**
- **Modbus (RS 232, RS 485, RS 422)**
- **CC-Link**
- **LON**
- **B+W protocol (RS 232, RS 485, RS 422)**

With one of all these Gateways it is always possible to connect AS-i to all common PLCs.

The use of AS-i Gateways in high protection category IP65 facilitate the creation of new plant concepts in which cabinets and preswitch boxes can be saved. That is why AS-i is an useful alternative for applications with more than 20 I/O points.

With all Gateways it is possible to access all AS-i data via the respective fieldbus interface. With the use of the internal mini-PLC "AS-i Control" the host can intervene in the execution of the program via the respective fieldbus interface. The reaction times can be lowered and the hierarchically higher PLC is relieved using the PLC functionality.

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Overview AS-i Masters/Gateways/Links/Scanner

Housing	Fieldbus	Art. No.	Characteristic	P.
	AS-i 3.0 PROFIBUS Gateway in Stainless Steel	BWU1567	1 AS-i master, PROFIBUS slave	15
		BWU1773	1 AS-i master, PROFIBUS slave, AS-i 2.1 without RS232 diagnosis interface, without recognition of duplicate AS-i addresses	
		BWU1568	2 AS-i masters, PROFIBUS slave	
		BWU1774	2 AS-i masters, PROFIBUS slave, AS-i 2.1 without RS232 diagnosis interface, without recognition of duplicate AS-i addresses	
		BWU1569	2 AS-i masters, PROFIBUS slave, 1 gateway + 1 AS-i power supply for 2 AS-i networks	
		BWU1746	Basic Master, 1 AS-i master, PROFIBUS slave	
	AS-i 3.0 DeviceNet Gateway in Stainless Steel	BWU1818	1 AS-i master	18
		BWU1819	2 AS-i masters	
		BWU1820	2 AS-i masters 1 gateway + 1 AS-i power supply for 2 AS-i networks	
	AS-i 3.0 CANopen Gateway in Stainless Steel	BWU1821	1 AS-i master	20
		BWU1822	2 AS-i masters	
		BWU1823	2 AS-i masters 1 gateway + 1 AS-i power supply for 2 AS-i networks	
	AS-i 3.0 Modbus Gateway in Stainless Steel	BWU1641	1 AS-i master, Modbus slave	22
		BWU1642	2 AS-i masters, Modbus slave	
		BWU1643	2 AS-i masters, Modbus slave 1 gateway + 1 AS-i power supply for 2 AS-i networks	
	AS-i 3.0 Ethernet Gateway in Stainless Steel	BWU1650	1 AS-i master, Modbus over Ethernet	24
		BWU1651	2 AS-i masters, Modbus over Ethernet	
		BWU1652	2 AS-i masters, Modbus over Ethernet 1 gateway + 1 AS-i power supply for 2 AS-i networks	
	AS-i 3.0 EtherNet/IP Gateway in Stainless Steel	BWU1828	1 AS-i master	26
		BWU1829	2 AS-i masters	
		BWU1833	2 AS-i masters 1 gateway + 1 AS-i power supply for 2 AS-i networks	
	AS-i 3.0 PROFINET Gateway in Stainless Steel	BWU1912	1 AS-i master	28
	AS-i Master for Allen-Bradley ControlLogix	BW1611	complete set: AS-i master BWU1488 plus accessories BW1563	29
		BWU1488	2 AS-i masters	

Side tabs:
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	AS-i Master for Allen-Bradley CompactLogix/MicroLogix	BW1610	complete set: AS-i master BWU1416 plus accessories BW1563	30
		BWU1416	1 AS-i master	
	AS-i/PROFIBUS Gateway	BW1307	1 AS-i master, PROFIBUS slave	31
		BW1309	2 AS-i master, PROFIBUS slave	
		BW1249	1 AS-i master, PROFIBUS slave	
		BW1253	1 AS-i master, PROFIBUS slave, IP65	
		BW1371	1 AS-i master, PROFIBUS slave, IP65	
	AS-i/DeviceNet Gateway	BW1334	1 AS-i master, DeviceNet slave	36
		BW1335	2 AS-i masters, DeviceNet slave	
	AS-i/CANopen Gateway	BW1448	1 AS-i master, CANopen slave	39
		BW1449	2 AS-i masters, CANopen slave	
	AS-i/CANrho Gateway	BW1174	1 AS-i master	42
	AS-i/InterBus Gateway	BW1127	1 AS-i master, InterBus Remote Bus	43
	AS-i/CC-Link Gateway	BW1172	1 AS-i master, AS-i 2.0	44
		BW1435	1 AS-i master, AS-i 2.1	
	AS-i/LON Gateway	BW1237	1 AS-i master, protection category IP65	45
	AS-i/Modbus Plus Gateway	BW1090	1 AS-i master, Modbus Plus node	46
		BW1091	1 AS-i master, Modbus Plus node	
		BWU1583	1 AS-i master, Modbus Plus node	

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AS-i Safety
Price Lists

AS-i 3.0 PROFIBUS Gateway
in Stainless Steel

**Bihl
+Wiedemann**

Automatisierungstechnik

AS-i-Master/Gateways/
Links/Scanner

AS-i Slaves

AS-i Accessories/
Diagnostics/Development

Other Fieldbuses/
Master Simulators

AS-i Safety

Price Lists

AS-i 3.0 from Ident. no. 12003 (see lateral Label)

**1 AS-i Master
PROFIBUS Slave**

**1 AS-i Master
PROFIBUS Slave**

Recognition of Duplicate AS-i Addresses

AS-i Earth Fault Detector integrated

AS-i Noise Detector integrated

Graphical Display	Art. no. BWU1567	Art. no. BWU1773 AS-i 2.1 without RS232 diagnosis interface, without recognition of duplicate AS-i addresses
Operating current	Master power supply Approx. 200 mA out of AS-i circuit	
Operating voltage	AS-i voltage 30 V DC	
PROFIBUS interface	According to DIN 19245 Part 3	
Serial interface	RS232	-
Baud rates	9,6 KBaud up to 12000 KBaud, automatic recognition	
DP functions	Imaging of the AS-i slaves as I/O Data of the PROFIBUS Complete diagnosis and configuration via the PROFIBUS DP	
AS-i cycle time	150 μs*(number of slaves + 2)	
Displays		
LCD	Displaying slave addresses and error messages	
LED green (power)	Power on	
LED green (PROFIBUS)	PROFIBUS master recognized	
LED red (config error)	Configuration error	
LED green (U AS-i)	AS-i voltage OK	
LED green (AS-i active)	AS-i normal operation active	
LED green (prg enable)	Automatic address programming enabled	
LED yellow (prj mode)	The master is in configuration mode	
Buttons	4	
Voltage of insulation	$\geq$ 500 V	
EMC directions	EN 50082, EN 50081	
Operating temperature	0°C … +55°C	
Storage temperature	-25°C … +85°C	
Housing	AS-i master housing in stainless steel	
Dimensions (L, W, H)	120 mm, 75 mm, 83 mm	
Protection category (DIN 40 050)	IP20	
Tolerable loading reffering to impacts and vibrations	According to EN 61 131-2	
Weight	460 g	

Accessories:

- Software "AS-i Control Tools" with serial cable for AS-i master in stainlees steel (art. no. BW1602, see also page 62))
- Serial PROFIBUS master (art. no. BW1258, see also page 161)
- PROFIBUS DP master simulator (art. no. BW1257, see also page 160)

AS-i 3.0 PROFIBUS Gateway in Stainless Steel

AS-i 3.0 from Ident. no. 12003 (see lateral Label)

2 AS-i Masters

Recognition of Duplicate AS-i Addresses

AS-i Earth Fault Detector integrated

AS-i Noise Detector integrated

BWU1569 in Version 1 Power Supply for 2 AS-i Circuits:
Only 1 Gateway + 1 AS-i Power Supply
for 2 AS-i Networks

Graphical Display	Art. no. BWU1568	Art. no. BWU1773 AS-i 2.1 without RS232 diagnosis interface, without recognition of duplicate AS-i addresse	Art. no. BWU1569 Version 1 power supply for 2 AS-i circuits
Operating current	Approx. 200 mA out of AS-i circuit 1 Approx. 70 mA out of AS-i circuit 2		Approx. 250 mA (PELV voltage)
PROFIBUS interface	According to DIN 19245 part 1-3		
Serial interface	RS232	-	RS232
Baud rates	9,6 KBaud up to 12000 KBaud, automatic recognition		
DP functions	Imaging of the AS-i slaves as I/O Data of the PROFIBUS Complete diagnosis and configuration via the PROFIBUS DP		
AS-i cycle time	150 μs*(number of slaves+ 2)		
Displays			
LCD	Displaying slave addresses and error messages		
LED green (power)	Power on		
LED green (PROFIBUS)	PROFIBUS master recognized		
LED red (config error)	Configuration error		
LED green (U AS-i)	AS-i voltage OK		
LED green (AS-i active)	AS-i normal operation active		
LED green (prg enable)	Automatic address programming enabled		
LED yellow (prj mode)	The master is in configuration mode		
Buttons	4		
Voltage of insulation	$\geq$ 500 V		
EMC directions	EN 50082, EN 50081		
Operating temperature	0°C … +55°C		
Storage temperature	-25°C … +85°C		
Housing	AS-i master housing in stainless steel		
Dimensions (L, W, H)	120 mm, 75 mm, 83 mm		
Protection category (DIN 40 050)	IP20		
Weight	460 g		

Accessories:

- Software "AS-i Control Tools" with serial cable for AS-i master in stainlees steel (art. no. BW1602, see also page 62))
- Serial PROFIBUS master (art. no. BW1258, see also page 161)
- PROFIBUS DP master simulator (art. no. BW1257, see also page 160)
- Power supply 4A (art. no. BW1592)/8A (art. no. BW1593) for art. no. BW1569, see also page 139

AS-i 3.0 PROFIBUS Gateway
in Stainless Steel

AS-i 3.0 PROFIBUS DP Gateway/Link in Stainless Steel
Basic Master

1 AS-i 3.0 Master
PROFIBUS Slave

Graphical Display	Art. no. BWU1746
Operating current	Master power supply Approx. 200 mA out of AS-i circuit (max. 300 mA)
Operating voltage	AS-i voltage 30 V DC
PROFIBUS interface	According to DIN 19245 part 3
Baud rates	9,6 KBaud up to 12000 KBaud, automatic recognition
DP functions	Imaging of the AS-i slaves as I/O Data of the PROFIBUS Complete diagnosis and configuration via the PROFIBUS DP
AS-i cycle time	150 μs*(number of slaves + 2)
Displays	
LCD	Displaying slave addresses and error messages
LED green (power)	Power on
LED green (PROFIBUS)	PROFIBUS master recognized
LED red (config error)	Configuration error
LED green (U AS-i)	AS-i voltage OK
LED green (AS-i active)	AS-i normal operation active
LED green (prg enable)	Automatic address programming enabled
LED yellow (prj mode)	The master is in configuration mode
Buttons	2
Voltage of insulation	$\geq$ 500 V
EMC directions	According to EN 61000-6-2, EN 61000-6-4
Operating temperature	0°C … +55°C
Storage temperature	-25°C … +85°C
Housing	AS-i master housing in stainless steel
Dimensions (L, W, H)	120 mm, 45 mm, 40 mm
Protection category (DIN 40 050)	IP20
Tolerable loading reffering to impacts and vibrations	According to EN 61 131-2
Weight	460 g

Accessories:

- Software "AS-i Control Tools" (art. no. BW1203, see also page 62)
- Serial PROFIBUS master (art. no. BW1258, see also page 161)
- PROFIBUS DP master simulator (art. no. BW1257, see also page 160)

AS-i-Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

AS-i Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

AS-i 3.0 DeviceNet Gateway in Stainless Steel

Bihl +Wiedemann

Automatisierungstechnik

DeviceNet to AS-i Bridge

1 AS-i 3.0 Master

AS-i Earth Fault Detector integrated

Recognition of Duplicate AS-i Addresses

Advanced Diagnostic Function

AS-i Noise Detector integrated

Graphical Display	Art. no. BWU1818
Graphical Display	Art. no. BWU1824 Class 1 Div 2
Operating current	Power supply A, approx. 200 mA out of AS-i
Operating voltage	AS-i voltage 30 V DC
Terminals	DeviceNet interface (5-pin plug) RS 232 diagnostic interface
AS-i Master profile	Master profile M4 (AS-i Specifikation 3.0)
AS-i cycle time	150 μs* (Number of slaves + 2)
Displays	
LCD	Displaying AS-i slave addresses and error messages
LED green (power)	Voltage ON
LED green/red (ser active)	Module/Network-status (MNS)
LED red (config error)	Configuration error
LED green (U AS-i)	AS-i voltage OK
LED green (AS-i active)	AS-i in normal operation
LED green (prg enable)	Automatic address programming enabled
LED yellow (prj mode)	Configuration mode active
Push-buttons	4 (mode/set)
Voltage of insulation	$\geq$ 500 V
EMC directions	EN 50295, EN 61000-6-2, EN 61000-6-4
Operating temperature	0°C … +55°C
Storage temperature	-25°C … +85°C
Housing	Housing in stainless steel
Dimensions (L, W, H)	120 mm, 85 mm, 83 mm
Protection category DIN 40 050)	Terminals IP20
Tolerable loading reffering to impacts and vibrations	According to EN 61131-2
Weight	520 g

Accessories:

• Software "AS-i Control Tools" with serial transmission cord for connection of the AS-i Master (art. no. BW1602, s. page 62)

• DeviceNet Master Simulator with USB interface (art. no. BW1420, s. page 162)

• Data transmission cord for AS-i Gateways with CAN interface (art. no. BW1226)

• AS-i power supply 4 A (art. no. BW1649, s. page 137)

Pin assignment:

	Signal	Color
1	V+	red
2	CAN_H	white
3	Shield	n/a
4	CAN_L	blue
5	V -	black

AS-i 3.0 DeviceNet Gateway in Stainless Steel

DeviceNet to AS-i Bridge

2 AS-i 3.0 Masters

AS-i Earth Fault Detector integrated

Recognition of Duplicate AS-i Addresses

Advanced Diagnostic Function

AS-i Noise Detector integrated

BWU1826, BWU1820 in Version 1 Power Supply, 1 Gateway for 2 AS-i Circuits: only 1 Gateway + 1 AS-i Power Supply for 2 AS-i Networks!

Graphical Display	Art. no. BWU1819	Art. no. BWU1820
Graphical Display	**Art. no. BWU1825 Class 1 Dlv 2**	**Art. no. BWU1826 Class 1 Div 2**
Operating current	Approx. 200 mA out of AS-i circuit 1 Approx. 70 mA out of AS-i circuit 2	Version "1 Power Supply, 1 Gateway for 2 AS-i Circuits", approx. 250 mA (PELV Supply)
Terminals	DeviceNet interface (5-pin plug) RS 232 diagnostic interface	
AS-i Master profile	Master profile M4 (AS-i-Specifikation 3.0)	
AS-i cycle time	150 µs* (Number of slaves + 2)	
Displays		
LCD	Displaying AS-i slave addresses and error messages	
LED green (power)	Voltage ON	
LED green/red (ser active)	Module/Network status (MNS)	
LED red (config error)	Configuration error	
LED green (U AS-i)	AS-i voltage OK	
LED green (AS-i active)	AS-i in normal operation	
LED green (prg enable)	Automatic address programming enabled	
LED yellow (prj mode)	Configuration mode active	
Push-buttons	4 (mode/set)	
Voltage of insulation	≥ 500 V	
EMC directions	EN 50295, EN 61000-6-2, EN 61000-6-4	
Operating temperature	0°C … +55°C	
Storage temperature	-25°C … +85°C	
Housing	Housing in stainless steel	
Dimensions (L, W, H)	120 mm, 85 mm, 83 mm	
Protection category DIN 40 050)	Terminals IP20	
Tolerable loading reffering to impacts and vibrations	According to EN 61131-2	
Weight	520 g	590 g

Accessories:

- Software "AS-i Control Tools" with serial transmission cord for connection of the AS-i Master (art. no. BW1602, s. page 62)
- DeviceNet Master Simulator (art. no. BW1420, s. page 162)
- Data transmission cord for AS-i Gateways with CAN interface (art. no. BW1226)
- AS-i power supply 4 A (art. no. BW1649, s. page 137)
- Power supply 4 A (art. no. BW1597)/8 A (art. no. BW1598) for art. no. BWU1826 and BWU1820 (s. page 139)

Pin assignment:

	Signal	Color
1	V+	red
2	CAN_H	white
3	Shield	n/a
4	CAN_L	blue
5	V -	black

AS-i-Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

AS-i Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

AS-i 3.0 CANopen Gateway in Stainless Steel

Bihl+Wiedemann

Automatisierungstechnik

CANopen Gateway to AS-i

1 AS-i 3.0 Master

Recognition of Duplicate AS-i Addresses

Advanced Diagnostic Function

Graphical Display	Art. no. BWU1821
Operating current	Power supply A, approx. 200 mA out of AS-i
Operating voltage	AS-i voltage 30 V DC
Terminals	CANopen (5-pin plug) RS 232 diagnostic interface
AS-i Master profile	Master profile M4 (AS-i Specification 3.0)
Baud rate	10/1000 KBaud
AS-i cycle time	150 μs* (Number of slaves + 2)
CANopen-Features	Extended boot-up, minimum boot-up, life guarding COB ID Distribution DBT, SDO, Default Node ID Distribution SDO, Switch No of PDOs up to 35 Rx, 35 Tx PDO Modes async, cyclic, acyclic Device Specification CiA DS-301
Displays	
LCD	Displaying AS-i slave addresses and error messages
LED green (power)	Voltage ON
LED green/red (MNS)	Module/Network status (MNS)
LED red (config error)	Configuration error
LED green (U AS-i)	AS-i voltage OK
LED green (AS-i active)	AS-i in normal operation
LED green (prg enable)	Automatic address programming enabled
LED yellow (prj mode)	Configuration mode active
Push-buttons	4 (mode/set)
Voltage of insulation	$\geq$ 500 V
EMC directions	EN 50295, EN 61000-6-2, EN 61000-6-4
Operating temperature	0 °C … +55 °C
Storage temperature	-25 °C … +85 °C
Housing	Housing in stainless steel
Dimensions (L, W, H)	120 mm, 85 mm, 83 mm
Protection category DIN 40 050)	Terminals IP20
Tolerable loading reffering to impacts and vibrations	According to EN 61131-2
Weight	520 g

Accessories:

- Software "AS-i-Control-Tools" with serial transmission cord for connection of the AS-i Master (art. no. BW1602, s. page 62)
- CANopen master simulator (art. no. BW1453, s. page 163)
- Data transmission cord for AS-i Gateways with CAN interface (art. no. BW1226)
- AS-i power supply 4 A (art. no. BW1649, s. page 137)

Pin assignment:

	Signal	Color
1	V+	red
2	CAN_H	white
3	Shield	n/a
4	CAN_L	blue
5	V -	black

AS-i 3.0 CANopen Gateway
in Stainless Steel

Bihl
+Wiedemann

Automatisierungstechnik

AS-i-Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

CANopen Gateway to AS-i

2 AS-i Masters

Recognition of Duplicate AS-i Addresses

Advanced Diagnostic Function

BWU1823 Version 1 Power Supply, 1 Gateway for 2 AS-i Circuits:
only 1 Gateway + 1 AS-i Power Supply for 2 AS-i Networks!

Graphical Display	Art. no. BWU1822	Art. no. BWU1823
Operating current	Approx. 200 mA out of AS-i circuit 1 Approx. 70 mA out of AS-i circuit 2	Version "1 Power Supply, 1 Gateway for 2 AS-i Circuits", approx. 250 mA (PELV Supply)
Terminals	CANopen (5-pin plug) RS 232 diagnostic interface	
AS-i Master profile	Master profile M4 (AS-i Specification 3.0)	
Baud rate	10/1000 KBaud	
AS-i cycle time	150 μs* (Number of slaves + 2)	
CANopen-Features	Extended boot-up, minimum boot-up, life guarding COB ID Distribution DBT, SDO, Default Node ID Distribution SDO, Switch No of PDOs up to 70 Rx, 70 Tx PDO Modes async, cyclic, acyclic Device Specification CiA DS-301	
Displays		
LCD	Displaying AS-i slave addresses and error messages	
LED green (power)	Voltage ON	
LED green/red (ser active)	Module/Network status (MNS)	
LED red (config error)	Configuration error	
LED green (U AS-i)	AS-i voltage OK	
LED green (AS-i active)	AS-i in normal operation	
LED green (prg enable)	Automatic address programming enabled	
LED yellow (prj mode)	Configuration mode active	
Push-buttons	4 (mode/set)	
Voltage of insulation	$\geq$ 500 V	
EMC directions	EN 50295, EN 61000-6-2, EN 61000-6-4	
Operating temperature	0°C … +55°C	
Storage temperature	-25°C … +85°C	
Housing	Housing in stainless steel	
Dimensions (L, W, H)	120 mm, 85 mm, 83 mm	
Protection category DIN 40 050)	Terminals IP20	
Tolerable loading reffering to impacts and vibrations	According to EN 61131-2	
Weight	520 g	590 g

Accessories:

- Software "AS-i-Control-Tools" with serial transmission cord for connection of the AS-i Master (art. no. BW1602, s. page 62)
- CANopen master simulator (art. no. BW1453, s. page 163)
- Data transmission cord for AS-i Gateways with CAN interface (art. no. BW1226)
- AS-i power supply 4 A (art. no. BW1649, s. page 137)
- Power supply 4 A (art. no. BW1597)/8 A (art. no. BW1598) for art. no. BWU1823 (s. page 139)

Pin assignment:

	Signal	Color
1	V+	red
2	CAN_H	white
3	Shield	n/a
4	CAN_L	blue
5	V -	black

AS-i Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

AS-i 3.0 Modbus Gateway in Stainless Steel

Bihl + Wiedemann

Automatisierungstechnik

AS-i 3.0 from Ident. no. 11833 (see lateral Label)

1 AS-i Master

Recognition of Duplicate AS-i Addresses

AS-i Earth Fault Detector integrated

AS-i Noise Detector integrated

Graphical Display	Art. no. BWU1641	
Operating current	Master power supply Approx. 200 mA out of AS-i circuit	
Operating voltage	AS-i voltage 30 V DC	
Baud rates	1200, 2400, 4800, 9600, 19200, 38400, 57600 or 115000 baud, adjustable parity; default settings are: 9600 Baud, no parity, address 1	
AS-i Master profile	M1	
Serial interface	RS 485 (Modbus/Modbus RTU)	
AS-i cycle time	150 μs*(number of slaves + 2)	
Displays		
LCD	Displaying slave addresses and error messages	
LED green (power)	Power on	
LED green (ser active)	Modbus interface	
LED red (config error)	Configuration error	
LED green (U AS-i)	AS-i voltage OK	
LED green (AS-i active)	AS-i normal operation active	
LED green (prg enable)	Automatic address programming enabled	
LED yellow (prj mode)	The master is in configuration mode	
Buttons	4	
Voltage of insulation	$\geq$ 500 V	
EMC directions	According EN 50082, EN 50081	
Operating temperature	0 °C … +55 °C	
Storage temperature	-25 °C … +85 °C	
Housing	AS-i master housing in stainlees steel	
Dimensions (L, W, H)	120 mm, 75 mm, 83 mm	
Protection category (DIN 40 050)	IP20	
Tolerable loading reffering to impacts and vibrations	According EN 61 131-2	
Weight	460 g	

Accessories:

- Software "AS-i Control Tools" with serial cable for AS-i master in stainlees steel (art. no. BW1602)
- Interface converter RS 232C/RS 485 (art. no. BW1094, see also page 164)

AS-i 3.0 Modbus Gateway
in Stainless Steel

AS-i-Master/Gateways/Links/Scanner

AS-i Slaves

AS-i Accessories/Diagnostics/Development

Other Fieldbuses/Master Simulators

AS-i Safety

Price Lists

Bihl+Wiedemann

Automatisierungstechnik

AS-i 3.0 from Ident. no. 11833 (see lateral Label)

2 AS-i Masters

Recognition of Duplicate AS-i Addresses

AS-i Earth Fault Detector integrated

AS-i Noise Detector integrated

BWU1643 in Version 1 Power Supply for 2 AS-i Circuits:
Only 1 Gateway + 1 AS-i Power Supply
for 2 AS-i Networks

Graphical display	Art. no. BWU1642	Art.-no. BWU1643
Operating current	Approx. 200 mA out of AS-i circuit 1 Approx. 70 mA out of AS-i circuit 2	Version "1 Power Supply, 1 Gateway for 2 AS-i Circuits", approx. 250 mA (PELV Supply)
Baud rates	1200, 2400, 4800, 9600, 19200, 38400, 57600 or 115000 baud, adjustable parity; default settings are: 9600 Baud, no parity, address 1	
AS-i Master profile	M1	
Serial Interface	RS 485 (Modbus/Modbus RTU)	
AS-i cycle time	150 μs*(number of slaves + 2)	
Displays		
LCD	Displaying slave addresses and error messages	
LED green (power)	Power on	
LED green (ser active)	Modbus interface	
LED red (config error)	Configuration error	
LED green (U AS-i)	AS-i voltage OK	
LED green (AS-i active)	AS-i normal operation active	
LED green (prg enable)	Automatic address programming enabled	
LED yellow (prj mode)	The master is in configuration mode	
Buttons	4	
Voltage of insulation	$\geq$ 500 V	
EMC directions	According EN 50082, EN 50081	
Operating temperature	0 °C … +55 °C	
Storage temperature	-25 °C … +85 °C	
Housing	AS-i master housing in stainlees steel	
Dimensions (L, W, H)	120 mm, 75 mm, 83 mm	
Protection category (DIN 40 050)	IP20	
Weight	460 g	

Accessories:
- Software "AS-i Control Tools" with serial cable for AS-i master in stainlees steel (art. no. BW1602)
- Interface converter RS 232C/RS 485 (art. no. BW1094, see also page 164)
- Power supply 4A (art. no. BW1592)/8A (art. no. BW1593) for art. no. BW1643)

AS-i Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

AS-i 3.0 Ethernet Gateway in Stainless Steel

Bihl + Wiedemann

Automatisierungstechnik

AS-i 3.0 from Ident. no. 11866 (see lateral Label)

1 AS-i Master, Modbus TCP/IP

Recognition of Duplicate AS-i Addresses

AS-i Earth Fault Detector integrated

AS-i Noise Detector integrated

Graphical Display	Art. no. BWU1650	
Operating current	Master power supply Approx. 200 mA out of AS-i circuit	
Operating voltage	AS-i voltage 30 V DC	
Ethernet TCP/IP interface	According to IEEE 802.3, 10BaseT, (RJ-45 connector), Modbus TCP/IP	
Baud rates	10/100 MBaud	
AS-i cycle time	150 μs*(number of slaves+ 2)	
Displays		
LCDs	Displaying slave addresses and error messages	
LED green (power)	Power on	
LED green (ser active)	Ethernet network active	
LED red (config error)	Configuration error	
LED green (U AS-i)	AS-i voltage OK	
LED green (AS-i active)	AS-i normal operation active	
LED green (prg enable)	Automatic address programming enabled	
LED yellow (prj mode)	The master is in configuration mode	
Buttons	4	
Voltage of insulation	$\geq$ 500 V	
EMC directions	EN 50082, EN 50081	
Operating temperature	0°C … +55°C	
Storage temperature	-25°C … +85°C	
Housing	AS-i master housing in stainlees steel	
Dimensions (L, W, H)	120 mm, 100 mm, 83 mm	
Protection category (DIN 40 050)	IP20	
Tolerable loading reffering to impacts and vibrations	According to EN 61 131-2	
Weight	550 g	

Accessories:

- Software "AS-i Control Tools" with serial cable for AS-i master in stainlees steel (art. no. BW1602)
- Cross-Link cable (art. no. BW1304, see also Seite 147)

AS-i 3.0 Ethernet Gateway
in Stainless Steel

AS-i 3.0 from Ident. no. 11866 (see lateral Label)

2 AS-i Masters, Modbus TCP/IP

Recognition of Duplicate AS-i Addresses

AS-i Earth Fault Detector integrated

AS-i Noise Detector integrated

BWU1652 in Version 1 Power Supply for 2 AS-i Circuits:
Only 1 Gateway + 1 AS-i Power Supply
for 2 AS-i Networks

Graphical Display	Art. no. BWU1651	Art. no. BWU1652
Operating current	Approx. 200 mA out of AS-i circuit 1 Approx. 70 mA out of AS-i circuit 2	Version "1 Power Supply, 1 Gateway for 2 AS-i Circuits", approx. 250 mA (PELV Supply)
Ethernet TCP/IP interface	According to IEEE 802.3, 10BaseT, (RJ-45 connector), Modbus TCP/IP	
Baud rates	10/100 MBaud	
AS-i cycle time	150 μs*(number of slaves+ 2)	
Displays		
LCDs	Displaying slave addresses and error messages	
LED green (power)	Power on	
LED green (ser active)	Ethernet network active	
LED red (config error)	Configuration error	
LED green (U AS-i)	AS-i voltage OK	
LED green (AS-i active)	AS-i normal operation active	
LED green (prg enable)	Automatic address programming enabled	
LED yellow (prj mode)	The master is in configuration mode	
Buttons	4	
Voltage of insulation	≥ 500 V	
EMC directions	EN 50082, EN 50081	
Operating temperature	0°C … +55°C	
Storage temperature	-25°C … +85°C	
Housing	AS-i master housing in stainlees steel	
Dimensions (L, W, H)	120 mm, 100 mm, 83 mm	
Protection category (DIN 40 050)	IP20	
Weight	550 g	

Accessories:

- Software "AS-i Control Tools" with serial cable for AS-i master in stainlees steel (art. no. BW1602)
- Cross-Link cable (art. no. BW1304, see also Seite 147)
- Power supply 4A (art. no. BW1592)/8A (art. no. BW1593) for art. no. BW1652

AS-i-Master/Gateways/
Links/Scanner

AS-i Slaves

AS-i Accessories/
Diagnostics/Development

Other Fieldbuses/
Master Simulators

AS-i Safety

Price Lists

AS-i Master/Gateways/
Links/Scanner

AS-i Slaves

AS-i Accessories/
Diagnostics/Development

Other Fieldbuses/
Master Simulators

AS-i Safety

Price Lists

AS-i 3.0 EtherNet/IP Gateway
in Stainless Steel

Bihl+Wiedemann

Automatisierungstechnik

EtherNet/IP to AS-i

1 AS-i 3.0 Master

AS-i Earth Fault Detector integrated

Recognition of Duplicate AS-i Addresses

AS-i Noise Detector integrated

Graphical Display	Art. no. BWU1828
Graphical Display	Art. no. BWU1834 Class 1 Div 2
Operating current	Power supply A, approx. 300 mA out of AS-i circuit
Operating voltage	AS-i voltage 30 V DC
Terminals	10/100 MBaud Ethernet, RJ-45 socket RS 232 diagnostic interface
Baud rates	10/100 MBaud
AS-i cycle time	150 µs*(Number of slaves + 2)
Displays	
LCD	Displaying AS-i slave addresses and error messages
LED green (power)	Voltage ON
LED green (ser active)	Ethernet network active
LED red (config error)	Configuration error
LED green (U AS-i)	AS-i voltage OK
LED green (AS-i active)	AS-i in normal operation
LED green (prg enable)	Automatic address programming enabled
LED yellow (prj mode)	Configuration mode active
Push-buttons	4 (mode/set)
Voltage of insulation	≥ 500 V
EMC directions	EN 50295, EN 61000-6-2, EN 61000-6-4
Operating temperature	0°C … +55°C
Storage temperature	-25°C … +85°C
Housing	Housing in stainless steel
Dimensions (L, W, H)	120 mm, 100 mm, 83 mm
Protection category DIN 40 050)	Terminals IP20
Tolerable loading reffering to impacts and vibrations	According to EN 61131-2
Weight	550 g

Accessories:

- Software "AS-i Control Tools" with serial transmission cord for connection of the AS-i Master (art. no. BW1602, s. page 62)
- Cross-Link cable (art. no. BW1304)
- AS-i power supply 4 A (art. no. BW1649, s. page 137)

AS-i 3.0 EtherNet/IP Gateway
in Stainless Steel

EtherNet/IP to AS-i

2 AS-i 3.0 Masters

AS-i Earth Fault Detector integrated

Recognition of Duplicate AS-i Addresses

AS-i Noise Detector integrated

**BWU1836, BWU1833 in Version
1 Power Supply, 1 Gateway for 2 AS-i Circuits:
only 1 Gateway + 1 AS-i Power Supply for 2 AS-i Networks!**

AS-i-Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

Graphical Display	Art. no. BWU1829	Art. no. BWU1833
Graphical Display	**Art. no. BWU1835 Class 1 Dlv 2**	**Art. no. BWU1836 Class 1 Div 2**
Operating current	Approx. 200 mA out of AS-i circuit 1 Approx. 70 mA out of AS-i circuit 2	Version "1 Power Supply, 1 Gateway for 2 AS-i Circuits", approx. 250 mA (PELV Supply)
Terminals	10/100 MBaud Ethernet, RJ-45 socket RS 232 diagnostic interface	
Baud rates	10/100 MBaud	
AS-i cycle time	150 μs*(Number of slaves + 2)	
Displays		
LCD	Displaying AS-i slave addresses and error messages	
LED green (power)	Voltage ON	
LED green (ser active)	Ethernet network active	
LED red (config error)	Configuration error	
LED green (U AS-i)	AS-i voltage OK	
LED green (AS-i active)	AS-i in normal operation	
LED green (prg enable)	Automatic address programming enabled	
LED yellow (prj mode)	Configuration mode active	
Push-buttons	4 (mode/set)	
Voltage of insulation	$\geq$ 500 V	
EMC directions	EN 50295, EN 61000-6-2, EN 61000-6-4	
Operating temperature	0°C … +55°C	
Storage temperature	-25°C … +85°C	
Housing	Housing in stainless steel	
Dimensions (L, W, H)	120 mm, 100 mm, 83 mm	
Protection category DIN 40 050)	Terminals IP20	
Tolerable loading reffering to impacts and vibrations	According to EN 61131-2	
Weight	550 g	620 g

Accessories:

- Software "AS-i Control Tools" with serial transmission cord for connection of the AS-i Master (art. no. BW1602, s. page 62)
- Cross-Link cable (art. no. BW1304)
- AS-i power supply 4 A (art. no. BW1649, s. page 137)
- Power supply 4 A (art. no. BW1597)/8 A (art. no. BW1598) for art. no. BWU1833 and BWU1836 (s. page 139)

AS-i Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

AS-i 3.0 PROFINET Gateway in Stainless Steel

Bihl +Wiedemann

Automatisierungstechnik

PROFINET IO

1 AS-i 3.0 Master

Recognition of duplicate AS-i addresses

AS-i Earth Fault Detector integrated

AS-i Noise Detector integrated

Graphical display	Art. no. BWU1912
Operating current	Master power supply Approx. 300 mA out of AS-i circuit
Operating voltage	AS-i voltage 30 V DC
Ethernet interface	RJ-45
Serial interface	RS 232
Baud rates	10/100 MBaud
AS-i cycle time	150 μs*(number of slaves+ 2)
Displays	
LCDs	Displaying slave addresses and error messages
LED green (power)	Power on
LED green (ser active)	PROFINET IO network active
LED red (config error)	Configuration error
LED green (U AS-i)	AS-i voltage OK
LED green (AS-i active)	AS-i normal operation active
LED green (prg enable)	Automatic address programming enabled
LED yellow (prj mode)	The master is in configuration mode
Buttons	4
Voltage of insulation	$\geq$ 500 V
EMC directions	EN 50295, EN 61000-6-2, EN 61000-6-4
Operating temperature	0°C … +55°C
Storage temperature	-25°C … +85°C
Housing	AS-i master housing in stainlees steel
Dimensions (L, W, H)	120 mm, 100 mm, 83 mm
Protection category (DIN 40 050)	IP20
Tolerable loading reffering to impacts and vibrations	According to EN 61 131-2
Weight	550 g

Accessories:

• Software "AS-i Control Tools" with serial cable for AS-i Master in Stainlees Steel (art. no. BW1602)

• Cross-Link cable (art. no. BW1304, s. page 147)

• AS-i Power Supply (art. no. BW1649, s. page 137)

Distribución: **ER-SOFT, S.A.** Email: **er@er-soft.com**, Tel: +34 916 408 408

AS-i Master/Scanner for Allen-Bradley ControlLogix

Bihl +Wiedemann

Automatisierungstechnik

AS-i-Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

AS-i Master for

Allen-Bradley

ControlLogix

2 AS-i Masters

AS-i Specification 2.1

Article No. BW1611 Complete Set: AS-i Master BWU1488 plus Accessories BW1563

Article No. BWU1488 AS-i Master for Allen-Bradley ControlLogix

Function

The Bihl+Wiedemann AS-i Master for ControlLogix of Allen-Bradley has 2 AS-i masters according to the new specification. A fast and easy commissioning can be accomplished with the use of two push-buttons and the display.

AS-i I/O data and status information is mapped into the PLC processor's I/O data.

AS-i Specification 2.1

The AS-i Master already fulfil the new AS-i Specification 2.1. This means:

• Up to 62 AS-i slaves can be connected per 1 AS-i network

• The transfer of analog signals via AS-i is integrated in the scanner

• All further functions of the new specification as e. g. the diagnosis of the AS-i peripheral fault are implemented.

AS-i Scope

Diagnostics, which go far beyond the standard diagnostics facilitate the simple detection of the occassionaly occuring configuration errors and further irritations towards the AS-i communication. So in case of an error the down time of machines can be minimized or you can initiate preventive maintenance.

Commissioning and monitoring

The AS-i Master can be commissioned respectively programmed with the help of the software "AS-i Control Tools".

Commissioning, debugging and setting up the system without the software can only be accomplished with the use of two push-buttons, the display and the LEDs directly on the system.

Art. no.	BWU1488
Operating current	Approx. 70 mA out of AS-i circuit 1 Approx. 70 mA out of AS-i circuit 2 Approx. 390 mA out of power supply 5,1 V DC Approx. 150 mA out of power supply 24 V DC
Operating voltage	AS-i voltage 30 V DC
AS-i cycle time	150 μs*(Number of slaves + 2)
Displays	
LED display	Displaying slave addresses and error messages
LED green (PWR)	Power on
LED green (OK)	Communication and control information
LED red (Fault)	Configuration error
LED green (U AS-i)	AS-i voltage OK
LED green (AS-i act)	AS-i normal operation active
LED green (prg enable)	Automatic address programming enabled
LED yellow (prj mode)	The master is in configuration mode
Push-buttons	2 (mode/set)
Voltage of insulation	≥ 500 V
EMC directions	EN 50082, EN 50081
Operating temperature	0°C … +55°C
Storage temperature	-25°C … +85°C
Housing	Housing for DIN-rail mounting
Dimensions (L, W, H)	146 mm, 35 mm, 132 mm
Protection category (DIN 40 050)	Housing IP20
Weight	420 g

Accessories:

• Software "AS-i Control Tools" with serial transmission cord for Allen-Bradley AS-i Master (Art. no. BW1563)

AS-i Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

AS-i Master/Scanner for Allen-Bradley CompactLogix/MicroLogix

Bihl +Wiedemann

Automatisierungstechnik

AS-i Master for

Allen-Bradley

CompactLogix

MicroLogix 1500

AS-i Specification 2.1

Article No. BW1610 complete set: AS-i Master BWU1416 plus accessories BW1563

Article No. BWU1416 AS-i Master for Allen-Bradley CompactLogix/Micrologix

Function

The Bihl+Wiedemann AS-i Master connects a CompactLogix processor or a MicroLogix 1500 to an AS-i network. Fast, easy set up into PLC backplane by the help of the new AS-i Master.

AS-i I/O data and status information is mapped into the PLC processor's I/O data.

AS-i Specification 2.1

The AS-i Master already fulfil the AS-i Specification 2.1. This means:

- Up to 62 AS-i slaves can be connected per 1 AS-i network
- The transfer of analog signals via AS-i is integrated in the scanner
- All further functions of the new specification as e. g. the diagnosis of the AS-i peripheral fault are implemented.

AS-i Scope

Diagnostics, which go far beyond the standard diagnostics facilitate the simple detection of the occassionally occuring configuration errors and further irritations towards the AS-i communication. So in case of an error the down time of machines can be minimized or you can initiate preventive maintenance.

Commissioning and monitoring

The AS-i Master can be commissioned respectively parametrized with the help of the software "AS-i Control Tools".

Commissioning, debugging and setting up the system without the software can only be accomplished with the use of two push-buttons, the display and the LEDs directly on the system.

Art. no.	BWU1416
Operating current	Approx. 100 mA out of AS-i Approx. 450 mA out of power supply 5 V DC
Operating voltage	AS-i voltage 30 V DC
AS-i cycle time	150 μs*(Number of slaves + 2)
Displays	
LED display	Displaying slave addresses and error messages
LED green (power)	Power on
LED green (diag)	Communication and control information
LED red (config error)	Configuration error
LED green (U AS-i)	AS-i voltage OK
LED green (AS-i active)	AS-i normal operation active
LED green (prg enable)	Automatic address programming enabled
LED yellow (prj mode)	The master is in configuration mode
Push-buttons	2 (mode/set)
Voltage of insulation	≥ 500 V
EMC directions	EN 50082, EN 50081
Operating temperature	0°C … +55°C
Storage temperature	-25°C … +85°C
Housing	Housing for DIN-rail mounting
Dimensions (L, W, H)	102 mm, 35 mm, 132 mm
Protection category (DIN 40 050)	Housing IP20
Weight	420 g

Accessories:

- Software "AS-i Control Tools" with serial transmission cord for Allen-Bradley AS-i Master (Article no. BW1563)

Distribución: **ER-SOFT, S.A.** Email: **er@er-soft.com**, Tel: +34 916 408 408

AS-i/PROFIBUS Gateway

AS-i Gateways/Links to PROFIBUS

PROFIBUS DP

1 or 2 AS-i Masters

AS-i Scope funcion

AS-i Specification 2.1
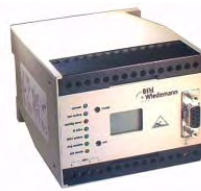
IP20   IP65   graphical display

Function

The AS-i/PROFIBUS Gateways serve to connect AS-i systems to the PROFIBUS. They act as a Master for the AS-i and as a slave for the PROFIBUS.

AS-i Specification 2.1

The AS-i/PROFIBUS DP Gateways already fulfil the AS-i Specification 2.1. This means:

- Up to 62 AS-i slaves can be connected per 1 AS-i network
- The transfer of analog signals via AS-i is integrated in the Masters
- All further functions of the new specification as e. g. the diagnosis of the AS-i peripheral fault are implemented.

The AS-i functions are provided cyclically via PROFIBUS DP V0 and acyclically via PROFIBUS DP V1.

In the cyclic data transfer optionally up to 32 Bytes I/O data are transfered for the binary data of 1 AS-i network. Furthermore analog signals and all further commands of the new AS-i specification can be transferred in the mailbox channel via PROFIBUS.

The serial PROFIBUS Master (Article no. BW1258) and the AS-i Control Tools can be used for the monitoring of the AS-i data online via the PROFIBUS DP V1.

AS-i Scope

Diagnostics, which go far beyond the standard diagnostics facilitate the simple detection of the occassionaly occuring configuration errors and further irritations towards the AS-i communication. So in case of an error the down time of machines can be minimized or you can initiate preventive maintenance.

Two sort of housing

The AS-i/PROFIBUS Gateways with one Master can be delivered in a housing for cabinet mounting or in a field housing in IP65. The handling of the AS-i/PROFIBUS Gateway in IP65 is identically with the AS-i/PROFIBUS DP Gateway in IP20. The high protection category IP65 makes the device suitable for applications in the extreme industrial environments frequently encountered in the field. AS-i is connected using the penetration technique of EMS (Electromechanical Interface). PROFIBUS is connected with heavy gauge terminals and cage clamp terminal blocks.

Commissioning and monitoring

The AS-i/PROFIBUS Gateways can be commissioned respectively programmed with the help of the software "AS-i Control Tools" in combination with the PROFIBUS DP Master Simulator. The GSD file as well as the type files are included in the package.

Commissioning, debugging and setting up of the AS-i parameters without the software can only be accomplished with the use of two push-buttons, the display and the LEDs directly on the system.

Gateways with graphical display

The AS-i Gateways with Graphical Display are a high-end solution to link AS-i with a superior PROFIBUS system

Simple and Fast Commissioning

Using the AS-i Gateway with graphical display, the entire AS-i network can be commissioned and the connected periphery can be completely tested without PLC or PROFIBUS Master. The new interactive graphic display also enables the user to complete all tasks which previously required the "AS-i Control Tools" software package. This allows for simpler and faster commissioning.

Addressing Unit within the AS-i Master

With the help of the new graphical display, the hand held unit is now obsolete. The slaves can now be easily addressed directly on the gateway. Slaves with extended address mode are detected automatically and are used only when allowed. This ensures that no two AS-i slaves with the same address will be on the same network.

Testing of connected periphery without additional test tools

Once the AS-i is put into operation, the cabling and the connected sensors and actuators can be tested, inputs can be read and outputs can be set and even analog sensors and actuators can be checked just using the Gateway with graphical display.

AS-i-Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

AS-i/PROFIBUS Gateway

On-board Diagnostics:

Configuration fault, periphery fault

At a glance, the display shows the configuration faults (missing slave, additional slave detected, wrong slave type) as well as periphery faults, such as a short circuit at a sensor cable. This allows the user to get the proper information to solve the problem in the shortest amount of time.

```
actual config
0A    |  1A-Cf
2Ax   |  3Ad
4p    |  5A      ↓
```

Detection of occasional faults

A list of slaves, which have previously caused an error, is also available through the graphical display. This can be very helpful in solving problems.

```
Reset           ↑
 APF-  |  1A-x
 2A-   |  3A-
 4A-x  |  5A    ↓
```

Scope functions shown on the display

While strange phenomena can occur as the AS-i gets to its limits (e. g. cable length >100 m, EMC problems), the AS-i Gateway with Graphical Display has on-board diagnostic tools. With the help of the AS-i error counters the user can easily check the quality of AS-i communications. The user can then test the impact of any actions taken.

```
Error Counters
Reset
 APF - C
 1A - 34        ↓
```

Accessories:

- Software "AS-i Control Tools" (Article no. BW1203, see page 62)
- Serial PROFIBUS Master (Article no. BW1258, see page 161)
- PROFIBUS DP Master Simulator DP V0 and DP V1 (Article no. BW1257, see page 160)
- Transmission cords (Article no. BW1097, see page 146)

AS-i/PROFIBUS Gateway

AS-i/PROFIBUS DP Gateway/Link

1 AS-i Master
PROFIBUS Slave

AS-i Specification 2.1

AS-i Scope funcion

IP20   **graphical display**

CE

Graphical display	Art. no. BW1307	
Graphical display	**Art. no. BW1249**	
Operating current	Master power supply A Approx. 200 mA out of AS-i circuit	
Operating voltage	AS-i voltage 30 V DC	
PROFIBUS Interface	According to DIN 19245 part 3	
Baud rates	9,6 KBaud up to 12000 KBaud, automatic recognition	
DP functions	Imaging of the AS-i slaves as I/O Data of the PROFIBUS Complete diagnosis and configuration via the PROFIBUS DP	
AS-i cycle time	150 μs*(Number of slaves + 1)	
Displays		
LCD	Displaying slave addresses and error messages	
LED green (power)	Power on	
LED green (ser active)	Communication and control information	
LED red (config error)	Configuration error	
LED green (U AS-i)	AS-i voltage OK	
LED green (AS-i active)	AS-i normal operation active	
LED green (prg enable)	Automatic address programming enabled	
LED yellow (prj mode)	The Master is in configuration mode	
Push-buttons	2 (mode/set), devices with graphical display: 4	
Voltage of insulation	≥ 500 V	
EMC directions	EN 50082, EN 50081	
Operating temperature	0°C … +55°C	
Storage temperature	-25°C … +85°C	
Housing	Housing for DIN-rail mounting	
Dimensions (L, W, H)	75 mm, 100 mm, 110 mm	
Protection category (DIN 40 050)	Housing IP40 Terminals IP20	
Tolerable loading reffering to impacts and vibrations	Screw-mounting: b ≤ 30 g, T ≤ 11 ms Spring lock-mounting: b ≤ 15 g, T ≤ 11 ms Screw-mounting: f ≤ 55 Hz, a ≤ 1 mm Spring lock-mounting: f ≤ 55 Hz, a ≤ 0,5 mm	
Weight	420 g	

AS-i-Master/Gateways/Links/Scanner

AS-i Slaves

AS-i Accessories/Diagnostics/Development

Other Fieldbuses/Master Simulators

AS-i Safety

Price Lists

AS-i Master/Gateways/
Links/Scanner

AS-i Slaves

AS-i Accessories/
Diagnostics/Development

Other Fieldbuses/
Master Simulators

AS-i Safety

Price Lists

AS-i/PROFIBUS Gateway

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AS-i/PROFIBUS DP Gateway/Link

2 AS-i Masters

AS-i Specification 2.1

AS-i Scope function

graphical display

Graphical display	Art. no. BW1309	
Operating current	**Master power supply A** with plug connectors: Approx. 200 mA out of AS-i circuit 1 Approx. 70 mA out of AS-i circuit 2 without plug connectors Approx. 150 mA out of power supply Approx. 70 mA out of AS-i circuit 1 Approx. 70 mA out of AS-i circuit 2	
Operating voltage	24 V DC (18-31,6 V DC)	
PROFIBUS interface	According to DIN 19245 part 1-3	
Baud rates	9,6 KBaud up to 12000 KBaud, automatic recognition	
DP-Functions	Imaging of the AS-i slaves as I/O Data of the PROFIBUS. Complete diagnosis and configuration via the PROFIBUS DP	
AS-i cycle time	150 μs*(Number of slaves + 1)	
Displays		
LCD	Displaying slave addresses and error messages	
LED green (AS-i 2)	AS-i network 1 / AS-i network 2	
LED green (ser active)	Communication and control information	
LED red (config error)	Configuration error	
LED green (power)	Power on	
LED green (U AS-i)	AS-i voltage OK	
LED green (prg enable)	Automatic address programming enabled	
LED yellow (prj mode)	The Master is in configuration mode	
Push-buttons	4	
Voltage of insulation	$\geq$ 500 V	
EMC directions	EN 50082, EN 50081	
Operating temperature	0°C … +55°C	
Storage temperature	-25°C … +85°C	
Housing	Housing for DIN-rail mounting	
Dimensions (L, W, H)	75 mm, 100 mm, 110 mm	
Protection category DIN 40 050	Housing IP40 Terminals IP20	
Weight	420 g	

AS-i/PROFIBUS Gateway

Bihl + Wiedemann

Automatisierungstechnik

AS-i/PROFIBUS DP Gateway/Link
in Protection Class IP65

AS-i Specification 2.1

powered by AS-i

AS-i Scope funcion

IP65   **IP65 with M12 Connector**

Article no.	BW1253	BW1371
Connections	AS-i: electromechanical interface (penetration technique) PROFIBUS DP: heavy gauge terminals and cage clamp terminal blocks	AS-i: electromechanical interface (penetration technique) PROFIBUS DP: via M12 connector
Operating current	Master power supply A, approx. 200 mA out of AS-i circuit	
Operating voltage	AS-i voltage 30 V DC	
PROFIBUS Interface	according to DIN 19245 part 3	
Baud rates	9,6 KBaud up to 12000 KBaud, automatic recognition	
PROFIBUS DP Functions	Imaging of the AS-i slaves as I/O data of the PROFIBUS. Complete diagnosis and configuration via PROFIBUS	
AS-i cycle time	150 μs*(Number of slaves + 1)	
Displays		
LED display	AS-i slave addresses and error messages	
LED green (power)	Power on	
LED green (Bus active)	PROFIBUS Master recognized	
LED red (config error)	Configuration error	
LED green (U AS-i)	AS-i voltage OK	
LED green (AS-i active)	AS-i normal operation active	
LED green (prg enable)	Automatic Adress Programming enabled	
LED yellow (prj mode)	The Master is in configuration mode	
Push-buttons	2 (mode/set)	
Voltage of insulation	$\geq$ 500 V	
EMC directions	EN 50082, EN 50081	
Operating temperature	0°C … +55°C	
Storage temperature	-25°C … +85°C	
Housing		
Dimensions (L, W, H)	90 mm, 80 mm, 70 mm	
Protection category (DIN 40 050)	Housing IP65	
Weight	355 g	

M12 Connector:
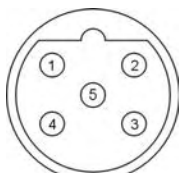
Pin	Function
1	+5 V (only for termination resistor)
2	RXD/TXD-N (A)
3	DGND (only for termination resistor)
4	RXD/TXD-P (B)
5	Shield

Bus Out (female)

Connection of PROFIBUS interface on cage clamp terminal block (IP65):

DIP buttons

clamp terminal
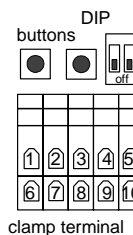
Pin	Function
1	RxD/TxD-N
2	RxD/TxD-P
3	RxD/TxD-N
4	RxD/TxD-P
5	0 V
6	Shield
7	FG function ground
8	FG function ground
9	Shield
10	+5 V

AS-i/DeviceNet Gateway

AS-i Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

Bihl +Wiedemann

Automatisierungstechnik

DeviceNet to AS-i Bridge"

AS-i Gateway to DeviceNet

1 or 2 AS-i Masters

AS-i Scope function

AS-i Specification 2.1

Function

The AS-i/DeviceNet-Gateway serves to connect the AS-i to a superordinate DeviceNet. The Gateway acts as a complete Master for the AS-i and as a slave for the DeviceNet.

AS-i Specification 2.1

The AS-i/DeviceNet Gateways already fulfil the AS-i Specification 2.1. This means:

- Up to 62 AS-i slaves can be connected per 1 AS-i network
- The transfer of analog signals via AS-i is integrated in the Masters
- All further functions of the specification as e. g. the diagnosis of the AS-i peripheral fault are implemented.

AS-i Scope Function

Diagnostics, which go far beyond the standard diagnostics facilitate the simple detection of the occassionally occuring configuration errors and further irritations towards the AS-i communication. So in case of an error the down time of machines can be minimized or you can initiate preventive maintenance.

Commissioning and Monitoring

The AS-i/DeviceNet Gateways can be commissioned with the help of the software "AS-i Control Tools" in combination with the DeviceNet Master Simulator. The EDS file is included in the package.

Commissioning, debugging and setting up of the AS-i parameters without the software can only be accomplished with the use of two push-buttons, the display and the LEDs directly on the system.

Gateways with Graphical Display

The AS-i Gateways with Graphical Display are a high-end solution to link AS-i with a superior DeviceNet system.
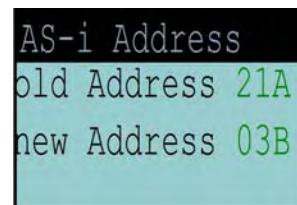
Simple and Fast Commissioning

Using the AS-i Gateway with Graphical Display, the entire AS-i network can be commissioned and the connected periphery can be completely tested without DeviceNet Master. The new interactive graphic display also enables the user to complete all tasks which previously required the "AS-i Control Tools" software package. This allows for simpler and faster commissioning.

Addressing Unit within the AS-i Master

With the help of the new graphical display, the hand held unit is now obsolete. The slaves can now be easily addressed directly on the gateway. Slaves with extended address mode are

detected automatically and are used only when allowed. This ensures that no two AS-i slaves with the same address will be on the same network.

Testing of Connected Periphery without Additional Test Tools

Once the AS-i is put into operation, the cabling and the connected sensors and actuators can be tested, inputs can be read and outputs can be set and even analog sensors and actuators can be checked just using the Gateway with Graphical Display.

On-board Diagnostics:

Configuration Fault, Periphery Fault

At a glance, the display shows the configuration faults (missing slave, additional slave detected, wrong slave type) as well as periphery faults, such as a short circuit at a sensor cable. This allows the user to get the proper information to solve the problem in the shortest amount of time.

AS-i/DeviceNet Gateway

Detection of Occasional Faults

A list of slaves, which have previously caused an error, is also available through the graphical display. This can be very helpful in solving problems.

```
Reset               ↑
 APF-  |   1A-x
 2A-   |   3A-
 4A-x  |   5A   ↓
```

Scope Functions shown on the Display

While strange phenomena can occur as the AS-i gets to its limits (e. g. cable length >100 m, EMC problems), the AS-i Gateway with Graphical Display has on-board diagnostic tools. With the help of the AS-i error counters the user can easily check the quality of AS-i communications. The user can then test the impact of any actions taken.

```
Error Counters
Reset
 APF - C
 1A - 34             ↓
```

Accessories:

- DeviceNet Master Simulator (Article no. BW1255, see page 162)
- Transmission cords for AS-i/CAN Gateways (Article no. BW1226, see page 146)
- Software AS-i Control Tools (Article no. BW1203, see page 62)

AS-i-Master/Gateways/
Links/Scanner

AS-i Slaves

AS-i Accessories/
Diagnostics/Development

Other Fieldbuses/
Master Simulators

AS-i Safety

Price Lists

AS-i Master/Gateways/
Links/Scanner

AS-i Slaves

AS-i Accessories/
Diagnostics/Development

Other Fieldbuses/
Master Simulators

AS-i Safety

Price Lists

AS-i/DeviceNet Gateway

Bihl +Wiedemann

Automatisierungstechnik

"DeviceNet to AS-i Bridge"

AS-i Gateway to DeviceNet
1 or 2 AS-i Masters

AS-i Master
DeviceNet slave

advanced AS-i diagnostics

AS-i Scope function

Specification 2.1

V+
CAN_H
SHIELD
CAN_L
V-

CE

Graphical display, Spec. 2.1	Art. no. BW1334	Art. no. BW1335
Operating current	Power supply A Approx. 200 mA out of AS-i	Master power supply A with plug connectors: Approx. 200 mA out of AS-i circuit 1 Approx. 70 mA out of AS-i circuit 2 without plug connectors: Approx. 150 mA out of power supply Approx. 70 mA out of AS-i circuit 1 Approx. 70 mA out of AS-i circuit 2
Operating voltage	AS-i voltage 30 V DC	24 V DC (18-31,6 V DC)
Terminals	DeviceNet: according to the DeviceNet specification AS-i: according to AS-i specification	
AS-i cycle time	150 μs*(Number of slaves + 1)	
Displays		
LCD	Displaying AS-i slave addresses and error messages	
LED green (power)	DeviceNet voltage OK	
LED green/red (MNS)	Module/Net status	
LED red (config error)	Configuration error	
LED green (U AS-i)	AS-i voltage OK	
LED green (AS-i active)	AS-i in normal operation	
LED green (prg enable)	Automatic address programming enabled	
LED yellow (prj mode)	Configuration mode active	
Push-buttons	4	
Voltage of insulation	≥ 500 V	
EMC directions	EN 50082, EN 50081	
Operating temperature	0°C … +55°C	
Storage temperature	-15°C … +70°C	
Housing	Housing for DIN-rail mounting, LDG-A-30	
Dimensions (L, W, H)	75 mm, 100 mm, 110 mm	
Protection category (DIN 40 050)	Housing IP40 Terminals IP20	

Accessories:

- DeviceNet Master Simulator (Article no. BW1255, see page 162)
- Transmission cords for AS-i/CAN Gateways (Article no. BW1226, see page 146)
- Software AS-i Control Tools (Article no. BW1203, see page 62)

AS-i/CANopen Gateway

AS-i Gateway to CANopen

1 or 2 AS-i Masters

AS-i Scope function

New AS-i Specification 2.1

CE

AS-i-Master/Gateways/
Links/Scanner

AS-i Slaves

AS-i Accessories/
Diagnostics/Development

Other Fieldbuses/
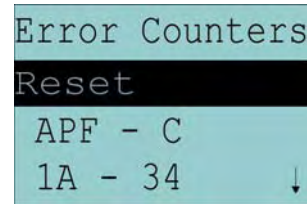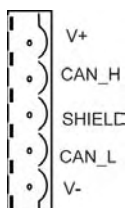Master Simulators

AS-i Safety

Price Lists

Function

The AS-i/CANopen-Gateway serves to connect the AS-i to a superordinate CANopen. The Gateway acts as a complete Master for the AS-i and as a slave for the CANopen.

AS-i Specification 2.1

The AS-i/CANopen-Gateways already fulfil the AS-i Specification 2.1. This means:

- Up to 62 AS-i slaves can be connected per 1 AS-i network
- The transfer of analog signals via AS-i is integrated in the Masters
- All further functions of the new specification as e. g. the diagnosis of the AS-i peripheral fault are implemented.

AS-i Scope Function

Diagnostics, which go far beyond the standard diagnostics facilitate the simple detection of the occassionally occuring configuration errors and further irritations towards the AS-i communication. So in case of an error the down time of machines can be minimized or you can initiate preventive maintenance.

Commissioning and Monitoring

The AS-i/CANopen Gateways can be commissioned with the help of the software "AS-i Control Tools" in combination with the CANopen Master Simulator. The EDS file is included in the package.

Commissioning, debugging and setting up of the AS-i parameters without the software can only be accomplished with the use of two push-buttons, the display and the LEDs directly on the system.

Gateways with Graphical Display

The AS-i Gateways with Graphical Display are a high-end solution to link AS-i with a superior CANopen system.

Simple and Fast Commissioning

Using the AS-i Gateway with Graphical Display, the entire AS-i network can be commissioned and the connected periphery can be completely tested without CANopen Master. The new interactive graphic display also enables the user to complete all tasks which previously required the "AS-i Control Tools" software package. This allows for simpler and faster commissioning.

Addressing Unit within the AS-i Master

With the help of the new graphical display, the hand held unit is now obsolete. The slaves can now be easily addressed directly on the gateway. Slaves with extended address mode are detected automatically and are used only when allowed. This ensures that no two AS-i slaves with the same address will be on the same network.

Testing of Connected Periphery without Additional Test Tools

Once the AS-i is put into operation, the cabling and the connected sensors and actuators can be tested, inputs can be read and outputs can be set and even analog sensors and actuators can be checked just using the Gateway with Graphical Display.

On-board Diagnostics:
Configuration Fault, Periphery Fault

At a glance, the display shows the configuration faults (missing slave, additional slave detected, wrong slave type) as well as periphery faults, such as a short circuit at a sensor cable. This allows the user to get the proper information to solve the problem in the shortest amount of time.

AS-i Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

Detection of Occasional Faults

A list of slaves, which have previously caused an error, is also available through the graphical display. This can be very helpful in solving problems.

```
Reset                    ↑
  APF-    |   1A-x
  2A-     |   3A-
  4A-x    |   5A  ↓
```

Scope Functions shown on the Display

While strange phenomena can occur as the AS-i gets to its limits (e. g. cable length >100 m, EMC problems), the AS-i Gateway with Graphical Display has on-board diagnostic tools. With the help of the AS-i error counters the user can easily check the qual-ity of AS-i communications. The user can then test the impact of any actions taken.

```
Error Counters
Reset
  APF - C
  1A - 34        ↓
```

Accessories:

- CANopen Master Simulator (Article no. BW1186, see page 163)
- Transmission cords for AS-i/CAN Gateways (Article no. BW1226, see page 146)
- Software AS-i Control Tools (Article no. BW1203, see page 62)

AS-i-Master/Gateways/
Links/Scanner

AS-i Slaves

AS-i Accessories/
Diagnostics/Development

Other Fieldbuses/
Master Simulators

AS-i Safety

Price Lists

AS-i/CANopen Gateway

**Bihl
+Wiedemann**

Automatisierungstechnik

AS-i Gateway to CANopen

1 or 2 AS-i Masters

**AS-i Master
CANopen slave**

Advanced AS-i diagnostics

AS-i Scope function

AS-i Specification 2.1

V+
CAN_H
SHIELD
CAN_L
V–

Graphical display, Spec. 2.1	Art. no. BW1448	Art. no. BW1449
Operating current	Power supply A Approx. 200 mA out of AS-i	Master power supply A with plug connectors: Approx. 200 mA out of AS-i circuit 1 Approx. 70 mA out of AS-i circuit 2 without plug connectors: Approx. 150 mA out of power supply Approx. 70 mA out of AS-i circuit 1 Approx. 70 mA out of AS-i circuit 2
Operating voltage	AS-i voltage 30 V DC	24 V DC (18-31,6 V DC)
Terminals	CANopen: according to the DeviceNet specification AS-i: according to AS-i specification	
AS-i cycle time	150 µs*(Number of slaves + 1)	
CANopen-Features	Extended boot-up, minimum boot-up, life guarding COB ID Distribution DBT, SDO, Default Node ID Distribution SDO, Switch No of PDOs up to 70 Rx, 70 Tx PDO Modes async, cyclic, acyclic Device Profile CiA DS-301	
Displays		
LCD	Displaying AS-i slave addresses and error messages	
LED green (power)	CANopen voltage OK	
LED green/red (MNS)	Module/Net status	
LED red (config error)	Configuration error	
LED green (U AS-i)	AS-i voltage OK	
LED green (AS-i active)	AS-i in normal operation	
LED green (prg enable)	Automatic address programming enabled	
LED yellow (prj mode)	Configuration mode active	
Push-buttons	4	
Voltage of insulation	≥ 500 V	
EMC directions	EN 50082, EN 50081	
Operating temperature	0°C … +55°C	
Storage temperature	-15°C … +70°C	
Housing	Housing for DIN-rail mounting, LDG-A-30	
Dimensions (L, W, H)	75 mm, 100 mm, 110 mm	
Protection category (DIN 40 050)	Housing IP40 Terminals IP20	

Accessories:

• CANopen Master Simulator (Article no. BW1186, see page 163)

• Transmission cords for AS-i/CAN Gateways (Article no. BW1226, see page 146)

• Software AS-i Control Tools (Article no. BW1203, see page 62)

AS-i/CANrho Gateway

AS-i Master/Gateways/
Links/Scanner

AS-i Slaves

AS-i Accessories/
Diagnostics/Development

Other Fieldbuses/
Master Simulators

AS-i Safety
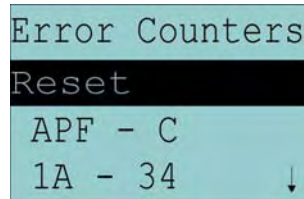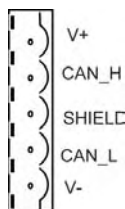
Price Lists

AS-i Gateway to CANrho

**AS-i Master
128 bit digital
I/O-module for
CANrho**

AS-i diagnostics

n.c.
CAN_H
SHIELD
CAN_L
n.c.
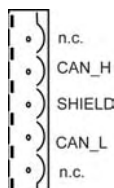
Function

The AS-i/CANrho Gateway serves to connect the Actuator-Sensor-Interface to a hierarchically higher CANrho system. The Gateway acts as a complete Master for the AS-i and as a 128 bit digital I/O module for CANrho.

As with all Masters of Bihl+Wiedemann, commissioning, debugging and setting up of the AS-i parameters can be accomplished with the use of two push-buttons, the LCD display and the LEDs.

| Article no.	BW1174
Operating current	Master power supply A Approx. 200 mA out of the AS-i circuit
Operating voltage	AS-i voltage 30 V DC
Terminals	CANrho: according to DeviceNet specification (5 pol. Combicon socket) AS-i: according the specification
Baud rates	125 KBaud, 250 KBaud, 500 KBaud, 1 MBaud
AS-i cycle time	150 μs*(Number of slaves + 1)
Displays	
LCD	Displaying slave addresses and error messages
LED green (power)	Power on
LED green/red (MNS)	Module/Net status
LED red (config error)	Configurations error
LED green (U AS-i)	AS-i voltage OK
LED green (AS-i active)	AS-i normal operation active
LED green (prg enable)	Automatic address programming enabled
LED yellow (prj mode)	The Master is in configuration mode
Push-buttons	2 (mode/set)
Voltage of insulation	$\geq$ 500 V
EMC directions	EN 50082, EN 50081
Operating temperature	0°C … +55°C
Storage temperature	-25°C … +85°C
Housing	Housing for DIN-rail mounting
Dimensions (L, W, H)	75 mm, 100 mm, 110 mm
Protection category (DIN 40 050)	Housing IP40 Terminals IP20
Weight	420 g
AS-i Specification	2.0

AS-i/InterBus Gateway

AS-i Gateways to InterBus

**Remote bus
in protection class IP65**

**Easy configuration
with CMD by
Phoenx Contact**

Advanced AS-i diagnostics

Remote bus

CE

Function

The AS-i/InterBus Gateway serves to connect the Actuator-Sensor-Interface to the InterBus. The Gateways acts as a complete Master for the AS-i and as a slave for InterBus.

The high protection category IP65 of the AS-i/InterBus Gateway as remote bus slave makes the device suitable for applications in the extreme industrial environments frequently encountered in the field. AS-i is connected using the penetration technique of EMS (Electromechanical Interface). InterBus is connected with heavy gauge terminals.

Commissioning, debugging and setting up of the AS-Interface parameters can be accomplished with the use of two push-but-

tons, the display and the LEDs directly on the system as with all AS-i Masters of Bihl+Wiedemann. It is also possible to do the configuration of AS-i with the CMD software. Advanced diagnostics to detect occasional occurring errors and judge the quality of the AS-i communication can be executed as well with the CMD software.

The Gateway transmits the AS-i I/O data and AS-i flags cyclically within 9 InterBus words of the process data channel. All AS-i functions can be called up via PCP objects.

InterBus module error can be configured to be caused by AS-i configuration error or AS-i power fail.

Article no.	BW1127
Connections	AS-i: electromechanical interface (penetration technique) InterBus: heavy gauge terminals and clamp terminal blocks
InterBus interface	InterBus Remote Bus
Operating current	Master power supply A, approx. 200 mA out of AS-i circuit
Operating voltage	AS-i voltage 30 V DC
AS-i cycle time	150 μs*(Number of slaves + 1)
Displays	
Display	AS-i slave addresses and error messages
LED green (UL)	Power on
LED green (CC)	Cable check
LED red (config error)	Configuration error
LED green (U AS-i)	AS-i voltage OK
LED green (AS-i active)	AS-i normal operation active
LED green (prg enable)	Automatic address programming ebabled
LED yellow (prj mode)	The master is in configuration mode
LED green (BA)	InterBus acktive
LED green (TR)	PCP active
LED red (RD)	Remote out is switched off
Push-buttons	2 (mode/set)
Voltage of insulation	$\geq$ 500 V
EMC directions	EN 50082, EN 50081
Operating temperature	0°C … +55°C
Storage temperature	-25°C … +85°C
Housing	
Dimensions (L, W, H)	90 mm, 80 mm, 70 mm
Protection category (DIN 40 050)	Housing IP65
Weight	355 g
AS-i Specification	2.0

Connection of InterBus (remote bus) interface on terminal block and arrangement on circuit board

1	/DI2
2	DI2
3	Shield
4	FE
5	Shield
6	DO1
7	/DO1
8	/DO2
9	DO2
10	GND_D2
11	
12	GND_D1
13	/DI1
14	DI1

Buttons
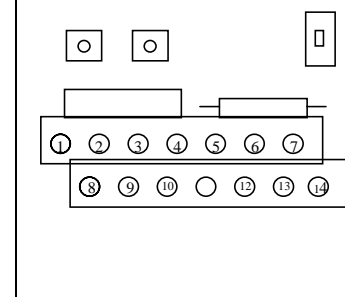
AS-i-Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

AS-i/CC-Link Gateway

**AS-i/CC-Link Gateway
in Protection Class IP65**

Powered by AS-i

Advanced AS-i diagnostics

For Specification 2.1	Art. no. BW1435
For Specification 2.0	**Art. no. BW1172**
Connections	AS-i: electromechanical interface (penetration technique) CC-Link: heavy gauge terminals and screw terminal blocks
Operating current	Master power supply A, approx. 200 mA out of the AS-i circuit
Operating voltage	AS-i voltage 30 V DC
CC-Link interface	According to CC-Link specification
Baud rates	156 KBps up to 10 MBps
Type	Remote Device
Occupied stations	3
CC-Link functions	Imaging of the AS-i slaves as RW data on CC-Link. Complete diagnosis and configuration via CC-Link
AS-i cycle time	150 µs*(Number of slaves + 1)
Displays	
LCD	AS-i slave addresses and error messages. CC-Link baud rate and station number
LED green (PW)	Power on
LED green (L RUN)	CC-Link Run LED
LED red (L ERR)	CC-Link Error LED
LED green (SD)	CC-Link Send Data LED
LED green (RD)	CC-Link Receive Data LED
LED red (CONF ERR)	Configuration error
LED green (U AS-i)	AS-i voltage OK
LED green (AS-i ACTIVE)	AS-i normal operation active
LED green (PRG ENABLE)	AS-i Automatic address programming enabled
LED yellow (PRG MODE)	AS-i Master is in configuration mode
Push-buttons	2 (mode/set)
Voltage of insulation	≥ 500 V
EMC directions	EN 50082, EN 50081
Operating temperature	0°C … +55°C
Storage temperature	-25°C … +85°C
Housing	
Dimensions (L, W, H)	90 mm, 80 mm, 70 mm
Protection category (DIN 40 050)	Housing IP65
Weight	355 g

Connection of CC-Link interface on screw terminal block and arrangement on circuit board

1	FG
2	SLD
3	DG
4	DA
5	DB
6	FG
7	SLD
8	DG
9	DA
10	DB

Termination resistor:
To be removed if module is not at the end of the line

buttons

mode ● ● set

1 2 3 4 5
6 7 8 9 10

screw terminal block

AS-i Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

AS-i/LON Gateway

Bihl
+Wiedemann
• • •

Automatisierungstechnik
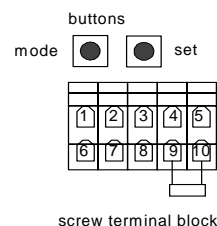
AS-i Gateway to LON
in Protection Class IP65

Powered by AS-i

Advanced AS-i diagnostics

CE

Function

The AS-i/LON Gateway serves to connect the Actuator-Sensor-Interface to a hierarchically higher LON system. The Gateway acts as a complete Master for the AS-i. All AS-i functions can be called via LON variables.

As with all Masters of Bihl+Wiedemann, commissioning, debugging and setting up of the AS-i parameters can be accomplished with the use of two push-buttons, the LCD display and the LEDs directly on the system.

Article no.	BW1237
Connections	AS-i: according to AS-i specification LON: heavy gauge terminals and cage clamp terminal blocks
Operating current	Master power supply A, approx. 200 mA out of AS-i circuit
Operating voltage	AS-i voltage 30 V DC
Baud rates	62,5 KBaud, 375 KBaud
AS-i cycle time	150 μs*(Number of slaves + 1)
Displays	
LCD	AS-i slave addresses and error messages
LED green (power)	Power on
LED green (BUS active)	Communication via LON
LED red (config error)	Configuration error
LED green (U AS-i)	AS-i voltage OK
LED green (AS-i active)	AS-i normal operation active
LED green (prg enable)	Automatic address programming enabled
LED yellow (prj mode)	The Master is in configuration mode
Push-buttons	2 (mode/set)
Voltage of insulation	$\geq$ 500 V
EMC directions	EN 50082, EN 50081
Operating temperature	0°C … +55°C
Storage temperature	-25°C … +85°C
Housing	Housing for DIN-rail mounting
Dimensions (L, W, H)	90 mm, 80 mm, 70 mm
Protection category (DIN 40 050)	Housing IP65
Weight	355 g
AS-i Specification	2.1

Connections

1	Net A
2	Net B
3	Net A
4	Net B

buttons

mode set   service

Screw terminal block

AS-i Slaves

AS-i Accessories/
Diagnostics/Development

Other Fieldbuses/
Master Simulators

AS-i Safety

Price Lists

AS-i Master/Gateways/
Links/Scanner

AS-i Slaves

AS-i Accessories/
Diagnostics/Development

Other Fieldbuses/
Master Simulators

AS-i Safety

Price Lists

AS-i/Modbus Plus Gateway

Automatisierungstechnik

**AS-i Gateway
to Modbus Plus**

**AS-i Master
Modbus Plus node**

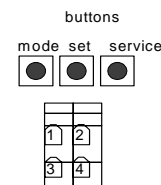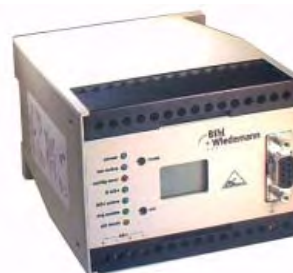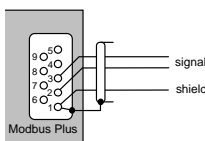**Advanced AS-i diagnostics**

Function

The AS-i/Modbus Plus Gateway serves to connect the Actuator-Sensor-Interface to a hierarchically higher Modbus Plus network. The Gateway acts as a complete Master for the AS-i and as a node for Modbus Plus. All AS-i functions can be called via the Modbus Plus network. As with all Masters of Bihl+Wiedemann, commissioning, debugging and setting up of the AS-i parameters can be accomplished with the use of two push-buttons, the LCD display and the LEDs directly on the system, but it can also be handled via Modbus Plus. Advanced AS-i diagnostics allows to detect occasional occurring configuration errors and to judge the quality of the AS-i communication are implemented.

Specification 2.1	Art. no. BWU1583	--
Specification 2.0	**Art. no. BW1090**	**Art. no. BW1091**
Operating current	Master power supply A Approx. 200 mA out of AS-i circuit	Master power supply N Approx. 70 mA out of the AS-i circuit Approx. 150 mA at 18 V DC out of power supply
Operating voltage	AS-i voltage 30 V DC	24 V DC (18-31,6 V DC)
Serial interface	Modbus Plus	
Baud rates	1 MBit/s	
AS-i Master profile	M1	
AS-i cycle time	150 μs*(Number of Slaves + 1)	
Displays		
LCD	Displaying slave addresses and error messages	
LED green (power)	Power on	
LED green (Modbus Plus)	Network Indicator (diagnosis LED)	
LED red (config error)	Configuration error	
LED green (U AS-i)	AS-i voltage OK	
LED green (AS-i active)	AS-i normal operation active	
LED green (prg enable)	Automatic address programming enabled	
LED yellow (prj mode)	The Master is in configuration mode	
Push-buttons	2 (mode/set)	
Voltage of insulation	≥ 500 V	
EMC directions	EN 50082, EN 50081	
Operating temperature	0°C … +55°C	
Storage temperature	-25°C … +85°C	
Housing	Housing for DIN-rail mounting	
Dimensions (L, W, H)	75 mm, 100 mm, 110 mm	
Protection category (DIN 40 050)	Housing IP40 Terminals IP20	

Overview AS-i Masters OEM Modules/PC Boards

Housing	Master/Module	Art. No.	Characteristic	P.
	AS-i 3.0 Ethernet Gateway in Stainless Steel	BWU1651	2 AS-i Masters, Modbus over Ethernet	49
	AS-i Control/AS-i Master		interfaces RS 232, RS 485 or RS 422	50
		BW1276	AS-i 2.1, protection category IP65	
		BW1105	AS-i 2.0, protection category IP65	
	AS-i 3.0 PCI Board	BW1922	AS-i 3.0 Double Master with advanced diagnostics	54
		BW1911	AS-i 3.0 Compact PCI Double Master	
		BW1195	AS-i 2.1 Double Master without AS-i 7.4 analog profile	
	AS-i PC2	BW1228	AS-i 2.1	55
		BW1081	AS-i 2.0	
	AS-i PC104	BW1229	AS-i 2.1	56
		BW1065	AS-i 2.0	
	AS-i Master M-Modul	BW1230	AS-i 2.1	57
		BW1066	AS-i 2.0	
	AS-i Master OEM Module	BW1670	for use together with the Evaluation Kit BW1565	58
		BW1588	for AS-i 2.1 for customer applications	
		BW1554	sample for different options	
	Evaluation Kit for the AS-i Master OEM Module	BW1365	easy configuration of the AS-i Master OEM Module	59

AS-i-Master/Gateways/Links/Scanner

AS-i Slaves

AS-i Accessories/Diagnostics/Development

Other Fieldbuses/Master Simulators

AS-i Safety

Price Lists

AS-i Masters for PC based Automation

The whole Technology around the PC systems (hardware and software) has been turning more powerful with falling prices. This is one reason why PC based systems have been used in growing figures, also in industrial automation. Many possibilities to use a PC in combination with soft PLCs, to write own application software in C, C++, Pascal, Delphi, Visual Basic etc., or to use visualization packages are indications that AS-i has been used in combination with PC based automation. Especially in that field Bihl+Wiedemann offers the all common hard- and software interfaces for PC based automation. For each problem the right AS-i master solution.

For the direct integration of AS-i Masters into PC systems Bihl+Wiedemann offers AS-i Masters with

- **PCI-Bus interface with 2 AS-i Masters,**
- **ISA-Bus interface** or as
- **PC/104-Modul.**

These cards have got the PLC functionality "AS-i Control" (Fast Logic) on board. While the AS-i Master controls the AS-i network the full resources of the computer can be used for visualization or other applications.

Further AS-i Masters to interface a PC are the AS-i Masters with serial interface and the Gateway between AS-i and Ethernet TCP/IP. The AS-i/Ethernet TCP/IP Gateway is an easy to use device to link the AS-i directly to the company network. While the Gateway is located near the application, the PC remains in the room with the master display. As fieldbus application layer Modbus is used. Other protocols can be implemented on request.

Bihl+Wiedemann provides all common drivers for AS-i Masters: OPC server, NT driver, 16 bit and 32 bit dll drivers, etc. free of charge in the internet. In this way there is no need for a timeconsuming licensing procedure with key disks etc. The newest drivers can be downloaded on 24 hours a day, 365 days a year. It does not matter where problems occur with the use of the homepage users can ensure that they have got the right drivers.

Embedded AS-i Masters: AS-i Master OEM Module

The AS-i Master OEM module is ideal for integration in specific electronics. The AS-i Master OEM module fullfills the new AS-i specification 2.1 and supports all new AS-i functions. Additionally the new OEM module is supporting all AS-i master specialities of Bihl+Wiedemann as the special AS-i safety diagnostics, AS-i analyser functions etc.

AS-i 3.0 Ethernet TCP/IP Gateway

2 AS-i Masters

Advanced AS-i diagnostics

AS-i-Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

Function

The AS-i 3.0 Ethernet TCP/IP Gateway serves to connect the Actuator-Sensor-Interface to a hierarchically higher Ethernet. The Gateway acts as 2 complete Masters for the AS-i and as a 256 bit digital I/O module per AS-i network for Ethernet. Modbus is used as fieldbus application layer. All possibilities offered by AS-i can be used via Ethernet TCP/IP. During operation AS-i parameters can be transmitted to the AS-i slaves.

As with all Masters of Bihl+Wiedemann, commissioning, debugging and setting up of the AS-i parameters can be accomplished with the use of two push-buttons, the LCD display and the LEDs directly on the system, but it can also be handled via Ethernet TCP/IP. Other communication protocols (e. g. ProfiNet, EthernetIP) are on offer.

Article no.	BWU1651
Operating current	Approx. 200 mA out of AS-i circuit 1 Approx. 70 mA out of AS-i circuit 2
Operating voltage	24 V DC (18-31,6 V DC)
Ethernet TCP/IP interface	according to IEEE 802.3, 10BaseT, (RJ-45 connector)
Baud rates	10/100 MBaud
AS-i cycle time	150 μs*(number of slaves+ 2)
Displays	
LCD	Displaying slave addresses and error messages
LED green (power)	Power on
LED green (ser active)	Ethernet network active
LED red (config error)	Configuration error
LED green (U AS-i)	AS-i voltage OK
LED green (AS-i active)	AS-i normal operation active
LED green (prg enable)	Automatic address programming enabled
LED yellow (prj mode)	The Master is in configuration mode
Push-buttons	4
Voltage of insulation	$\geq$ 500 V
EMC directions	EN 50082, EN 50081
Operating temperature	0°C … +55°C
Storage temperature	-25°C … +85°C
Housing	AS-i master housing in stainlees steel
Dimensions (L, W, H)	120 mm, 75 mm, 83 mm
Protection category DIN 40 050	IP20
AS-i specification	AS-i 3.0 from Ident. no. 11866 (see lateral Label)

Accessories:

- Software AS-i Control Tools serial cable for AS-i master in stainlees steel (art. no. BW1602)
- Cross-Link cable (Article no. BW1304)

AS-i Control - AS-i Master

AS-i Master with serial Interface

1 or 2 AS-i Masters

With Mini-PLC "AS-i Control"

RS 232C, RS 485 or RS 422 interface

Advanced AS-i diagnostics

IP20   **IP65**

Function

The AS-i Masters with serial interface and with Mini-PLC serve to control an AS-i circuit as a stand-alone device or can be connected to a host via the serial interface. All AS-i functions can be called via the serial interface. The AS-i data can be transmitted by using the B+W protocol with a high transfer rate. With a rate of 57600 Baud short cycle times for the data exchange via the serial interface can be realized. There are AS-i Masters without mini-PLC on offer as well.

AS-i Specification 2.1

The AS-i Masters already fulfil the AS-i Specification 2.1. This means:

- Up to 62 AS-i slaves can be connected to each AS-i network.
- The transfer of analog signals via AS-i is integrated in the Masters.
- All further functions of the new specification as e. g. the diagnosis of the AS-i peripheral fault are implemented.

The AS-i Masters according to AS-i Specification 2.0 are still available.

Advanced Diagnostics

Diagnostics, which go far beyond the standard diagnostics facilitate the simple detection of the occassionally occuring configuration errors and further irritations towards the AS-i communication. So in case of an error the down time of machines can be minimized or you can initiate preventive maintenance.

Two sorts of housing

The devices can be delivered in a housing for cabinet mounting or in a field housing in IP65.

The gateways for cabinet mounting can be chosen to link one or two AS-i networks to the host.

The handling of AS-i Control in IP65 is identically with AS-i Control in IP20 with RS 485 interface. The high protection category IP65 makes the device suitable for applications in the extreme industrial environments frequently encountered in the field. AS-i is connected using the penetration technique of EMS (Electromechanical Interface). RS 485 is connected with heavy gauge terminals and cage clamp terminal blocks.

Commissioning

The AS-i Masters with serial interface can be commissioned respectively programmed with the help of the software "AS-i Control Tools".

Commissioning, debugging and setting up of the AS-i parameters can be accomplished without software just with the use of two push-buttons, the display and the LEDs directly at the device.

Accessories

- "AS-i Control Tools" (art. no. BW1203, see page 62)
- RS 232/RS 485 converter (art. no. BW1094, see page 164)
- D-Sub-data cable (art. no. BW1058, art. no. 1097)

RS 232C	RS 485	RS 422
GND, TxD, RxD — RS232C	B, A — RS485	Z, Y, B, A — RS422

AS-i Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

AS-i Control - AS-i Master

**Bihl
+ Wiedemann**
...

Automatisierungstechnik
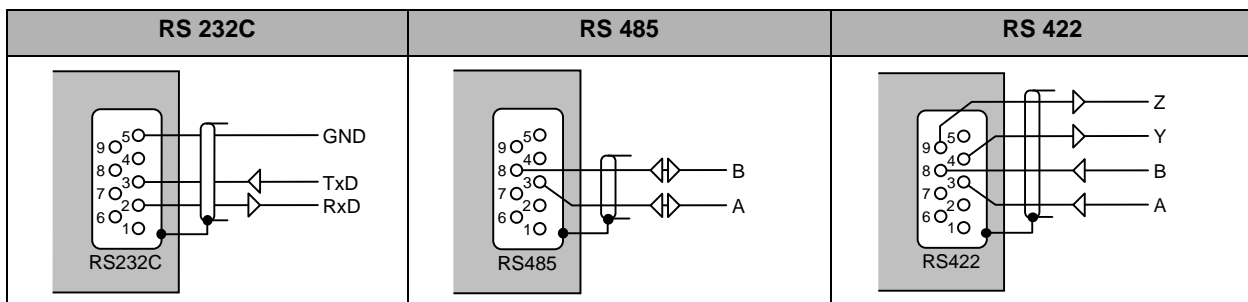
AS-i Master with serial Interface

**With
Mini-PLC "AS-i Control"**

**B+W protocol
for communication
with the host**

Advanced AS-i diagnostics

C E

For Specification 2.1						
Article no. (with Mini-PLC)	**BW1247**	**BW1263**	**BW1265**	**BW1248**	**BW1264**	**BW1266**
Article no. (without Mini-PLC)	**BW1198**	**BW1267**	**BW1269**	**BW1199**	**BW1268**	**BW1270**
Serial interface	RS 232C	RS 485	RS 422	RS 232C	RS 485	RS 422
Operating current	Master power supply A Approx. 200 mA out of the AS-i circuit			Master power supply N Approx. 70 mA out of the AS-i circuit Approx. 150 mA out of power supply		
Operating voltage	AS-i voltage 30 V DC			24 V DC (18-31,6 V DC)		
Baud rates	1200, 2400, 4800, 9600, 19200, 38400 or 57600 Baud, automatic recognition					
AS-i cycle time	150 μs*(Number of slaves + 1)					
Displays						
LCD	Displaying slave addresses and error messages					
LED green (power)	Power on					
LED green (ser active)	Communication via serial interface					
LED red (config error)	Configuration error					
LED green (U AS-i)	AS-i voltage OK					
LED green (AS-i active)	AS-i normal operation active					
LED green (prg enable)	Automatic address programming enabled					
LED yellow (prj mode)	The Master is in configuration mode					
Push-buttons	2 (mode/set)					
Voltage of insulation	$\geq$ 500 V					
EMC directions	EN 50082, EN 50081					
Operating temperature	0°C … +55°C					
Storage temperature	-25°C … +85°C					
Housing	Housing for DIN-rail mounting					
Dimensions (L, W, H)	75 mm, 100 mm, 110 mm					
Protection category (DIN 40 050)	Housing IP40 Terminals IP20					
Tolerable loading referring to impacts and vibrations	Screw-mounting: b $\leq$ 30 g, T $\leq$ 11 ms Spring lock-mounting: b $\leq$ 15 g, T $\leq$ 11 ms Screw-mounting: f $\leq$ 55 Hz, a $\leq$ 1 mm Spring lock-mounting: f $\leq$ 55 Hz, a $\leq$ 0,5 mm					
Weight	420 g					

AS-i Slaves

AS-i Accessories/
Diagnostics/Development

Other Fieldbuses/
Master Simulators

AS-i Safety

Price Lists

AS-i Master/Gateways/
Links/Scanner

AS-i Slaves

AS-i Accessories/
Diagnostics/Development

Other Fieldbuses/
Master Simulators

AS-i Safety

Price Lists

AS-i Control - AS-i Master

Bihl +Wiedemann

Automatisierungstechnik

AS-i Master with serial Interface

2 AS-i Masters

With Mini-PLC "AS-i Control"

B+W protocol for communication with the host

Advanced AS-i diagnostics

Masterpower supply N:
only
1 Master + 1 AS-i power supply for 2 AS-i networks

CE

Article no. (with Mini-PLC)	BW1147	BW1148	BW1149	BW1150	BW1151	BW1152
Article no. (without Mini-PLC)	BW1135	BW1136	BW1137	BW1138	BW1139	BW1140
Serial interface	RS 232C	RS 485	RS 422	RS 232C	RS 485	RS 422
Operating current	Master power supply A with plug connectors: Approx. 200 mA out of the AS-i circuit 1 Approx. 70 mA out of the AS-i circuit 2 without plug connectors: Approx. 150 mA out of power supply Approx. 70 mA out of each AS-i circuit			Master power supply N Approx. 150 mA out of power supply Approx. 70 mA out of the AS-i circuit 1 Approx. 70 mA out of the AS-i circuit 2		
Operating voltage	AS-i voltage 30 V DC			24 V DC (18-31,6 V DC)		
Baud rates	1200, 2400, 4800, 9600, 19200, 38400 or 57600 Baud, automatic recognition					
AS-i cycle time	150 μs*(Number of slaves + 1)					
Displays						
LCD	Displaying slave addresses and error messages					
LED green (AS-i 1/AS-i 2)	Display of AS-i network 1 / AS-i network 2					
LED green (ser active)	Communication via the serial interface					
LED red (config error)	Configuration error					
LED green (power)	Power on					
LED green (U AS-i)	AS-i voltage OK					
LED green (prg enable)	Automatic address programming enabled					
LED yellow (prj mode)	The Master is in configuration mode					
Push-buttons	2 (mode/set)					
Voltage of insulation	$\geq$ 500 V					
EMC directions	EN 50082, EN 50081					
Operating temperature	0°C … +55°C					
Storage temperature	-25°C … +85°C					
Housing	Housing for DIN-rail mounting					
Maße (L, B, H)	75 mm, 100 mm, 110 mm					
Protection category (DIN 40 050)	Housing IP40 Terminals IP20					
Tolerable loading referring to impacts and vibrations	Screw-mounting: b $\leq$ 30 g, T $\leq$ 11 ms Spring lock-mounting: b $\leq$ 15 g, T $\leq$ 11 ms Screw-mounting: f $\leq$ 55 Hz, a $\leq$ 1 mm Spring lock-mounting: f $\leq$ 55 Hz, a $\leq$ 0,5 mm					
Weight	420 g					
AS-i Specification	2.0					

AS-i Control - AS-i Master

Bihl + Wiedemann

Automatisierungstechnik

AS-i-Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

AS-i Master in Protection Class IP65

With
Mini-PLC "AS-i Control"

B+W protocol for
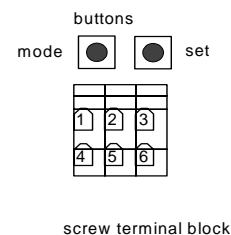**communication with the host**

Advanced AS-i diagnostics

Powered by AS-i

For Specification 2.1	Article no. BW1276
For Specification 2.0	**Article no. BW1105**
Connections	AS-i: electromechanical interface (penetration technique)
Serial interface	RS 485, with heavy gauge terminals and cage clamp terminals
Operating current	Master power supply A, approx. 200 mA out of the AS-i circuit
Operating voltage	AS-i voltage 30 V DC
Baud rates	1200, 2400, 4800, 9600, 19200, 38400 or 57600 Baud, automatic recognition
AS-i cycle time	150 μs*(Number of slaves + 1)
Displays	
LCD	AS-i slave addresses and error messages
LED green (power)	Power on
LED green (Bus active)	Communication via serial interface / control program active
LED red (config error)	Configuration error
LED green (U AS-i)	AS-i voltage OK
LED green (AS-i active)	AS-i normal operation active
LED green (prg enable)	Automatic slave programming enabled
LED yellow (prj mode)	The Master is in configuration mode
Push-buttons	2 (mode/set)
Voltage of insulation	$\geq$ 500 V
EMC directions	EN 50082, EN 50081
Operating temperature	0°C … +55°C
Storage temperature	-25°C … +85°C
Housing	Housing for DIN-rail mounting
Dimensions (L, W, H)	90 mm, 80 mm, 70 mm
Protection category (DIN 40 050)	Housing IP65

Connection of serial interface (RS 485) on cage clamp terminals and arrangement on circuit board

1	PE
2	Shield
3	BUS A
4	BUS B
5	Gnd
6	PE
7	Shield
8	BUS A
9	BUS B
10	+5V

buttons
mode ● ● set

1	2	3
4	5	6

screw terminal block

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AS-i Master/Gateways/
Links/Scanner

AS-i Slaves

AS-i Accessories/
Diagnostics/Development

Other Fieldbuses/
Master Simulators

AS-i Safety

Price Lists

AS-i 3.0 PCI Board

Bihl+Wiedemann

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2 AS-i Master on 1 Board

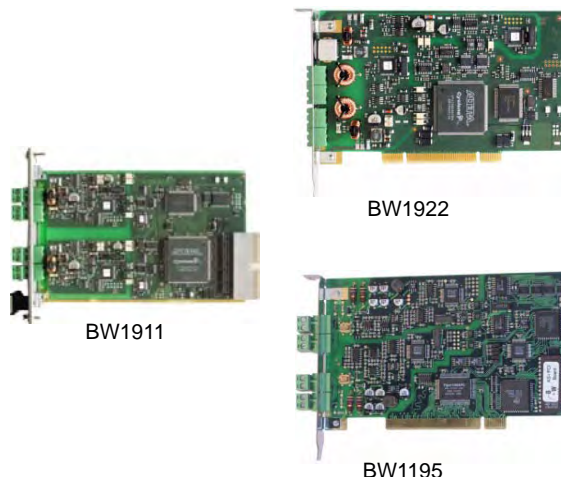## AS-i Master Board (BW1922, BW1195) for AT-PCs with PCI Slots

AS-i 3.0 Master Board (BW1911) for AT-PCs with Compact PCI Slots

Advanced AS-i diagnostics of BW1922:

Recognition of duplicate AS-i addresses

AS-i Earth Fault Detector integrated

AS-i Noise Detector integrated

BW1922

BW1911

BW1195

CE

| Article no. BW1922: AS-i 3.0 Double Master with advanced diagnostics |
| Article no. BW1911: AS-i 3.0 Compact PCI Double Master |
| Article no. BW1195: AS-i 2.1 Double Master without AS-i 7.4 analog profile |

The AS-i PCI Board realizes the functionality of two complete AS-i Masters on a PCI Board. In addition to that an implemented AS-i Control unit performs as a PLC to preprocess the AS-i data on the board (BW1922).

Advanced AS-i diagnostic function for the localization of occasionally occurring configuration errors as well as for the qualitative diagnosis of the AS-i communication are also implemented.

For normal operation there is no need for an PC interrupt, but the AS-i PCI Board is capable to generate interrupts cyclically with every AS-i cycle or leaded by configuration errors or changes in input data.

The DPRAM interface provides an easy integration of the AS-i PCI Board in any operating system (special drivers). The address of the AS-i PCI Board does not have to be adjusted. The AS-i PCI Board works with "Plug and Play". Up to 4 AS-i PCI Masters can be used simultaneously in one PC. The AS-i PCI Board serves the requirements of industrial use.

Article no.	BW1922	BW1911	BW1195
Type	PCI Board	Compact PCI Board	PCI Board
Interface	32 bit PCI Bus interface, 3,3 V/5 V galvanic isolation to AS-i AS-i circuit 1, AS-i circuit 2		32 bit PCI Bus interface, 5 V galvanic isolation to AS-i AS-i circuit 1, AS-i circuit 2
Serial interface	RS 232	–	–
Program memory (EEPROM)	16 KB	–	4 KB
Operating voltage	3,3 V/5 V DC and AS-i voltage		5 V DC and AS-i voltage
Operating current	approx. 300 mA out of 5 V power supply approx. 100 mA out of 3,3 V power supply approx. 70 mA out of AS-i per AS-i circuit		approx. 200 mA out of power supply approx. 70 mA out of AS-i per AS-i circuit
Voltage of insulation	$\geq$ 500 V		
EMC directions	EN 61000-6-2, EN 61000-6-4		
Ambient operating temperature	0°C … +55°C		
Storage temperature	-25°C … +70°C		
AS-i cyle time per AS-i circuit	150 μs*(number of slaves + 2)		
AS-i specification	3.0	3.0	2.1
AS-i master profile	M4	M4	M3
Requirements	IBM compatible PC 80486, PCI		
Connections			

Accessories:
- AS-i Control Tools (Windows) (Art. no. BW1602)
- AS-i power supply 4 A (art. no. BW1649, s. page 137)
- AS-i power supply decoupling unit for 2 AS-i circuits (Art. no. BWU1943, s. page 1)
- DLL drivers for Win 2000 and Win XP; Linux driver
- OPC Server

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AS-i PC2

**AS-i Master Board
for AT-PCs**

AS-i Control function

Watchdog

Advanced AS-i diagnostics

AS-i-Master/Gateways/
Links/Scanner

AS-i Slaves

AS-i Accessories/
Diagnostics/Development

Other Fieldbuses/
Master Simulators

AS-i Safety

Price Lists

Article no. BW1228 for AS-i 2.1

Article no. BW1081 for AS-i 2.0

AS-i PC2 realizes the functionality of a complete AS-i Master on a short PC-board. In addition to that an implemented AS-i Control unit performs as a PLC and an additional watchdog watches breakdowns on your PC system. If used without the AS-i Control the board will work as a pure AS-i Master. While the AS-i PC2 board controls the AS-i network, the full resources of the computer can be used for visualization or other applications. For normal operation there is no need for an interrupt, but the AS-i PC2 card is capable to generate interrupts leaded by events. Only 3 bytes of the I/O area are used. The watchdog can set the Master into the offline phase, if it is not triggered by a PC program. Advanced AS-i diagnostics to detect occasional occurring configuration errors and to judge the quality of the AS-i communication are implemented.

AS-i PC2 uses a DPRAM interface for data exchange. This fact provides an easy embedding of AS-i PC2 in any PC operating system (special drivers). I/O-data is readable all time. Up to 8 AS-i PC2-Boards can be used simultaneously in one PC and can share one interrupt. The board serves the requirements of industrial use.

Article no.	BW1081	BW1228
Type	Short AT-board	
Interface	8-Bit ISA Bus interface, galvanic separation from AS-i	
Operating voltage	5 V DC and AS-i voltage	
Operating current	Approx. 200 mA out of power supply Approx. 70 mA from AS-i	
Voltage of insulation	$\geq$ 500 V	
EMC directions	EN 50082, EN 50081	
Operating temperature	0°C … +55°C	
Storage temperature	-25°C … +70°C	
AS-i cycle time per AS-i circuit	150 μs*(Number of slaves + 1)	
AS-i Specification	2.0	2.1

Requirements:
IBM compatible PC 80286 or higher

Accessories:
AS-i Control Tools (Windows) (Art. no. BW1203)
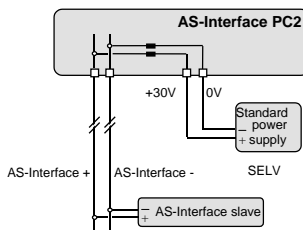
Examples in ANSI C and PASCAL, both with source code

Drivers for: Microsoft C, Borland C
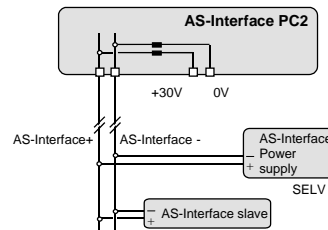
DLL drivers for   Win 3.11
　　　　　　　　Win 95/98
　　　　　　　　Win NT 4.0
　　　　　　　　Win 2000

OPC Server

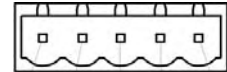AS-i Connections

AS-i powered by a standard power supply

and by an AS-i power supply

AS-i/PC104 Master

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AS-i Master Module
in PC/104 Format

**With
AS-i Control function**

Watchdog

Advanced AS-i diagnostics

AS-i + AS-i - PE AS-i + AS-i -

CE

Article no. BW1229 for AS-i 2.1

Article no. BW1065 for AS-i 2.0

The AS-i/PC104 Master module realizes the functionality of a complete AS-i Master on a PC/104 module (identical functions as AS-i PC2 with ISA-bus interface). In addition to that an implemented AS-i Control unit performs as a PLC and an additional watchdog watches breakdowns of the PC/104 system. While the AS-i/PC104 Master controls the AS-i network, the full resources of the computer can be used for visualization or other applications. Without using the AS-i Control feature the board works as a pure AS-i Master. The activated watchdog sets the Master to the offline phase, if it is not triggered by a PC program. Advanced AS-i diagnostics to detect occasional occurring configuration errors and judge the quality of the AS-i communication are implemented. Normally there is no need for a PC interrupt, but the

AS-i/PC104 module is capable to generate interrupts cyclically with every AS-i cycle or leaded by configuration errors or changes in input data. Several AS-i/PC104 Master modules can share one interrupt.

The AS-i/PC104 Master uses a DPRAM interface for data exchange which reserves only 3 bytes on the PC/104 Bus (ISA-Bus) and provides an easy integration of AS-i/PC104 Masters in any PC operating system (special drivers). The base address of data exchange can be determined via software. Up to 8 AS-i/PC104 modules can be used simultaneously in one PC/104 system. Beside the use in PC/104 systems **this AS-i Master module can be implemented as embedded AS-i Master into specific controllers**.

Article no.	BW1065	BW1229
Type	PC/104 module	
Dimensions (L, W, H)	96 mm, 90 mm, 16 mm	
Interface	8 bit PC/104 interface, 16 bit connector; galvanic separation from AS-i	
Operating voltage	5 V DC and AS-i voltage	
Operating current	Approx. 200 mA out of PC power supply Approx. 70 mA from AS-i	
Voltage of insulation	$\geq$ 500 V	
EMC directions	EN 50082, EN 50081	
Operating temperature	0°C … +55°C	
Storage temperatur	-25°C … +70°C	
AS-i cyle time	150 μs*(Number of slaves + 1)	
AS-i specification	2.0	2.1

Requirements:
IBM compatible PC
PC/104 architecture
80286 or higher

Accessories:
AS-i Control tools (Windows)
(Art. no. BW1203)

Examples ANSI C and PASCAL
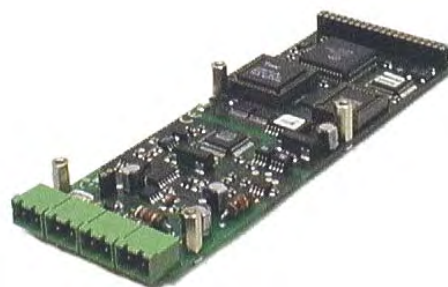both with source code

Drivers for:
Microsoft C, Borland C

DLL drivers for Win 3.11
Win 95/98
Win NT 4.0
Win 2000

OPC Server

AS-i Master M-Module

**AS-i Master Module
with M-Module Interface**

Watchdog

Advanced AS-i diagnostics

CE

Article no. BW1230 for AS-i 2.1
Article no. BW1066 for AS-i 2.0

The AS-i Master M-Module realizes the functionality of a complete AS-i Master on a M-Module (similar functions as AS-i PC2 with ISA-bus interface).

The module is with the VITA standard "M-Module Mezzanine Specification".

The AS-i Master M-Module is supporting the following features:

- Single M-Module
- +5V operating voltage
- no +/-12 V operating voltage
- 8 Bit data bus
- 8 Bit address bus
- Interrupt-capable, Typ A (software-end-of-interrupt)
- AS-i connection through COMBICON connectors on the front
- AS-i signal additional through Pin 23 and 24 of the Peripheral Connectors

The activated watchdog sets the Master to the offline phase, if it is not triggered by a host program. Advanced AS-i diagnostics to detect occasional occurring configuration errors and judge the quality of the AS-i communication are implemented. Normally there is no need for an interrupt, but the AS-i Master M-Module is capable to generate interrupts cyclically with every AS-i cycle or leaded by configuration errors or changes in input data.

The AS-i Master M-Module uses a DPRAM interface for data exchange. The DPRAM interface is consuming 128 words, but only the low bytes are used. The DPRAM interface is easy to use, especially with any operating systems and with different programming languages.

Beside the use in VMEbus or other systems through carrier boards (for example 3U or 6U carrier boards) **this AS-i Master module can be implemented as embedded AS-i Master into specific controllers**.

Article no.	BW1066	BW1230
AS-i specification	2.0	2.1
Type	M-Module	
Dimensions (L, W, H)	150 mm, 53 mm, 14 mm	
Interface	8 bit M-Bus interface; galvanic separation from AS-i	
Operating voltage	5 V DC and AS-i voltage	
Operating current	Approx. 200 mA out of PC power supply Approx. 70 mA from AS-i	
Voltage of insulation	$\geq$ 500 V	
EMC directions	EN 50082, EN 50081	
Operating temperature	0°C … +55°C	
Storage temperature	-25°C … +70°C	
AS-i cycle time	150 μs*(Number of slaves + 1)	

Requirements:
Carrier boards for example 3U or 6U for VME-bus system, Compact PCI etc.

Connections:

AS-i+ AS-i- AS-i+ AS-i- AS-i+ AS-i- AS-i+ AS-i-

AS-i-Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

AS-i Master OEM Module

AS-i Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

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AS-i Master Board as OEM Module

AS-i Master OEM Module for integration in specific electronics

New AS-i Specification 2.1

AS-i Master specialities as AS-i Safety diagnostics, AS-i Analyser functions etc.

Assembly variants optional, please contact us

BW1670   **BW1554**

CE

Article no. BW1670 for use together with the evaluation kit BW1565

Article no. BW1588 for AS-i 2.1 for customer applications

Article no. BW1554 sample for different options

The AS-i Master realizes the functionality of a complete AS-i Master 2.1 on an OEM Module.
The module is supporting the following features:
- +5 V operating voltage
- 8 bit data bus
- 10 bit address bus
- Interrupt-capable
- AS-i connection also at 2.54 mm connection
- Wiring pin 2 x 15 pins 2.54 mm for the DPRAM Interface and serial interface (TTL)
- Optional: AS-i connection through COMBICON connectors on the front (BW1554)

The AS-i Master OEM Module is ideal for integration in specific electronics. The AS-i Master OEM Module fullfills the new

AS-i specification 2.1 and supports all new AS-i functions. Additionally the new OEM Module is supporting all AS-i Master specialities of Bihl+Wiedemann as the special AS-i Safety diagnostics, AS-i Analyser functions etc.
The AS-i Master OEM board BW1588 is the optimal version for use together with the main board of a customer today. AS-i has to be connected by soldering a cable on the board.
BW1670 has additionally 2 wiring pins for the AS-i connection so that this board can be used together with the evaluation kit without any change.
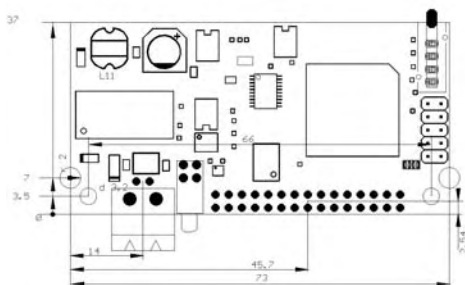BW1554 is showing further possiblities like LEDs, a Combicon for AS-i connection and so on.
Customer-specific special versions are possible on short notice!

Article no.	BW1554/BW1588/BW1670
AS-i Specification	2.1
Type	OEM Module
Dimensions (L, W, H)	73 mm, 37 mm, 14 mm
Weight	25 g
Interface	8 bit bus interface; galvanic separation to AS-i
Operating voltage	5 V DC and AS-i voltage
Operating current	Approx. 100 mA out of power supply Approx. 70 mA from AS-i
Voltage of insulation	$\geq$ 500 V
EMC directions	According EN50081-2, EN61000-6-2, EN50295
Operating temperature	0°C … +55°C
Storage temperature	-25°C … +70°C
Tolerable loading reffering to humidity	According EN 61131-2
Tolerable loading reffering to impacts	According EN 61131-2
Tolerable loading reffering to vibrations	According EN 61131-2
AS-i cycle time per AS-i circuit	150 μs*(Number of slaves + 2)

Accessories:
- Evaluation kit for AS-i Master OEM Module (Art. No. BW1565)
- AS-i Configurator (Windows) "AS-i Control Tools"

Distribución: **ER-SOFT, S.A.** Email: **er@er-soft.com**, Tel: +34 916 408 408

Evaluation Kit for the AS-i Master OEM Module

Bihl +Wiedemann

Automatisierungstechnik

AS-i-Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

**Evaluation Kit for the
AS-i Master OEM Module**

**Easy configuration of the
AS-i Master OEM Module**

CE

Article no. BW1565

The Evaluation Kit for AS-i Master OEM Module serves for easy commissioning of the AS-i OEM Module. On the carrier board there is a 5 Voltage controller and a RS 232 converter, to commu- nicate with the OEM Module via the AS-i Control Tools. Further- more the AS-i line is pinned to a Combicon plug.

With the help of the evualuation kit for the AS-i Master OEM Module the development of an AS-i Master will be very easy.

Technical data	
Interfaces	- AS-i (Combicon plug) - RS 232 for connection to the PC
LED green	Device is powered
Operating current	9 … 15 V DC, pole-protected
Operating voltage	12 V DC out of external power supply and AS-i voltage

Specification:
AS-i Control Tools BW1203,
Data cable BW1058,
12 V power supply

Connections of the RS 232 interface and arrangement on circuit board:
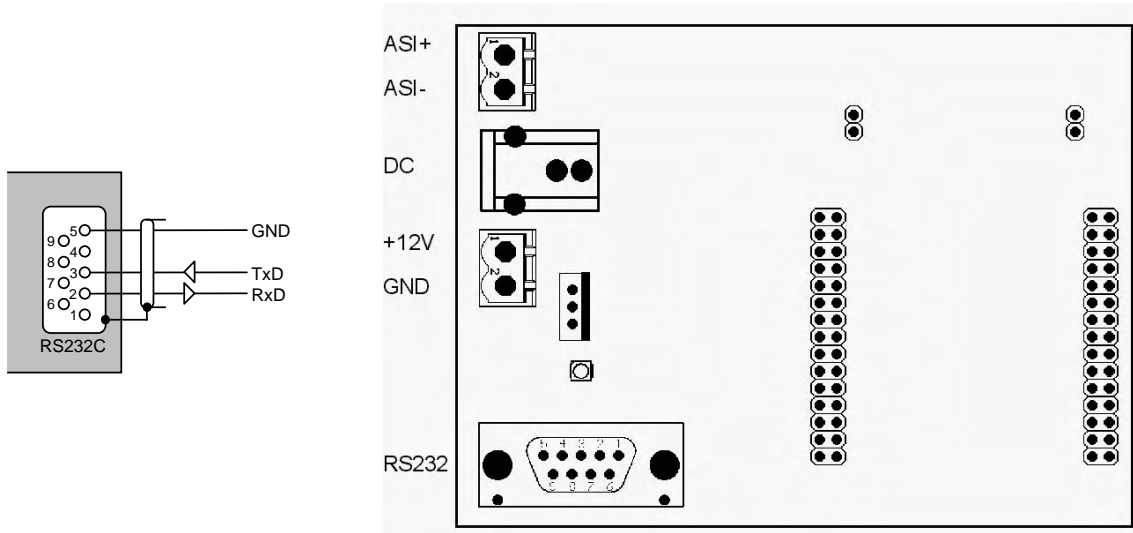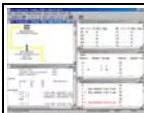
Bihl + Wiedemann

Automatisierungstechnik

Overview Software

	Software	Art. No.	Characteristic	P.
	AS-i Control Tools	BW1602	with serial Cable for AS-i Master in Stainless Steel	62
		BW1563	with serial Cable for Allen-Bradley AS-i Master	
		BW1203	full version (32 Bit)	
	Mini-PLC for AS-i	BW1902	Programming and Simulation Software for AS-i	63
	OPC server for AS-i Masters	BW1222		65
	Windows drivers for AS-i Masters	BW1099	16 bit DLL	65
		BW1224	32 bit DLL	
		BW1815	.NET and 32 bit DLL	
	Windows NT4 drivers (Kernel mode drivers)	BW1102	for AS-i PC2 board	65
		BW1223	for AS-i PCI board	
	Linux drivers for AS-i PCI Board	BW1816	LINUX kernel 2.0 and 2.2	65
		BW1817	LINUX kernel 2.4	

Drivers and exmaples can be downloaded free of charge in the download area under http://bihl-wiedemann.de.

AS-i-Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

AS-i Control Tools

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Automatisierungstechnik

**Software for
Configuration,
Programming and
AS-i Diagnostics and
AS-i Safety Diagnostics**

**of Bihl+Wiedemann
AS-i Masters and
AS-i Gateways**

AS-i Slaves

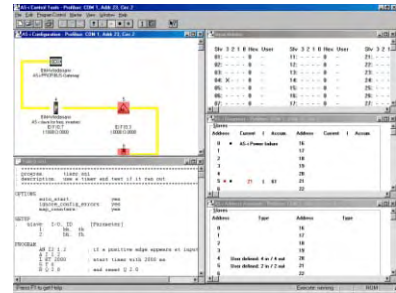AS-i Accessories/
Diagnostics/Development

Other Fieldbuses/
Master Simulators

AS-i Safety
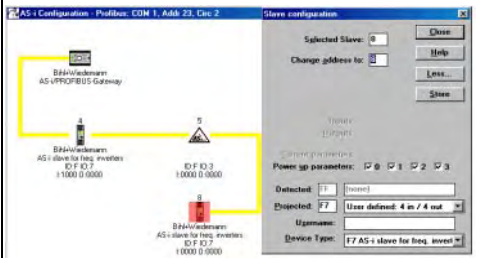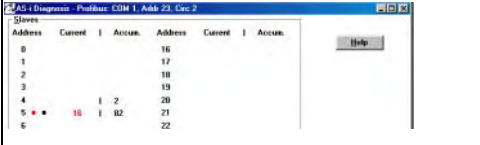
Price Lists

| **Article no. BW1602: Software AS-i Control Tools with serial cable for AS-i Master in Stainless Steel** |
|---|
| **Article no. BW1563: Software AS-i Control Tools with serial cable for Allen-Bradley AS-i Master** |
| **Article no. BW1203: Software AS-i Control Tools full version (32 Bit)** |

General information	• operating system: Win 3.1, Win 98, Win Me, Win 2000, Win XP and Win NT4 • comprehensible operator guidance • simple installation • language: English/German • extensive help menue

AS-i configuration editor	Tool for the commissioning of AS-i
	• Graphical display of the AS-i network
	  alternative plain text display of the AS-i network
	  -many devices icons out of an icon archive
	  -simple embedding of own icons and devices
	• display of the actual configuration on the AS-i (slave-profiles in plain language)
	• comparison of actual configuration with the projected one
	• programming of slave addresses
	• projecting of the actual configuration
	• reading of inputs
	• writing of outputs
	• writing of parameters
	• projecting of individual slaves (Offline/Online)
	• slave can be given its own name

AS-i address assistent	• automatic address of the AS-i slaves (no handheld necessary)
Advanced AS-i diagnostics	• display of AS-i slaves which caused configuration errors • judgement of the quality of the AS-i communication by means of error counters for every AS-i slave • only with **full version** • **AS-i Safety diagnostic without additional software for the AS-i monitor possible**
AS-i Master identity	• reading and writing of AS-i Master and AS-i Control flags
Further functions	• offline/online mode • open and save of AS-i configuration files • open and save of AWL-files • GSD Wizard for AS-i/PROFIBUS Gateways
Can be used with the following AS-i Masters	• AS-i/PROFIBUS Gateways, AS-i/Modbus Gateways, AS-i/DeviceNet Gateways, AS-i/Ethernet TCP/IP Gateway • AS-i Control - AS-i Master with RS 232, RS 485, RS 422 • AS-i PC2, AS-i PC104, AS-i PCI Board

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AS-i Sim

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Programming and Simulation Software for AS-i (Mini-PLC)

**Bihl+Wiedemann AS-i Masters and AS-i Gateways
in Stainless Steel can be delivered
with or without Mini-PLC**
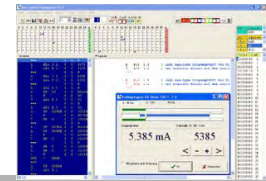
Art. no. BW1902

AS-i Control is a PLC-functionality integrated into the B+W AS-i Masters[1]. It forms a Mini-PLC with up to 256 inputs and outputs per AS-i circuit together with commercial AS-i I/O modules.

In combination with B+W AS-i Masters according to the new specification 3.0 AS-i Control supports also the extension to 62 AS-i slaves per AS-i network, the evaluation of AS-i peripheral faults as well as the automatic data exchange with AS-i analog modules according to the standardized profile.

In that way up to 248 digital inputs and outputs and 248 analog values can be processed via AS-i.

Integrated in an AS-i Master with serial interface AS-i Control is the ideal mini-PLC for stand alone solutions for smaller machines or plants.

Using AS-i Control in Gateways, i. e. the AS-i/PROFIBUS DP Gateway, you are capable to preprocess the actuator-sensor-data within the Gateway. This way the hierarchically higher PLC is relieved. Thus AS-i Control helps decentralizing the control task.

Typical applications are the fast execution of time critical operations directly within the Gateway.

General
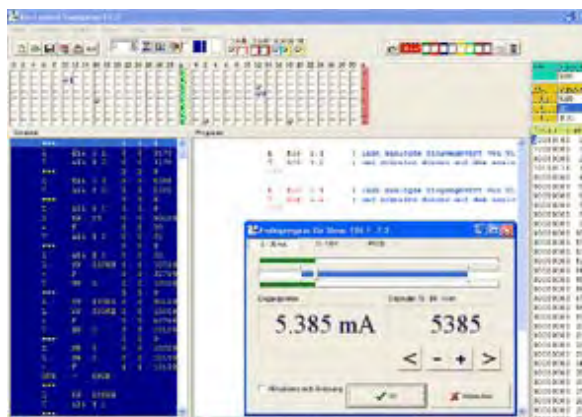
- Makes the simulation of AS-i control programs possible.
- Tests the syntax of the program.

Display of:
- AS-i Flags
- digital inputs and outputs
- analog inputs and outputs
- flags

Characteristics
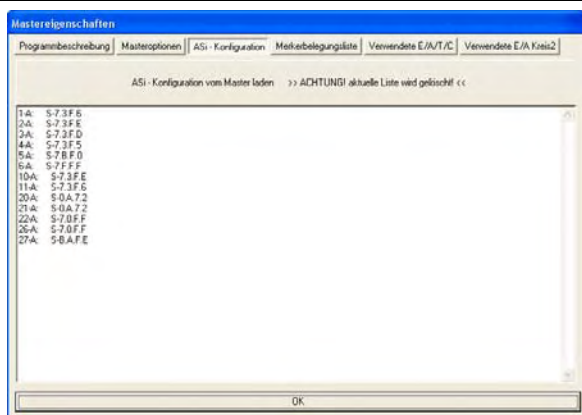
- all inputs, outputs, timers, counters and flags, that are used in the program are displayed
- automatic recognition of the attached slaves (Online)

---

1. AS-i Master is used here as a generic term for AS-i Gateways, AS-i PC boards and other AS-i Masters.

**AS-i Master/Gateways/
Links/Scanner**

AS-i Slaves

**AS-i Accessories/
Diagnostics/Development**

**Other Fieldbuses/
Master Simulators**

AS-i Safety

Price Lists

Mini-PLC Description	
programm memory (EEPROM)	16 kb (AS-i PCi board 4 kb)
data memory (bit/byte flags)	8 kb
remanent data memory	128 byte
cycle time (1 kbit /1000 word instructions)	1,8 ms/2,0 ms up to 16 ms/18 ms depending on device

Processing	
control commands	very close to STEP5™
additional operations	call of AS-i Master functions
flags/registers	8 kb
number of counters/timers	1024 each
counter resolution	16 bit
programmable time values	1 - 40950 ms
inputs/outputs	up to 248 I, 248 O, 248 analog values via AS-i slaves

Programming	
programming languages	AWL
programming device	PC
programming platforms	Windows 95/98, Windows NT, Windows 2000
programming tools	AS-i Control Tools
bus connections	PROFIBUS, Ethernet, DeviceNet, CANopen, Modbus, PCI

Syntax editor

```
U   A 1:26.0     ; lies den Zustand von Eingang E 1.2(Bit 2 /
=   A 1:26.0     ; sende ihn an Ausgang A 1.0(Bit 0 / Slave 1)
***

U   E 3:26.2     ; lies den Zustand von Eingang E 1.3(Bit 3 /
=   A 1:26.2     ; sende ihn an Ausgang A 1.1(Bit 1 / Slave 1)
***

U   E 1:26.4     ; lies den Zustand von Eingang E 2.2(Bit 2 /
=   A 1:26.5     ; sende ihn an Ausgang A 2.0(Bit 0 / Slave 2)
***

U   E 1:26.1     ; lies den Zustand von Eingang E 2.3(Bit 3 /
U   E 1:26.0
=   A 1:26.3     ; sende ihn an Ausgang A 2.1(Bit 1 / Slave 2)
***
```

- syntax editor with integrated syntax monitoring
- monitoring for german and english syntax
- colored marking
- cut, copy, paste, search and print available over right mouse button

Simulation

- Online and offline simulation
- Single-cycle or cyclic prozessing
- speed tuning for the cyclic prozessing

Display of:
- variable state
- calculated connection-result and accumulator content

Scope of supply:

- Programming and Simulation Software for AS-i (Mini-PLC)
- Software AS-i Control Tools, full version (32 bit) (Art. no. BW1203, see also page 62)
- Serial cable and adapter for AS-i Master in Stainless Steel

Software/Drivers for AS-i Masters
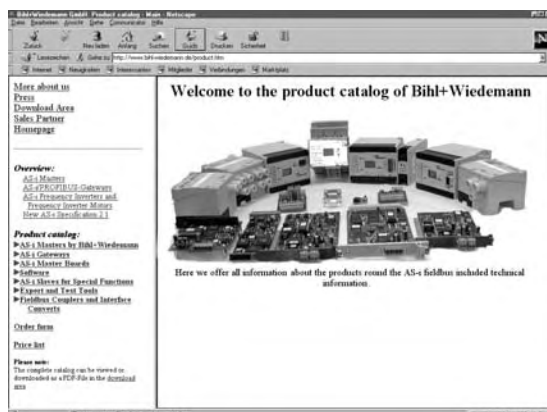
Bihl+Wiedemann provides all common drivers free of charge in the internet. In this way there is no need for a time-consuming licencing procedure with key disks etc. The newest drivers can be downloaded on 24 hours a day, 365 days a year. It does not matter where problems occur with the use of the homepage users can ensure that they have got the right drivers. The drivers can also be ordered on disc.

OPC server for AS-i Masters

Art. no. BW1222

The OPC server for the AS-i offers the possibility to exchange data between the respective AS-i Master and a SCADA software package via a standardized interface. In that way all Bihl+Wiedemann AS-i Masters can get connected to the leading visualisations systems e. g. WinCC, RS View, Fix, Bridge View, Lab View, in Touch, Client. The OPC server already fulfils the AS-i specification 2.1. First test of the OPC server can be made without any AS-i master hardware.

The "AS-i Control Tools" can be used as configurator to commission the AS-i.

Windows drivers for AS-i Masters

Art. no. BW1099: 16 bit DLL

Art. no. BW1224: 32 bit DLL

Art. no. BW1815: .NET and 32 bit DLL

Bihl+Wiedemann provides AS-i DLLs for free. There are 16 bit DLLs for Windows 3.1/3.11 and 32 bit DLLs for Windows 95/98 and Windows NT.

The DLL interface is identically for all different AS-i Masters.

Windows NT4 drivers (Kernel mode drivers)

Art. no. BW1102: AS-i PC2 Board

Art. no. BW1223: AS-i PCI Board

Fast device drivers to use the AS-i PC boards in combination with Windows NT can also be downloaded free of charge.

Linux drivers for AS-i PCI Board

Art. no. BW1816: LINUX kernel 2.0 and 2.2

Art. no. BW1817: LINUX kernel 2.4

Fast device drivers to use the AS-i PC boards in combination with LINUX can also be downloaded free of charge.

Drivers and exmaples can be downloaded free of charge in the download area under http://bihl-wiedemann.de.

AS-i-Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

AS-i Master/Gateways/
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Price Lists

AS-i Analog Modules

Bihl+Wiedemann

Automatisierungstechnik

Overview AS-i Analog Modules

Housing	Module	Art. No.	Characteristic	P.
	AS-i Analog Input Module	BWU1345	2 analog inputs, 4 … 20 mA and 0 … 10 V	69
		BWU1447	SIEMENS compatible scale	
		BWU1726	default power supply 24 V external	
	AS-i Analog Output Module	BWU1412	2 analog outputs, 0 … 20 mA and 0 … 10 V	70
		BWU1727	default power supply 24 V external	
	AS-i Analog Input Module	BWU1364	4 analog inputs, 4 … 20 mA	71
		BWU1365	4 analog inputs, 0 … 10 V	
	AS-i Analog Output Module	BWU1366	4 analog outputs, 0 … 20 mA	72
		BWU1367	4 analog outputs, 0 … 10 V	
	AS-i Analog Module	BWU1368	4 Pt100 inputs	73
	AS-i Analog Input Module	BWU1232	2 analog inputs, 4 … 20 mA, protection category IP65	74
		BWU1233	2 analog inputs, 0 … 10 V, protection category IP65	
	AS-i Analog Output Module	BWU1234	2 analog outputs, 0 … 20 mA, protection category IP65	75
		BWU1235	2 analog outputs, 0 … 10 V, protection category IP65	
	AS-i Analog Module	BWU1254	4 Pt100 inputs, protection category IP65	76
	AS-i Analog Module	BW1552	2 Pt100 inputs + 2 relais outputs, protection category IP65	77
	AS-i Balance Controller	BW1465	AS-i connection for a 6 lines balance cell, protection category IP65	78
	AS-i Analog Input Module	BWU1893	2 inputs 4 ... 20 mA on AS-i with M12 connectors in protection category IP65, AS-i 3.0 AB slave	79
		BWU1894	2 inputs 4 ... 20 mA on AS-i with M12 connectors in protection category IP65, AS-i 2.1 single slave	
		BWU1895	2 inputs PT100 on AS-i with M12 connectors in protection category IP65, AS-i 3.0 AB slave	
	AS-i Analog Module	BWU1853	1 analog input/1 analog output, 4 ... 0 mA or 0 ... 10 V in one module, 24 V auxiliary on M12, protection category IP65	81
		BWU1917	1 analog input/1 analog output, 4 ... 0 mA or 0 ... 10 V in one module, supplied out of AS-i, protection category IP65	
	AS-i Analog Input Module	BWU1359	4 analog inputs on M12 socket, 4 … 20mA, protection category IP65	83
		BWU1360	4 analog inputs on M12 socket, 0 … 10 V, protection category IP65	
		BWU1742	4 analog inputs on M12 socket, 0 … 10 V, advanced temperature range, protection category IP65	
	AS-i Analog Output Module	BWU1361	4 analog outputs on M12 socket, 0 … 20 mA, protection category IP65	85
		BWU1362	4 analog outputs on M12 socket, 0 … 10 V, protection category IP65	
		BWU1722	4 analog outputs on M12 socket, 0 … 20 mA, protection category IP65	
		BWU1736	4 analog outputs on M12 socket, 0 … 10 V, advanced temperature range, protection category IP65	
	AS-i Analog Module	BWU1363	4 Pt100 inputs on M12 socket, protection category IP65	87

AS-i Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

AS-i Analog Modules

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Automatisierungstechnik

With the new AS-i specification it is possible to transmit analog values via AS-Interface as simple as binary signals. For these reasons the new AS-i slave profiles 7.3 and 7.4 for the transmission of analog values have been defined. According to the profil 7.3 the AS-i master puts the analog slaves into operation in the same way as the digital slaves and starts the data exchange automatically. The host system (PC, PLC, Fieldbus) can read the 16 bit-value directly out of the AS-i master. The analog value transmission between AS-i master and AS-i slave is done invisibely for the user.

The user's advantages are obvious. He does not have to pay attention to the handling of the data transmission. This means in the majority of applications that the transmission time of analog values via AS-i will be reduced because the transmission time depends on the AS-i cycle time and not as it was before on the cycle time of the PLC program.

Bihl+Wiedemann has developed AS-i analog modules for safe and direct connection of sensors and actuators according to the new standardized Profile 7.3.

Analog data such as pressure and room temperature is transmitted by the module in interference-free digital signal form. In factory applications the module is installed as with isolation amplifier or real power transformer. The protection class IP65 modules are simply clamped onto the AS-i cable via AS-i penetration technology and then directly supported by the AS-i master: **Simply Plug and Play**! There is no need to program a function block to transmit the AS-i analog value via AS-i. The range consists of different AS-i analog modules:

2/4 analog inputs 0 - 10 V, 2/4 analog inputs 4 - 20 mA, 4 analog inputs Pt100, 2/4 analog outputs 0 - 10 V, 2/4 analog outputs 0 - 20 mA. The modules with IP65 protection can be directly installed in the field.

AS-i Analog Module (M12) in IP65

AS-i Analog Module (PG) in IP65

AS-i Analog Module IP20, 2 channels

AS-i Analog Module IP20, 4 channels

AS-i Analog Module (M12) in IP65, 2 channels

AS-i Analog Module (M12) in IP65, 4 channels

AS-i Analog Module: 2 analog Inputs

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Automatisierungstechnik

2 analog Inputs

4 … 20 mA and 0 … 10 V
in one module

Profile 7.3 "Plug and Play"
As simple as digital AS-i I/O

Protection category IP20

Article no. BWU1345

Article no. BWU1447: SIEMENS compatible scale

Article no. BWU1726: Default power supply 24 V external

The analog module has 2 analog inputs.

The connection of sensors is made by Combicon clamps. Current or voltage modules can be attached over different clamps. The current supply of the sensors can take place depending upon position of a slide switch from AS-i or from external voltage (after PELV). With the help of a 2. slide switch the 2. channel in favor of faster data communication can be switched off. The position of the slide switches is indicated over LEDs.

The conversion of the measured value and the data transmission via AS-i occurs asynchronically according to AS-i Profile 7.3. The resolution of the analog data is 16 bit. The analog modules contains 50 Hz and 60 Hz filters. These filters can be optionally activated with the help of the AS-i parameters.

Article no.	BWU1345 BWU1447 BWU1726	
Inputs	2 inputs 4 … 20 mA	2 inputs 0 … 10 V
Voltage supply, sensors	via AS-i/extern	via AS-i/extern
Internal resistance	50 Ω	100 kΩ
Max. current per input	40 mA	40 mA
Resolution	16 bit/1 μA	16 bit/1 mV
Range of value	4000 … 20000 dec.	0 … 10000 dec.
AS-i Profile	7.3	
ID Code	3_{hex}	
ID2 Code	D_{hex}	
IO Code	7_{hex}	
Displays		
LED green (PWR)	AS-i voltage	
LED red (FAULT)	AS-i communication error, peripheral fault	
LED green (AUX)	voltage supply 24 V for the analog part	
LED green (INT)	voltage supply for the analog part out of AS-i	
LED green (Analog 1)	state of channel 1	
LED green (Analog 2)	state of channel 2	
LED green (Analog 1)	channel 1: LED on: 4 … 20 mA, LED off: 0 … 10 V	
LED green (Analog 2)	channel 2: LED on: 4 … 20 mA, LED off: 0 … 10 V	
Operating current	< 80 mA	
Operating voltage	AS-i (30 V DC)	
Voltage of insulation	≥ 500 V	
EMC directions	EN 50081-2, EN 61000-6-2	
Ambient operating temperature	0°C … +70°C	
Storage temperature	-25°C … +85°C	
Housing	housing for DIN-rail mounting	
Dimensions (L, W, H)	99 mm, 22,5 mm, 92 mm	
Protection category (DIN 40 050)	housing IP20	

Attention:
no PE connection at 24 V aux. supply!

Programming:
(Bit-setting of AS-i parameters)

Bit P0:
1: 50 Hz filter in A/D Converter active
0: 60 Hz filter in A/D Converter active

Bit P1:
1: Channel 2 is projected
0: Channel 2 is not projected

Bit P2:
1: Peripheral fault (e. g. broken wire to the sensor) is indicated
0: Peripheral fault (e. g. broken wire to the sensor) is not indicated

Bit P3:
not used

Connections:

1	I1 Sig.+
2	I1 Sig.-
3	24 V ext.
4	0 V ext.
5	I2 Sig.+
6	I2 Sig.-
7	24 V ext.
8	0 V ext.
9	U1 Sig.+
10	U1 Sig.-
11	U2 Sig.+
12	U2 Sig.-
13	AS-i+
14	AS-i-
15	AUX+
16	AUX-

AS-i-Master/Gateways/Links/Scanner

AS-i Slaves

AS-i Accessories/Diagnostics/Development

Other Fieldbuses/Master Simulators

AS-i Safety

Price Lists

AS-i Analog Module: 2 analog Outputs

Bihl + Wiedemann

Automatisierungstechnik
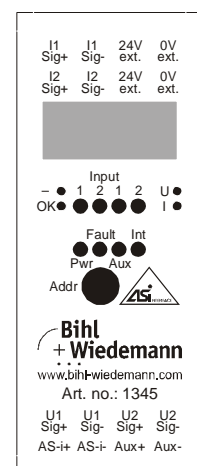
2 analog Outputs

0 … 20 mA and 0 … 10 V in one module

Profile 7.3 "Plug and Play" As simple as digital AS-i I/O

Protection category IP20

Article no. BWU1412

Article no. BWU1727: Default power supply 24 V external

The analog module has 2 analog outputs.

The connection of actuators is made by Combicon clamps. Current or voltage modules can be attached over different clamps. The current supply of the actuators can take place depending upon position of a slide switch from AS-i or from external voltage (after PELV). The position of the slide switch is indicated over LEDs.

The conversion of the measured value and the data transmission via AS-i occurs asynchronically according to AS-i Profile 7.3. The resolution of the analog data is 16 bit.

Article no.	BWU1412 BWU1727	
Outputs	2 outputs 0 … 20 mA	2 outputs 0 … 10 V
Voltage supply, actuators	via AS-i/extern	via AS-i/extern
Internal resistance	50 Ω	100 kΩ
Resolution	16 Bit/1 μA	16 Bit/1 mV
Range of value	0 … 20000 dec.	0 … 10000 dec.
AS-i Profile	7.3	
ID Code	3_{hex}	
ID2 Code	5_{hex}	
IO Code	7_{hex}	
Displays		
LED green (PWR)	AS-i voltage	
LED red (FAULT)	AS-i communication error, peripheral fault	
LED green (AUX)	voltage supply 24 V for the analog part	
LED green (INT)	voltage supply for the analog part out of AS-i	
LED green (Analog 1)	State of channel 1	
LED green (Analog 2)	State of channel 2	
LED green (Analog 1)	channel 1: LED on: 0 … 20 mA, LED off: 0 … 10 V	
LED green (Analog 2)	channel 2: LED on: 0 … 20 mA, LED off: 0 … 10 V	
Operating current	< 80 mA	
Operating voltage	AS-i (30 V DC)	
Voltage of insulation	$\geq$ 500 V	
EMC directions	EN 50081-2, EN 61000-6-2	
Ambient operating temperature	0°C … +70°C	
Storage temperature	-25°C … +85°C	
Housing	housing for DIN-rail mounting	
Dimensions (L, W, H)	99 mm, 22,5 mm, 92 mm	
Protection category (DIN 40 050)	housing IP20	

Attention:
no PE connection at 24 V aux. supply!

Programming:
(Bit-setting of AS-i parameters)

Bit P0:
1: Automatic mode recognition
0: Parameter bits P1, P3 define the mode of channel 1 and 2

Bit P1: Channel 1 is a
1: Current module
0: Voltage module

Bit P2:
1: Peripheral fault (e. g. broken wire to the sensor) is indicated
0: Peripheral fault (e. g. broken wire to the sensor) is not indicated

Bit P3: Channel 2 is a
1: Current module
0: Voltage module

Connections:

1	I1 Sig.+
2	I1 Sig.-
3	24 V ext.
4	0 V ext.
5	I2 Sig.+
6	I2 Sig.-
7	24 V ext.
8	0 V ext.
9	U1 Sig.+
10	U1 Sig.-
11	U2 Sig.+
12	U2 Sig.-
13	AS-i+
14	AS-i-
15	AUX+
16	AUX-

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AS-i Analog Module: 4 analog Inputs

4 analog Inputs

Galvanical seperation to AS-i

4 … 20 mA
0 … 10 V

Profile 7.3 "Plug and Play"
As simple as digital AS-i I/O

Protection category IP20

Article no. BWU1364 for 4 … 20 mA

Article no. BWU1365 for 0 … 10 V

The analog module has 4 analog inputs.

The connection of the sensors is made by Combicon clamps. The current supply of the sensors can made out of AS-i or an external voltage supply (according to PELV). The current supply switches automatically to the supply out of external voltage supply, as soon as an external voltage is connected.

The analog sensors and AS-i are galvanical seperated.

The conversion of the measured value and the data transmission via AS-i occurs asynchronically according to AS-i Profile 7.3.

The resolution of the analog data is 16 bit. The analog modules contains 50 Hz and 60 Hz filters. These filters can be optionally activated with the help of the AS-i parameters.

Article no.	BWU1364	BWU1365
Inputs	4 inputs 4 … 20 mA	4 inputs 0 … 10 V
Voltage supply, sensors	via AS-i/extern	via AS-i/extern
Internal resistance	50 Ω	100 kΩ
Max. current per input	40 mA	40 mA
Resolution	16 Bit/1 μA	16 Bit/1 mV
Range of value	4000 … 20000 dec.	0 … 10000 dec.
AS-i Profile	7.3	
ID Code	3_{hex}	
ID2 Code	E_{hex}	
IO Code	7_{hex}	
Displays		
LED green (AS-i)	AS-i voltage	
LED red (FAULT)	AS-i communication error, peripheral fault	
LED green (AUX)	Voltage supply 24 V for the analog part	
LED yellow(DIAG)	Diagnosis	
LED yellow (I1)	State of channel 1	
LED yellow (I2)	State of channel 2	
LED yellow (I3)	State of channel 3	
LED yellow (I4)	State of channel 4	
Operating current	< 80 mA	
Operating voltage	AS-i (30 V DC)	
Voltage of insulation	≥ 500 V	
EMC directions	EN 50081-2, EN 61000-6-2	
Operating temperature	0°C … +70°C	
Storage temperature	-20°C … +85°C	
Housing	Housing for DIN-rail mounting	
Dimensions (L, W, H)	105 mm, 22,5 mm, 114 mm	
Protection category (DIN 40 050)	Housing IP20	

Programming:
(Bit-setting of AS-i parameters)

Bit P0:
1: 50 Hz filter in A/D Converter active
0: 60 Hz filter in A/D Converter active

Bit P1 and P2:

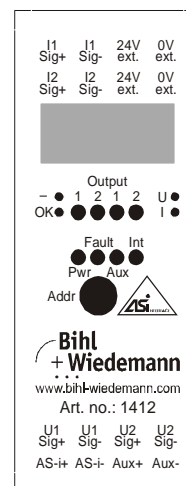|		Analog input is			
P1	P2	1	2	3	4
0	0	on	off	off	off
0	1	on	on	off	off
1	0	on	on	on	off
1	1	on	on	on	on

Bit P3:
1: Peripheral fault (e. g. broken wire to the sensor) is indicated
0: Peripheral fault (e. g. broken wire to the sensor) is not indicated

AS-i-Master/Gateways/Links/Scanner

AS-i Slaves

AS-i Accessories/Diagnostics/Development

Other Fieldbuses/Master Simulators

AS-i Safety

Price Lists

AS-i Analog Module: 4 analog Outputs

Bihl+Wiedemann

Automatisierungstechnik

4 analog Outputs

Galvanical separation to AS-i

0 … 20 mA
0 … 10 V

Profile 7.3 "Plug and Play"
As simple as digital AS-i I/O

Protection category IP20

Article no. BWU1366 for 0 … 20 mA
Article no. BWU1367 for 0 … 10 V

The analog module has 4 analog outputs.

The connection of the actuators is made by Combicon clamps. The current supply of the actuators can made out of AS-i or an external voltage supply (according to PELV). The current supply switches automatically to the supply out of external voltage supply, as soon as an external voltage is connected.

The actuators and AS-i are galvanical separated.

The conversion of the measured value and the data transmission via AS-i occurs asynchronically according to AS-i Profile 7.3.The resolution of the analog data is 16 bit.

Article no.	BWU1366	BWU1367
Inputs	4 outputs 0 … 20 mA	4 outputs 0 … 10 V
Voltage supply, actuators	via AS-i/extern	via AS-i/extern
Internal resistance	50 Ω	100 kΩ
Resolution	16 Bit/1 μA	16 Bit/1 mV
Range of value	0 … 20000 dec.	0 … 10000 dec.
AS-i Profile	7.3	
ID Code	3_{hex}	
ID2 Code	6_{hex}	
IO Code	7_{hex}	
Displays		
LED green (AS-i)	AS-i voltage	
LED red (FAULT)	AS-i communication error, peripheral fault	
LED green (AUX)	Voltaqge supply 24 V for the analog part	
LED yellow(DIAG)	Diagnosis	
LED yellow (O1)	State of channel 1	
LED yellow (O2)	State of channel 2	
LED yellow (O3)	State of channel 3	
LED yellow (O4)	State of channel 4	
Operating current	< 80 mA	
Operating voltage	AS-i (30 V DC)	
Voltage of insulation	≥ 500 V	
EMC directions	EN 50081-2, EN 61000-6-2	
Operating temperature	0°C … +70°C	
Storage temperature	-20°C … +85°C	
Housing	Housing for DIN-rail mounting	
Dimensions (L, W, H)	105 mm, 22,5 mm, 114 mm	
Protection category (DIN 40 050)	Housing IP20	

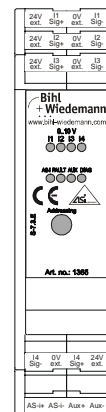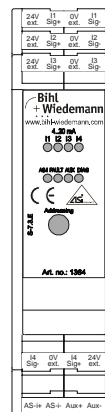**Programming:**
(Bit-setting of AS-i parameters)

Bit P0:
1: Profile 7.3 is monitored
0: Profile 7.3 is not monitored

Bit P1, P3:
not used

Bit P2:
1: Peripheral fault (e. g. broken wire to the sensor) is indicated
0: Peripheral fault (e. g. broken wire to the sensor) is not indicated

AS-i Analog Module: 4 Pt100 Inputs

Bihl+Wiedemann

Automatisierungstechnik

AS-i-Master/Gateways/
Links/Scanner

AS-i Slaves

AS-i Accessories/
Diagnostics/Development

Other Fieldbuses/
Master Simulators

AS-i Safety

Price Lists

4 Pt100 Inputs

Galvanical seperation to AS-i

Profile 7.3 "Plug and Play"
As simple as digital AS-i I/O

Protection category IP20

Article no. BWU1368

The analog module has 4 Pt100 inputs.

The connection of the sensors is made by Combicon clamps. By supply out of AS-i the analog sensors are galvanical seperated to the AS-i. The conversion of the measured value and the data

transmission via AS-i occurs asynchronically according to AS-i Profile 7.3.
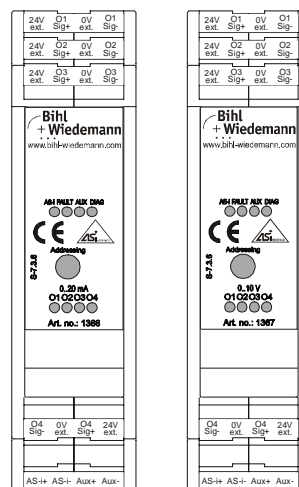
The resolution of the analog data is 16 bit. The analog modules contains 50 Hz and 60 Hz filters. These filters can be optionally activated with the help of the AS-i parameters.

Article no.	BWU1368
Inputs	4 Pt100 inputs
Voltage supply, sensors	via AS-i/extern
Internal resistance	50 Ω
Resolution	16 Bit/0,1 °C
Range of value [°C]	-200°C … +850°C
AS-i Profile	7.3
ID Code	3_{hex}
ID2 Code	5_{hex}
IO Code	7_{hex}
Displays	
LED green (AS-i)	AS-i voltage
LED red (FAULT)	AS-i communication error, periphal fault
LED yellow (I1)	State of channel 1
LED yellow (I2)	State of channel 2
LED yellow (I3)	State of channel 3
LED yellow (I3)	State of channel 4
Operating current	< 80 mA
Operating voltage	AS-i (30 V DC)
Voltage of insulation	≥ 500 V
EMC directions	EN 50081-2, EN 61000-6-2
Operating temperature	0°C … +70°C
Storage temperature	-20°C … +85°C
Housing	Housing for DIN-rail mounting
Dimensions (L, W, H)	105 mm, 22,5 mm, 114 mm
Protection category (DIN 40 050)	Housing IP20

Programming:
(Bit-setting of AS-i parameters)

Bit P0:
1: 50 Hz filter in A/D Converter active
0: 60 Hz filter in A/D Converter active

Bit P1 and P2:
A peripheral fault can be released through channel:

P1	P2	1	2	3	4
0	0	yes	no	no	no
0	1	yes	yes	no	no
1	0	yes	yes	yes	no
1	1	yes	yes	yes	yes

Bit P3:
1: 2 wire mode
0: 4 wire mode

AS-i Analog Module: 2 analog Inputs

Bihl + Wiedemann

Automatisierungstechnik

AS-i Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

2 analog Inputs

4 … 20 mA
0 … 10 V

Profile 7.3 "Plug and Play"
As simple as digital AS-i I/O

High protection category IP65

Article no. BWU1232 for 4 … 20 mA

Article no. BWU1233 for 0 … 10 V

The analog modules have 2 analog inputs. The conversion of the measured value and the data transmission via AS-i occurs asynchronically according to AS-i Profile 7.3. 2 analog sensors can be connected via cage clamp terminals. The sensors can be supplied by AS-i or external voltage (according to PELV) via the black ribbon cable. The resolution of the analog data is 16 bit. The analog modules contain 50 Hz and 60 Hz filters. These filters can be optionally activated with the help of the AS-i parameters.

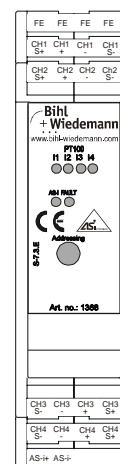| Article no.	BWU1232	BWU1233
Inputs	2 inputs 4 … 20 mA	2 inputs 0 … 10 V
Voltage supply, sensors	via AS-i/extern	via AS-i/extern
Internal resistance	50 Ω	100 kΩ
Max. current per input	40 mA	40 mA
Resolution	16 Bit/1 μA	16 Bit/1 mV
Range of value	4000 … 20000 dec.	0 … 10000 dec.
AS-i Profile	7.3	
ID Code	3_{hex}	
ID2 Code	D_{hex}	
IO Code	7_{hex}	
Displays		
LED green (Analog 1)	Analog signal1	
LED green (Analog 2)	Analog signal2	
LED green (AUX)	Power on	
LED green (PWR)	AS-i voltage	
LED red (FAULT)	AS-i communication error, periphal fault	
Operating current	< 80 mA	
Operating voltage	AS-i (30 V DC)	
Voltage of insulation	$\geq$ 500 V	
EMC directions	EN 50081-2, EN 61000-6-2	
Operating temperature	0°C … +70°C	
Storage temperature	-25°C … +85°C	
Housing	Housing for DIN-rail mounting	
Dimensions (L, W, H)	90 mm, 80 mm, 70 mm	
Protection category (DIN 40 050)	Housing IP65	

Programming:
(Bit-setting of AS-i parameters)

Bit P0:
1: 50 Hz filter in A/D Converter active
0: 60 Hz filter in A/D Converter active

Bit P1:
1: Channel 2 is projected
0: Channel 2 is not projected

Bit P2:
1: Peripheral fault (e. g. broken wire to the sensor) is indicated
0: Peripheral fault (e. g. broken wire to the sensor) is not indicated

Bit P3:
not used

Accessories:
AS-i substructure module to connect 1 AS-i flat cable, 1 flat cable for additional supply (Art. no. BW1181, see also page 148)

AS-i substructure module to 1 AS-i round cable, 1 round cable for additional supply (Art. no. BW1183, see also page 148)

Connections:

1	24V ext.	7	24V ext.
2	Sig.+ Ch2	8	Sig.+ Ch1
3	0V ext.	9	0V ext.
4	Sig.- Ch2	10	Sig.- Ch1
5	Shield	11	FG
6	Shield	12	FG

FG: Function ground

AS-i Analog Module: 2 analog Outputs

Bihl +Wiedemann

Automatisierungstechnik

2 analog Outputs

0 … 10 V
0 … 20 mA

Profile 7.3 "Plug and Play"
As simple as digital AS-i I/O

High protection category IP65

Article no. BWU1234 for 0 … 20 mA
Article no. BWU1235 for 0 … 10 V

The analog modules have 2 analog outputs. The digital-analog conversion and the data transmission via AS-i occurs asynchronically according to AS-i Profile 7.3. 2 analog actuators can be connected via cage clamp terminals. The actuators can be supplied by AS-i or external voltage (according to PELV) via the black ribbon cable. The resolution of the analog data is 16 bit.

Article no.	BWU1234	BWU1235
Inputs	2 outputs 0 … 20 mA	2 outputs 0 … 10 V
Voltage supply	via AS-i/extern	via AS-i/extern
Output limit		
Resolution	16 Bit/1 μA	16 Bit/1 mV
Range of value	0 … 20000 dec.	0 … 10000 dec.
AS-i Profile	7.3	
ID Code	3_{hex}	
ID2 Code	5_{hex}	
IO Code	7_{hex}	
Displays		
LED green (Analog 1)	Analog signal 1	
LED green (Analog 2)	Analog signal 2	
LED green (AUX)	Power on	
LED green (PWR)	AS-i voltage	
LED red (FAULT)	AS-i communication error, peripheral fault	
Operating current	< 80 mA	
Operating voltage	AS-i (30 V DC)	
Voltage of insulation	$\geq$ 500 V	
EMC directions	EN 50081-2, EN 61000-6-2	
Operating temperature	0°C … +70°C	
Storage temperature	-25°C … +85°C	
Housing	Housing for DIN-rail mounting	
Dimensions (L, W, H)	90 mm, 80 mm, 70 mm	
Protection category (DIN 40 050)	Housing IP65	

Programming:
(Bitsetting of AS-i parameters)

Bit P0:
not used

Bit P1:
not used

Bit P2:
1: Peripheral fault (e. g. broken wire to the sensor) is indicated
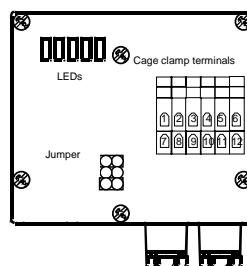0: Peripheral fault (e. g. broken wire to the sensor) is not indicated

Bit P3:
not used

Accessories:
AS-i substructure module to connect 1 AS-i flat cable, 1 flat cable for additional supply (Art. no. BW1181, see also page 148)

AS-i substructure module to 1 AS-i round cable, 1 round cable for additional supply (Art. no. BW1183, see also page 148)

Connections:

1	24V ext.	7	24V ext.
2	Sig.+ Ch2	8	Sig.+ Ch1
3	0V ext.	9	0V ext.
4	Sig.- Ch2	10	Sig.- Ch1
5	Shield	11	FG
6	Shield	12	FG

FG:Function ground

AS-i-Master/Gateways/Links/Scanner

AS-i Slaves

AS-i Accessories/Diagnostics/Development

Other Fieldbuses/Master Simulators

AS-i Safety

Price Lists

AS-i Analog Module: 4 Pt100 Inputs

Bihl +Wiedemann

Automatisierungstechnik

AS-i Master/Gateways/
Links/Scanner

AS-i Slaves

AS-i Accessories/
Diagnostics/Development

Other Fieldbuses/
Master Simulators

AS-i Safety

Price Lists

4 Pt100 Inputs

Profile 7.3 "Plug and Play"
As simple as digital AS-i I/O

High protection category IP65

Article no. BWU1254

The analog modules have 4 Pt100 inputs. The conversion of the measured value and the data transmission via AS-i occurs asynchronically according to AS-i Profile 7.3. 4 analog sensors can be connected via cage clamp terminals. The sensors can be supplied by AS-i. The resolution of the analog data is 16 bit/0,1°C. The Pt100 module contains 50 Hz and 60 Hz filters. These filters can be optionally activated with the help of the AS-i parameters.

Article no.	BWU1254
Inputs	4 Pt100 inputs
Supply	via AS-i/extern
Resolution/Bit	16 Bit/0,1 °C
Measuring range [°C]	-200°C … +850°C
AS-i Profile	7.3
ID Code	3_{hex}
ID2 Code	E_{hex}
IO Code	7_{hex}
Displays	
LED green (Analog 1)	Analog signal1
LED green (Analog 2)	Analog signal 2
LED green (Analog 3)	Analog signal 3
LED green (PWR)	AS-i voltage
LED red (FAULT)	AS-i communication error, peripheral fault
LED green (Analog 4)	Analog signal 4
Operating current	< 80 mA
Operating voltage	AS-i (30 V DC)
Voltage of insulation	≥ 500 V
EMC directions	EN 50081-2, EN 61000-6-2
Operating temperature	0°C … +70°C
Storage temperature	-25°C … +85°C
Housing	Housing for DIN-rail mounting
Dimensions (L, W, H)	90 mm, 80 mm, 70 mm
Protection category (DIN 40 050)	Housing IP65

Programming:
(Bit-stting of AS-i parameters)

Bit P0:
1: 50 Hz filter in A/D Converter active
0: 60 Hz filter in A/D Converter active

Bit P1 and P2:

Peripheral fault can be caused by channel:

P1	P2	1	2	3	4
0	0	yes	no	no	no
0	1	yes	yes	no	no
1	0	yes	yes	yes	no
1	1	yes	yes	yes	yes

Bit P3:
1: 2 wire mode
0: 3 wire mode

Accessories:
AS-i substruce module to connect 2 AS-i flat cables (Art. no. BW1180, see also page 148)

AS-i substructure module to connect 2 AS-i round cables (Art. no. BW1182, see also page 148)

Connections:

1	channel 1+
2	channel 1 Sense-
3	channel 1 -
4	channel 2 +
5	channel 2 Sense-
6	channel 2 -
7	channel 3 +
8	channel 3 Sense-
9	channel 3 -
10	channel 4 +
11	channel 4 Sense-
12	channel 4 -

1, 4, 7, 10 are internally connected

LEDs

Cage clamp terminal

AS-i Analog Module:
2 Pt100 Inputs + 2 Relais Outputs

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+ Wiedemann**

Automatisierungstechnik

2 Pt100 Inputs + 2 Relais Outputs

Profile 7.3 "Plug and Play"
As simple as digital AS-i I/O

High protection category IP65

Article no. BW1552

The analog module has 2 Pt100 inputs and 2 relais outputs. The conversion of the measured value and the data transmission via AS-i occurs asynchronically according to AS-i Profile 7.3. 2 analog sensors can be connected via cage clamp terminals. The sensors can be supplied by AS-i. The resolution of the analog data is 16 bit/0,1°C. The Pt100 module contains 50 Hz and 60 Hz filters. These filters can be optionally activated with the help of the AS-i parameters.

The relais outputs are galvanically isolated SPDT Reed-relais. They are switched with parameter bits P2 and P3.

Article no.	BW1552
Inputs	2 Pt100 inputs
Outputs	2 relais outputs
Supply	via AS-i/extern
Resolution/Bit	16 Bit/0,1 °C
Measuring range [°C]	-200°C … +850°C
AS-i Profile	7.3
ID Code	3_{hex}
ID2 Code	D_{hex}
IO Code	7_{hex}
Displays	
LED green (Analog 1)	Analog signal 1
LED green (Analog 2)	Analog signal 2
LED yellow (Rel 1)	Relais 1
LED green (PWR)	AS-i voltage
LED red (FAULT)	AS-i communication error, peripheral fault
LED yellow (Rel 2)	Relais 2
Operating current	< 80 mA
Operating voltage	AS-i (30 V DC)
Voltage of insulation	$\geq$ 500 V
Relais	SPDT, max 50 V, max. 0.5 A
EMC directions	EN 50081-2, EN 61000-6-2
Operating temperature	0°C … +70°C
Storage temperature	-25°C … +85°C
Housing	Housing for DIN-rail mounting
Dimensions (L, W, H)	90 mm, 80 mm, 70 mm
Protection category (DIN 40 050)	Housing IP65

Programming:
(Bit-stting of AS-i parameters)

Bit P0:
1: 50 Hz filter in A/D Converter active
0: 60 Hz filter in A/D Converter active

Bit P1:
1: 2 wire mode
0: 3 wire mode

Bit P2:
0: Relais 1 on
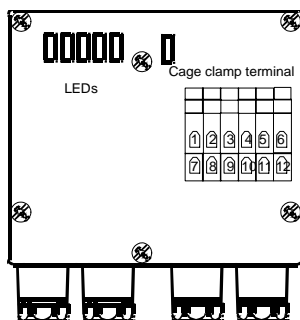1: Relais 1 off

Bit P3:
0: Relais 2 on
1: Relais 2 off

Accessories:
AS-i substruce module to connect 2 AS-i flat cables (Art. no. BW1180, see also page 148)

AS-i substructure module to connect 2 AS-i round cables (Art. no. BW1182, see also page 148)

Connections:

1	channel 1+	7	relais 1 - NO
2	channel 1 Sense-	8	relais 1 - COM
3	channel 1 -	9	relais 1 - NC
4	channel 2 +	10	relais 2 - NO
5	channel 2 Sense-	11	relais 2 - COM
6	channel 2 -	12	relais 2 - NC

1 and 4 are internally connected

LEDs

Cage clamp terminal

AS-i Balance Controller

AS-i Master/Gateways/
Links/Scanner

AS-i Slaves

AS-i Accessories/
Diagnostics/Development

Other Fieldbuses/
Master Simulators

AS-i Safety

Price Lists

AS-i Balance Controller

AS-i connection for a 6-wire load cell

Weights directly via AS-i

To nearly all controls

Tara via AS-i parameter

Article no. BW1465

The AS-i Balance Controller allows the connection of a load cell to AS-i. The weight will be transfered as 16 bits analog value according to AS-i profile 7.3. Via AS-i the weight is available to nearly all controls as 16 bits value. The setting and deleting of tara is made with the help of 2 AS-i parameters. The tara value is stored remanent.

The 6 lines load cells are connected directly via heavy gauge terminals onto a cage clamp block in the AS-i load cell controller. The AS-i load cell controller is located in a robust IP65 housing and can so be mounted near to the load cell. Longer lines between cells and controller can be avoided. The calibration is made with the help of a simply Windows calibration software and a special calibration master (Article no. BW1728). With the calibration on 2 points of reference the average value of 50 measurements is formed. The output for a reference weight can be set likewise simply with the help of the Windows software. As long as the scales controller was not calibrated on a load cell, the expenditure of the measured values takes place in mV/V (1 mV/V corresponds to 5000 decimally).

Article no.	BW1465
Inputs	1 load cell
Sensor supply	via AS-i
Resolution	16 Bit
Range of values	adjustable
AS-i Profile	7.3
ID Code	3_{hex}
ID2 Code	C_{hex}
IO Code	7_{hex}
Displays	
LED yellow (CAL)	Calibration
LED green (IN)	Load cell connected
LED green (PWR)	AS-i voltage
LED red (FAULT)	AS-i communication error, peripheral fault
Operating current	< 80 mA
Operating voltage	AS-i (30 V DC)
Voltage of insulation	≥ 500 V
EMC	according to EN 50081-2, EN 61000-6-2
Operating temperature	0°C … +70°C
Storage temperature	-25°C … +85°C
Housing	Housing for DIN-rail mounting
Dimensions (L, W, H)	90 mm, 80 mm, 70 mm
Protection category (DIN 40 050)	Housing

Accessories:
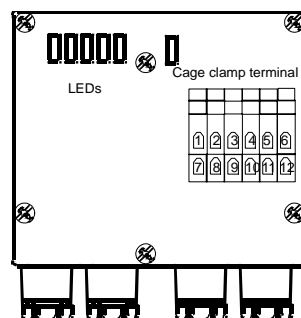Windows software for calibration

Calibration Master (Article no. BW1728)

AS-i substructure module to connect 2 AS-i flat cable (Article no. BW1180, page 148)

AS-i substructure module to connect 2 AS-i round cable (Article no. BW1182, page 148)

AS-i Parameter	
0	Set tara
1	Delete tara
B	Filter 4 s
C	Filter 3 s
D	Filter 2 s
E	Filter 1 s
F	No filter

Connections

Pin	Connection
1, 7	Supply +
2, 8	Sensor line +
3, 9	Output +
4, 10	Output -
5, 11	Sensor line-
6, 12	Supply -
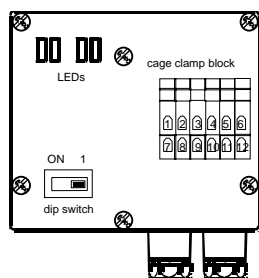
Switch 1: Normal operation
Switch on: Calibration

Distribución: **ER-SOFT, S.A.** Email: **er@er-soft.com**, Tel: +34 916 408 408

AS-i 3.0 Analog Module:
2 analog Inputs (M12)

Bihl
+Wiedemann

Automatisierungstechnik

AS-i-Master/Gateways/
Links/Scanner

AS-i Slaves

AS-i Accessories/
Diagnostics/Development

Other Fieldbuses/
Master Simulators

AS-i Safety

Price Lists

2 analog Inputs 4 ... 20 mA resp. 2 Pt100 Inputs

Infrared interface for slave addressing

**Profile 7.A.9 "Plug and Play"
as simple as digital AS-i-I/O**

Protection category IP65

Article no. BWU1893: 2 inputs 4 ... 20 mA on AS-i with M12 connectors in IP65, AS-i 3.0 AB slave	
Article no. BWU1894: 2 inputs 4 ... 20 mA on AS-i with M12 connectors in IP65, AS-i 2.1 single slave	
Article no. BWU1895: 2 inputs Pt100 on AS-i with M12 connectors in IP65, AS-i 3.0 AB slave	

The analog module has 2 analog inputs 4 ... 20 mA resp. 2 Pt100 inputs.

The connection of the sensors is made by M12 connectors. The current supply of the sensors is made out of AS-i.

Measured value transformation and data communication to the host take place asynchronously according to the respective AS-i profile. The resolution of the analog data is 11 resp. 14 bit.

Article no.	BWU1893	BWU1894	BWU1895
Inputs	2 inputs 4 … 20 mA		2 inputs Pt100
AS-i specification	AS-i 3.0 AB slave	AS-i 2.1 single slave	AS-i 3.0 AB slave
Sensor supply	via AS-i		
Internal resistance	82 Ω		-
Max. current per input	40 mA		-
Resolution	11 resp.14 bit		14 bit
Range of value	4000 … 20000 dec. 0 ... 27648 dec.		-200 °C ... +850 °C/ 0,4 °C -120 °C ... +130 °C/ 0,04 °C
Transformation speed	regular: 33 ms/14 bit, fast: 4,2 ms/11 bit		240 ms
AS-i Profile	7.A.9	7.3.D	7.A.9
ID Code	A_{hex}	3_{hex}	A_{hex}
ID1 Code	see code definition table	F_{hex}	see code definition table
ID2 Code	9_{hex}	D_{hex}	9_{hex}
IO Code	7_{hex}	7_{hex}	7_{hex}
Displays			
LED green (PWR)	LED on: Voltage at the AS-i clamps		
LED red (FAULT)	LED on: AS-i communication error LED flashing: AS-i periphal fault		
LED yellow (state: In 1, In 2)	LED off: no signal, resp. channel 2 is switched off (BW1894 only) LED on: Signal in the range of values LED flashing: Signal out of the range of values		
Operating current	< 200 mA		< 80 mA
Operating voltage	AS-i (30 V DC)		
Voltage of insulation	≥ 500 V		
EMC directions	EN 61000-6-2, EN 61000-6-4		
Operating temperature	0°C … +70°C		
Storage temperature	-20°C … +85°C		
Housing	Housing for DIN-rail mounting		
Dimensions (L, W, H)	80 mm, 45 mm, 24,5 mm		
Protection category DIN 40 050	Housing IP65		

AS-i Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

AS-i 3.0 Analog Module: 2 analog Inputs (M12)

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Automatisierungstechnik

Bit-setting of AS-i parameters	BWU1893	BWU1894	BWU1895
Bit P0	1: Periphal fault is indicated 0: Periphal fault is not indicated		
Bit P1	1: 4000 … 20000 dec. 0: 0 ... 27648 dec. (Siemens format)		1: 2 wire mode 0: 4 wire mode
Bit P2	1: regular 0: fast		1: -200 °C ... +850 °C 0: -120 °C ... +130 °C

Code definition for article no. BWU1893 and BWU1895		
ID1	**14 bit**	**12 bit**
Channel 1	0; 2; 3	1
Channel 1+2	4; 5; 7 (Default setting ID1=7)	6

BWU1893 + BWU1895 can transfer 12 and/or 14 bits of values. Via ID1 the data capacity and the channel number can be defined.

Accessories:

AS-i substructure module to connect 2 AS-i flat cables (article no. BW1180, see also page 148)

AS-i substructure module to connect 1 AS-i flat cable, 1 flat cable for additional supply (article no. BW1181, see also page 148)

AS-i substructure module to connect 2 AS-i round cable (article no. BW1182, see also page 148)

AS-i substructure module to connect 1 AS-i round cable, 1 round cable for additional supply (article no. BW1183, see also page 148)

AS-i substructure module to connect 2 AS-i flat cables with addressing socket (article no. BW1438, see also page 148)

Pinning:

BWU1893, BWU1894

1	24 V
2	Sig+
3	0 V
4	0 V
5	Shield

BWU1895

1	CH+
2	CHS+
3	CH-
4	CHS-
5	Shield

Distribución: **ER-SOFT, S.A.** Email: **er@er-soft.com**, Tel: +34 916 408 408

AS-i 3.0 Analog Module:
Analog Input and Output Module (M12)

1 analog Input/1 analog Output
4 ... 20 mA or 0 ... 10 V in one Module

Automatic switching between current and voltage

8, 12 or 16 transmitted bits
via 2, 3 or 4 AS-i slave address

Profile S-6.0.x

Protection category IP65

 Article no. BWU1853: 1I/1O, 4 .. 20 mA or 0 .. 10 V (24 V auxiliary on M12)
 Article no. BWU1917: 1I/1O, 4 .. 20 mA or 0 .. 10 V (supplied out of AS-i)

The analog module has 1 analog input and 1 analog output.

Current or voltage modules can be attached over M12 connectors. The module switches automatically over between current and voltage depending upon the occupied socket.

The current supply is made out of an external voltage supply (according to PELV, by BWU1853) or out of AS-i (BWU1917).

The conversion of the measured value and the data transmission via AS-i occurs according to AS-i Profile S-6.0.x. The resolution of the analog data is 16 bit. The analog modules contains 50 Hz and 60 Hz filters. These filters can be optionally activated with the help of the AS-i parameters.

Optical addressing is not possible.

Article no.	BWU1853	BWU1917
Supply	24 V auxiliary on M12 1 A out of aux. 24 V	24 V auxiliary on M12 100 mA out of AS-i
Outputs	0 .. 20 mA or 0 .. 10 V	
Inputs	4 .. 20 mA or 0 .. 10 V	
Internal resistance	50 Ω or 100 kΩ	
Max. current per input	40 mA	
Resolution	16 bit/1 μA or 16 bit/1 mV	
AS-i profile	S-6.0.x	
Number of transmitted bits	8, 12, 16	
Impedance	2 single slave loads	
ID Code	0	
ID2 Code	acc. to profile	
IO Code	6$_{hex}$	
Displays		
LED green (PWR)	AS-i voltage	
LED red (FAULT)	AS-i communication error, peripheral fault	
LED green (AUX)	voltage supply 24 V for the analog part	
LED yellow (In U)	state of channel Input U	
LED yellow (In I)	state of channel Input I	
LED yellow (Out U)	state of channel Output U	
LED yellow (Out I)	state of channel Output I	
Operating current	< 80 mA	
Operating voltage	AS-i (30 V DC)	
Voltage of insulation	$\geq$ 500 V	
EMC directions	EN 61000-6-2, EN 61000-6-4	
Ambient operating temperature	0°C .. +70°C	
Storage temperature	-20°C .. +85°C	
Housing	housing for DIN-rail mounting	
Dimensions (L, W, H)	80 mm, 90 mm, 45 mm	
Protection category (DIN 40 050)	housing IP65	

Configuration notes

IO code 6

ID code 0

ID1 code:

- The ID 1 code can be written for all slaves, but only the slave with the lowest address defines the code for the remaining slaves.
- The ID1 code is equal for all slaves.
- The ID2 code for all slaves (for each different according to the profile) is specified by the ID1 code.

Number of associated AS-i slaves

ID1 = A: 2 AS-i slaves according to 8 bit
ID1 = B: 3 AS-i slaves according to 12 bit
else: 4 AS-i slaves according to 16 bit

AS-i-Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

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Programming

ID2 Codes				
	Adr n	Adr n+1	Adr n+2	Adr n+3
2 slaves = 8 bit	A	5	-	-
3 slaves = 12 bit	B	6	5	-
4 slaves = 16 bit	C	7	6	5

Parameter (first address)		
Parameter	Name	Description
P0	Auto/Fix	**1**: automatic switching between current and voltage **0**: current/voltage specified by P1
P1	Out U/I	**If P0 = 0:** **1**: OutI active **0**: OutU active else not used
P2	Peripheral fault	**1**: peripheral fault is indicated **0**: peripheral fault is not indicated
P3	In U/I	**If P0 = 0:** **1**: InI active **0**: InU active else not used

Parameter (second address)		
Parameter	Name	Description
P1, P0	Convertion rate InI, InU	**11**: fastest: 1 ms/8 bit **01**: medium fast/precise: 5 ms/12 bit **10**: highest precision: 20 ms/16 bit **00**: not used
P2	Format	**1**: 10 V = 10000, 20 mA = 20000 **0**: 10 V = 27648, 20 mA = 27648 (Siemens format)
P3	Bridge	**1**: Pin 2 and pin 4 bridged **0**: Pin 2 and pin 4 not bridged

Socket allocation and pinning
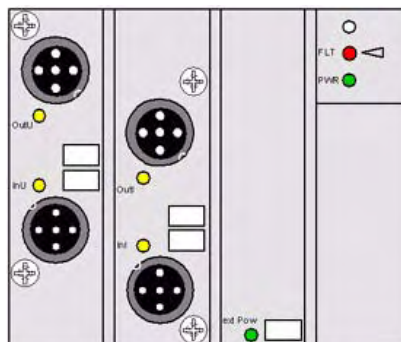
No.	InI, InU	OutI, OutU
1	+24 V	Sig+
2	Sig+	not used
3	0 V	Sig-
4	Sig-	not used
5	Shield	Shield

Accessories:

- AS-i substructure module to connect 2 AS-i flat cables (art. no. BW1180, see also page 148)
- AS-i substructure module to connect 1 AS-i flat cable, 1 flat cable for additional supply (art. no. BW1181, see also page 148)
- AS-i substructure module to connect 2 AS-i round cable (art. no. BW1182, see also page 148)
- AS-i substructure module to connect 1 AS-i round cable, 1 round cable for additional supply (art. no. BW1183, see also page 148)
- AS-i substructure module to connect 2 AS-i flat cables with addressing socket (art. no. BW1438, see also page 148)

AS-i Analog Module:
4 analog Inputs (M12)

4 analog Inputs on M12 Socket

Galvanical separation to AS-i

4 … 20 mA
0 … 10 V

Profile 7.3 "Plug and Play"
As simple as digital AS-i I/O

Protection category IP65

Article no. BWU1359 for 4 … 20 mA

Article no. BWU1360 for 0 … 10 V

Article no. BWU1742 for 0 … 10 V, advanced temperature range: -20°C … +70°C

The analog module has 4 analog inputs.

The connection of the sensors is made by **M12 connectors**. The current supply of the sensors can made out of AS-i or an external voltage supply (according to PELV). The current supply switches automatically to the supply out of external voltage supply, as soon as an external voltage is connected.

The analog sensors and AS-i are galvanical separated.

The conversion of the measured value and the data transmission via AS-i occurs asynchronically according to AS-i Profile 7.3. The resolution of the analog data is 16 Bit.

With infrared interface for slave addressing.

Article no.	BWU1359	BWU1360	BWU1742
Inputs	4 inputs 4 … 20 mA	4 inputs 0 … 10 V	
Voltage supply, sensors	via AS-i/extern	via AS-i/extern	
Internal resistance	50 Ω	100 kΩ	
Max. current per input	40 mA	40 mA	
Resolution	16 Bit/1 μA	16 Bit/1 mV	
Range of value	4000 … 20000 dez.	0 … 10000 dez.	
AS-i Profile	7.3		
ID Code	3_{hex}		
ID2 Code	E_{hex}		
IO Code	7_{hex}		
Displays			
LED green (PWR)	AS-i voltage		
LED red (FAULT)	AS-i communication error, peripheral fault		
LED green (AUX)	Voltage supply 24 V for the analog part		
LED yellow (In 1)	State of channel 1		
LED yellow (In 2)	State of channel 2		
LED yellow (In 3)	State of channel 3		
LED yellow (In 4)	State of channel 4		
Operating current	< 200 mA		
Operating voltage	AS-i (30 V DC)		
Voltage of insulation	$\geq$ 500 V		
EMC directions	EN 50081-2, EN 61000-6-2		
Operating temperature	0°C … +70°C	-20°C … +70°C	
Storage temperature	-20°C … +85°C	-20°C … +85°C	
Housing	Housing for DIN-rail mounting		
Dimensions (L, W, H)	80 mm, 90 mm, 43 mm		
Protection category (DIN 40 050)	Housing IP65		

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Links/Scanner

AS-i Slaves

AS-i Accessories/
Diagnostics/Development

Other Fieldbuses/
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AS-i Safety

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AS-i Analog Module:
4 analog Inputs (M12)

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Automatisierungstechnik

Programming:
(Bit-setting of AS-i parameters)

Bit P0 (BWU1359):
1: Bridge between Pin 3 and 4 active
0: Bridge between Pin 3 and 4 not active

Bit P0 (BWU1360, BWU1742):
Not used

Bit P1 and P2:

M12 connector:

1	24 V extern
2	Sig. +
3	0 V
4	Sig. -
5	Shield

Analog input is

P1	P2	1	2	3	4
0	0	on	off	off	off
0	1	on	on	off	off
1	0	on	on	on	off
1	1	on	on	on	on

Bit P3:
1: Peripheral fault (e. g. broken wire to the sensor) is indicated
0: Peripheral fault (e. g. broken wire to the sensor) is not indicated

Accessories:
- AS-i substructure module to connect 2 AS-i flat cables (article no. BW1180)
- AS-i substructure module to connect 1 AS-i flat cable, 1 flat cable for additional supply (article no. BW1181)
- AS-i substructure module to connect 2 AS-i round cable (article no. BW1182)
- AS-i substructure module to connect 1 AS-i round cable, 1 round cable for additional supply (article no. BW1183)
- AS-i substructure module to connect 2 AS-i flat cables with addressing socket (article no. BW1438)

AS-i Analog Module:
4 analog Outputs (M12)

4 analog Outputs on M12

Galvanical seperation to AS-i

0 … 20 mA
0 … 10 V

Profile 7.3 "Plug and Play"
As simple as digital AS-i I/O

Protection category IP65

Article no. BWU1361 for 0 … 20 mA

Article no. BWU1362 for 0 … 10 V

Article no. BWU1722 for 0 … 20 mA, 24 V extern on M12

Article no. BWU1736 for 0 … 10 V, advanced temperature range: -20°C … +70°C

The analog module has 4 analog outputs.

The connection of the actuators is made by **M12 connectors**. The current supply of the analog part (BWU1361, BWU1362) can made out of AS-i or an external voltage supply (according to PELV).

The current supply switches automatically to the supply out of external voltage supply, as soon as an external voltage is connected (BWU1361, BWU1362, BWU1736). At BWU1722 the

external 24 V supply is distributed additionally on M12 connectors for supply of small actuators (I_{max} < 1,1 A).

The actuators and AS-i are galvanical seperated.

The conversion of the measured value and the data transmission via AS-i occurs asynchronically according to AS-i Profile 7.3. The resolution of the analog data is 16 Bit.

With infrared interface for slave addressing.

Article no.	BWU1361	BWU1722	BWU1362	BWU1736
Inputs	4 outputs 0 … 20 mA		4 outputs 0 … 10 V	
Voltage supply, actuators	-	24 V extern 1,1 A	-	
Resolution	16 Bit/1 µA		16 Bit/1 mV	
Range of value	0 … 20000 dec.		0 … 10000 dec.	
AS-i Profile	7.3			
ID Code	3_{hex}			
ID2 Code	6_{hex}			
IO Code	7_{hex}			
Displays				
LED green (PWR)	AS-i voltage			
LED red (FAULT)	AS-i communication error, peripheral fault			
LED green (AUX)	Voltage supply 24 V for the analog part			
LED yellow (Out 1)	State of channel 1			
LED yellow (Out 2)	State of channel 2			
LED yellow (Out 3)	State of channel 3			
LED yellow (Out 4)	State of channel 4			
Operating current	< 200 mA	< 100 mA	< 200 mA	
Operating voltage	AS-i (30 V DC)			
Voltage of insulation	≥ 500 V			
EMC directions	EN 50081-2, EN 61000-6-2			
Operating temperature	0°C … +70°C			-20°C … +70°C
Storage temperature	-20°C … +85°C			-20°C … +85°C
Housing	Housing for DIN-rail mounting			
Dimensions (L, W, H)	80 mm, 90 mm, 43 mm			
Protection category (DIN 40 050)	Housing IP65			

AS-i-Master/Gateways/ Links/Scanner

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AS-i Analog Module:
4 analog Outputs (M12)

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Automatisierungstechnik

Programming:
(Bit-setting of AS-i parameters)

Bit P0:
1: Profile 7.3 is monitored
0: Profile 7.3 is not monitored

Bit P1, P3:
not used

Bit P2:
1: Peripheral fault (e. g. broken wire to the sensor) is indicated
0: Peripheral fault (e. g. broken wire to the sensor) is not indicated

M12 connector:

BWU1361,   BWU1722:
BWU1362,
BWU1736:

1	Sig.+
2	n.c.
3	Sig. -
4	n.c.
5	Shield

1	Sig.+
2	24 V ext.
3	Sig. -/0 V
4	n.c.
5	Shield

Accessories:

- AS-i substructure module to connect 2 AS-i flat cables (article no. BW1180)
- AS-i substructure module to connect 1 AS-i flat cable, 1 flat cable for additional supply (article no. BW1181)
- AS-i substructure module to connect 2 AS-i round cable (article no. BW1182)
- AS-i substructure module to connect 1 AS-i round cable, 1 round cable for additional supply (article no. BW1183)
- AS-i substructure module to connect 2 AS-i flat cables with addressing socket (article no. BW1438)

AS-i Analog Module: 4 Pt100 Inputs (M12)

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4 Pt100 Inputs on M12

Galvanical seperation to AS-i

Profile 7.3 "Plug and Play"
As simple as digital AS-i I/O

Protection category IP65

Article no. BWU1363

The analog module has 4 Pt100 inputs.

The connection of the sensors is made by **M12 connectors**. **The analog sensors and AS-i are galvanical seperated**.

The conversion of the measured value and the data transmission via AS-i occurs asynchronically according to AS-i Profile 7.3.

The resolution of the analog data is 16 bit. The analog modules contains 50 Hz and 60 Hz filters. These filters can be optionally activated with the help of the AS-Interface parameters.

With infrared interface for slave addressing.

Article no.	BWU1363	
Inputs	4 Pt100 inputs	
Voltage supply, sensors	via AS-i/extern	
Internal resistance	50 Ω	
Resolution	16 Bit/0,1 °C	
Range of value [°C]	-200°C … +850°C	
AS-i Profile	7.3	
ID Code	3_{hex}	
ID2 Code	E_{hex}	
IO Code	7_{hex}	
Displays		
LED green (PWR)	AS-i voltage	
LED red (FAULT)	AS-i communication error, peripheral fault	
LED yellow (I1)	State of channel 1	
LED yellow (I2)	State of channel 2	
LED yellow (I3)	State of channel 3	
LED yellow (I4)	State of channel 4	
Operating current	< 80 mA	
Operating voltage	AS-i (30 V DC)	
Voltage of insulation	$\geq$ 500 V	
EMC directions	EN 50081-2, EN 61000-6-2	
Operating temperature	0°C … +70°C	
Storage temperature	-20°C … +85°C	
Housing	Housing for DIN-rail mounting	
Dimensions (L, W, H)	80 mm, 90 mm, 43 mm	
Protection category (DIN 40 050)	Housing IP65	

Programming:
(Bit-setting of AS-i parameters)

Bit P0:
1: 50 Hz filter in A/D Converter active
0: 60 Hz filter in A/D Converter active

Bit P1 and P2:
A peripheral fault can be released through channel:

P1	P2	1	2	3	4
0	0	yes	no	no	no
0	1	yes	yes	no	no
1	0	yes	yes	yes	no

Bit P3:
1: 2 wire mode
0: 4 wire mode

M12 connector:

1	CH+
2	CHS+
3	CH-
4	CHS-
5	Shield

Accessories:

- AS-i substructure module to connect 2 AS-i flat cables (article no. BW1180)
- AS-i substructure module to connect 1 AS-i flat cable, 1 flat cable for additional supply (article no. BW1181)
- AS-i substructure module to connect 2 AS-i round cable (article no. BW1182)
- AS-i substructure module to connect 1 AS-i round cable, 1 round cable for additional supply (article no. BW1183)
- AS-i substructure module to connect 2 AS-i flat cables with addressing socket (article no. BW1438)

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Overview OEM Modules/AS-i Special Slaves

Housing	Module	Art. No.	Characteristic	P.
	AS-i 2I/2O-AB Module	BW1421		92
		BW1490	with Fault LED output	
		BW1443	with screw terminals	
		BW1957	without galvanical separation, screw terminal only on AS-i pins	
		BW1444	with wiring pins	
	AS-i 4I/3O-AB Module	BW1386	with wiring pins	93
		BW1387	with screw terminals	
	AS-i 4I/4O Module	BW1218	with wiring pins	94
		BW1219	with screw terminals	
	AS-i 4I/4O OEM Module	BW1628	with screw terminals	95
	AS-i 4I/4O Module	BW1388	galvanical separated, with wiring pins	96
		BW1389	galvanical separated, with screw terminals	
	AS-i 4I/4O Module with LEDs	BW1468	LED display of the I/Os	97
		BW1469	LED display of the I/Os, with wiring pins	
		BW1470	LED display of the I/Os, with screw terminals	
		BW1789	LED display of the I/Os, with screw terminals, lacquered	
	AS-i 6O-AB Module	BW1627	with screw terminals	98

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	AS-i 8I Module	BW1351	with wiring pins	99
		BW1352	with screw terminals	

	AS-i 8I/8O Module	BW1898	AS-i 8I/8O OEM Module, 2 4I/4O Single Slaves	100
		BW1899	AS-i 3.0 8I/8O OEM Module, 2 4I/4O-AB Slaves	
	AS-i 16I/16O Module	BW1900	AS-i 16I/16O OEM Module, 4 4I/4O Single Slaves	100
		BW1901	AS-i 3.0 16I/16O OEM Module, 4 4I/4O-AB Slaves	

| | AS-i OEM Slave with serial Interface | | developing platform for client specific electronics, specific serial protocols | 102 |

| | AS-i OEM Power Supply Module | BW1485 | OEM power supply out of AS-i | 103 |

| | AS-i OEM Carrier Board | BW1484 | 12 inputs - 12 outputs, 3 AS-i slave modules insertable | 104 |

| | AS-i 4I Module for Building Automation | BW1100 | | 105 |

| | AS-i Motor Control Module 2I/2O | BW1101 | | 105 |

OEM Modules/AS-i Special Slaves

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Special AS-i Slaves Solutions

to integrate in specific elektronics,

for building automation,

coupling of 2 AS-i networks,

to connect serial devices to the AS-i

Bihl+Wiedemann does not offer standard AS-i I/O modules to connect standard sensors or actuators to the AS-i. The focus is more to use AS-i slaves to solve very special problems in different fields with AS-i. Further special solutions on request.

AS-i 4I/4O Module

The AS-i 4I/4O Module, which meets the requirements of the AS-i according to specification 2.1 is the board based solution for an AS-i slave. The module can be used perfectly to integrate into client specific hardware, e. g. push button panels, signal lamps, actuating drives, etc.

4I/4O Module to integrate in client specific electronics

AS-i Slaves for building automation

These AS-i Slaves are board bases solutions to fit in installation housings. They are perfect to be used for building automation like lighting systems, venetian blind applicatons, etc.

AS-i 4I Module for building automation

Coupling of 2 AS-i systems

The AS-i/AS-i Coupler provides the easiest solution to exchange data between two PLCs via AS-i. In big applications with more than one AS-i network there is often a need to exchange data between two AS-i networks e. g. to report status information. With the use of the AS-i/AS-i coupler to solve these problems the installations costs as well as the components costs can be reduced.

AS-i/AS-i Coupler

Cylindrical AS-i slaves

The cyclindrical AS-i Slaves are AS-i I/O modules inside stainless steel sleeves. They can be mounted via reduction adapters in PG or metrical fittings. In that way devices with high protection can easily be interfaced to AS-i.

Cylindrical AS-i Actuator 1I/3O

Connection of serial devices to the AS-i

The AS-i Slaves with serial interface offer the posibility to connect complex devices, HMI terminals, serial printers, barcode scanners etc., to the AS-i.

For special applications a new firmware to connect a special device with serial interface can be implemented on the AS-i slave. In that way the serial device can be optimaly adjusted to the AS-i.

AS-i Slave with serial interface in protection class IP20

AS-i 2I/2O-AB Module

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AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

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AS-i 2I/2O-AB Module

AS-i Specification 2.1
AB Slave (up to 62 slaves)

Additional 2 holes
for

Art. no. 1421/1490   **with screw terminals**   **with wiring pins**

CE

Article no. BW1421

Article no. BW1443 with screw terminals

Article no. BW1957 without galvanical separation, screw terminal only on AS-i pins

Article no. BW1444 with wiring pins

Article no. BW1490 with Fault LED output

The AS-i 2I/2O-AB Module, which meets the requirements of the new AS-i Specification 2.1 is the board based solution for an AS-i slave. The board is completely powered by AS-i. The inputs and outputs are short circuit and overload protected.

If bus communication is interrupted (master failure), the outputs are switched to their currentless switching state by the watchdog.

Using the inputs, you can interrogate up to 2 mechanical switching elements. Using the outputs, you can drive up to 2 indicator lights, with the power being drawn from the AS-i system.

Customer-specific special orders are possible on short notice. The circuit board dimensions and the plug connections can be changed as well.

The AS-i 2I/2O-AB Module offers additionally 2 holes for assembly angles.

Advanced adressing (AB-technology, up to 62 slaves) is possible.

Article no.	BW1421	BW1443	BW1957	BW1444	BW1490
Connection	-	Screw terminal	Screw terminal only on AS-i pins	Wiring pins	-
Connection	Circuit board installation				
Quiescent current (Input = 0, Output = 0)	$\leq$ 20 mA				
Switching threshold of inputs	$\leq$ 0,8 mA (low) $\geq$ 5 mA (high)				
U	20 … 30 V DC				
Outputs	2, electronic				
Loading capacity	80 mA per output (sum of all outputs < 80 mA) 24 V DC				
Length of connector cables	I/O: max. 1,5 m				
Operating voltage	via AS-i				
Operating current	$\leq$ 200 mA				
EMC directions	EN 61 000-6-2 , EN 61 000-6-4				
Operating temperature	-25°C … +70°C				
Storage temperature	-40°C … +70°C				
Protection category (EN 60 529)	IP00 (soldering pins) IP20 (build in)				
Allowable shock and vibration stress	$\leq$ 15 g, T $\leq$ 11 ms 10 … 55 Hz, 0,5 mm amplitude				
Dimensions (L, W, H)	29,7 mm, 36,5 mm, 10 mm				27,7/36,5/10 mm

Programming
(Bit-setting)

Data bit
(Input via AS-i)
Bit Function
D0 Output A1
D1 Output A2
D2 Input E1
D3 Input E2

Parameter bit
Bit Function
P0 not used
P1 not used
P2 not used
P3 not used

Programming:
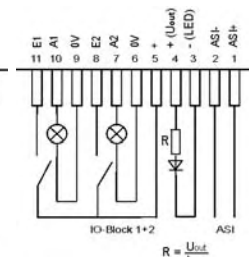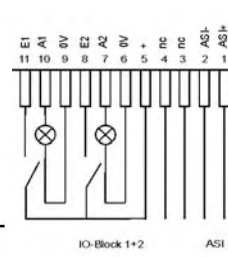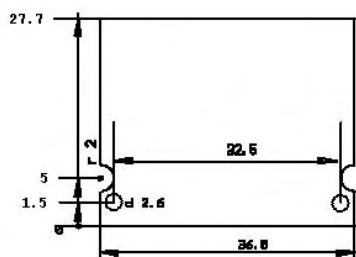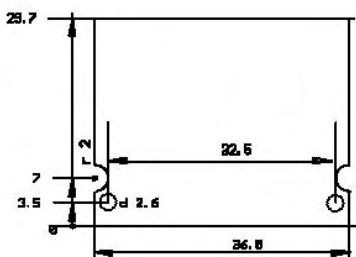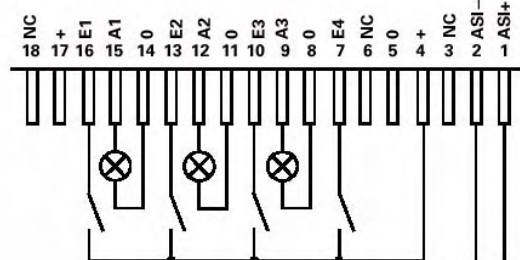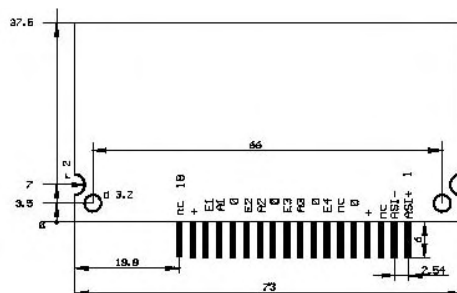Address preset 0 changeable via bus master or pro-gramming devices

IO Code   B
ID Code   A
ID2 Code E

Art no.: 1421/1443/1957/1444   **Art. no.: 1490**   **Art. no.: 1421/1443/1957/1444**   **Art. no.: 1490**

Distribución: **ER-SOFT, S.A.** Email: **er@er-soft.com**, Tel: +34 916 408 408

AS-i 4I/3O-AB Module

AS-i-Master/Gateways/Links/Scanner

AS-i Slaves

AS-i Accessories/Diagnostics/Development

Other Fieldbuses/Master Simulators

AS-i Safety

Price Lists

Bihl+Wiedemann

Automatisierungstechnik

AS-i 4I/3O-AB Module

**AS-i Specification 2.1
AB-Slave (up to 62 Slaves)**

**Additional 2 holes for
assembly angles**

with wiring pins   **with screw terminals**

$C\epsilon$

Article no. BW1386 with wiring pins

Article no. BW1387 with screw terminals

The AS-i 4I/3O-AB Module, which meets the requirements of the AS-i according to specification 2.1 is the board based solution for an AS-i Slave. The board is completely powered by AS-i. The inputs and outputs are short circuit and overload protected.

If bus communication is interrupted (master failure), the outputs are switched to their currentless switching state by the watchdog.

Using the inputs, you can interrogate up to 4 mechanical switching elements. Using the outputs, you can drive up to 3

indicator lights, with the power being drawn from the AS-i system.

Customer-specific special orders are possible on short notice. The circuit board dimensions and the plug connections can be changed as well.

The AS-i 4I/3O-AB Module offers additionally 2 holes for assembly angles.

Advanced adressing (AB-technology, up to 62 slaves) is possible.

Article no.	BW1386	BW1387
Connection	Wiring pins	Screw terminals
Connection	Circuit board installation	
Quiescent current (Input = 0, Output = 0)	$\leq$ 20 mA	
Switching threshold of inputs	$\leq$ 0,8 mA (low)	
	$\geq$ 5 mA (high)	
U	20 … 30 V DC	
Outputs	3, electronic	
Loading capacity	80 mA per output (sum of all outputs < 80 mA) 24 V DC	
Length of connector cables	I/O: max. 1,5 m	
Operating voltage	Via AS-i	
Operating current	$\leq$ 200 mA	
EMC directions	EN 50 081-2, EN 50 082-2	
Operating temperature	-25°C … +70°C	
Storage temperature	-40°C … +70°C	
Protection category EN 60 529	IP00 (soldering pins)	
	IP20 (build in)	
Allowable shock and vibration stress	$\leq$ 15 g, T $\leq$ 11 ms	
	10 … 55 Hz, 0,5 mm amplitude	
Dimensions (L, W, H)	73 mm, 37,5 mm, 7 mm	73 mm, 37,5 mm, 10 mm

Programming
(Bit-setting)

Data bit
(Input via AS-i)
Bit	Function
D0	Input I1/Output O1
D1	Input I2/Output O2
D2	Input I3/Output O3
D3	Input I4/Output O4

Parameter bit
Bit	Function
P0	not used
P1	not used
P2	not used
P3	not used

Programming:
Address preset 0
changeable via bus master or programming devices

IO Code 7
ID Code A
ID2 Code E

AS-i 4I/4O Module

AS-i Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

Bihl + Wiedemann

Automatisierungstechnik

AS-i 4I/4O Module

AS-i Specification 2.1
Single Slave (up to 31 Slaves)

Additional 2 holes for
assembly angles

with wiring pins   with screw terminals

Article no. BW1218 with wiring pins

Article no. BW1219 with screw terminals

The AS-i 4I/4O Module, which meets the requirements of the AS-i according to specification 2.1 is the board based solution for an AS-i slave. The board is completely powered by AS-i. The inputs and outputs are short circuit and overload protected.

If bus communication is interrupted (master failure), the outputs are switched to their currentless switching state by the watchdog.

Using the inputs, you can interrogate up to 4 mechanical switching elements. Using the outputs, you can drive up to 4 indicator lights, with the power being drawn from the AS-i system.

Customer-specific special orders are possible on short notice. The circuit board dimensions and the plug connections can be changed as well. The AS-i 4I/4O Module offers additionally 2 holes for assembly angles.

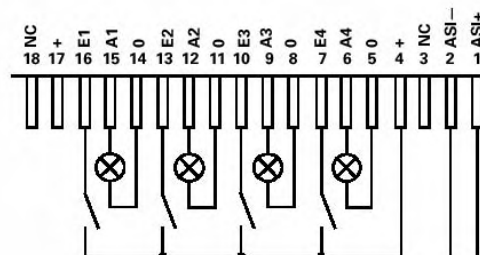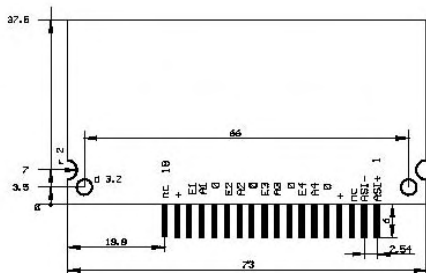| Article no.	BW1218	BW1219
Connection	Wiring pin	Screw terminals
Connection	Circuit board installation	
Quiescent current (Input = 0, Output = 0)	≤ 20 mA	
Switching threshold of inputs	≤ 0,8 mA (low) ≥ 5 mA (high)	
U	20 … 30 V DC	
Outputs	4	
Loading capacity	100 mA per output (sum of all outputs < 180 mA) 24 V DC	
Length of connector cables	I/O: max. 1,5 m	
Operating voltage	Via AS-i	
Operating current	≤ 200 mA	
EMC directions	EN 50 081-2, EN 50 082-2	
Operating temperature	-25°C … +70°C	
Storage temperature	-40°C … +70°C	
Protection category EN 60 529	IP00 (soldering pins) IP20 (build in)	
Allowable shock and vibration stress	≤ 15 g, T ≤ 11 ms 10 … 55 Hz, 0,5 mm amplitude	
Dimensions (L, W, H)	73 mm, 37,5 mm, 7 mm	73 mm, 37,5 mm 10 mm

Programming
(Bit-setting)

Data bit
(Input via AS-i)
Bit Function
D0 Input I1/Output O1
D1 Input I2/Output O2
D2 Input I3/Output O3
D3 Input I4/Output O4

Parameter bit
Bit Function
P0 not used
P1 not used
P2 not used
P3 not used

Programming:
Address preset 0
changeable via bus master or programming devices

IO Code 7
ID Code 0
ID2 Code F

AS-i 4I/4O OEM Module

AS-i-Master/Gateways/Links/Scanner

AS-i Slaves

AS-i Accessories/Diagnostics/Development

Other Fieldbuses/Master Simulators

AS-i Safety

Price Lists

Bihl+Wiedemann

Automatisierungstechnik

AS-i 4I/4O OEM Module

AS-i Specification 2.1
Single Slave (up to 31 Slaves)

Additional 2 holes for
assembly angles

Outputs galvanical separated
Inputs supplied by AS-i

CE

Article no. BW1628 with screw terminals

The AS-i 4I/4O OEM Module, which meets the requirements of the AS-i according to specification 2.1 is the board based solution for an AS-i slave. The supply of the inputs is made out of AS-i. The outputs are powered out of separated 24 V and are gavanical separated to the AS-i. Besides the in- and outputs are short-circuit-protected, overload-proof and pole-protected.

The state of the in- and outputs is indicated through 8 LEDs. Additionally the both AS-i LEDs (PWR green and FAULT red) display the state of the AS-i slaves as by AS-i slaves usually and U_{aux} is indicated with a green LED.

If bus communication is interrupted (master failure), the outputs are switched to their currentless switching state by the watchdog. A short-circuit of the outputs is notified as peripheral fault.

Customer-specific special orders are possible on short notice. The circuit board dimensions and the plug connections can be changed as well.

The AS-i 4I/4O OEM Module offers additionally 2 holes for assembly angles.

Article no.	BW1628
Connection	Screw terminals
Connection	Circuit board installation
8 LEDs yellow	States of in-/output channel 1 - 4
LED green (PWR)	AS-i voltage OK
LED red (FAULT)	Communication error
LED green (U_{aux})	Separated 24 V OK
Quiescent current (Input = 0, Output = 0)	< 20 mA
Switching threshold of inputs	< 0,8 mA (low), > 5 mA (high)
U	20 … 30 V DC (PELV)
Outputs	4, electronic
Loading capacity of inputs	Sum of all inputs < 180mA, supplied out of AS-i
Loading capacity of outputs	150 mA per output (sum of all outputs < 500mA), supplied by separated 24 V_{DC}
Length of connector cables	I/O: max. 1,5 m
Operating voltage	Via AS-i
Operating current	< 20 mA
EMC directions	EN 50 081-2, EN 50 082-2
Operating temperature	-25°C … +70°C
Storage temperature	-40°C … +70°C
Protection category EN 60 529	IP00 (soldering pins) IP20 (build in)
Dimensions (L, W, H)	73 mm, 37,5 mm, 10 mm

Programming
(Bit-setting)

Data bit
(input via AS-i)
Bit Function
D0 Input I1/Output O1
D1 Input I2/Output O2
D2 Input I3/Output O3
D3 Input I4/Output O4

Parameter bit
Bit Function
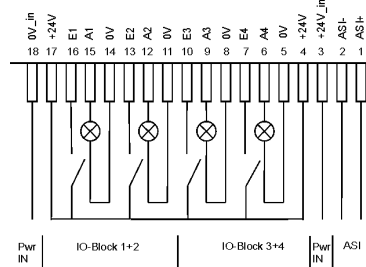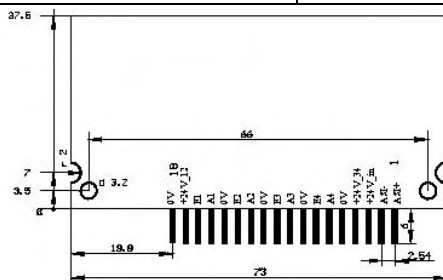P0 not used
P1 not used
P2 not used
P3 not used

Programming:
Address preset 0
changeable via bus master or programming devices

IO code 7
ID code 0
ID2 code E

Hint:
The module can not be used with the OEM carrier board BW1484.
0 V is generated out of 0V_in, +24 V is generated out of ASI+.
Between +24 V and 0 V no consumers may be connected.

AS-i 4I/4O Module

Bihl + Wiedemann

Automatisierungstechnik

AS-i Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

AS-i 4I/4O Module

AS-i Specification 2.1
Single Slave (up to 31 Slaves)

Additional 2 holes for assembly angles

Inputs/outputs galvanical separated

with wiring pins   with screw terminals

Article no. BW1388 with wiring pins
Article no. BW1389 with screw terminals

The AS-i 4I/4O Module, which meets the requirements of the AS-i according to specification 2.1 is the board based solution for an AS-i slave. The inputs and outputs are powered out of separated 24 V and are gavanical separated to the AS-i. Besides they are short-circuit-protected, overload-proof and pole-protected.

If bus communication is interrupted (master failure), the outputs are switched to their currentless switching state by the watchdog.

Using the inputs, you can interrogate up to 4 mechanical switching elements. Using the outputs, you can drive up to 4 indicator lights, with the power for the inputs and the outputs being drawn from separated 24 V.

Customer-specific special orders are possible on short notice. The circuit board dimensions and the plug connections can be changed as well.

The AS-i 4I/4O Module offers additionally 2 holes for assembly angles.

Article no.	BW1388	BW1389
Connection	Wiring pins	Screw terminals
Connection	Circuit board installation	
Quiescent current (Input = 0, Output = 0)	≤ 20 mA	
Switching threshold of inputs	≤ 0,8 mA (low) ≥ 5 mA (high)	
U	20 … 30 V DC (PELV)	
Outputs	4	
Loading capacity	100 mA per output (sum of all outputs < 200 mA) 24 V DC	
Length of connector cables	I/O: max. 1,5 m	
Operating voltage	Via AS-i	
Operating current	≤ 20 mA	
EMC directions	EN 50 081-2, EN 50 082-2	
Ambient operating temperature	-25°C … +70°C	
Storage temperature	-40°C … +70°C	
Protection category EN 60 529	IP00 (soldering pins) IP20 (build in)	
Allowable shock and vibration stress	≤ 15 g, T ≤ 11 ms 10 … 55 Hz, 0,5 mm amplitude	
Dimensions (L, W, H)	73 mm, 37,5 mm, 7 mm	73 mm, 37,5 mm, 10 mm

Programming
(Bit-setting)
Data bit
(Input via AS-i)

Bit	Function
D0	Input I1/Output O1
D1	Input I2/Output O2
D2	Input I3/Output O3
D3	Input I4/Output O4

Parameter bit

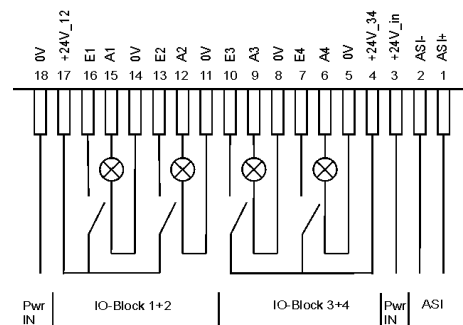| Bit	Function
P0	not used
P1	not used
P2	not used
P3	not used

Programming:
Address preset 0
changeable via bus master
or programming devices

IO code   7
ID code   0
ID2 code F

AS-i 4I/4O Module with LEDs

Bihl + Wiedemann

Automatisierungstechnik

AS-i 4I/4O Module with LEDs

LED display of the I/Os

AS-i Specification 2.1
Single Slave (up to 31 Slaves)

Additional 2 holes for
assembly angles

Article no. BW1468

Article no. BW1469 with wiring pins

Article no. BW1470 with screw terminals

Article no. BW1789 with screw terminals, lacquered

The AS-i 4I/4O Module, which meets the requirements of the AS-i according to specification 2.1 is the board based solution for an AS-i slave. The board is completely powered by AS-i. The inputs and outputs are short circuit and overload protected. The status of the in- and outputs is displayed by 8 LEDs. Additionally the both AS-i LEDs (AS-i Power green and AS-i Error red) show the status of the AS-i slave as by AS-i slaves usually.

If bus communication is interrupted (master failure), the outputs are switched to their currentless switching state by the watchdog.

Using the inputs, you can interrogate up to 4 mechanical switching elements. Using the outputs, you can drive up to 4 indicator lights, with the power being drawn from the AS-i system.

Customer-specific special orders are possible on short notice. The circuit board dimensions and the plug connections can be changed as well.

The AS-i 4I/4O Module offers additionally 2 holes for assembly angles.

Article no.	BW1468	BW1469	BW1470 BW1789
Connection	-	Wiring pin	Screw terminals
Connection	Circuit board installation		
Quiescent current (Input = 0, Output = 0)	≤ 20 mA		
Switching threshold of inputs	≤ 0,8 mA (low) ≥ 5 mA (high)		
U	20 … 30 V DC		
Outputs	4		
Loading capacity	100 mA per output (sum of all outputs < 180 mA) 24 V DC		
Length of connector cables	I/O: max. 1,5 m		
Operating voltage	Via AS-i		
Operating current	≤ 200 mA		
EMC directions	EN 50 081-2, EN 50 082-2		
Operating temperature	-25°C … +70°C		
Storage temperature	-40°C … +70°C		
Protection category EN 60 529	IP00 (soldering pins) IP20 (build in)		
Allowable shock and vibration stress	≤ 15 g, T ≤ 11 ms 10 … 55 Hz, 0,5 mm amplitude		
Dimensions (L, W, H)	73 mm, 37,5 mm, 7 mm		73 mm, 37,5 mm, 10 mm

Programming
(Bit-setting)

Data bit
(Input via AS-i)
Bit Function
D0 Input I1/Output O1
D1 Input I2/Output O2
D2 Input I3/Output O3
D3 Input I4/Output O4

Parameter bit
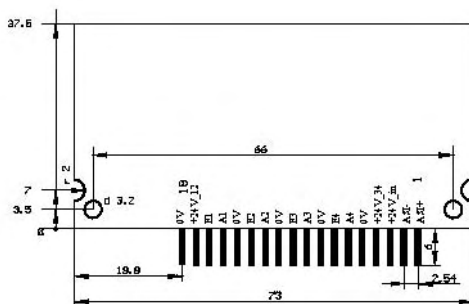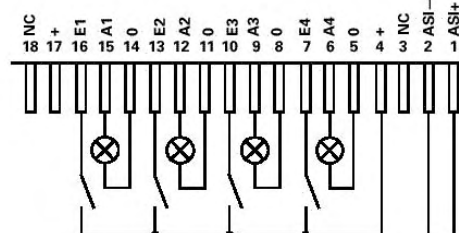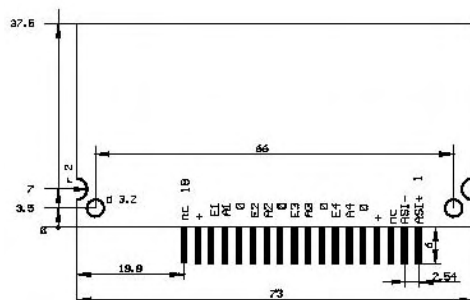Bit Function
P0 not used
P1 not used
P2 not used
P3 not used

Programming:
Address preset 0 changeable via bus master or programming devices

IO Code 7
ID Code 0
ID2 Code F

AS-i-Master/Gateways/Links/Scanner

AS-i Slaves

AS-i Accessories/Diagnostics/Development

Other Fieldbuses/Master Simulators

AS-i Safety

Price Lists

AS-i 6O-AB Module

AS-i 6O-AB Module

AS-i Specification 2.1
AB-Slave (up to 62 Slaves)

Additional 2 holes for
assembly angles

with screw terminals

Article no. BW1627 with screw terminals

The AS-i 6O-AB Module, which meets the requirements of the new AS-i according to specification 2.1 is the board based solution for an AS-i slave. The board is completely powered by AS-i. The outputs are short circuit and overload protected.

The board consists out of 2 AS-i A/B Slaves.

If bus communication is interrupted (master failure), the outputs are switched to their currentless switching state by the watchdog.

Using the outputs, you can drive up to 6 indicator lights, with the power being drawn from the AS-i system.

Customer-specific special orders are possible on short notice. The circuit board dimensions and the plug connections can be changed as well.

The module offers additionally 2 holes for assembly angles.

AS-i adressing/startup: The second AS-i slave is disconnected until the first AS-i slave is in data exchange. Also with the help of a dip-switch the 2. AS-i slave could be separated from the AS-i line.

Article no.	BW1627
Connection	Screw terminals
Connection	Circuit board installation
Quiescent current (Output = 0)	$\leq$ 20 mA
Outputs	6, electronic
Loading capacity	100 mA per output (sum of all outputs < 180 mA) 24 V DC
U	20 … 30 V DC
Supply current	Max. 200 mA
Length of connector cables	Max. 1,5 m
Operating voltage	Via AS-i
Operating current	$\leq$ 200 mA
EMC directions	EN 50 081-2, EN 50 082-2
Operating temperature	-25°C … +70°C
Storage temperature	-40°C … +70°C
Protection category EN 60 529	IP00 (soldering pins) IP20 (build in)
Allowable shock and vibration stress	$\leq$ 15 g, T $\leq$ 11 ms 10 … 55 Hz, 0,5 mm amplitude
Dimensions (L, W, H)	73 mm, 37,5 mm, 10 mm

Programming
(Bit-setting)

Data bit
(Input via AS-i)
Bit Functions
D0 Output O1, Slave 1
D1 Output O2, Slave 1
D2 Output O3, Slave 1
D3 -
D4 Output O4, Slave 2
D5 Output O5, Slave 2
D6 Output O6, Slave 2
D7 -

Programming:
Address preset 0 + 0
changeable only via AS-i Master in
configuration mode.
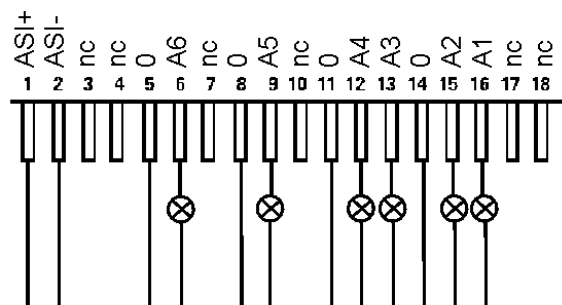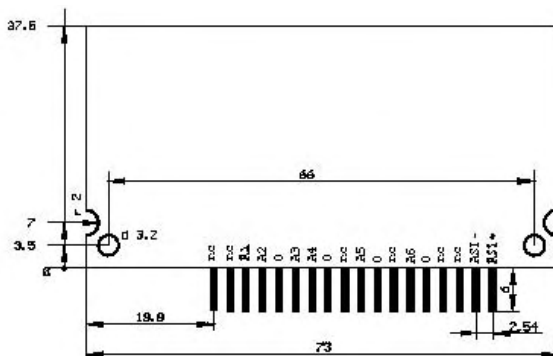
IO code: 8
ID code: A
ID2 code: 0

1: 2. AS-i slave connected

1: 2. AS-i slave disconnected

AS-i 8I Module

AS-i-Master/Gateways/
Links/Scanner

AS-i Slaves

AS-i Accessories/
Diagnostics/Development

Other Fieldbuses/
Master Simulators

AS-i Safety

Price Lists

AS-i 8I Module

AS-i Specification 2.1
AB-Slave (up to 62 Slaves)

Additional 2 holes for
assembly angles

with wiring pins   with screw terminals

Article no. BW1351 with wiring pins

Article no. BW1352 with screw terminals

The AS-i 8I Module, which meets the requirements of the AS-i according to specification 2.1 is the board based solution for 2 AS-i slave. The board is completely powered by AS-i. The power supply is short circuit and overload protected.

The board exists of 2 AS-i A/B-Slaves.

With the inputs 8 mechnical switches can be interrogated.

Customer-specific special orders are possible on short notice. The circuit board dimensions and the plug connections can be changed as well.

The AS-i 8I Module offers additionally 2 holes for assembly angles.

AS-i Adressing: The second AS-i slave is disconnected until the first AS-i slave is in data exchange. Also with the help of a dip-switch the 2. AS-i slave could be separated from the AS-i line.

Article no.	BW1351	BW1352
Connection	Wiring pin	Screw terminals
Connection	Circuit board installation	
Quiescent current (Input = 0)	≤ 20 mA	
Switching threshold of inputs	$\leq 0,8$ mA (low) ≥ 5 mA (high)	
U	20 … 30 V DC	
Supply current	Max. 200 mA	
Length of connector cables	Max. 1,5 m	
Operating voltage	Via AS-i	
Operating current	≤ 200 mA	
EMC directions	EN 50 081-2, EN 50 082-2	
Operating temperature	-25°C … +70°C	
Storage temperature	-40°C … +70°C	
Protection category EN 60 529	IP00 (soldering pins) IP20 (build in)	
Allowable shock and vibration stress	≤ 15 g, T ≤ 11 ms 10 … 55 Hz, 0,5 mm amplitude	
Dimensions (L, W)	73 mm, 37,5 mm, 7 mm	73 mm, 37,5 mm, 10 mm

Programming
(Bit-setting)

Data bit
(Input via AS-i)
Bit   Function
D0   Input I1, slave 1
D1   Input I2, slave 1
D2   Input I3, slave 1
D3   Input I4, slave 1
D4   Input I5, slave 2
D5   Input I6, slave 2
D6   Input I7, slave 2
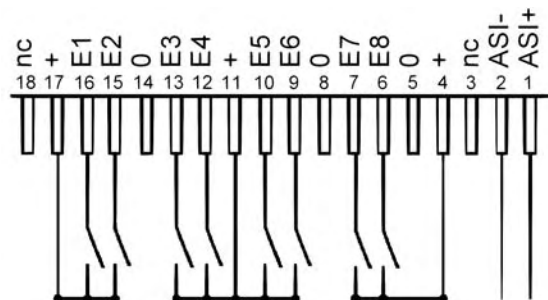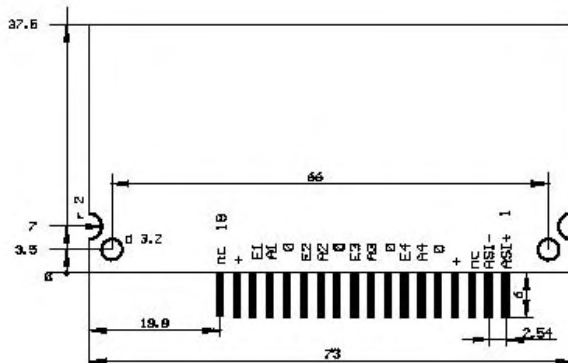D7   Input I8, slave 2

Programming:
Address preset 0 + 0
changeable only via AS-i Master in configuration mode.

IO Code   0
ID Code   A
ID2 Code 2

1: 2. AS-i slave connected
1: 2. AS-i slave disconnected

AS-i 8I/8O / 16I/16O Module

AS-i Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbusse/ Master Simulators

AS-i Safety

Preis Lists

AS-i 8I/8O OEM Module
2 4I/4O Single Slaves

AS-i 3.0 8I/8O OEM Module
2 4I/4O-AB Slaves

AS-i 16I/16O OEM Module
4 4I/4O Single Slaves

AS-i 3.0 16I/16O OEM Module
4 4I/4O-AB Slaves

BW1898, BW1899   BW1900, BW1901

CE

Article no. BW1898 AS-i 8I/8O OEM Module, 2 4I/4O Single Slaves

Article no. BW1899 AS-i 3.0 8I/8O OEM Module, 2 4I/4O-AB Slaves

Article no. BW1900 AS-i 16I/16O OEM Module, 4 4I/4O Single Slaves

Article no. BW1901 AS-i 3.0 16I/16O OEM Module, 4 4I/4O-AB Slaves

The AS-i Special Slave is realized by 2 resp. 4 AS-i slaves. The board is completely powered by AS-i.

A watchdog function is integrated. It powers the outputs off, if bus communication is interrupted (master failure).

The inputs/outputs can head for up to 8 resp. 16 LEDs. The energy is supplied by the AS-i system.

The addressing of 2 resp. 4 AS-i slaves is very easy with the help of 2 resp. 4 addressing sockets.

The extended addressing (AB-technique: up to 62 slaves, Single Slaves: up to 31 slaves) is possible.

Customer-specific special orders are possible on short notice. The circuit board dimensions and the plug connections can be changed as well.

Article no.	BW1898	BW1899	BW1900	BW1901
AS-i Specification	AS-i 2.1	AS-i 3.0	AS-i 2.1	AS-i 3.0
Extended addressing	≤ 31 slaves	≤ 62 slaves	≤ 31 slaves	≤ 62 slaves
Addressing	2 slaves	2 slaves	4 slaves	4 slaves
Connection	wiring pin			
Connection	Circuit board installation			
Quiescent current (input = 0, output = 0)	≤ 40 mA		≤ 50 mA	
Switching threshold of inputs	≤ 0,3 mA (low) ≥ 2 mA (high)			
U	20 .. 30 V DC			
Outputs	8		16	
Inputs	8		16	
Loading capacity	70 mA per output (sum of all outputs < 200 mA) 24 V DC, no inductive load, no short circuit			
Length of connector cables	I/O: max. 1,5 m			
Operating voltage	via AS-i			
Operating current	≤ 400 mA		≤ 500 mA	
EMC directions	EN 61000-6-2, EN 61000-6-4			
Operating temperature	-25°C .. +70°C			
Storage temperature	-40°C .. +70°C			
Protection category EN 60 529	IP00			
Allowable shock and vibration stress	≤ 15 g, T ≤ 11 ms 10 .. 55 Hz, 0,5 mm amplitude			
Dimensions (L, W, H)	104 mm, 41 mm, 16 mm		93 mm, 51 mm, 16 mm	

Programming
(Bit-setting)

Data bit
(Input via AS-i)
Bit Function
D0 Input I1/Output O1
D1 Input I2/Output O2
D2 Input I3/Output O3
D3 Input I4/Output O4

Parameter bit BW1898, BW1900
Bit Function
P0 not used
P1 not used
P2 not used
P3 not used

Parameter bit BW1899, BW1901
Bit Function
P0 0 = off/1 = on (watchdog)
P1 0 = on/1 = off (data input filter 128 µs)
P2 0 = on/1 = off (synchronous data I/O mode)
P3 not used
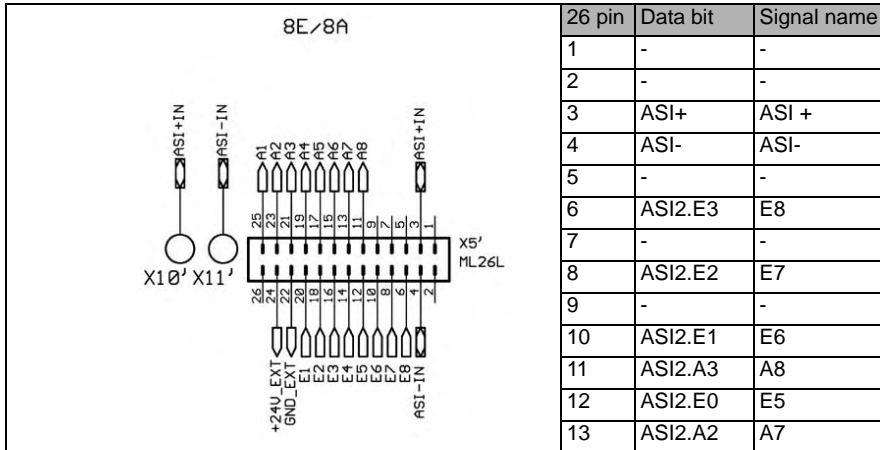
Programming:
Address preset 0
changeable via bus master or programming devices

AS-i Spec. 2.1 3.0
IO code   7   7
ID code   F   A
ID1 code (F) 7 (*fixed*)
ID2 code E   7

AS-i 8I/8O / 16I/16O Module

Connnections 8I/8O Module

8E/8A

26 pin	Data bit	Signal name
1	-	-
2	-	-
3	ASI+	ASI +
4	ASI-	ASI-
5	-	-
6	ASI2.E3	E8
7	-	-
8	ASI2.E2	E7
9	-	-
10	ASI2.E1	E6
11	ASI2.A3	A8
12	ASI2.E0	E5
13	ASI2.A2	A7

26 pin	Data bit	Signal name
14	ASI1.E3	E4
15	ASI2.A1	A6
16	ASI1.E2	E3
17	ASI2.A0	A5
18	ASI1.E1	E2
19	ASI1.A3	A4
20	ASI1.E0	E1
21	ASI1.A2	A3
22	GND_EXT	GND_EXT
23	ASI1.A1	A2
24	+24V_EXT	+24V_EXT
25	ASI1.A0	A1
26	-	-

Connnections 16I/16O Module

16E/16A
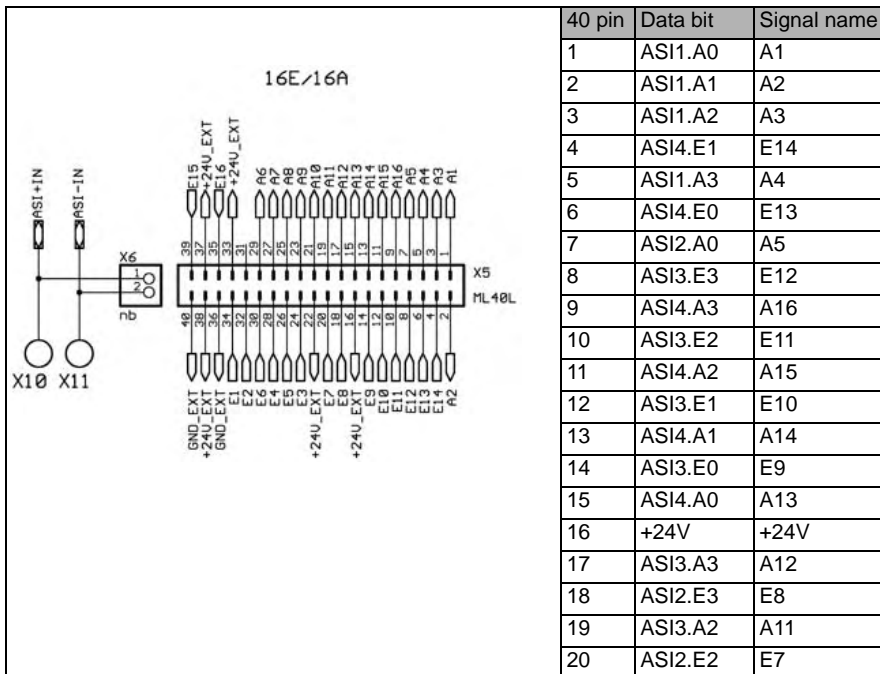
40 pin	Data bit	Signal name
1	ASI1.A0	A1
2	ASI1.A1	A2
3	ASI1.A2	A3
4	ASI4.E1	E14
5	ASI1.A3	A4
6	ASI4.E0	E13
7	ASI2.A0	A5
8	ASI3.E3	E12
9	ASI4.A3	A16
10	ASI3.E2	E11
11	ASI4.A2	A15
12	ASI3.E1	E10
13	ASI4.A1	A14
14	ASI3.E0	E9
15	ASI4.A0	A13
16	+24V	+24V
17	ASI3.A3	A12
18	ASI2.E3	E8
19	ASI3.A2	A11
20	ASI2.E2	E7

40 pin	Data bit	Signal name
21	ASI3.A1	A10
22	+24V	+24V
23	ASI3.A0	A9
24	ASI1.E2	E3
25	ASI2.A3	A8
26	ASI2.E0	E5
27	ASI2.A2	A7
28	ASI1.E3	E4
29	ASI2.A1	A6
30	ASI2.E1	E6
31	-	-
32	ASI1.E1	E2
33	+24V	+24V
34	ASI1.E0	E1
35	ASI4.E3	E16
36	GND	GND
37	+24V	+24V
38	+24V	+24V
39	ASI4.E2	E15
40	GND	GND
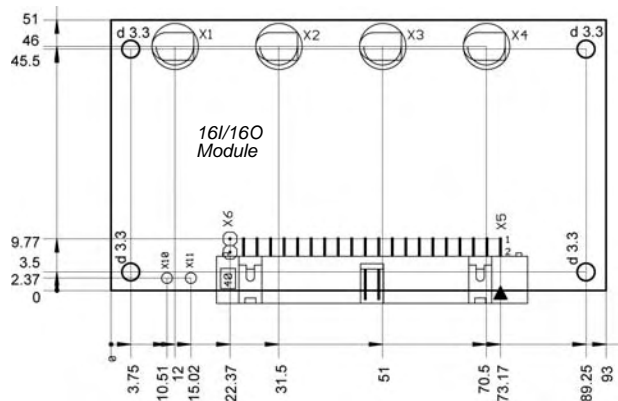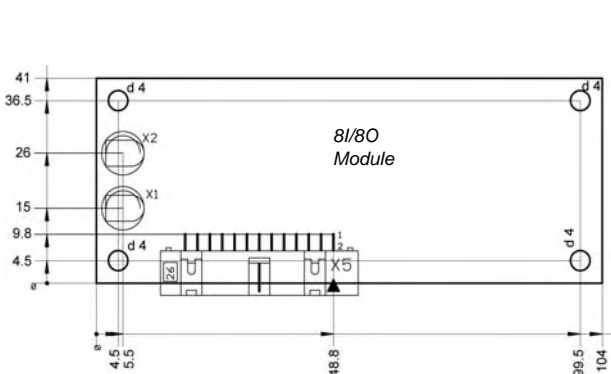
8I/8O Module

16I/16O Module

Side tabs:
- AS-i-Master/Gateways/Links/Scanner
- AS-i Slaves
- AS-i Accessories/Diagnostics/Development
- Other Fieldbusses/Master Simulators
- AS-i Safety
- Preisl Lists

AS-i OEM Slave with serial Interface

AS-i Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

AS-i OEM Slave with serial Interface

Developing platform for client specific electronics, specific serial protocols

Single slave (A/B slave possible with appropriate protocol)

Additional 2 holes for assembly angles

The AS-i OEM Slave with serial interface is a developing platform with its help client specific electronics can be connected to AS-i. With the help of the AS-i profile S-7.3 (other profiles on request) a grater data volume can be transferred via AS-i easily. The data can be operated easily in the AS-i master via the command interface from a PLC.

Customer-specific special orders are possible on short notice.

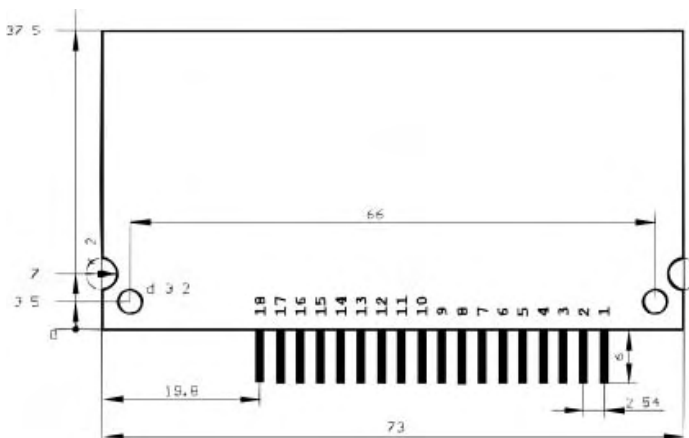| Technical data	
Connection	Screw terminals
Connection	Circuit board installation
Customer interface	TTL, RS 232 or RS 485, galvanical separated to AS-i
Baud rates	Up to 19200 bit/s
Length of connector cable	I/O: max. 1,5 m
Operating voltage AS-i part	Via AS-i
Operating voltage customer interface	20 … 30 V DC, 80 mA out of customer electronic, 5 V supply on request
Operating current AS-i part	$\leq$ 100 mA
EMC directions	EN 61 000-6-2, EN 61 000-6-4
Operating temperature	-25°C … +70°C
Storage temperature	-40°C … +70°C
Protection category (EN 60 529)	IP20 (build in)
Allowable shock and vibration stress	$\leq$ 15 g, T $\leq$ 11 ms 10 … 55 Hz, 0,5 mm amplitude
Dimensions (L, W, H)	73 mm, 37,5 mm, 10 mm

Programming
(Bit-setting)

Data range
Analog input data image, channel 1

Parameter bit
Bit Function
P0 not used
P1 not used
P2 not used
P3 not used

Programming:
Address preset 0
changeable via bus master or programming devices

IO code   7
ID code   3
ID2 code 8

Pin	Connection		Pin	Connection
1	ASI+		10	RXD TTL
2	ASI-		11	TXD TTL
3	nc		12	TXD RS 232
4	nc		13	RXD RS 232
5	nc		14	GND supply input
6	nc		15	RS 485 positive
7	nc		16	RS 485 negative
8	nc		17	24 V supply input
9	nc		18	nc

AS-i OEM Power Supply Module

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Automatisierungstechnik

AS-i-Master/Gateways/Links/Scanner

AS-i Slaves

AS-i Accessories/Diagnostics/Development

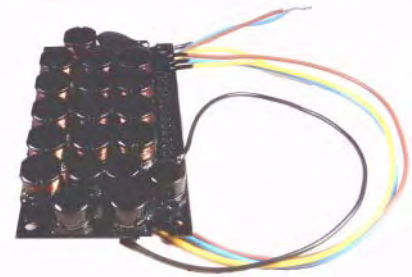Other Fieldbuses/Master Simulators

AS-i Safety

Price Lists

AS-i OEM Power Supply Module

OEM Power Supply out of AS-i

U_{aux} out of AS-i

1,5 A max. (by approx. 24 V)
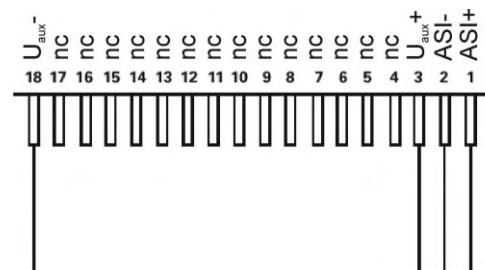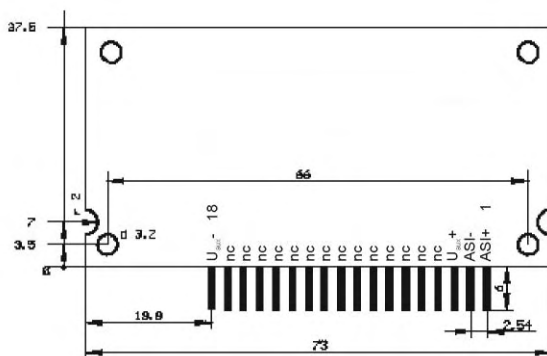
Help energy out of AS-i

CE

Article no. BW1485

With the help of the OEM Power Supply Module it is possible to take out up to 1,5 A current (by approx. 24 V) out of AS-i. The help energy can be used for supply of ventils or other consumers.

Every time if there is no additional help energy for supply available for example in moved parts, in robots or by far away locations in a plant, it is possible to take out the help energy out of AS-i with the help of the OEM Power Supply Module. With help of the OEM Power Supply Module it is possible to cut of conducting additional 24 V help energy to bad accessible places.

The OEM Power Supply Module occupies no slave addresses. But the module loads the AS-i circuit with the impedance of 7 AS-i slaves (single slaves). Therefore the maximum account of slaves is restricted. According AS-i specification it is allowed to operate only up to 24 single or 48 AB-slaves in connection with a OEM Power Supply Module at an AS-i rope.The OEM Power Supply Module is short circuit protected. For protection against dust and humidity the modul is varnished.

Article no.	BW1485
Connection	via fastened line
U_{aux}	20 … 30 V DC
Loading capacity	1,5 A
EMC directions	EN 50 081-2 , EN 50 082-2
Operating temperature	-25°C … +70°C
Storage temperature	-25°C … +70°C
Protection category EN 60 529	IP00
Allowable shock and vibration stress	≤ 15 g, T ≤ 11 ms 10 … 55 Hz, 0,5 mm amplitude
Dimensions (L, W, H)	73 mm, 37,5 mm, 7 mm

AS-i OEM Carrier Board

AS-i Master/Gateways/
Links/Scanner

AS-i Slaves

AS-i Accessories/
Diagnostics/Development

Other Fieldbuses/
Master Simulators

AS-i Safety

Price Lists

AS-i OEM Carrier Board

12 Inputs - 12 Outputs

3 AS-i Slave Modules insertable

Optimal easy connectibility

Needs low space

CE

Article no. BW1484

The AS-i OEM Carrier board allows the fitting of up to 3 carriers. The OEM Carriers are simply put with the wiring pins into the prescribed sockets. The signals of the OEM Carriers are connected 1 to 1 with the cage clamps of the OEM Carrier board. It ist possible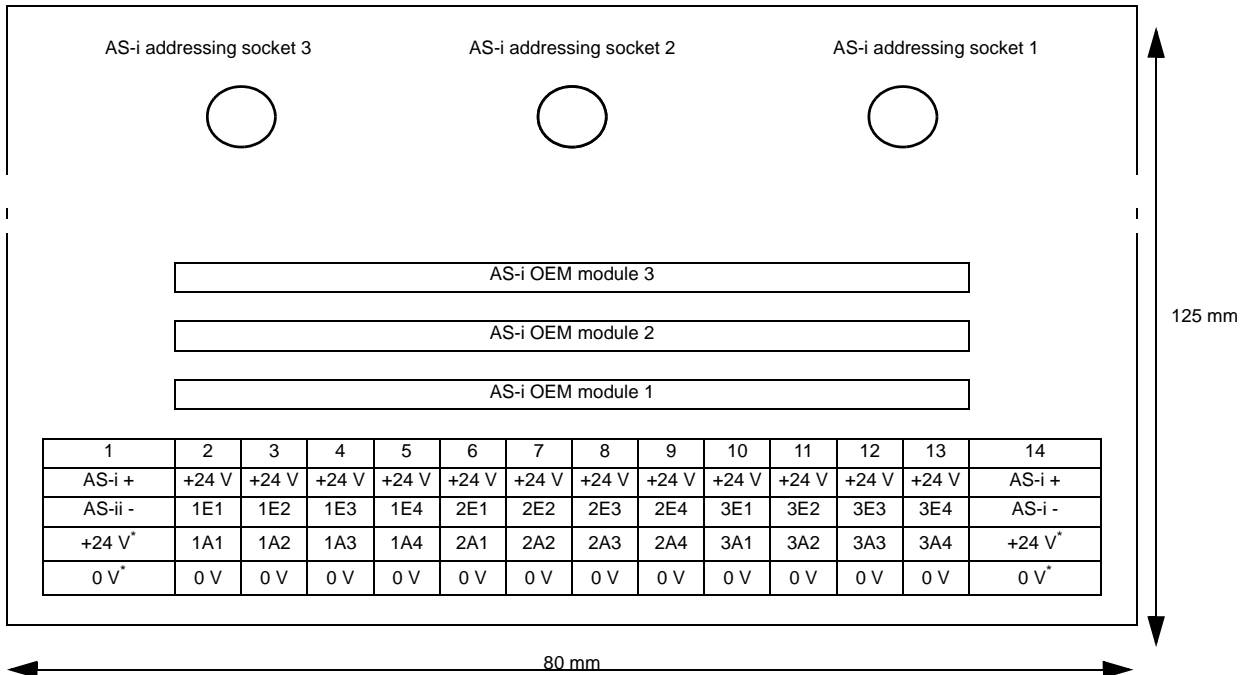 to connect simply up to 12 inputs and 12 outputs with the help of cage clamps by low space consumption. All connections are accessible from one side.

The OEM Carrier board is suitable for the use of AS-i 4I/4O Modules with and without galvanical separation, AS-i 4I/3O-AB Modules.

Suitable modules:

Article	Building form	Article no.
4I/3O-AB module	wiring pins	BW1386
4I/4O module	wiring pins	BW1218
4I/4O module with galvanical seperation	wiring pins	BW1388

Connection of the cage clamp block:

AS-i addressing socket 3   AS-i addressing socket 2   AS-i addressing socket 1

AS-i OEM module 3

AS-i OEM module 2

AS-i OEM module 1

125 mm

1	2	3	4	5	6	7	8	9	10	11	12	13	14
AS-i +	+24 V	+24 V	+24 V	+24 V	+24 V	+24 V	+24 V	+24 V	+24 V	+24 V	+24 V	+24 V	AS-i +
AS-ii -	1E1	1E2	1E3	1E4	2E1	2E2	2E3	2E4	3E1	3E2	3E3	3E4	AS-i -
+24 V*	1A1	1A2	1A3	1A4	2A1	2A2	2A3	2A4	3A1	3A2	3A3	3A4	+24 V*
0 V*	0 V	0 V	0 V	0 V	0 V	0 V	0 V	0 V	0 V	0 V	0 V	0 V	0 V*

80 mm

*: The feeding of the +24 V module supply only by use of galvanical separated 4I/4O Modules (Article No. BW1388). By all other modules these cage clamps are unconnected.

AS-i Motor Control Module (2I/2O)

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Automatisierungstechnik

AS-i-Master/Gateways/Links/Scanner

AS-i Slaves

AS-i Accessories/Diagnostics/Development

Other Fieldbuses/Master Simulators

AS-i Safety

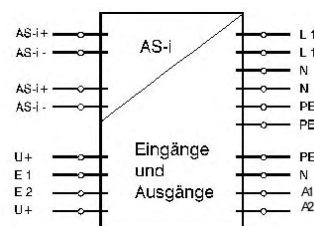Price Lists

Connections:

Article no. BW1101

This module is an AS-i slave with two inputs and two outputs. It is built for house automation.The outputs are 380 V relays (FINDER), which can be used to control motors (forward (FW), backward (BW), OFF).

The inputs can be connected with conventional sensors, keys or switches. The module can be installed in a SAREL 3160 casing. The wires are connected with cage clamp terminal blocks (no screws). An exchangeable fuse is installed (2 A).

Technical data	
Inputs	2
OFF current	I < 1 mA
ON current	I < 3 mA
Outputs (relays)	2
External voltage U_H	max. 380 V DC
External current I_H	max. 10 A
Operating current I_B	< 85 mA
Operrating voltage U_B	via AS-i (30 V)
EMC directions	EN 50 082, EN 50 081
Operating temperature	0°C … +60°C
Storage temperature	-25°C … +70°C
Dimensions (L, W, H)	85 mm, 53 mm, 31 mm

Address-setting:
Default address 00
IO Code B
ID Code F

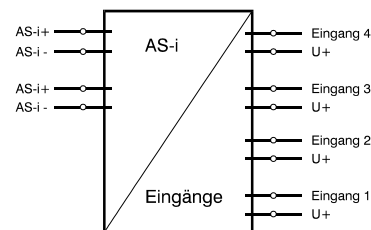**Data bit setting**
D0 Input 1
D1 Input 2
D2 Input 1
D3 Input 2

Outputs:

D0	D1	L1
0	0	no connection (OFF)
1	1	FW
0	1	BW
1	1	FW

AS-i 4I Module for Building Automation

Connections:

Article no. BW1100

This 4I module is built for applications in house automation. It is an AS-i slave with four inputs. The inputs can be connected with conventional sensors, keys or switches. The module can be

installed in a SAREL 3160 housing. The wires will be connected with cage clamp (no screw).

Technical data	
Inputs	4
OFF current	I < 1 mA
ON current	I < 3 mA
Operating current I_B	< 50 mA
Operating voltage U_B	via AS-i (30 V)
EMC directions	EN 50 082, EN 50 081
Operating temperature	0°C … +60°C
Storage temperature	-25°C … +70°C
Dimensions (L, W, H)	72 mm, 54 mm, 18 mm

Adress-setting:
Default setting 00
IO Code 0
ID Code F

Data bit setting
D0 Input 1
D1 Input 2
D2 Input 3
D3 Input 4

AS-i Master/Gateways/
Links/Scanner

AS-i Slaves

AS-i Accessories/
Diagnostics/Development

Other Fieldbuses/
Master Simulators

AS-i Safety

Price Lists

Mannheim, 8.8.06   We reserve the right to change any data   www.bihl-wiedemann.de

Overview Specialities

Housing	Module	Art. No.	Characteristic	P.
	AS-i Counter Module	BWU1574	2-channel input	108
		BWU1710	2 x 2-channel input	
		BW1723	1-channel input (analog)	110
		BW1711	1-channel input (0 to 15)	109
	AS-i Analog Module	BW1664	2 inputs for Leuze ODSL 30 distance sensors	111
	AS-i Code Block	BW1527	with 2 code switches	112
	AS-i/AS-i Coupler	BW1187	connection of 2 AS-i networks via 2 internal 4I/4O slaves	113
		BW1280	connection of 2 AS-i networks via 2 internal 4I/4O slaves, protection category IP65	114

AS-i-Master/Gateways/
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AS-i Slaves

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AS-i Safety

Price Lists

AS-i Counter Module

AS-i Master/Gateways/
Links/Scanner

AS-i Slaves

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Other Fieldbuses/
Master Simulators

AS-i Safety

Price Lists

2/4-Channel Input

Profile 7.3 "Plug and Play"
As simple as digital AS-i I/O

High protection category IP65

Article no. BWU1574: 2-channel Counter Module
Article no. BWU1710: 2 x 2-channel Counter Module

The AS-i Counter Module has 2 inputs for standard sensors.

The module counts the impulses up- and downwards with the two channels (BWU1574) or twice two channels (BWU1710) and outputs the result as 16 bit value (-32768 … 32767) via AS-i. The start value is -32768.

With the help of parameters the module can be set to zero as well as the counting direction can be defined. Different pre-divisors are available, which can be select via AS-i parameters as well.

As long as the AS-i parameter for setting zero is set the counting is stopped. After the setting to zero of the counting value a pre-divisor or the AS-i parameter for no pre-divisor must be adjusted again.

The module reports a peripheral fault at counter overflow (underflow).

Article no	BWU1574	BWU1710
Inputs	2 inputs	4 inputs
Voltage supply, sensors	via AS-i	
Range of value	-32768 … 32767 dec. (start value: -32768)	
Counting rate	max. 2,2 kHz	max. 1,4 kHz
Power supply sensor	max. 150 mA	
AS-i profile	7.3	
ID code	3_{hex}	
ID2 code	C_{hex}	D_{hex}
IO code	7_{hex}	
Displays		
LED green (Ch 1)	State of channel 1	
LED green (Ch 2)	State of channel 2	
LED green (PWR)	AS-i voltage	
LED red (FAULT)	AS-i communication error, peripheral fault	
Operating current	< 200 mA	
Operating voltage	AS-i (30 V DC)	
Voltage of insulation	$\geq$ 500 V	
EMC	According EN 50081-2, EN 61000-6-2	
Operating temperature	0°C … +70°C	
Storage temperature	-25°C … +85°C	
Housing	Housing for DIN-rail mounting	
Dimensions (L, W, H)	90 mm, 80 mm, 43 mm	
Protection category (DIN 40 050)	Housing IP65	

Programming:
(Bit-setting of AS-i parameters)

P2	P1	P0	BWU1574
0	0	0	Set zero
0	0	1	Pre-divisor 64
0	1	0	Pre-divisor 32
0	1	1	Pre-divisor 16
1	0	0	Pre-divisor 8
1	0	1	Pre-divisor 4
1	1	0	Pre-divisor 2
1	1	1	No pre-divisor

P2	P1	P0	BWU1710
0	0	0	Set zero 1
0	0	1	Pre-divisor 64
0	1	0	Pre-divisor 32
0	1	1	Set zero 2
1	0	0	Pre-divisor 8
1	0	1	Pre-divisor 4
1	1	0	Pre-divisor 2
1	1	1	No pre-divisor

P3	BWU1574/BWU1710
1	Count upwards
0	Count downwards

Connections:

1	24 V out of AS-i
2	Channel 1/3
3	0 V out of AS-i
4	Channel 2/4
5	n.c.

Connection counter BWU1574

Connection counter BWU1710

AS-i Counter Module

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Automatisierungstechnik

AS-i-Master/Gateways/
Links/Scanner

AS-i Slaves

AS-i Accessories/
Diagnostics/Development

Other Fieldbuses/
Master Simulators

AS-i Safety

Price Lists
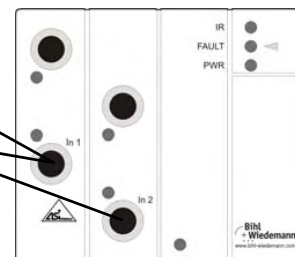
1-Channel Input

Profile 7.3 "Plug and Play"
As simple as digital AS-i I/O

High protection category IP65

CE

Article no. BW1723: AS-i Counter Module

The AS-i Counter Module has 1 input for standard sensors.

The module counts the impulses or frequency up- and downwards with the 1 channel and outputs the result as a 16 bit value (-32768...32767) via AS-i. The start value is -32768.

With the help of parameters the module can be set to zero as well as the counting direction can be defined.

With parameter P2 the user can choose between counting impulses or frequency measurement.

As long as the AS-i parameter for setting zero is set the counting is stopped.

The module reports a peripheral fault at counter overflow (underflow) or when status input is going invalid (low).

Article no	BW1723
Input	1 input
Voltage supply, sensors	via external voltage 24 V
Range of value	-32768 … 32767 dec. (start value: -32768)
Counting rate	max. 4 kHz
Power supply sensor (ext. 24V)	max. 700 mA
AS-i profile	7.3
ID code	3_{hex}
ID2 code	C_{hex}
IO code	7_{hex}
Displays	
LED yellow	State of channel 1
LED green (PWR)	AS-i voltage
LED red (FAULT)	AS-i communication error, peripheral fault
Operating current	< 200 mA
Operating voltage	AS-i (30 V DC)
Voltage of insulation	≥ 500 V
EMC	According EN 50081-2, EN 61000-6-2
Operating temperature	0°C … +70°C
Storage temperature	-25°C … +85°C
Housing	Housing for DIN-rail mounting
Dimensions (L, W, H)	90 mm, 80 mm, 43 mm
Protection category (DIN 40 050)	Housing IP65

Programming:
(Bit-setting of AS-i parameters)

P0	Operation
0	set zero
1	normal operation

P1	Gate time
0	8 s gate time for frequency
1	1 s gate time for frequency

P2	Mode
0	impulse
1	frequency

P3	Counting direction
0	count downwards
1	count upwards

Accessories:
AS-i substructure module to connect 1 AS-i flat cable, 1 flat cable for additional supply (art. no. BW1181, see also page 148)

AS-i substructure module to 1 AS-i round cable, 1 round cable for additional supply (art. no. BW1183, see also page 148)

Connections:

1	24 V extern
2	channel 1 +, pulse/freq. input
3	0 V extern
4	status input
5	do not connect

Connection counter

AS-i Master/Gateways/
Links/Scanner

AS-i Slaves

AS-i Accessories/
Diagnostics/Development

Other Fieldbuses/
Master Simulators

AS-i Safety

Price Lists

AS-i Counter Module (0-15)

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Automatisierungstechnik

1-Channel Input

As simple as digital AS-i I/O

High protection category IP65

AS-i connection via bottom module or M12

ϵ

Article no. BW1711: AS-i Counter Module (0 to 15)

The AS-i Counter Module has 1 input for standard sensors. The module counts the impulses from (0 … 15) via AS-i. The start value is 0. When reaching the count 15 the module starts at 0 again. The counter module loads the current value and determines the number of pulses between two host calls from the difference between this value and the previous.

With the help of parameters the module can be set to zero as well as the counting direction can be defined.

As long as the AS-i parameter for setting zero is set the counting is stopped.

Article no	BW1711
Inputs	1 input
Voltage supply, sensors	via AS-i
Range of value	0 … 15 dec. (start value: -0)
Counting rate	max. 769 Hz
Power supply sensor	max. 150 mA
AS-i profile	S-0.F
ID code	F_{hex}
IO code	0_{hex}
ID1 code	F_{hex}
ID2 code	E_{hex}
Displays	
LED yellow	State of channel 1
LED green (PWR)	AS-i voltage
LED red (FAULT)	AS-i communication error, peripheral fault
Operating current	< 200 mA
Operating voltage	AS-i (30 V DC)
Voltage of insulation	$\geq$ 500 V
EMC	According EN 50081-2, EN 61000-6-2
Operating temperature	0°C … +70°C
Storage temperature	-25°C … +85°C
Housing	Housing for DIN-rail mounting
Dimensions (L, W, H)	90 mm, 80 mm, 43 mm
Protection category (DIN 40 050)	Housing IP65

Programming:
(Bit-setting of AS-i parameters)

P1	P0	not used

P2	
1	normal mode
0	set zero

P3	
1	count upwards
0	count downwards

Accessories:
AS-i substructure module to connect 1 AS-i flat cable, 1 flat cable for additional supply (art. no. BW1181, see also page 148)
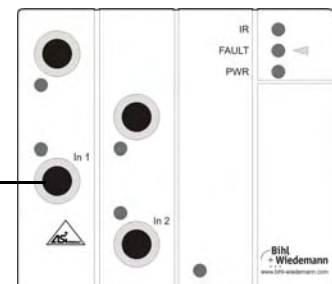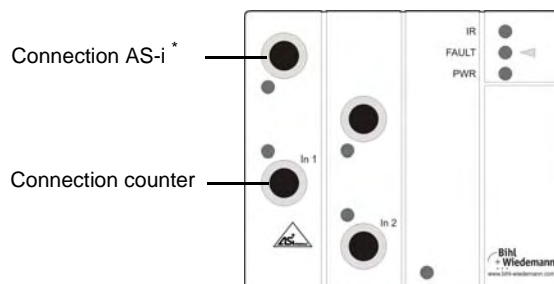
AS-i substructure module to 1 AS-i round cable, 1 round cable for additional supply (art. no. BW1183, see also page 148)

Connection AS-i

1	AS-i +
2	n.c.
3	AS-i -
4	n.c.
5	n.c.

Connection Counter:

1	24 V out of AS-i
2	input
3	0 V out of AS-i
4	n.c.
5	n.c.

Connection AS-i *

Connection counter

* Remark: If you use this connection for AS-i,
do not connect an AS-i cable to the substructure.

AS-i Analog Module: 2 Inputs
for Leuze ODSL 30 Distance Sensors

2 ODSL Distance Sensors connectable

Connection of the ODSL 30
via M12 socket

High protection category IP65

Article no. BW1664

2 ODSL 30 can be connected to the module. The measured values are transfered asynchronically to the host with the help of the AS-i profile 7.3. the distance sensors are connected via 4 pin M12 sockets.The communication between ODSL 30 and the AS-i module is made by RS485.

The distance sensors are supplied out of an external 24 V voltage.

With the help of AS-i parameters the referencing can be started and the number of the connected ODSL 30 can be set. The peripheral fault is set, if an error occurs twotimes in succession at measuring or referencing.

Article no.	BW1664
Inputs	max. 2 ODSL 30
Voltage supply, sensors	via AS-i
Resolution	mm (10 … 32766)/16 Bit
AS-i profile	7.3
ID code	3_{hex}
ID2 code	D_{hex}
IO code	7_{hex}
Displays	
LED green (Analog 1)	State of channel 1
LED green (Analog 2)	State of channel 2
LED green (PWR)	AS-i voltage
LED red (FAULT)	AS-i communication error, periphal fault
Operating current	< 250 mA
Operating voltage	AS-i (30 V DC)
Voltage of insulation	$\geq$ 500 V
EMC directions	EN 50081-2, EN 61000-6-2
Operating temperature	0°C … +70°C
Storage temperature	-25°C … +85°C
Housing	Housing for DIN-rail mounting
Dimensions (L, W, H)	90 mm, 80 mm, 70 mm
Protection category (DIN 40 050)	Housing IP65

Programming:
(Bit-setting via AS-i parameters)

Bit P0:
1: It is measured on sensor 1
0: Sensor 1 is referencing

Bit P1:
(Bit P1 is not used, if bit P3 = 0)
1: It is measured on sensor 2
0: Sensor 2 is referencing

Bit P2:
1: Peripheral fault is allowed
0: Peripheral fault is not allowed

Bit P3:
1: Sensors 1 and 2 are used
0: Sensor 1 is used only

Settings at the ODSL 30:
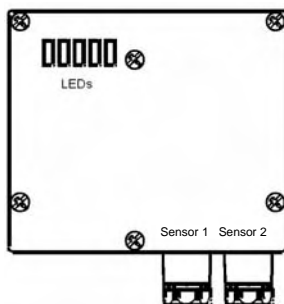Serial Menue: Remote Control, Baudrate 19200, Node Address 0

Accessories:
AS-i substructure module to connect 1 AS-i flat cable, 1 flat cable for additional supply (art. no. BW1181, see also page 148)
AS-i substructure module to 1 AS-i round cable, 1 round cable for additional supply (art. no. BW1183, see also page 148)

Connections (M12 socket, 4 pins):

1	+24V
2	RS485 TX+
3	0V
4	RS485 TX-

AS-i-Master/Gateways/
Links/Scanner

AS-i Slaves

AS-i Accessories/
Diagnostics/Development

Other Fieldbuses/
Master Simulators

AS-i Safety

Price Lists

AS-i Code Block

AS-i Code Block

Codes from 0 to 255

**Adjustment via
2 rotary switches**

2 AB Slaves

CE

Article no. BW1527 with 2 code switches

With the help of the 2 slaves for example tools (changing AS-i circuits) can be coded from 0 to 255.

The AS-i Code Block consists of 2 AS-i slaves and 2 rotary switches with which a value each from 0_{hex} to F_{hex} (0 to 15 decimal) can be adjusted. The adjusted values of the rotary switches are connected with the inputs of the AS-i slaves. The codes are transmitted via AS-i and can be proccessed easy in the I/O area of the controller.

There is a common Fault LED (red) and a green AS-i Power LED. Additionally there are 2 LEDs for each slave: One for the code switch (yellow, on when code is not zero) and one for communication error (red).

The AS-i Code Block is equiped with two programming sockets.

Technical data

Article no.	BW1527
Interfaces	AS-i
IO code (slave 1 and 2)	0_{hex}
ID code (slave 1 and 2)	A_{hex}
ID1 code	F_{hex}
ID2 code	E_{hex}
LED red (Fault)	Communication error
LED green (PWR)	AS-i voltage OK
LEDs for slave 1 and 2:	
1x LED red (Fault 1/Fault 2)	Slave 1/slave 2 offline
1x LED yellow (Code 1/Code 2)	Code switch unequal zero
1x address sockets	for slave 1 and slave 2
Operating current	< 50 mA per slave
Operating voltage	AS-i (30 V DC)
Voltage of insulation	≥ 500 V
EMC directions	EN 61000-6-2, EN 51081-2
Operating temperature	0°C … +55°C
Storage temperature	-25°C … +85°C
Housing	Housing for DIN-rail mounting
Dimensions (L, W, H)	45 mm, 80 mm, 50 mm
Protection category (DIN 40 050)	Housing IP65
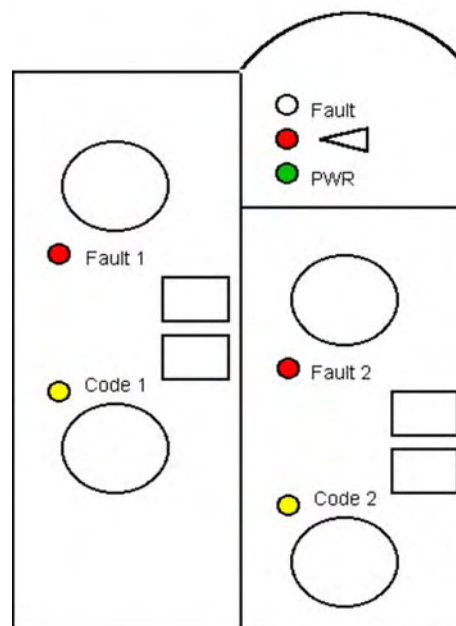
Accessories:

- AS-i substructure module to connect 2 AS-i flat cable (Article no. BW1180, see also page 148)
- AS-i substructure module to connect 2 AS-i round cable (Article no. BW1182, see also page 148)

AS-i/AS-i Coupler in IP20

Bihl+Wiedemann

Automatisierungstechnik

AS-i-Master/Gateways/
Links/Scanner

AS-i Slaves

AS-i Accessories/
Diagnostics/Development

Other Fieldbuses/
Master Simulators

AS-i Safety

Price Lists

Connection of 2 AS-i Networks
via 2 internal 4I/4O Slaves

**Easy data exchange
between 2 AS-i Networks via
the internal 2 AS-i Slaves**

Article no. BW1187

The AS-i/AS-i Coupler provides the easiest solution to exchange data between two PLCs via AS-i.

In big applications with more than one AS-i network there is often a need to exchange data between two AS-i networks, e. g. to report the process status. This problem was solved in the past with the help of 2 normal AS-i 4I/4O Modules, with the inputs of one slave connected to the outputs of the other slave. With the use of the AS-i/AS-i Coupler to solve this problem the installation costs as well as the components costs can be reduced.

The AS-i/AS-i Coupler consists of two 4I/4O Slaves in one housing. The outputs of one slave are connected to respective inputs of the other slave and vice versa (AS-i output data bit 0 of the first slave with AS-i input data bit 0 of the second slave and vice versa, etc.).

There is a galvanic isolation between both AS-i networks.

Each AS-i slave has got 6 LEDs, 4 LEDs for the 4 outputs, one power LED and 1 LED for AS-i faults. Furthermore each slave has got an address socket.

As long as one of both slaves does not exchange data the other slave reads on each input a 0 as default.

Technical data

Article no.	BW1187
Interfaces	AS-i circuit 1 and 2
IO-Code (slave 1 and 2)	7_{hex}
ID-Code (slave 1 and 2)	F_{hex}
ID1-Code (slave 1 and 2)	F_{hex}
ID2-Code (slave 1 and 2)	E_{hex}
LEDs for slave 1 and 2	
LED green (power)	AS-i voltage ON
1x LED red (FAULT)	AS-i communication error, peripheral fault
4x LEDs yellow	output 1 up to output 4
2x address socket (ADDR)	for slave 1 and slave 2
Operating current	< 80 mA per slave
Operating voltage	AS-i (30 V DC)
Voltage of insulation	≥ 500 V
EMC directions	EN 50 082, EN 50 081
Operating temperature	0°C … +55°C
Storage temperature	-25°C … +85°C
Housing	Housing for DIN-rail mounting
Dimensions (L, W, H)	99 mm, 22,5 mm, 92 mm
Protection category (DIN 40 050)	Housing IP20

AS-i connections via 4-pin COMBICON plug:
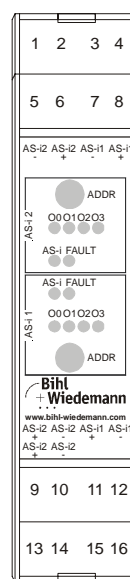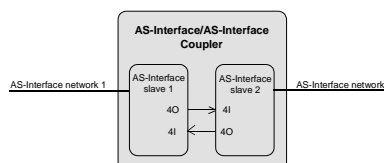
1	AS-i2-
2	AS-i2+
3	AS-i1-
4	AS-i1+
5	n.c.
6	n.c.
7	n.c.
8	n.c.
9	AS-i2+
10	AS-i2-
11	AS-i1+
12	AS-i1-
13	AS-i2+
14	AS-i2-
15	n.c.
16	n.c.

AS-i/AS-i Coupler in IP65

AS-i Master/Gateways/
Links/Scanner

AS-i Slaves

AS-i Accessories/
Diagnostics/Development

Other Fieldbuses/
Master Simulators

AS-i Safety

Price Lists

**Connection of 2 AS-i Networks
via 2 internal 4I/4O Slaves**

**Easy data exchange
between 2 AS-i Networks via
the internal 2 AS-i Slaves**

High protection class IP65

CE

Article no. BW1280

The AS-i/AS-i Coupler provides the easiest solution to exchange data between two PLCs via AS-i.

In big applications with more than one AS-i network there is often a need to exchange data between two AS-i networks, e. g. to report the process status. This problem was solved in the past with the help of 2 normal AS-i 4I/4O Modules, with the inputs of one slave connected to the outputs of the other slave. With the use of the AS-i/AS-i Coupler to solve this problem the installation costs as well as the components costs can be reduced.

The AS-i/AS-i coupler consists of two 4I/4O Slaves in one housing. The outputs of one slave are connected to respective inputs of the other slave and vice versa (AS-i output data bit 0 of the first slave with AS-i input data bit 0 of the second slave and vice versa, etc.).

There is a galvanic isolation between both AS-i networks.

Each AS-i slave has got 5 LEDs, 4 LEDs for the 4 outputs and one power LED. Furthermore each slave has got an address socket.

As long as one of both slaves does not exchange data the other slave reads on each input a 0 as default.

Technical data

Article no.	BW1280
Interfaces	AS-i circuit 1 and 2
IO-Code (slave 1 and 2)	7_{hex}
ID-Code (slave 1 and 2)	F_{hex}
ID1-Code (slave 1 and 2)	F_{hex}
ID2-Code (slave 1 and 2)	E_{hex}
LEDs for slave 1 and 2	
2x 4 LEDs yellow	Output 1 up to output 4
2 x LED green/red (PWR/FAULT)	AS-i voltage/Communication error
2x address sockets	for slave 1 and slave 2
Operating current	< 80 mA per slave
Operating voltage	AS-i (30 V DC)
Voltage of insulation	$\geq$ 500 V
EMC directions	EN 50 082, EN 50 081
Operating temperature	0°C … +55°C
Storage temperature	-25°C … +85°C
Housing	Housing for DIN-rail mounting
Dimensions (L, W, H)	90 mm, 80 mm, 70 mm
Protection category (DIN 40 050)	Housing IP65

AS-i connections via yellow AS-i cable
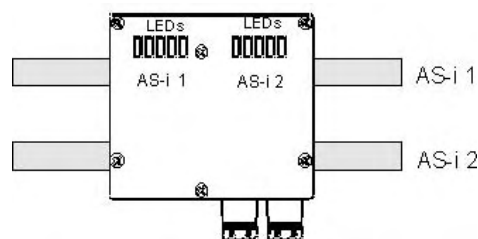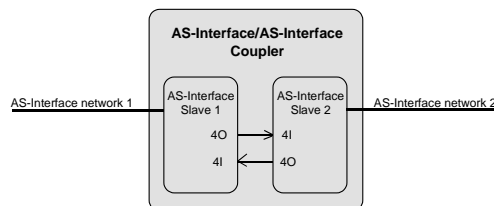
Overview AS-i Drive Solutions

Housing	Module	Art. No.	Characteristic	P.
	Cylindrical AS-i Actuator 1I/3O	BW1275 BW1647	single slave (up to 31 slaves) AB slave (up to 62 slaves)	117
	AS-i Slave for MOVIMOT by SEW Eurodrive	BW1164		118

AS-i-Master/Gateways/Links/Scanner

AS-i Slaves

AS-i Accessories/Diagnostics/Development

Other Fieldbuses/Master Simulators

AS-i Safety

Price Lists

**Connection of
variabel speed drives
and motors with integrated
switching and protection**

Application sample

The AS-i - originally designed to network binary sensors and actuators - offers in combination with the AS-i slaves for frequency inverters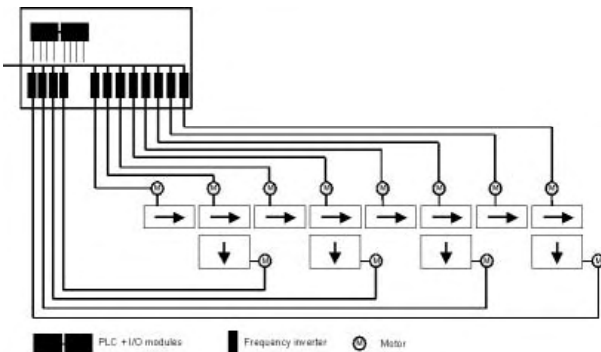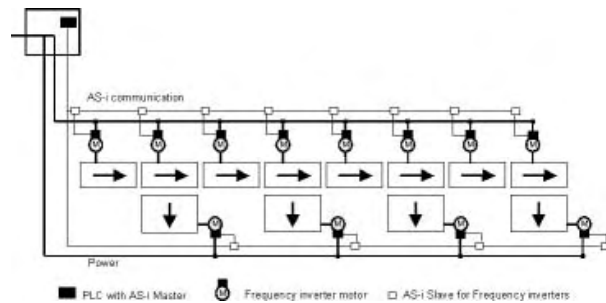 and decentralizes frequency inverters frequency inverter motors a posibility to create new plant structures together with drives. The advantages of AS-i like small costs, high felxibility, easy handling can be combined with the functionality of frequency inverters and especially frequency inverter motors as well as with motors with integrated switching and protection function in an efficient way. That concept provides the user a real alternativ to create new solutions for machines and plants which were former realized with more powerful fieldbus systems.

Picture:1 Traditional concept with parallel wiring

Picture 1 shows a production line with 12 conveyar belts. Each conveyer belt is variable speed driven. The power cabeling between frequency inverter and the decentral located

motors is conventionally installed. The parallel wiring starts at the central cabinet and ends at the particular motors. This means a big cabinet with all PLC I/O slots as well as all frequency inverters.

Picture 2: decentral frequency inverter motors communicating via AS-i

Picture 2 shows a cabeling alternative for the same production line, with frequency inverters or frequency inverter motors decentral located and communicating via AS-i. In opposite to the parallel power wiring only two cables go through the plant - the AS-i to transmit the control signals and the power bus.

As you can see from this example there are possibilities to minimize the cabinet card, the power cabeling, if AS-i is used in combination with decentral used drives. Further advantages are the posibility to design modular plant structures, to minimize the installation time and test time. This all leads to an earlier start of the production which means less "dead" money.

Cylindrical AS-i Actuator 1I/3O

AS-i I/O Module in Stainless Steel Sleeve

**Simple networking of standard
actuators with high protection class
via AS-i**

1I/3O

**Mounting via reduction adapters
into PG or metrical fittings**

Additional 24 V

Article no. BW1275: Single slave (up to 31 slaves)

Article no. BW1647: AB slave (up to 62 slaves)

The cylindrical AS-i Actuator enables a simple networking of standard actuators with high protection class via AS-i.

The slave is a 1I/3O Module inside a M18 stainless steel sleeve. It can be mounted via reduction adapters in PG or metrical fittings. This allows a rugged and quick mounting. It is connected to the AS-i line and the additional 24 V via M12 round connector. Two LEDs display power and AS-i communication errors.

Article no.	BW1275/BW1647
Quiescent current (inputs = 1, outputs = 0)	≤ 20 mA
Switching threshold of inputs	≤ 0,5 mA (low) ≥ 0,8 mA (high)
External voltage supply U	18 … 30 V DC (PELV)
Outputs	3 pnp outputs
Loading capacity	20 mA per output
Operating voltage	via AS-i
Operating current	< 30 mA
Voltage of insulation	≥ 500 V
EMC directions	EN 50 081-2, EN 50 082-2
Operating temperature	0°C … +70°C
Storage temperature	-25°C … +70°C
Protection category EN 60 529	IP67 (mounted)
LED (green/red)	power/AS-i diagnostics
Allowable shock and vibration stress	≤ 15 g, T ≤ 11 ms 10 … 55 Hz, 0,5 mm amplitude
Dimensions sleeve	M18x1, length 55 mm
Length of cable	approx. 20 cm
AS-i Connection	M12x1 round connector

Cable:
- red: U+
- black: U-
- yellow: A1
- orange: A2
- brown: A3
- green: E1

M12 round connector:
Pin 1: AS-i +
PIn 2: U-
PIn 3: AS-i -
PIn 4: U+
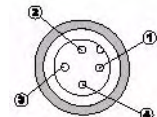
**Programming
(Bit-setting)
AS-i Data bits**
Bit Function
D0 output A1
D1 output A2
D2 output A3
D3 input E1

Parameter bit
Bit Function
P0 not used
P1 not used
P2 not used
P3 not used

Programming:
Address preset 00
changeable via bus master or
programming device

	BW1275	BW1647
IO Code	9	9
ID Code	F	A
ID2 Code	0	E

Connection:
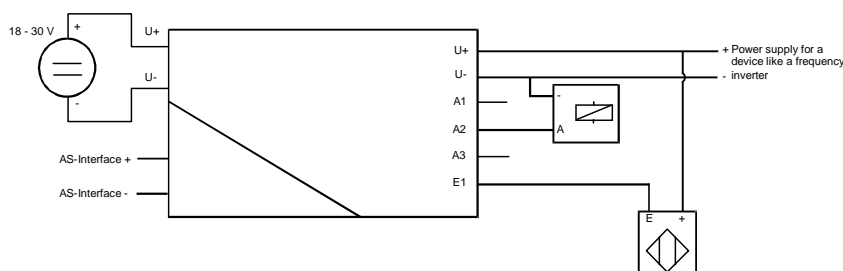
U+, U- not short circuit protected (max. 1A)

Accessories: Reduction sleeve PG16/M18x1 (Art. no. BW1241)
Reduction sleeve M25/M18x1 (Art. no. BW1282)

AS-i-Master/Gateways/Links/Scanner

AS-i Slaves

AS-i Accessories/Diagnostics/Development

Other Fieldbuses/Master Simulators

AS-i Safety

Price Lists

AS-i Slave for Frequency Inverters

AS-i Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

AS-i Slave for Motors with intergrated Frequency Inverters

Easy control via preset speeds

Setpoint value via AS-i analog protocol

High protection class IP65

2 additional inputs and external 24 V

CE

Article no. BW1164: AS-i Slave for MOVIMOT by SEW Eurodrive

Function

The AS-i Slave with serial interface enables the data exchange and the programming of frequency inverters with the help of an easy connection to AS-i. The AS-i Slaves consist of an AS-i 4I/4O Module as bus interface a serial interface to communicate with the frequnecy inverter. The MOVILINK protocol of MOVIMOT is implemented in the AS-i Slave. Varying operation modes are assigned to the different AS-i parameters.

1. Cyclic-Mode (AS-i Parameter = F_{hex})

The 4 AS-i data bits represents tight procedures.

Meaning of the AS-i output data bits e. g.:

0 = logical 0, 1 = logical 1, X = optional

Bit 3	Bit 2	Bit 1	Bit 0	Function
X	X	X	0	forward
X	X	X	1	backward
0	0	0	0	Reset
0	0	0	1	Stop
0	0	1	X	preset speed1 (15%)
0	1	0	X	preset speed 2 (20%)
0	1	1	X	preset speed 3 (25%)
1	0	0	X	preset speed 4 (33%)
1	0	1	X	preset speed 5 (50%)
1	1	0	X	preset speed 6 (100%)
1	1	1	X	preset speed 7 (AS-i parameter B)

The timeout monitoring is activated In the cyclic mode if one of the preset speeds is set and deactived if one of the bit combinations for STOPP o reception is set. For all preset speeds of this mode the ramp transmitted with AS-i parameter B_{hex} is used. Is

this value equal zero no ramp is transmitted to the frequency inverter and the ramp set in the frequency inverter is used. The default value for the ramp is 0.

Meaning of the AS-i output data bits:

Bit 3	Bit 2	Bit 1	Bit 0	Function
X	X	X	0	not ready to work
X	X	X	1	ready to work
0	0	0	X/0	system error
0	0	1	X/0	FI not ready
0	1	0	X/1	FI ready / locked
0	1	1	X/1	FI ready / realeased
1	0	0	X/0	overvoltage
1	0	1	X/0	overload output stage
1	1	0	X/0	overload motor
1	1	1	X/0	overload brakereel

2. AS-i Parameter = D_{hex})

The AS-i parameter D_{hex} corresponds to the cylic mode (AS-i parameter F_{hex}) at the AS-i output data.

Additionally two inputs are transmitted to the AS-i slave. The AS-i input data bits have following meaning:

Bit 0: 1 motor turns
0 motor stops

Bit 1: 0 no error
1 error

Bit 2: input 1

Bit 3: input 2

AS-i Slave for Frequency Inverters

Technical data

Article no.	BW1164
Serial interface	RS 485
Initially wiring	PNP
Input	2
Voltage supply, sensors	via external 24 V
Voltage range	20 - 30 V DC
Current per input	≤ 13 mA
Input current high/low	≥ 5 mA/≤ 1,0 mA
Baud rates	9600 bit/s
Displays	
LED green (power)	Power on
LED yellow (ser active)	Serial communication active
LED red (rem. err.)	Frequency inverter error
LED yellow (input 1)	Input 1
LED yellow (input 2)	Input 2
Operating current	< 80 mA
Operating voltage	AS-i (30 V DC)
Voltage of insulation	≥ 500 V
EMC directions	EN 50082, EN 50081
Operating temperature	0°C … +55°C
Storage temperature	-25°C … +85°C
Housing	Housing for DIN-rail mounting
Dimensions (L, W, H)	90 mm, 80 mm, 70 mm
Protection category (DIN 40 050)	Housing IP65
Connections	AS-i and 24 V: Electromechanical interface (penetration technique) RS 485, 24 V and 3 inputs: Heavy gauge terminals and cage clamp terminal blocks
Weight	355 g

Connections:

Connection of RS 485 interface, inputs and 24 V on cage clamp terminal block.

At MOVIMOT the bus address has to be set to 1 with the dip switch.

The external 24 V is protected with an idle fuse.

1	24V ext.
2	In1
3	0V ext.
4	24V ext.
5	FE
6	SCREEN
7	24V ext.
8	In2
9	0V ext.
10	0V ext.
11	BUS N
12	BUS P

LEDs

1	2	3	4	5	6
7	8	9	10	11	12
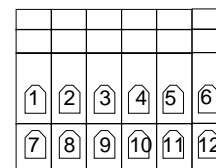
cage clamp terminals

Accessories:

• AS-i substructure module to connect 1 AS-i flat cable, 1 flat cable for additional supply (Art. no. BW1181)

• AS-i substructure module to connect 1 AS-i round cable, 1 round cable for additional supply (Art. no. BW1183)

AS-i-Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

Note

AS-i Master/Gateways/Links/Scanner

AS-i Slaves

AS-i Accessories/Diagnostics/Development

Other Fieldbuses/Master Simulators

AS-i Safety

Price Lists

Bihl + Wiedemann

Automatisierungstechnik

Overview Diagnostics/Commissioning

Housing	Device	Art. No.	Characteristic	P.
	AS-i Analyser Innovation Step 2	BW1415	complementation of local AS-i Master diagnostic	122
	AS-i Signal Measuring Adapter	BW1559	output of the AS-i I/O via digital and analog outputs	123
	AS-i Address Programming Device	BW1191	with plug-in recharger 230 V	125
		BW1646	with plug-in recharger 115 V (Version North Amerika)	
	Accessories for AS-i Address Programming Device	BW1935	AS-i addressing cable - infrared addressing adapter	
		BW1802	Connecting cable (Module/programming device)	

AS-i-Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

AS-i Analyser Innovation Step 2

AS-i Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

AS-i Analyser Innovation Step 2

Complementation of local AS-i Master diagnostic

Diagnosis and analysis tool for AS-i

For service or release of AS-i networks

Printing test protocols of AS-i networks

Article no. BW1415

The AS-i Analyser is a perfect complement to the local AS-i Master diagnostic of Bihl+Wiedemann.

Its functions:

- Statistics mode: statistical analysis of all telegrams transferred in the network: it instantly gives the "traffic lights presentation" of each slave's ability to communicate and provides a protocol of the actual state of the network.
- Data mode: topical digital and analogue I/O-values and the state of safety slaves.

Technical data	
Type	Passive AS-i member
Interface	- AS-i - RS 232 für connection to a PC - Trigger input (24 V) - Trigger ouput (TTL)
Displays	
LED display	
LED green (Power)	Power on
LED yellow (ser active)	RS 232 interface in operation
LED green/red (Test)	Test mode
Telegram memory	256.000 AS-i telegrams
Operating current	Approx. 70 mA out of AS-i
Voltage of insulation	≥ 500 V
EMC directions	EN 50081-2, EN 61000-6-2
Operating temperature	0°C … +55°C
Storage temperature	-25°C … +70°C
AS-i specification	2.1

See also in the internet:

- AS-i Analyser innovation step 2: New functions and possibilities
- Innovation step 2: The new AS-i Analyser

- Trace mode: registers the complete telegram traffic and examines it on a notebook.

Its benefits:

- You can use the analyser in four different situations:
- when searching for errors,
- to provide a protocol which contains the network and its quality,
- to diagnose a network in detail, e. g. for preventive maintenance,
- to analyse your application e. g. of a Safety at Work network.

Requirements:
IBM compatible PC
80486 or higher

Operating system:
Windows 98, Windows Me, Windows 2000, Windows XP and Windows NT4

Specification:
- Software:
  AS-i Analyser
- Hardware:
  AS-i Analyser
  D-sub-transmission cord

AS-i Signal Measuring Adapter

Bihl+Wiedemann

Automatisierungstechnik

AS-i-Master/Gateways/Links/Scanner

AS-i Slaves

AS-i Accessories/Diagnostics/Development

Other Fieldbuses/Master Simulators

AS-i Safety

Price Lists

AS-i Signal Measuring Adapter

Output of the AS-i I/O via digital and analog outputs

Ideally in combination with standard measuring sensors

Running time measurements

Suppling debugging within Mini-PLC programs

Additionally all functions of the AS-i Analyser included

CE

Article no. BW1559

The AS-i signal measuring adapter allows the uptodate output of In- and output signals transferred via AS-i. For this the signal measuring adapter is connected to AS-i as passiv member. With the help of the AS-i signal measuring adapter the AS-i in- and outputs can defined per PC software, which present condition will be set up to the digital and analog output of the signal measuring adapter. Errors in the chronological order of the mini-PLC program or running time measurements as well reaction times can be easily investigated.

Additionally all functions of the AS-i Analyser are included.

The easy to use diagnosis software provides each AS-i slave immediately with an overview of the qualitity of the AS-i installation with the help of a traffic light (red, green, yellow). The user must be not an AS-i specialist to judge the qualitity of a AS-i network or to detect errors. An easy statistic mode shows all faulty data telegrams of all connected slaves in case of problems. After a test run a testing protocol with all sampled statistic data can be printed with the help of the AS-i signal measuring adapter.

Furthermore the AS-i signal measuring offers also for an AS-i specialist the possibility to find and to solve the most difficult errors with extensive triggers (3 levels of triggers, extern trigger input, trigger output and so on) and filter functions.

Technical data	
Type	Passiv AS-i member
Outputs (analog)	2 analog outputs on D-sub socket 9 pins, output voltage 0 - 10 V
Oututs (digital)	16 digital outputs on D-sub socket 25 pin, output voltage 0/24 V
Interfaces	- AS-i - RS 232 for connection to a PC - Trigger input (24 V) - Trigger output (TTL), BNC socket - External voltage supply 24V - Analog outputs to measuring sensor - Digital outputs to measuring sensor
Displays	
LED green (Power)	Power on
LED yellow (ser active)	RS232 interface in operation
LED green/red (Test)	Test mode
Telegram memory	256.000 AS-i telegrams
Operating current	- Approx. 250 mA out of AS-i by supply out of AS-i - Approx. 5 mA out of AS-i by using of an external power supply
Voltage of insulation	$\geq$ 500 V
EMC directions	EN50081-2, EN61000-6-2
Operating temperature	0°C … +55°C
Storage temperature	-25°C … +70°C
Dimensions (L, W, H)	225 mm, 130 mm, 35 mm
AS-i Specification	2.1

Requirements:
IBM compatible PC 80486 or higher

Operating system:
Windows 98, Windows Me, Windows 2000, Windows XP and Windows NT4

Specification:
- Software:
  AS-i Signal Measuring Adapter
- Hardware:
  AS-i Signal Measuring Adapter
  D-sub data transmission cord
- 24 V power supply for external supply

Accessories
- AS-i Tuner (art. no. BWU1648, see also page 130)

AS-i Signal Measuring Adapter

**AS-i Master/Gateways/
Links/Scanner**

AS-i Slaves

**AS-i Accessories/
Diagnostics/Development**

**Other Fieldbuses/
Master Simulators**

AS-i Safety

Price Lists

Connections D-sub socket 9 pins

analog outputs

Pin 1	n.c.
Pin 2	n.c.
Pin 3	n.c.
Pin 4	n.c.
Pin 5	n.c.
Pin 6	GND
Pin 7	analog output 1+
Pin 8	GND
Pin 9	analog output 2+

alternate circuit diagram:

+Vcc

3k3

analog output 0V - 10V
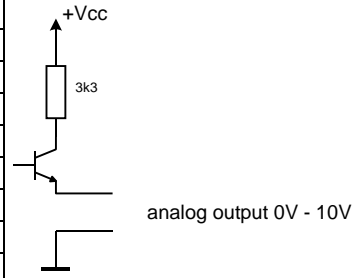
Connections D-sub socket 25 pins

digtial outputs

Pin 1	GND	Pin 14	+5V
Pin 2	output 1	Pin 15	output 12
Pin 3	output 2	Pin 16	output 13
Pin 4	output 3	Pin 17	output 14
Pin 5	output 4	Pin 18	output 15
Pin 6	output 5	Pin 19	output 16
Pin 7	output 6	Pin 20	n.c.
Pin 8	output 7	Pin 21	n.c.
Pin 9	output 8	Pin 22	n.c.
Pin 10	output 9	Pin 23	n.c.
Pin 11	output 10	Pin 24	n.c.
Pin 12	output 11	Pin 25	n.c.
Pin 13	GND		

alternate circuit diagram:
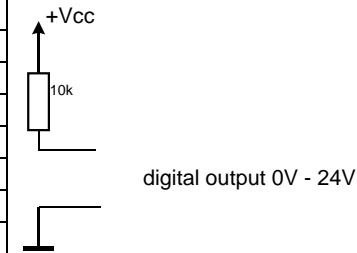
+Vcc

10k

digital output 0V - 24V

AS-i Address Programming Device

AS-i Address Programming Device

- **Addressing/programming max. 62 slaves**
- **Display of all the slaves in the bus**
- **Reading and writing slave data**
- **Addressing of AS-i modules with an optical data interface**

Accessories for AS-i Address Programming Device:

- **AS-i addressing cable**
  for addressing of active AS-i modules
  with infrared addressing interface (BW1935)
- **Connecting cable**
  module/programming device (BW1802)

BW1935

BW1802

BW1191, BW1646

AS-i-Master/Gateways/
Links/Scanner

AS-i Slaves

AS-i Accessories/
Diagnostics/Development

Other Fieldbuses/
Master Simulators

AS-i Safety

Price Lists

Article no. BW1191: AS-i address programming device with plug-in recharger 230 V

Article no. BW1646: AS-i address programming device with plug-in recharger 115 V (North America)

Article no. BW1935: AS-i addressing cable - infrared addressing adapter

Article no. BW1802: Connecting cable (Module/programming device)

The **AS-i address programming device** is a compact device for addressing AS-i slaves such as sensors, actuators and coupling modules. The AS-i address programming device uses a universal adapter to connect to other devices. The AS-i address programming device can be used for AS-i slaves according to the AS-i specification 2.0, 2.1 and 3.0.

The **AS-i addressing cable** (BW1935) is the necessary accessory for the signal transmission between the AS-i address programming device and an AS-i module.

In this case the TTL-signals of the addressing-device are converted into optical signals and vice versa for the AS-i module. The AS-i addressing cable is connected via the M12 plug connector at the AS-i address programming device and via the infrared-head at the AS-i module.

The **connecting cable** (module/programming device) (BW1802) is used for the addressing of AS-i slaves.

Article no.	BW1191	BW1646	BW1935	BW1802
Application	Commissioning and diagnosis		Addressing of AS-i modules	Addressing of AS-i slaves
Indication	LCD, character size is 13 mm		–	
Buttons	keypad, 5 keys		–	
Interface/connection	AS-i, short circuit and overload protected		infrared head/M12 connector	round connector 2-pin/ M12 connector
Cable length	–	–	1 m	1,6 m
Supply	battery (built-in)		–	
Recharger	plug-in recharger (supplied)		–	
	230 V AC	115 V AC	–	
Charging time	approx. 12 h		–	
Operating time	8 h ≥ 250 read/write operations with a fully charged battery		–	
Protection category (EN 60 529)	IP20			
Operating temperature	0 °C … +50 °C			
Storage temperature	-20 °C … +55 °C			
Weight	approx. 550 g		–	

Addressing references (Infrared addressing adapter BW1935):

- The power supply must be on during addressing.
- Plug the M12 connector of the IR interface adapter to the relevant connection of the AS-i address programming device.
- Plug the the infrared head of the IR interface adapter onto the AS-i module. Ensure that it is fixed properly to the coding element.
- Perform addressing as outlined in the description for the AS-i address programming device.

Caution:

- Only the supplied battery recharger may be used for the reloading of the batteries of the AS-i address programming device. Please pay attention to the land version!

Bihl + Wiedemann

Automatisierungstechnik

AS-i Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

Overview AS-i Repeater/Tuner/Bus Termination

Housing	Device	Art. No.	Characteristic	P.
	AS-i Diagnostic Tuner	BWU1843	with AS-i slave address trebling of AS-i cable length	130
	AS-i Tuner	BWU1648	without AS-i slave address trebling of AS-i cable length	130
	AS-i Bus Termination	BWU1644	default value of the AS-i Tuner doubling of AS-i cable length	130
	Advanced Repeater	BWU1855	circuit extension by more than 100 m	132
	AS-i Repeater	BWU1460	circuit extension by 100 m	132
		BWU1273	extends network an additional 100 m, protection category IP65	133

AS-i-Master/Gateways/Links/Scanner

AS-i Slaves

AS-i Accessories/Diagnostics/Development

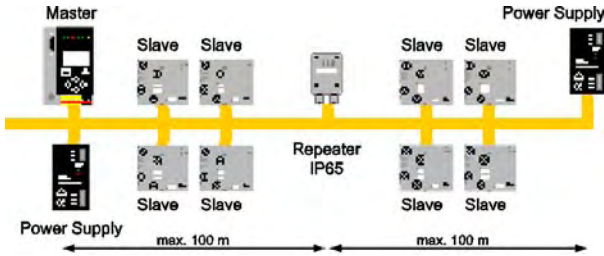Other Fieldbuses/Master Simulators

AS-i Safety

Price Lists

Bihl+Wiedemann

*Automatisierungstechnik*

Circuit Extension

Circuit Extension by Repeater

Today's standard for networks over 100 m is to supplement one or several repeaters and as many power supplies (configuration B1).

Config. B1: Conventional solution using repeaters and additional power supplies to realise networks with more than 100 m

One alternative is the IP20 repeater that is in a service cabinet together with the power supply. The main advantage is the easy mounting of the repeater in the cabinet (configuration B2). The IP20 repeater has been designed with this intention.
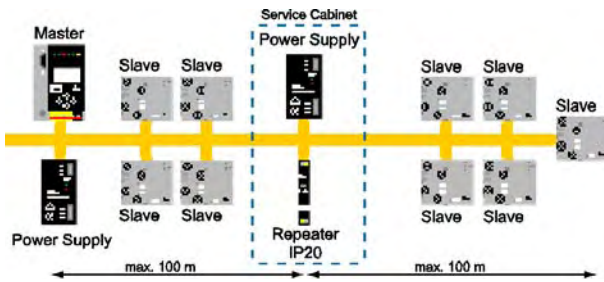
Config. B2: Simplifying the mounting by using the IP20 repeater inside the service cabinet.

Optimizing the Energy Distribution with Repeaters

Repeaters may also be used to isolate parts of a network from each other or to feed several segments of a network by separate power (configuration C1).
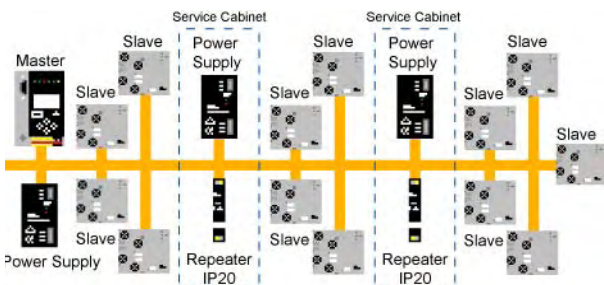

Config. C1: Separation of 1 network into 3 galvanically isolated segments, e.g. to feed a network that demands 12 A by 3 separate power supplies.

Circuit Extension by Bus Termination Plug or by Tuner

If a network of more than 100 m is needed, the answer is no longer "add a repeater and a power supply (for each 100 m)" (configuration B1). Bihl+Wiedemann now offers two more intelligent solutions: The (passive) bus termination and the (active) tuner, both with a protection degree of IP65.

The passive bus termination permits an extension of up to ca. 200 m. However, Bihl+Wiedemann recommends to carefully check the number of repeated telegrams in each installed network (use the error counter in B+W masters or a B+W analyser). If the compensation of the network's impedance is successful, this configuration is the most cost-effective one for an extension (config. D1).
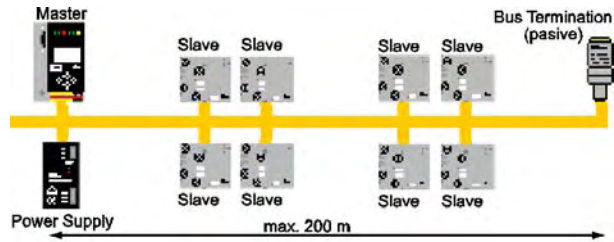
Config. D1: The passive bus termination permits networks up to ca. 200 m (check the repetition rate, please).

In networks of up to ca. 300 m, it is more secure and feasible to use the Bihl+Wiedemann tuner. This is an active bus termination which adjusts itself automatically to the situation found in the particular network. Thus it reaches farther and works in more conceivable configurations (configuration D2).

Additional benefit: The tuner shows continuously whether compensation has been reached well enough. Three LEDs (green, yellow, red) signal "normal communication", "functioning but with a remarkable amount of repetitions", or "too many repetitions or (sporadic) loss of at least one slave". As opposed to a fixed bus termination, the alignment of the tuner can easily be repeated at any time if the plant is changed.
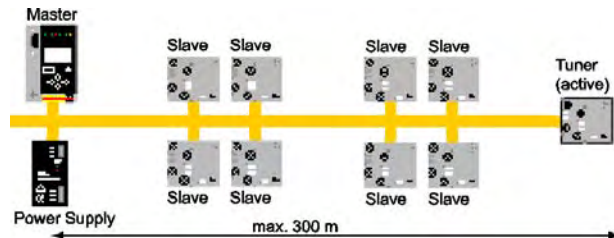
Config. D2: The active bus termination by a tuner permits networks up to ca. 300 m. In addition it checks and signals communication quality.

For even bigger networks, tuners or bus terminations and repeaters can be combined. As up to two repeaters may be used in series, one can achieve lengths of up to 600 m (with passive bus termination) or 900 m (with tuners), respectively. This is shown in configuration D3 with two segments.
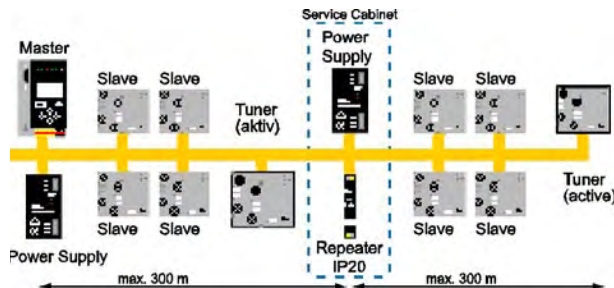
Config. D3: 600 m-network with tuner plus repeater. May be extended up to 900 m.

Tuning of AS-i Networks

Please note: There is no decrease in date security when using the AS-i tuner. The high level measures of data security and error detection are NOT affected. Thus the tuner may also be used in Safety at Work networks.

Apart from extension the tuner can even be used to correct an unstable network if the instability is caused by a faulty impedance. Thus networks can be run properly and with a high degree of availability even if their components misfit the specifications to some extent. This effect is due to the active adjustment and the continuous monitoring by the tuner. Especially if a network has to be extremely reliable (e.g. in plant automation or with AS-i Safety at Work), optimising the impedance of the individual network may be advantegeous.

New possibilities with the Advanced Repeater

Bihl+Wiedemann GmbH expands into new dimensions with innovations: AS-i networks with 1 to 1,5 km line length can be created with the help of the new Advanced AS-i, the Bus Termination (or the AS-i Tuner). Two new Advanced AS-i-Repeater can be also operated in a row in combination with the Bus Termination (or the AS-i Tuner).

The optional AS-i 3.0 Slave inside the Diagnostic Tuner supervises the AS-i voltage as a 16 bit value and monitors the quality of the AS-i communication permanently. In case of problems the Diagnsotic Tuner informs the AS-i Master.

Config. D4: 1000 m AS-i line with mit Advanced Repeaters and Bus Terminations in a row.

AS-i-Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

AS-i Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

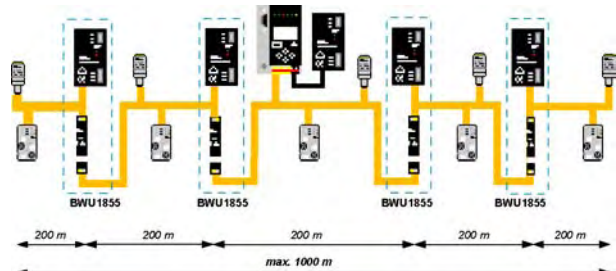Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

AS-i Tuner, AS-i Bus Termination

Bihl +Wiedemann

Automatisierungstechnik

AS-i Tuner:
Triplication of the AS-i cable length

Strengthen of the robustness of AS-i

Supervise the quality of the installation

Tool for the service

AS-i Bus Termination:
Doubling of the AS-i cable length (Default value of the AS-i Tuner)

AS-i Bus Termination
(Default value of the AS-i Tuner)

AS-i Tuner

Article no. BWU1843: AS-i Diagnostic Tuner (with AS-i Slave address)

Article no. BWU1648: AS-i Tuner (without AS-i Slave address)

Article no. BWU1644: AS-i Bus Termination (Default value of the AS-i Tuner)

The primary task of the AS-i Tuner consists in the length adjustment in AS-i circuits without repeater.

The AS-i Diagnostic Tuner is suitable for the employment as diagnose unit, which announces the bus function of the control online. Unlike to the AS-i Tuner the AS-i Diagnostic Tuner is able to read in the traffic light announcements for each individual slave and to refer to the superordinate control system.

The result can be intergrated into an application program. It signals whether an optimization succeeded. Gradual changing of the quality of the AS-i circuit can be recognized and repaired so on time.

The AS-i Diagnostic Tuner can be switched off over a switch completely or set on a default value.

Article no.	BWU1648, BWU1843	BWU1644
Connection	AS-i flat cable / AS-i round cable	
Operating voltage	AS-i (30 V DC)	
Operating current	60 mA	10 mA
LEDs	5	2
LED green	Power: tension OK	AS-i tension > 26 V
LED green	Tuning active	-
LED red	Error (AS-i analyser)	-
LED yellow	Warning (AS-i analyser)	AS-i tension > 18,5 V
LED green	Green (AS-i analyser)	-
Operating temperature	0 … +55 °C	
Storage temperature	-25 … +75 °C	
Protection category according to EN 60529	IP65	
Electromagnetic sust.	according to slave specification	
EMV	according to EN 61000-6-2, EN 61000-6-3	
Dimensions (L, W, H)	90 mm, 80 mm, 43 mm	46 mm, 19 mm

The passive bus termination permits a circuit extension up to approximately 200 m.

Slave Profile (BWU1843)

I/O code: 0x7
ID code: 0xA
ID1 code: 0x0
ID2 code: 0x5
VENDOR ID: 0x0002
PRODUCT ID: 0x0002
AB-slave (up to 62 slaves)

Bit Allocation

In 0, In 1   binary bits, freely usable
In 2, In 3   serial communication
Out 0, Out 1   serial communication
Out 2   binary bits, freely usable

M12 AS-i alignment

Error
Warning
Green

mode:
0: off
1: default termination
2: tuning
3: run

AS-i power:
on: U AS-i OK
flashing: U AS-i LOW

AS-i M12:
1: AS-i+
3: AS-i-
I max 1A

Mode

Set

AS-i Power

Bihl +Wiedemann
www.bihl-wiedemann.com

Rotary switch:
BWU1843 + BWU1648
(without slave function)
0: *off*
1: *default termination*
2: *tuning*
3: *run*
only BWU1843
(slave function)
4: *off*
5: *default termination*
6: *tuning*
7: *run*

Button **LED status display:**
on: *U AS-i OK*
flashing: *U AS-i LOW*

AS-i-Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

AS-i Tuner, AS-i Bus Termination

Bihl + Wiedemann

Automatisierungstechnik

The Bihl+Wiedemann tuner permit a stable communication with net lengths to approximately 300 m without the employment of a Repeater and without a second power supply unit.
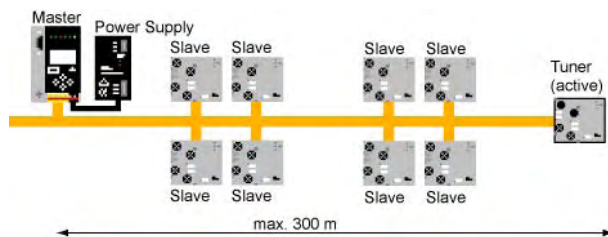
Combi Slave Profile

The AS-i Diagnostic Tuner operates after the new "combi slave profile" S-7.A.5, in which digital and serial data will be parallel transferred.

2I/1O data for the basic function of the tuner are transmitted thereby as usual, and are usable with each master. The serial data – here the analog values of the tension and the traffic light values of the individual slaves – are transmitted by the piece with the remaining bits, built up in the master again and sent from here than simple complete telegram to the control. The user finds the up-to-date measured AS-i tension and the minimum AS-i tension as 16 bit analog value in the field of the input data (similar to the analog value transmission).

So that data transmission rates of approx. 50 Baud are attainable in the AS-i A/B operation. Because of the ID code "A" is the Diagnostic Tuner a slave with an extended address range and takes in the A/B operation one of 62 addresses, in the standard mode as A-slave one of 31.

AS-i 3.0 Specification

Since the Diagnostic Tuner uses the extended functions as slave, he must be used together with a master after the AS i 3.0 specification. The primary tuner functions is available however also with a AS-i Master according to the specification 2.0 or 2.1.

Description of the Bit Allocation

In0, In1

The LEDs indicate the result of the optimization:

Bit	LED	Description
11	red	serious disturbances
10	yellow	more frequent replications, which should be clarified depending upon application
01	green	almost repetition-free communication
00	---	none result available ("Tuning-Phase", or the push-button even pressed)

Out2

A change of 0 to 1 has the same effect as a depressing the key. However no training procedure is released. It can be released only by means of parameters.

Parameter

The parameter bits release (independently of the position of the rotary switch) a training procedure. Only the parameter 5, then the parameter 2 within 5 seconds causes the start of a training procedure.

Analog Channel 0

Tension	as 16 bit value of 0 ... 32767 in mV
Resolution	10 bit

Analog Channel 1

Tension	as 16 bit value of 0 ... 32767 in mV
Resolution	10 bit

Vendor Specific Object 1

This object contains a pair of bits, which shows the condition of the slaves in this address for all 62 possible slaves:

Bit	LED
11	red
10	yellow
01	green
00	none slave

Byte	2^7	2^6	2^5	2^4	2^3	2^2	2^1	2^0
1	3/3A	3/3A	2/2A	2/2A	1/1A	1/1A	---	---
2	7/7A	7/7A	6/6A	6/6A	5/5A	5/5A	4/4A	4/4A
...								
16	31B	31B	30B	30B	29B	29B	28B	28B

Accessories:

- AS-i Analyser (art. no. BW1415, see also page 122)
- AS-i passive distributor H (art. no. BW1239, see also page 149)
- AS-i passive distributor L (art. no. BW1238, see also page 149)

AS-i Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

AS-i Repeater IP20

Bihl +Wiedemann

Automatisierungstechnik

Circuit extension by 100 m

On-Board-Diagnostics AS-i Fault

Galvanic isolation

No programming required

Passive on the AS-i network (no slave address required)

Simple mounting next to the AS-i power supply

BWU1855   BWU1460

C E   c UL us LISTED IND.CONT.EQ. 1HD8

Article no. BWU1855 Advanced Repeater (Circuit extension by more than 100 m)
Article no. BWU1460 (Circuit extension by 100 m)

The AS-i Repeater with On-Board-Diagnostics have got a LED for power supply and AS-i communication errors. The red AS-i Fault LED flashes as long as there is no AS-i communication. The communication error LED will help the customer to find basic installation problems really fast.

The new AS-i Repeaters are compatible with all existing AS-i Repeaters.

Especially the AS-i Repeaters in IP20 can be easily mounted into the switchboard in combination with an AS-i power supply.
Together with the AS-i Tuner and the AS-i Bus Termination, the AS-i Repeater from Bihl+Wiedemann is a perfect package for every AS-i network.

Connections	Combicon clamps
Operating voltage	via AS-i
Operating current	60 mA (per network segment), 120 mA (total)
Quantity of required AS-i power supplies	1
4 LEDs	
PWR1	AS-i power network 1
FAULT1	AS-i communication error network 1
PWR2	AS-i power network 2
FAULT2	AS-i communication error network 2
Operating temperature	0°C … +55°C
Storage temperature	-25°C … +75°C
Protection category according to EN 60 529	IP20
Electromagnetic sustainability	according to slave specification
Voltage of insulation	≥ 500 V
EMC	according to EN61000-6-3, EN61000-6-2
Dimensions (L, W, H)	105 mm, 22,5 mm, 114 mm

Note: The AS-i Repeater does not occupy any slave address. The total amount of the slaves (31 respectively 62) per AS-i network remains constant. No programming required.

Connections: BWU1855

1	AS-i-2
2	AS-i+2
3	AS-i-2
4	AS-i+2
5	n.c.
…	…
20	n.c.
21	AS-i+1
22	AS-i-1
23	AS-i+1
24	AS-i-1

Connections: BWU1460

1	n.c.
2	n.c.
3	AS-i-2
4	AS-i+2
5	n.c.
…	…
20	n.c.
21	AS-i+1
22	AS-i-1
23	n.c.
24	n.c.

Accessories:
- AS-i power supply (art. no. BW1649, see also page 137)
- AS-i bus termination (art. no. BW1644, see also page 130)
- AS-i tuner (art. no. 1648, see also page 130)
- AS-i Repeater in IP65 (Art.-Nr. BW1273, see also page 133)
- AS-i Analyser (BW1415, see also page 122)

Distribución: **ER-SOFT, S.A.** Email: **er@er-soft.com**, Tel: +34 916 408 408

AS-i Repeater IP65

Extends network an additional 100 m

On-Board-Diagnostics AS-i Fault

Galvanic isolation

Requires no programming

**Passive on the AS-i network
(no slave address required)**

AS-i-Master/Gateways/
Links/Scanner

AS-i Slaves

AS-i Accessories/
Diagnostics/Development

Other Fieldbuses/
Master Simulators

AS-i Safety

Price Lists

Article no. BWU1273

The AS-i Repeater with On-Board-Diagnostics have got a LED for power supply and AS-i communication errors. The red AS-i Fault LED flashes as long as there is no AS-i communication. The communication error LED will help the customer to find basic installation problems really fast.

The new AS-i Repeaters are compatible with all existing AS-i Repeaters.

Together with the AS-i Tuner and the AS-i Bus Termination, the AS-i Repeater from Bihl+Wiedemann is a perfect package for every AS-i network.

Connections	AS-i flat cable/AS-i round cable
Operating voltage	via AS-i
Operating current	60 mA (per network segment), 120 mA (total)
Quantity of needed AS-i power supplies	2
4 LEDs	
U AS-i1	AS-i power network 1
FLT1	AS-i communication error network 1
FLT2	AS-i communication error network 2
U AS-i2	AS-i power network 2
Operating temperature	-10°C … +55°C
Storage temperature	-25°C … +75°C
Protection category according to EN 60 529	IP65
Electromagnetic sustainability	according to slave specification
Voltage of insulation	≥ 500 V
EMC	according to EN50081-2, EN61000-6-2

Note: The AS-i Repeater needs no slave address. The total amount of the slaves (31 respectively 62) per AS-i network remains the same. No programming required.

LEDs

1	U AS-i1
2	FLT1
3	free
4	FLT2
5	U AS-i2
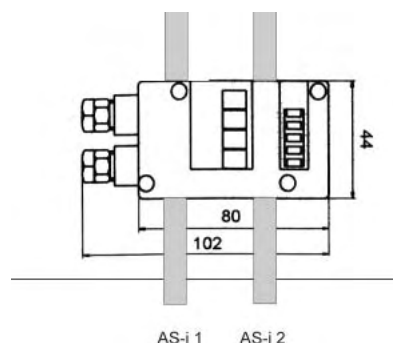
Accessories: AS-i substructure module to connect 1 AS-i round cable, 1 round cable or additional supply (Art. no. BW1183, see page 148) by using of AS-i round cables

Bihl + Wiedemann

Automatisierungstechnik

AS-i Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

Overview Power Supplies

Housing	Module	Art. No.	Characteristic	P.
	AS-i Power Supply 4 A	BW1649	90 V AC up to 265 V AC wide range power supply	137
	24 V to 30 V AS-i Power Supply in Stainless Steel 2 A	BW1760	24 V DC to 30 V AS-i output voltage	138
	4 A/8 A Power Supply for AS-i Master in Stainless Steel	BW1592 BW1597 BW1593 BW1598	4A 4A Class1 Div2 8A 8A Class1 Div2	139
	8 A Power Supply with 3 Phases for AS-i Master in Stainless Steel	BW1676	for 2 AS-i circuits	140
	AS-i Power Supply Decoupling Unit AS-i Power Extender	BWU1943	supply 2 AS-i networks out of 1 power supply	141
	AS-i Power Extender	BW1197 BW1477	extends the distance between AS-i power supply and AS-i network, 2,8 A extends the distance between AS-i power supply and AS-i network, 4,0 A	142

AS-i-Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

AS-i Master/Gateways/
Links/Scanner

AS-i Slaves

AS-i Accessories/
Diagnostics/Development

Other Fieldbuses/
Master Simulators

AS-i Safety

Price Lists

AS-i Power Supplies

Nowadays, AS-i networks are the standard technology for applications with up to 62 participants and a length of up to 100 m (configuration A1). Their benefits are low costs, simple installation and a reliable operation. For the single network configuration, Bihl+Wiedemann offers different masters, gateways and links in IP20 und IP65 including some useful application functions, as well as a power supply (4 A) and a diversity of analogue slaves.

Config. A1: The standard: single network, often with coupling to a higher level network, e.g. to PROFIBUS.

If more than 62 slaves, cables longer than 100 m, more flexibility, or more flexibility in the network are needed, formally the answer to these cases was "duplicate all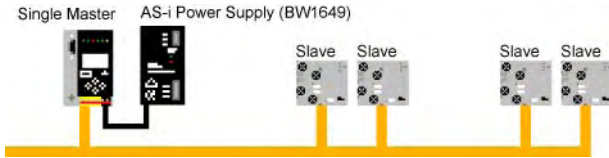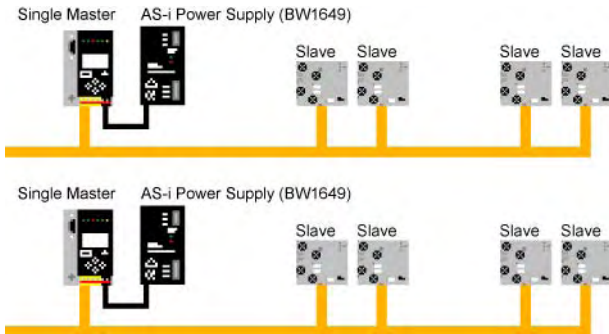". The standard AS-i single network with up to 62 slaves and 100 m in length used to be the biggest unit (configuration A2). The rest was a matter of multiplying.

Config. A2: Multiple networks simply duplicating the standard single network.

Today there are several alternatives. A first step to more intelligent solutions is to install a double master, which is more cost effective than two single masters and saves one connection with a higher system (configuration A3). Thus the (cost) threshold to use multiple networks is lowered. Not only the number of slaves can require a second network, but also the higher rate of flexibility in designing a plant may make them appear desirable.
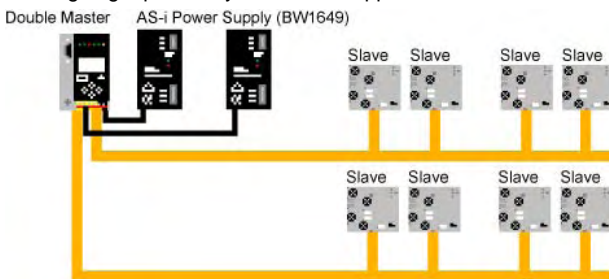
Config. A3: Two networks are served by one double master.

As the second step Bihl+Wiedemann offers now also a double master, which gets by only one power supply unit (configuration A4); the data decoupling is integrated inside the master (up to 4 A for each AS-i circuit), the power supply (30 V / 4 A or 8 A).
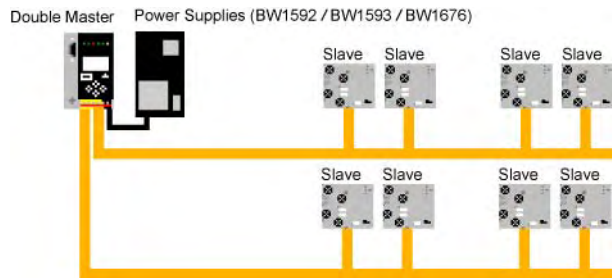
Config. A4: The second step: Using a double master in the version "1 power supply, 1 gateway for 2 AS-i networks".

Several double masters can even be supplied from *only one* power supply.
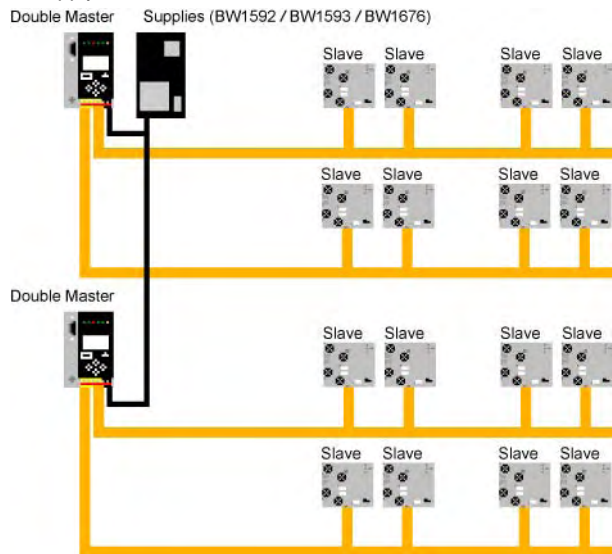
Config. A5: Using 1 power supply for several double masters.

The identical power supplies can be used together with external data decoupling units of an "AS-i Power Extender" to feed several separate networks. As the leads between the power supplies and the data decoupling do not count in the 100 m-limit, these networks may be placed separately from each other (configuration A6).

If IP65-masters are used no service cabinets are required. The power supply may be placed in a central switch box (but mind the voltage drop!). This configuration is of special interest in large and spacious applications.
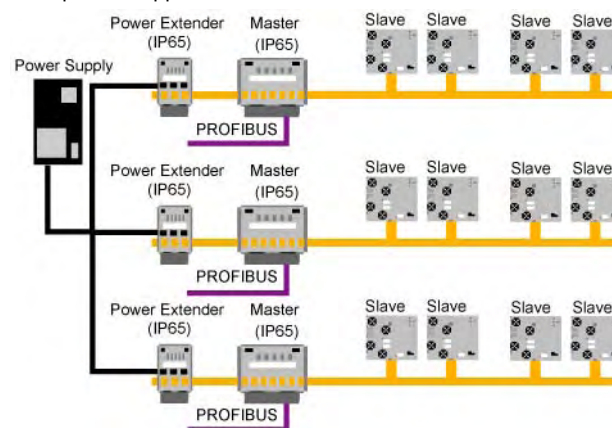
Config. A6: External data decoupling (AS-i power extenders) can be used to feed several masters from 1 power supply (BW1592/BW1593/BW1676).

AS-i Power Supply 4 A

AS-i Power Supply 4 A

90 V AC up to 265 V AC Wide Range Power Supply

SELV

LED operation indicator

AS-i data decoupling

Powerfactor correction

Article no. BW1649

The primary clocked power supply is supposed for fieldbus applications, which transports energy and data via a 2-wire line at the same time.

The AS-i Supply powers a fully loaded AS-i system with a maximum output current of 4.0 A.

The sinusoidal current consumption of the power supply prevents harmonic waves.

The current is in phase with the voltage, so the power factor of $\cos\varphi \geq 0.97$ prevents reactive power.

Besides the energy supply the power supply takes over also the function of data decoupling to the power source and the balancing of the two AS-i output lines in relation to the machine ground (screen).

Due to the accurate and transformic coupling of unscreened load lines is possible.

Article no.	BW1649
Input	
Power factor	Approx. 0,6 (according to input voltage)
Input frequency	47 … 63 Hz
Voltage range U_e	90 … 265 V AC
Efficiency	Approx. 90%
Input current I_e	Approx. 0,6 A (without idle current) at 230 VAC
Input fuse	Internal fuse Electronic fuse against external short circuits
Output	
Output voltage	29,5 V … 31,6 V DC
Remaining ripple	According AS-i specifaction
Output current	4 A
Current limititation	Approx. 4,5 A
Displays	
LED green (PWR)	Power on (at frontside)
LED red (Overload)	Overload error (at frontside)
Operating temperature	-10°C … +55°C
Storage temperature	-40°C … +85°C
Protection category (EN 60 529)	IP20
Standard conformity	
Standards	EN 60 950, UL 60 950 intended, AS-i certificate intended

Connections:
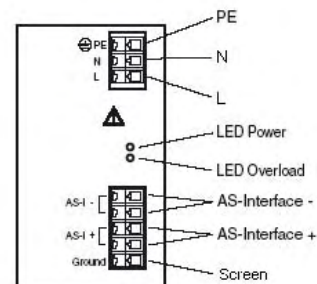
Hint: Clamp GND must be connected with machine ground.

Dimensions:

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AS-i-Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

AS-i Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

24 V to 30 V AS-i Power Supply in Stainless Steel 2 A

Bihl + Wiedemann

Automatisierungstechnik
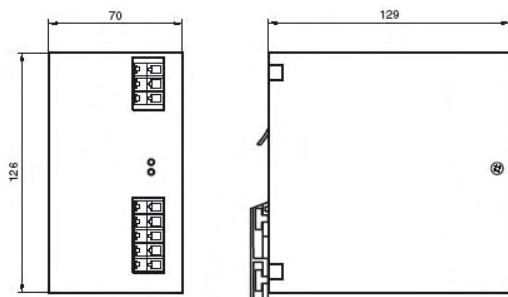
24 V DC to 30 V AS-i Output Voltage

PELV

LED operation indicator

AS-i data decoupling

62 Watt

Insertable Combicon connectors

CE

Article No. BW1760

The AS-i Power Supply in Stainless Steel supplies the AS-i system voltage for the supply of masters, sensors, actuators and modules.

The power supply provides an output current of 2 A.

Article no.	BW1760
Input	
Operating voltage U_e	24 V DC
Input voltage range U_e	20 .. 32 V DC
Fuse	T 6,3 A built-in
Short circuit protected	Yes
Overload protected	Yes
Output	
Output voltage (AS-i)	29,5 V .. 31,6 V DC according PELV
Output current	3 A
Remaining ripple	< 50 mV
Efficiency	88%
Hold-up-time	> 10 ms
Pre-fuse	> 10 A
Displays	
LED green	Power on (at frontside)
LED red	Overload error
Housing	
Ambient operating temperature	0°C .. +55°C
Storage temperature	-25°C .. +85°C
Connection	insertable Combicon connectors up to 2,5 mm²
Housing	stainless steel
Protection category (EN 60 529)	IP20
Dimensions (L, W, H)	120 mm, 55 mm, 83 mm
Standard conformity	
Standards	EN 50295, EN 61000-6-2, EN 61000-6-4
Mounting position	vertical

Connections:
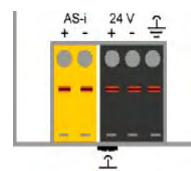
Temperatur performance, derating 3 A:
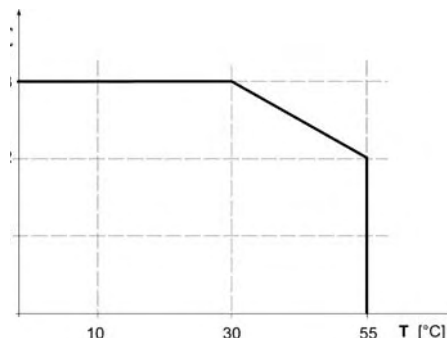
Note: Air circulation in the power supply may not be disturbed: therefore when mounting see that is at least 3 cm free space down and sufficiently free space above!

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4A/8A Power Supply for AS-i Master in Stainless Steel

Bihl+Wiedemann

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**4 A/8 A Power Supply for
AS-i Master in Stainless Steel
for 2 AS-i Circuits**

LED operation indicator

At present for BWU1569, BWU1643, BWU1652, BW1197, BW1477

BW1593/BW1598   BW1592/BW1597

CE

Article no. BW1592 4 A

Article no. BW1593 8 A

Article no. BW1597 4 A Class1 Div2

Article no. BW1598 8 A Class1 Div2

This supply for AS-i powers one respectively two fully loaded AS-i systems with a maximum output current of 4 A respectively 8 A.

The power supplies are continous idle running protected and can deliver therefore a variable direct current of 0 - 4 A

(BW1592/BW1597) resp. 0 - 8 A (BW1593/BW1598) as output current.

These power supplies are qualified only for the gateways in stainlees steel in the version "1 power supply for 2 AS-i circuits".

Article no.	BW1592	BW1597	BW1593	BW1598
	30 V 4 A	30 V 4 A Class1 Div2	30 V 8 A	30 V 8 A Class1 Div2
Input				
Operating voltage	115/230 V_{AC}, 47 - 63 Hz			
Voltage range	93 - 132 V_{AC}/187 - 265 V_{AC}, 47 - 63 Hz			
Input current	0,9 A at 230V_{AC}/2,2 A at 115 V_{AC}		1,8 A at 230 V_{AC}/4,2 A at 115 V_{AC}	
Turn on impulse	< 30 A			
Fuse	T 3,15 A/250 V internal		T 6,3 A/250 V internal	
Power factor cos φ	0,5 capacitively at 230 V_{AC}/0,58 capacitively at 115 V_{AC}			
PFC standard (harmonic waves)	EN 61 000-3-2			
Output				
Output voltage	30 V_{DC} ± 1%			
Output current	4 A		8 A	
Ripple	< 50 mV_{pp}			
Current limitation (typ.)	6 A		12 A	
Parallel use	yes			
Efficiency (typ.)	89 %		90 %	
Hold-up-time	> 20 ms/230 V_{AC}; > 15 ms/115 V_{AC}		> 35 ms/230 V_{AC}; > 30 ms/115 V_{AC}	
Displays				
LED green	Power on (at frontside)			
LED red	Overload error (at frontside)			
Operating temperature	0°C … +60°C			
Storage temperature	-25°C … +85°C			
Protection (IEC)	IP20			
Elektromagentic Compatibility				
Signal error per	Radio-screened according EN 55022 class B			
Interference resistence per	EN 50 082-1/EN 50 082-2, continous short circuit and idle running protected			

BW1592
BW1597
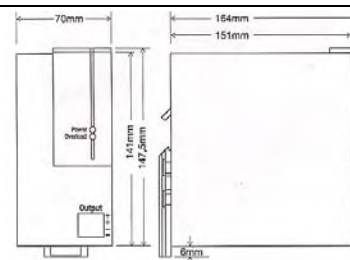
BW1593
BW1598

AS-i-Master/Gateways/Links/Scanner

AS-i Slaves

AS-i Accessories/Diagnostics/Development

Other Fieldbuses/Master Simulators

AS-i Safety

Price Lists

AS-i Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

8 A Power Supply with 3 Phases for AS-i Master in Stainless Steel

Bihl +Wiedemann

Automatisierungstechnik

**8 A Power Supply with 3 Phases for
AS-i Master in Stainless Steel
for 2 AS-i Circuits**

LED operation indicator

**At present for
BWU1569, BWU1643, BWU1652, BW1197, BW1477,
BWU1823, BWU1820, BWU1833**

Article no. BW1676

The Power Supply with 3 phases for AS-i powers one respectively two fully loaded AS-i systems with a maximum output current of 8 A.

The Power Supply is continous idle running protected and can deliver therefore a variable direct current of 0 - 8 A as output current.

These Power Supplies are qualified only for the gateways in stainlees steel in the version "1 power supply for 2 AS-i circuits".

Article no.	BW1676
Input	
Operating voltage	3 x 380 - 500 V_{AC}, 47 - 63 Hz
Voltage range	3 x 340 - 550 V_{AC}, 47 - 63 Hz
Input current	3 x 0,7 A at 400 V_{AC}
Turn on impulse	< 50 A
Fuse	-
Power factor cos φ	0,55 capacitively at 230 V_{AC}
PFC standard (harmonic waves)	EN 61 000-3-2 class A
Output	
Output voltage	30 V_{DC} ± 1%
Output current	0 - 8 A
Ripple	< 50 mV_{pp}
Current limitation (typ.)	12,5 A
Parallel use	Yes
Efficiency (typ.)	90%
Hold-up-time	> 5 ms/400 V_{AC}
Displays	
LED green	Power on (at frontside)
LED red	Overload error (at frontside)
Elektromagentic Compatibility	
Signal error per:	Radio-screened according EN 55 011 class B
Interference resistence per:	EN 50 082-1/EN 50 082-2, continous short circuit and idle running protected
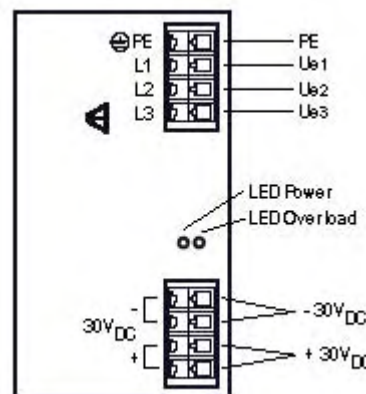
Attention: Max: output power 240 W at setting to 30 V_{DC} max. 8 A
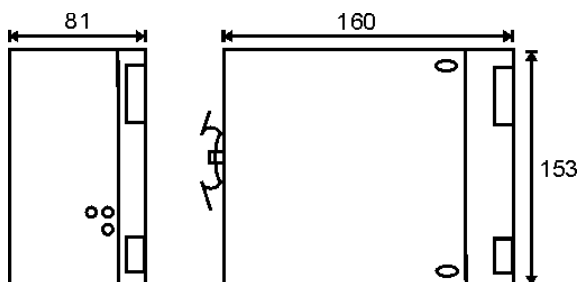
AS-i Power Supply Decoupling Unit: Supply 2 AS-i Networks via 1 Power Supply

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Automatisierungstechnik

AS-i-Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

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AS-i Power Supply Decoupling Unit for 2 AS-i Networks

AS-i Power Extender for 2 AS-i networks

Applicable with double masters without integrated data decoupling

Supply 2 AS-i networks out of 1 power supply

Protection category IP20

CE

Article no. BWU1943: Supply 2 AS-i networks out of 1 power supply

The AS-i Power Supply Decoupling Unit was developed for the use with double masters without integrated data decoupling in the master. It is used to decouple the power supply in order to power up 2 AS-i networks with only 1 AS-i Power Supply.

The AS-i Power Supply Decoupling indicates the AS-i voltage at the inputs with two LEDs in two steps:

1. AS-i voltage > 28 V
2. AS-i voltage > 26 V

The data decoupling unit built inside the AS-i Power Supply Decoupling Unit is limited to 4,0 A at 30 V for each network.

AS-i Power Supply Decoupling Unit is short circuit protected (self-recovering fuse, 6 A).

The AS-i Power Supply Decoupling Unit can also be used in combination with a repeater. It has an IP20 housing.

Several AS-i Power Supply Decoupling Units can be supplied out of 1 power supply.

The DC line from the power supply must not be grounded!

Article no.	BWU1943
Connections	30 V input voltage AS-i output voltage Function earth
Short circuit protection (self-recovering fuse)	6 A
Display	
LED green (PWR)	AS-i voltage (circuit 1) ON
LED green (PWR)	AS-i voltage (circuit 2) ON
LED green (U AS-i)	AS-i voltage > 28 V
LED green (U AS-i)	AS-i voltage > 26 V
Operating current	< 4,0 A at 30 V
Operating voltage	30 V DC (PELV)
Voltage of insulation	≥ 500 V
EMC directions	EN 61000-6-2, EN 61000-6-4
Operating temperature	0°C … +55°C
Storage temperature	-25°C … +85°C
Housing	Housing for DIN rail mounting
Dimensions (L, W, H)	99 mm, 22,5 mm, 92 mm
Protection category (DIN 40 050)	IP20
Weight	120 g

Accessories:

- AS-i Power Supply 4 A (article no. BW1649, see also page 137)

- 8 A Power Supply for AS-i Master in Stainless Steel for 2 AS-i Circuits (article no. BW1593, see also page 139)

- 8 A Power Supply with 3 Phases for AS-i Master in Stainless Steel for 2 AS-i Circuits (article no. BW1676, see also page 140)

- AS-i Advanced Repeater (article no. BW1855, see also page 132)

- 24 V to 30 V AS-i Power Supply in Stainless Steel 2 A (article no. BW1760, see also page 138)

AS-i Power Extender

AS-i Master/Gateways/
Links/Scanner

AS-i Slaves

AS-i Accessories/
Diagnostics/Development

Other Fieldbuses/
Master Simulators

AS-i Safety

Price Lists

Extends the distance between AS-i Power Supply and AS-i network

Can be used in combination with Repeater/Extender

AS-i Power Extender and AS-i Gateway in IP65 Power Supply remains in IP20

Various AS-i networks can be powered by one power supply

Accessory:
Art. no. BW1181

Accessory:
Art. no. BW1183

C E

Article no. BW1197: AS-i Power Extender 2,8 A
Article no. BW1477: AS-i Power Extender 4,0 A

The AS-i Power Extender is used to extend the distance between the power supply and the actual AS-i network.

Either an AS-i Power Supply or a standard power supply with 30 V according to AS-i specification can be used to power the remote AS-i network.

The AS-i Power Extender has to be connected in between of the Power Supply on one side and the AS-i Master and slaves on the other side.

In dependence on cable resistor and current there is a voltage drop between the power supply and the AS-i Power Extender. The AS-i voltage at the AS-i Power Extender's output is displayed with the help of two LEDs.

1. AS-i voltage at the AS-i Power Extender > 28 V
2. AS-i voltage at the AS-i Power Extender > 26 V

As with normal AS-i networks the user has to make sure that actuators have ot be powered with 24 V +10%/-15%.

As rule of thumb für die AS-i cable length in dependence of the AS-i voltage compared with conventional AS-i network (cable cross-section: 1,5 mm², for example with AS-i flat cable):

1. AS-i voltage > 28 V: approx. 80 m cable length
2. AS-i voltage > 26 V: approx. 60 m cable length

Inside the AS-i Power Extender you can find a data decoupling for max. 2,8 A/4,0 A current with 30 V AS-i voltage. The AS-i Power Extender is short circuit protected (self-recovering fuse, idle, 3 A/6 A).

The AS-i Power Extender was developed for the use in combination with repeater/extender. The AS-i Power Extender is located in an IP65 housing with a substructure module.

In combination with gateways in IP65 you can easily build up small decentral islands.

Technical data

Article no.	BW1197	BW1477

Connections:
    30 V input voltage
    AS-i output voltage
Function earth
	Standard AS-i substructure module for the connection of the AS-i cable and the external power supply cage clamp	

Short circuit protection (self-recovering fuse)	3 A	6 A

Display:
    LED green
    LED green
	AS-i voltage > 28 V
	AS-i voltage > 26 V	

Operating current	< 2,8 A at 30 V	< 4,0 A at 30 V
Operating voltage	30 V DC (PELV)	
Voltage of insulation	≥ 500 V	
EMC directions	EN 50082, EN 50081	
Operating temperature	0°C … +70°C	
Storage temperature	-25°C … +85°C	
Hausing	Housing for DIN rail mounting	
Dimensions (L, W, H)	45 mm, 80 mm, 70 mm	
Protection category (DIN 40 050)	IP65	
Weight	120 g	

Accessories:
AS-i substructure module for the connection to the AS-i flat cable and the flat cable for 24 V DC (article no. BW1181, see also page 148).
AS-i substructure module for the connection to the AS-i round cable and the round cable for 24 V DC (article no. BW1183, see also page 148)

AS-i-Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

Data Transmission Cords/Substructure Modules/Distributors

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Overview Data Transmission Cords/Substructure Modules/Distributors

Housing	Component	Art. No.	Characteristic	P.
	AS-i Cable-Stripper	BW1920	for AS-i cable with rubberized insulation	145
	AS-i Micro-Wire-Stripper	BW1921	for AS-i cable with an external insulation made of TPE or PUR	145
	Serial Cable for AS-i Scanner	BW1417		146
	D-sub-data transmission cord for AS-i Master in IP65	BW1097		146
	D-sub-data transmission cord 9-pin	BW1058		146
	D-sub-data transmission cord for AS-i Gateways with CAN interface	BW1226		146
	Reduction sleeve	BW1241	PG16/M18x1	147
		BW1282	M25/M18x1	
	Cross-Link-cable for AS-i/Ethernet Gateway	BW1304		147
	AS-i Probe	BW1745	AS-i probe	147

AS-i Master/Gateways/
Links/Scanner

AS-i Slaves

AS-i Accessories/
Diagnostics/Development

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AS-i Safety

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	AS-i Substructure Module	BW1180	to connect 2 AS-i flat cables	148
		BW1438	to connect 2 AS-i flat cables with addressing socket	
		BW1181	to connect 1 AS-i flat cable, 1 flat cable for additional supply	
		BW1182	to connect 2 AS-i round cables	
		BW1183	to connect 1 AS-i round cable, 1 round cable for additional supply	
		BW1946	lid for standard AS-i substructure modules	
		BW1945	AS-i ribbon cable seal for use in cable gland	

	AS-i Passive Distributor	BW1239	passive distributor H	149
		BW1238	passive distributor L	

AS-i Stripping Tools

AS-i Cable-Stripper:

for AS-i cables with rubberized insulation

AS-i Micro-Wire-Stripper:

for AS-i cables with an external insulation made out of TPE or PUR

AS-i Cable-Stripper (BW1920)　　*AS-i Micro-Wire-Stripper (BW1921)*

CE

Article no. BW1920: AS-i Cable-Stripper

Article no. BW1921: AS-i Micro-Wire-Stripper

The **AS-i Cable-Stripper** is the latest development for removing rubber made outer sheathing of AS-i cable.

The blades have got the same shape as the AS-i cable and allow an accurate stripping without any problems. For removing the insulation put in the cable, close and press the tool. The special blades do not cause any damage to the inner conductors. Those can be stripped with the additional blades at the side of the tool.

The **AS-i Micro-Wire-Stripper** is the latest development for removing the outer sheath of AS-i cable, which is made of TPE or PUR.

The tool strips AS-i cables without any problems, because the blades follow the special shape of the cable.

The pliers' body is made out of fibreglass-reinforced polyamide in an ergonomic and automatic design. Adjustment onto the cable is not necessary since the special hardened blades adjust themselves.

Article no.	BW1920	BW1921
Main using	for AS-i cable with rubberized insulation	for AS-i cable with an external insulation made of TPE or PUR
Length	125 mm	160 mm
Weigth	50 g	120 g

AS-i-Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbusses/ Master Simulators

AS-i Safety

Preisl Lists

AS-i Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

Serial Cable for AS-i Scanner, Length: 2,0 m

Sub-D-Buchse
9-polig

2m

Ø 3,55
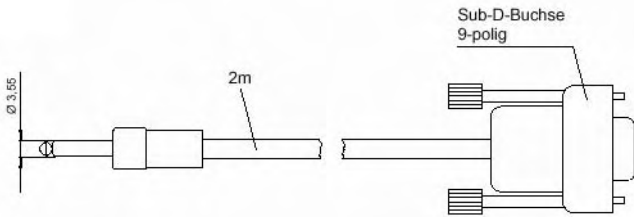
Article no. BW1417

D-sub-data transmission cord for AS-i Master in IP65, 1,5 m

AS-i Master in IP65 (Specification 2.0)

Clamps	PIN	Function	Colour
1		PE	
2		SHIELD	
3	3	BUS P	green
4	8	BUS N	yellow
5	5	GRND	blue
6		PE	
7		SHIELD	
8		BUS P	
9		BUS N	
10	6	+5 V	red

Article no. BW1097	
Connection	RS 485 prefabricated cable
Storage temperature	-40°C … +85°C
Operating temperature	-25°C … +60°C
Protection category (IEC) EN 60 529	connector IP65, plug IP20
Dimensions (L, W, H)	ca. 50 mm, 20 mm, 30 mm
Length	1,5 m

D-sub-data transmission cord 9-pin, 1,8 m

Article no. BW1058	
Connection	D-Sub plug D-Sub socket
Length	1,8m
PIN 1 connected with PIN 1	

D-sub-data transmission cord for AS-i Gateways with CAN interface

Article no. BW1226	
Connection	D-subsocket, 5-pin COMBICON plug
Operating temperature	-40°C … +85°C
Storage temperature	-25°C … +60°C
Protection category (IEC) EN 60 529	IP20
Dimensions (L, W, H)	ca. 50 mm, 20 mm, 30 mm
Length	1,5 m

AS-i/CAN Gateway

Clamps	PIN	Function	Colour
1		n.c.	
2	7	CAN_H	white
3		SHIELD	
4	2	CAN_L	brown
5		n.c.	

Accessories

Bihl+Wiedemann

Automatisierungstechnik

AS-i-Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

Reduction sleeve PG16/M18x1

Article no. BW1241

Material	Stainless steel

Reduction sleeve M25/M18x1

Article no. BW1282

Material	Brass

Cross-Link-cable for AS-i/Ethernet Gateway

Article no. BW1304

AS-i Probe

Article no. BW1745

AS-i Substructure Module

AS-i Substructure Module

Mounting on DIN rail and rear panel

for connection of AS-i flat cables:

- **quick mounting technology for AS-i flat cable**
- **2 AS-i flat cables (BW1180)**
- **2 AS-i flat cables with adressing jack (BW1438)**
- **1 AS-i flat cable,
  1 flat cable for external auxiliary power (BW1181)**

for connection of AS-i round cables:

- **screw terminal**
- **2 AS-i round cables (BW1182)**
- **1 AS-i round cable,
  1 round cable for external power supply (BW1183)**

Lid for standard AS-i substructure modules (BW1946)

**AS-i ribbon cable seal
for use in cable gland (BW1945)**

BW1180

BW1438

BW1181

BW1182

BW1183

BW1946

BW1945

 Article no. BW1180 for connection of 2 AS-i flat cables

Article no. BW1438 for connection of 2 AS-i flat cables with addressing socket

 Article no. BW1181 for connection of 1 AS-i flat cable, 1 flat cable for external power supply

Article no. BW1182 for connection of 2 AS-i round cables

 Article no. BW1183 for connection of 1 AS-i round cable, 1 round cable for external power supply

Article no. BW1946 lid for standard AS-i substructure modules

 Article no. BW1945 ribbon seal for use in cable gland

AS-i substructure modules are some necessary accessories for AS-i modules of the product family IP65 M12- and IP65 PG-modules. They are available in versions for connection of AS-i flat and round cables.

With the use of the lid for standard AS-i modules further passive branches can be built up.

AS-i ribbon cable seal is used for the packing of cable glands for AS-i flat cable.

Article no.	BW1180	BW1438	BW1181	BW1182	BW1183	BW1946	BW1945
Cable	2 AS-i flat cables		1 AS-i flat cable	2 AS-i round cables			–
Gauge	–		–	< 2,5 mm^2			–
Connection	contact pins in the unit			terminals up to 2,5 mm^2			–
Contact rating	< 2 A			< 4 A			–
Operating voltage	AS-i		AS-i/U AUX	AS-i	AS-i/U AUX		–
Ambient operating temperature	-25 ... 75 °C						
Storage temperature	-25 ... 85 °C						
Protection category	IP65						
Dimensions (L / W / H in mm)	80 / 45 / 20			80 / 45 / 34		80 / 45 / 13	–

Accessories

AS-i Passive Distributor H

Article no. BW1239	
Cable connections	AS-i flat cable, M12 round cable Pin 1: AS-i + Pin 3: AS-i -
Storage temperature	-40 °C … +85 °C
Operating temperature	-25 °C … +60 °C
Protection category (EN 60 529)	IP 67
Dimensions (L, W, H)	approx. 50 mm, 20 mm, 30 mm

AS-i Passive Distributor L

Article no. BW1238	
Connection	AS-i flat cable M12 round connector Pin 1: AS-i + Pin 3: AS-i -
Protection category (EN 60 529)	IP 67

AS-i-Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

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AS-i Master/Gateways/
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AS-i Safety

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AS-i-Master/Gateways/
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AS-i Safety

Price Lists

Development/Manufacturing of AS-i Components

Bihl + Wiedemann

Automatisierungstechnik

Overview Development/Manufacturing of AS-i Components

Housing	Component	Art. No.	Characteristic	P.
	AS-i 3.0 Function and EMC- Test Master	BW1728	with master RS 232 suitable for SAP4, SAP5, A^{2}SI and ASI4U	152
	A²SI/SAP4 Programming- and Testtool	BW1355	2 AS-i masters on 1 PCI board	155
	AS-i 3.0 Compact PCI Board	BW1783	for AT-PCs with Compact PCI slot suitable for SAP4, SAP5, A^{2}SI and ASI4U	153
	AS-i 3.0 Development Service	BW1729 BW1730	AS-i 3.0 Slave Evaluation Board	154
	AS-i Slave Evaluation Board	BW1423	on basis ASI-SW+	156
		BW1190	on basis A²SI	157
		BW1057	on basis ASI3+	158

AS-i 3.0 Function and EMC-Test Master

AS-i Master

Suitable for SAP4, SAP5, A^{2}SI and ASI4U

For programming, developing and tests of AS-i Slaves

AS-i Specification 3.0

AS-i Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

Article no. BWU1728 with Master RS 232

The AS-i Function and EMC-Test Master with RS 232 interface can be operated in 3 different modes:
1. As a standard AS-i Master according to specification 3.0.
2. As a tool for programming of the AS-i Slave ICs SAP4, SAP5, A^{2}SI and ASI4U. This can be done with the help of Windows programs.

3. As a means to perform function and EMC tests which are necessary for every development of an AS-i slave (EMC test mode).

The AS-i Function and EMC-Test Master is used among others for the AS-i certification in Leipzig for release and test of AS-i Slaves.

Graphical display	Art. no. BWU1728
Operating current	Master power supply approx. 200 mA out of AS-i circuit
Operating voltage	AS-i voltage 30 V DC
Baud rates	19200 Baud
Serial interface	RS 232
AS-i cycle time	150 μs*(number of slaves + 2)
Displays	
LCD	Displaying slave addresses, error messages
LED green (power)	Power on
LED green (ser active)	Serial interface active
LED red (config error)	Configuration error
LED green (U AS-i)	AS-i voltage OK
LED green (AS-i active)	AS-i normal operation active
LED green (prg enable)	Automatic address programming enabled
LED yellow (prj mode)	The master in configuration mode
Buttons	4
Voltage of insulation	≥ 500 V
EMC directions	EN 61000-6-2, EN 61000-6-4
Operating temperature	0°C ... +55°C
Storage temperature	-25°C ... +85°C
Housing	AS-i master housing in stainless steel
Dimensions (L, W, H)	120 mm, 75 mm, 83 mm
Protection category (DIN 40050)	IP20
Tolerable loading reffering to impacts and vibrations	According to EN 61 131-2
Weight	460 g

The EMC-Test Mode

It is possible to put the Master into a state that is not AS-i compliant. This option can be useful for specific tests on AS-i under laboratory conditions (e. g. tests with bursts on the lines or tests with very long wires).

By putting the AS-i Master into the EMC Test Mode it becomes an AS-i test set-up for experts. In the test mode, the list of addressed slaves and the telegrams for contacting these slaves are given by the host. Also, it is possible to decide from within the host whether faulty answered telegrams from the AS-i Master may be repeated or not (Note: in regular AS-i operation, data telegrams can be repeated one time). As above, there are two error counters. However, in this mode the first one counts all telegrams while the second counts all faulty telegrams.

The **AS-i_EMC.EXE** program is designed for the operation of the AS-i Master in the EMC test mode. This program is also delivered as program for Windows.
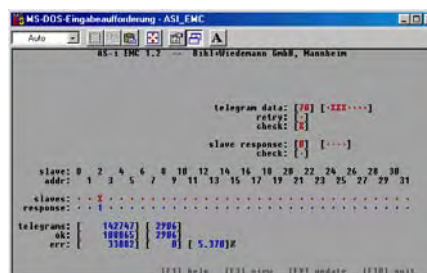
Individual software

It is, of course, possible to operate the AS-i Master from other hosts with individual Software. The neccessary telegrams are described in the manual.

Scope of delivery:

- The AS-i Function and EMC-Test Master with RS 232, power supply A
- Windows program **AS-i_EMC.EXE** for EMV test mode
- Windows programs for programming of SAP4, SAP5, A^{2}SI and ASI4U
- Software AS-i Control Tools with serial cable for AS-i master in stainless steel (Article no. BW1602, s. page 62)
- A DLL-driver for the programming of the A²SI- and SAP4-ASIC can be ordered seperately on request (Art. no. 1356)

AS-i 3.0 Compact PCI Board

AS-i Compact PCI-Board
for AT-PCs with Compact PCI Slots

Suitable for SAP4, SAP5, A²SI and ASI4U

For programming, developing and tests of AS-i Slaves

AS-i Specification 3.0

CE

Article no. BW1783

The AS-i 3.0 Compact PCI Board can be operated in 3 different modes:
1. As a standard AS-i Master according to specification 3.0.
2. As a tool for programming of the AS-i Slave ICs SAP4, SAP5, A²SI and ASI4U. This can be done with the help of Windows programs.

The EMC-Test Mode
It is possible to put the Master into a state that is not AS-i compliant. This option can be useful for specific tests on AS-i under laboratory conditions (e. g. tests with bursts on the lines or tests with very long wires).

By putting the AS-i Master into the EMC Test Mode it becomes an AS-i test set-up for experts.

In the test mode, the list of addressed slaves and the telegrams for contacting these slaves are given by the host. Also, it is possible to decide from within the host whether faulty answered telegrams from the AS-i Master may be repeated or not (Note: in regular AS-i operation, data telegrams can be repeated one time). As above, there are two error counters. However, in this mode the first one counts all telegrams while the second counts all faulty telegrams.

3. As a means to perform function and EMC tests which are necessary for every development of an AS-i slave (EMC test mode).

The **AS-i_EMC.EXE** program is designed for the operation of the AS-i Master in the EMC test mode. This program is also delivered as program for Windows.

Individual software
It is, of course, possible to operate the AS-i Master from other hosts with individual Software. The neccessary telegrams are described in the manual.
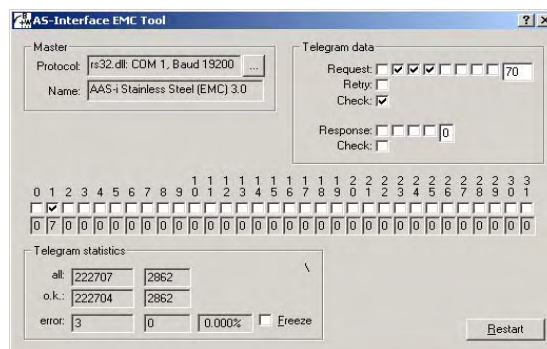
Technical data	
Type	Compact PCI Board
Interfaces	32 bit PCI bus interface, 3,3 V/5 V galvanic isolation to AS-i AS-i circuit 1 AS-i circuit 2
Program memory (EEPROM)	4 kb
Operating voltage	3,3 V/5 V DC and AS-i voltage
Operating current	ca. 300 mA out of 5 V power supply ca. 100 mA out of 3,3 V power supply ca. 70 mA out of AS-i per AS-i circuit
Voltage of insulation	≥ 500 V
EMC	according EN 61 000-6-2, EN 61 000-6-4
Operating temperature	0°C .. +55°C
Storage temperature	-25°C .. +70°C
AS-i cycle time per AS-i circuit	150 µs*(Number of slaves + 2)
AS-i Specification	3.0

Requirements:
Compact PCI System
Compact PCI Board

Accessories:
- AS-i Control Tools
- DLL drivers for: Win NT 4.0, Win 2000, Win XP
- OPC Server

AS-i-Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbusses/ Master Simulators

AS-i Safety

Preisl Lists

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**AS-i Master/Gateways/
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AS-i Slaves

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**Other Fieldbuses/
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AS-i Safety

Price Lists

AS-i 3.0 Slave Evaluation Board

AS-i 3.0 Slave software

Circuit designs

All AS-i 3.0 Slave profiles

The Bihl+Wiedemann GmbH offers besides complete realizations also different development components for AS-i 3.0.

The offered ciruit designs are characterised by small construction unit costs, very good EMC characteristics and a small power input. Apart from current circuit designs we offer also AS-i 3.0 slave software. The software is written in C and simply to be merged into own programs.

If desired Bihl+Wiedemann advises the manufacturer when planning and implementation for its equipment. Additionally Bihl+Wiedemann offers its customer a release examination to the realized implementation.

The test board BW1729 realizes 3 different AS-i slaves with the new "Combined Transaction type 2" according to AS-i specification 3.0. In each case a slave has the profile S-7.5.5, S-7.A.5, and S-B.A.5. The binary and analog channels of the slaves are linked among themselves, so that meaningful tests can be made.

The test board BW1730 realizes 6 different AS-i Slaves with the new "Combined Transaction type 5" according to AS-i Specification 3.0. A group consisting of 2 ... 4 slaves transfers in each case a input and output value very fast. The input value corresponds in each case to the negated original output data value. The slaves have the profile S-6.0.x according to the AS-i Specification 3.0.

Article no.	BW1729	BW1730
Interfaces	AS-i (Combicon plug)	
LED1 green	Power (flushing)	Power (flushing)
LED2 red	Fault	Fault
LED3 yellow	Binary output slave A	
LED4 yellow	Binary output slave A	
LED5 yellow	Binary output slave B	
Operating voltage	Out of AS-i voltage	

Specification BW1729/BW1730:

AS-i 3.0 Slave Evaluation Board

Circuit designs, AS-i 3.0 slave software and development services are offered with pleasure.

A²SI/SAP4 Programming- and Testtool

**AS-i Master Board
for PCs**

2 AS-i Masters on 1 board

**Programming,
developing and
tests of AS-i Slaves**

AS-i-Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

CE

Article no. BW1355

The A²SI/SAP4 Programming- and Testtool realizes the functionality of two complete AS-i Masters on a PCI Board.

The A²SI/SAP4 Programming- and Testtool can be operated in 3 different modes:

1. As a standard AS-i Master according to specification 2.1
2. As a tool for programming of the AS-i Slave ICs SAP4 und A²SI. This can be done with the help of simple Windows programs.

Alternatively it is possible to program directly out of the application via DLL drivers (seperate Art. no. BW1355).

3. As a means to perform function and EMC tests which are necessary for every development of an AS-i slave (EMC test mode).

The address of the AS-i PCI Board does not have to be adjusted. The AS-i PCI Board works with "Plug and Play". Up to 4 AS-i PCI Masters can be used simultaneously in one PC. The AS-i PCI Board serves the requirements of industrial use.

Requirements:
IBM compatible PC 80486 or higher
Plug and Play Bios

Accessories:
AS-i Control Tools (Windows) (Art. no. 1203)

DLL drivers for Win 95/98
                Win NT 4.0
                Win 2000

OPC Server

In the delivery volume the Windows programs for the programming of the A²SI and the SAP4 as well as the AS-i EMC-Test Master are contained.
A DLL-driver for the programming of the A²SI- and SAP4-ASIC can be ordered seperately on request (Art. no. 1355).

Technical data	
Type	PCI Board
Interface	16 bit PCI Bus interface, galvanic separation from AS-i AS-i circuit 1 AS-i circuit 2
Program memory (EEPROM)	4 KB
Operating voltage	5 V DC and AS-i voltage
Operating current	Approx. 200 mA out of power supply Approx. 70 mA out of AS-i per AS-i circuit
Voltage of insulation	$\geq$ 500 V
EMC directions	EN 50082, EN 50081
Operating temperature	0°C … +55°C
Storage temperature	-25°C … +70°C
AS-i cyle time per AS-i circuit	150 μs*(Number of slaves + 1)
AS-i Specification	2.1

Connections

AS-i Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

AS-i Slave Evaluation Board

Article no. BW1423
on basis ASI-SW+

Article no. BW1423

The AS-i Slave Evaluation Board on basis of the ASI-SW+ chip by ZMD can be connected to the AS-i circuit directly and without any additional hardware. It is a complete AS-i slave. Voltage supply is provided by the AS-i line.

The AS-i Slave Evaluation Board is suitable for **experiments** and **test setups** and fully able to function without additional hardware. Linked to an AS-i network, it enables the AS-i Master to set parameter outputs (PWM function) and data outputs as well as to read data inputs.

The slave board can be simply stuck upon a bigger prototyping board (piggy back), or via screwed terminals be attached directly to the AS-i cable.

The ID codes and the IO code can be programmed with the help of the A²SI/SAP4 Programming and Test Tool (Article-no. BW1355, see page 155) and the AS-i 2.1 Function and EMC-Test Masters (Article no. BW1259, BW1260).

Connections:	
ASI+, ASI-	AS-i connection
Uout	DC output voltage max. 20 mA
DI2 to DI3	Data inputs
DO0 to DO1	Data outputs
FID	Periphery fault (0: no fault)
GND	Ground
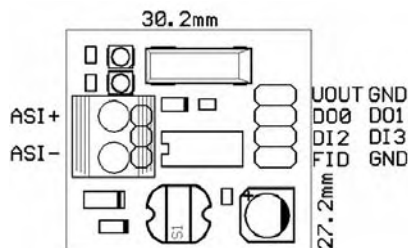
Technical data	
Operating current	Aprox. 20 mA (with external user application)
Operating voltage	AS-i voltage 30 V DC
Function display	Power-on LED: green Error: red
Dimensions (L, W, H)	28 mm, 31 mm, 8 mm

Programming:

Default setting

IO Code   B
ID Code   A
ID2 Code E

The ID codes and the IO code can be programmed with the help of the A²SI/SAP4 Programming and Test Tool (Article no. BW1355, see page 79) and the AS-i 2.1 Function and EMC-Test Masters (Article no. BW1259, BW1260, see page 80).

The ID codes and IO codes for the different types of slaves have to be asked for at the AS-International Association.

The data sheet of the ASI-SW+ chip:
http://www.zmd.de/as_interface.html

AS-i Slave Evaluation Board

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AS-i Slaves

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Diagnostics/Development

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Master Simulators

AS-i Safety

Price Lists

AS-i Slave Evaluation Board

Article no. BW1190
on basis A²SI

CE

Article no. BW1190

The AS-i Slave Evaluation Board on basis of the A²SI chip by ZMD can be connected to the AS-i circuit directly and without any additional hardware. It is a complete AS-i slave. Voltage supply is provided by the AS-i line.

The AS-i Slave Board is suitable for **experiments** and **test set-ups** and fully able to function without additional hardware. Linked to an AS-i network, it enables the AS-i Master to set parameter outputs and data outputs as well as to read data inputs.

The slave board can be simply stuck upon a bigger prototyping board (piggy back), or via screwed terminals be attached directly to the AS-i cable.

The ID codes and the IO code can be programmed with the help of the A²SI/SAP4 Programming and Test Tool (Article no. BW1355, see page 155),

Connections:	
ASI+, ASI-	AS-i connection
Uout	DC output voltage max. 30 mA
U5R	5 V output voltage max. 4 mA
DI0 to DI3	Data inputs
DO0 to DO3	Data outputs
P0 to P3	Parameter in-/outputs
PST	Parameter strobe
DSR	Data strobe / reset
IRD	IR input
FID	Periphery fault (0: no fault)
GND	Ground
LED	Diagnosis LED
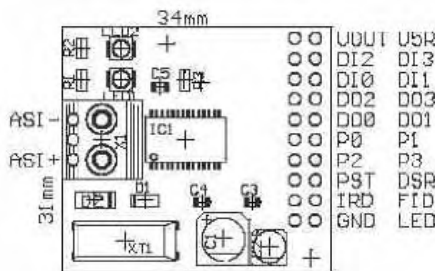
Technical data	
Operating current	Aprox. 20 mA (with external user application)
Operating voltage	AS-i voltage 30 V DC
Function display	Power-on LED: green Error: red
Diemensions (L, W, H)	34 mm, 31 mm, 8 mm

Programming:

Default setting

IO Code   7
ID Code   F
ID2 Code 2

The ID codes and the IO code can be programmed with the help of the A²SI/SAP4 Programming and Test Tool (Article no. BW1355, see page 155).

The ID codes and IO codes for the different types of slaves have to be asked for at the AS-International Association.

The data sheet of the A²SI chip:
http://www.zmd.de/as_interface.html

AS-i Slave Evaluation Board

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Automatisierungstechnik

AS-i Slave Evaluation Board

Article no. BW1057
on basis ASI3+

AS-i Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

CE

Article no. BW1057

The AS-i Slave Evaluation Board can be connected to the AS-i circuit directly and without any additional hardware. It is a complete AS-i slave. Voltage supply is provided by the AS-i line.

The AS-i Slave Evaluation Board is suitable for **experiments** and **test setups** and fully able to function without additional hardware. Linked to an AS-i network, it enables the AS-i Master to set parameter outputs and data outputs as well as to read data inputs. All ID-codes and IO-codes can be adjusted by a socketed

EEPROM. All important pins of the AS-i slave IC are led onto one pin header:

- decoupled U_{out} (approx. 24 V, maximal 35 mA)
- data pins D0 … D3
- parameter outputs P0 … P3
- strobe outputs for data and parameter ports

Technical data	
Operating current	approx. 20 mA (without external user aplication)
Operating voltage	AS-i voltage 30 V DC
Function display	green power-on LED
Diemensions (L, W, H)	33,7 mm, 26,7 mm, 15 mm

The AS-i slave IC´s configuration is programmed in the EEPROM. On delivery, the whole EEPROM is filled with 0 (address=0, configuration=0, 4 data inputs):

EEPROM Adr.	D7	D6	D5	D4	D3	D2	D1	D0
0	0	0	0		AS-i address			
1	0	0	0		AS-i address			
2		ID code				IO configuration		
3		ID code				IO configuration		

The parameters in the addresses 0 and 1 and in the addresses 2 and 3 have to be identical. The IO code data can be easily altered. For that purpose, the data in the socketed EEPROM have to be reprogrammed (in an external EEPROM programming device).

IO-Code	D0	D1	D2	D3
0_{hex}	input	input	input	input
1_{hex}	input	input	input	output
2_{hex}	input	input	input	bidirectional
3_{hex}	input	input	output	output
4_{hex}	input	input	bidirectional	bidirectional
5_{hex}	input	output	output	output
6_{hex}	input	bidirectional	bidirectional	bidirectional
7_{hex}	bidirectional	bidirectional	bidirectional	bidirectional
8_{hex}	output	output	output	output
9_{hex}	output	output	output	input
A_{hex}	output	output	output	bidirectional
B_{hex}	output	output	input	input
C_{hex}	output	output	bidirectional	bidirectional
D_{hex}	output	input	input	input
E_{hex}	output	bidirectional	bidirectional	bidirectional
F_{hex}	F_{hex}: no valid configuration			

AS-i -

AS-i +

GND GND
DST D3
D2 D1
D0 PST
P3 P2
P1 P0
Uout Uout
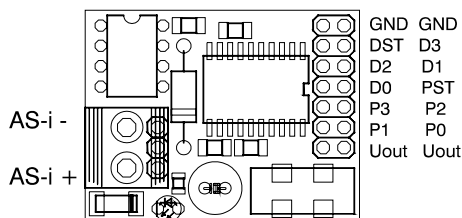
Programming

Default setting
IO Code 0
ID Code 0

The ID-Codes for the different types of slaves have to be asked for at the AS-International Association

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Overview Master Simulators

Housing	Master Simulator	Art. No.	Characteristic	P.
	PROFIBUS Master Simulator	BW1131	monitoring software for PROFIBUS DP slaves, PROFIBUS-UART, DP V0	160
		BW1257	monitoring software for PROFIBUS DP slaves, PROFIBUS-UART, DP V0 and DP V1	
	Serial PROFIBUS DP Master	BW1258	PROFIBUS Master with RS 232 interface	161
	DeviceNet Master Simulator	BW1420	with USB interface	162
		BW1255	with parellel port	
		BW1625	as PCI board	
	CANopen Master Simulator	BW1453	with USB interface	163
	Interface Converter	BW1094	interface converter RS 232C/RS 485 for Bihl+Wiedemann´s AS-i master	164

AS-i-Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

PROFIBUS DP Master Simulator

**Monitoring Software
for PROFIBUS DP Slaves**

PROFIBUS UART
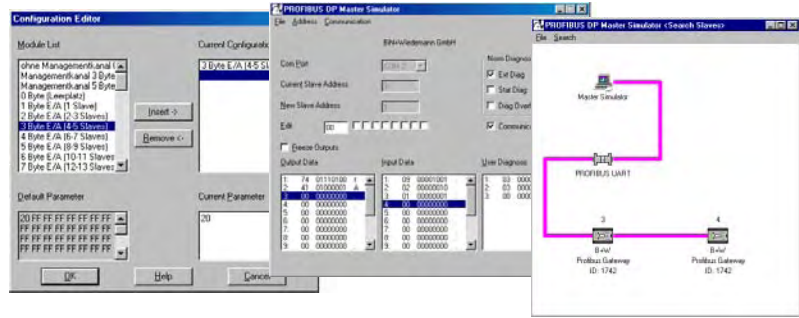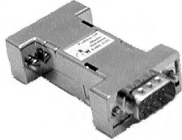
Article no. BW1131 DP V0
Article no. BW1257 DP V0 and DP V1

The PROFIBUS DP Master Simulator is an easy to use software for data exchange with PROFIBUS slaves of many suppliers via PROFIBUS DP. The PROFIBUS DP Master Simulator can exchange data with many PROFIBUS slaves even without GSD-file or type-file. The PROFIBUS slaves can be put into operation with the default I/O window. Input data can be read and output data can be written. Furthermore the PROFIBUS DP Master Simulator also processes GSD-files. User parameters can be edited and the configuration can be modified and stored. The PROFIBUS station address can be changed as well with the PROFIBUS DP Master Simulator, this is useful for PROFIBUS I/O modules in protection class IP67 without addressing switches.

The PROFIBUS DP Master Simulator offers the possibility to scan a PROFIBUS network for connected slaves and display them in a graphical way. In this case the PROFIBUS UART has to be connected directly to a PROFIBUS slave. The I/O data and the PROFIBUS user diagnosis can be displayed binary, hexdecimal and now also as ASCII code. The PROFIBUS output data can be transmitted consistently to the PROFIBUS slave. In type mode it is possible to set an output as long as the mouse button is pressed.

The new version of the PROFIBUS DP Master Simulator (Article no. BW1257) supports PROFIBUS DP V1. PROFIBUS slaves can be operated in the acyclic mode DP V1. This is helpful especially for the commissioning of complex field devices like drives, modular I/O systems etc.

The PROFIBUS Master Simulator consists of the software and the **PROFIBUS UART** which is the ideal interface converter between the RS 232 interface of a PC and the PROFIBUS slave. The **UART** does not need any additional external power supply. Therefore it is also suitable for mobile use with a laptop or a notebook. The **PROFIBUS UART** is simply inserted between the PROFIBUS slave and RS 232 connector cable.

Beside the software "PROFIBUS DP Mastersimulator" now **DLL drivers** for Windows 95/98, Windows NT as well as examples written in C are available for download on the homepage. This offers the possibility to **use the PROFIBUS UART in an application in combination with an own software**. However the PROFIBUS UART is a monitoring and commissioning tool for PROFIBUS slaves, it is not designed to control automation processes.

Technical data of PROFIBUS UART	
Type	PROFIBUS UART
Dimensions (L, W, H)	63 mm, 34 mm, 17 mm
Interfaces	Standard PC RS 232-inteface with 9-pin D-sub-plug (female) RS 485-interface with 9-pin D-sub-plug (male)
Power supply	Powered from the RS 485 interface of the PROFIBUS slave (5 V)
Operating current	< 60 mA
Cable length	RS 232 and RS 485: max. 2 m
Transfer rate	19200 Baud
Operating temperature	0°C … +55°C
Storage temperature	-25°C … +70°C

Requirements:
IBM compatible PC
80386 or higher

Operating system:
Windows 98,
Windows Me,
Windows 2000,
Windows XP and
Windows NT

Specification:
- Software: PROFIBUS DP Master Simulator
- PROFIBUS UART
- D-sub-data cable

32 Bit DLL an examples (in C as source code) are available for download on the homepage and are not delivered with.

AS-i Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

AS-i-Master/Gateways/
Links/Scanner

AS-i Slaves

AS-i Accessories/
Diagnostics/Development

Other Fieldbuses/
Master Simulators

AS-i Safety

Price Lists

Serial PROFIBUS DP Master

**Bihl
+ Wiedemann**

Automatisierungstechnik

**PROFIBUS Master with
RS 232 Interface**

PROFIBUS Master Class 1 and 2

**Monitoring software
for PROFIBUS DP Slaves**

**Cyclic data exchange via
PROFIBUS DP V0**

**Acyclic data exchange via
PROFIBUS DP V1**

PROFIBUS rope

24V power supply
(included in the package)

serial cable
(included in the package)

Article no. BW1258

The serial PROFIBUS DP Master is an easy to use software for data exchange with PROFIBUS slaves of many suppliers via PROFIBUS DP. It can be processed in two modes:

1. Commissioning and test tool for PROFIBUS DP Slaves via PROFIBUS DP V0

In this operation mode I/O data can be exchanged cyclically with PROFIBUS slaves via PROFIBUS DP V0 Input data can be read and output data can be written. Furthermore the serial PROFIBUS DP Master also processes GSD-files. User parameters can be edited and the configuration can be modified and stored. The PROFIBUS station address can be changed as well with the serial PROFIBUS DP Master. This is useful for PROFIBUS I/O modules in protection class IP67 without addressing switches.

The serial PROFIBUS DP Master offers the possibility to scan a PROFIBUS network for connected slaves and display them in a graphical way. In this case the serial PROFIBUS UART has to be connected directly to a PROFIBUS slave. The I/O data and the PROFIBUS user diagnosis can be displayed binary, hexdecimal

and now also as ASCII code. The PROFIBUS output data can be transmitted consistently to the PROFIBUS slave. In single bit mode it is possible to set an output as long as the mouse button is pressed.

Beside the monitoring and putting into operation software **DLL drivers** as well as examples written in C are available for dwonload on the homepage. This offers the possibility to **use the PROFIBUS UART in an application in combination with an own software**.

2. PROFIBUS Master class 2 with PROFIBUS DP V1 functionality

In this mode the serial PROFIBUS Master works as a class 2 Master in combination with the class 1 Master in a PROFIBUS network

Complex devices e. g. drives, modular I/O systems even PROFIBUS PA devices can be comissioned online via PROFIBUS DP V1. PROFIBUS PA devices need an additional segment coupler.

Technical data of the serial PROFIBUS Master	
Type	Serial PROFIBUS Master
Dimensions (L, W, H)	72,0 mm, 68,5 mm, 19,5 mm
Interfaces	Standard PC RS 232-interface with 9-pin D-Sub-plug (female) PROFIBUS interface with 9 pin D-Sub-plug (male)
Power supply	24 V DC
Operating current	< 60 mA
LED green (power)	Power on
LED yellow (com)	Serial interface/PROFIBUS in operation
Length of connector cables	RS 232 max. 2 m
Transfer rate RS 232	19200 Baud
Transfer rate PROFIBUS	9,6 KBaud up to 1500 KBaud
Operating temperature	0°C … +55°C
Storage temperature	-25°C … +70°C

Requirements:
IBM compatible PC
80386 or higher

Operating system:
Windows 98,
Windows Me,
Windows 2000,
Windows XP and
Windows NT

Specification:
- Software: PROFIBUS DP Master Simulator
- serial PROFIBUS Master
- D-sub-transmission cord
- Power supply 24 V DC

32 Bit DLL an examples (in C as source-code) are available for download on the homepage and are not delivered with.

GND
DTR
CTS
TxD
RxD
RS232C

P
N
PROFIBUS

AS-i Master/Gateways/
Links/Scanner

AS-i Slaves

AS-i Accessories/
Diagnostics/Development

Other Fieldbuses/
Master Simulators

AS-i Safety

Price Lists

DeviceNet Master Simulator

**Bihl
+ Wiedemann**

Automatisierungstechnik

Monitoring Software for DeviceNet Slaves

DeviceNet Dongle with USB Interface (Art. no. BW1420)

DeviceNet Dongle with Parellel Port (Art. no. BW1255)

DeviceNet   parallel port

DeviceNet Master Simulator as PCI Board (Art. no. BW1625)
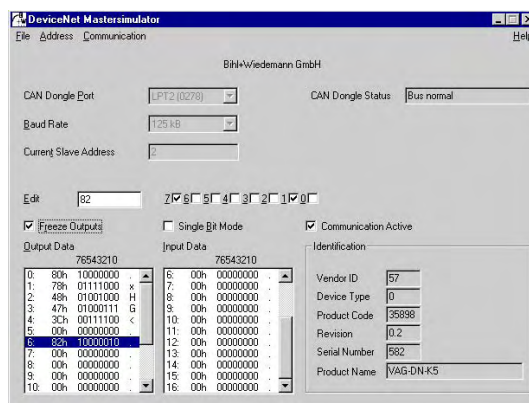
Article no. BW1420 with USB Interface

Article no. BW1255 with Parallel Port

Article no. BW1625 as PCI Board

The DeviceNet Master Simulator is an easy to use software for data exchange with DeviceNet slaves of many suppliers. The DeviceNet Master Simulator can exchange data with the slaves even without EDS-file. Input data can be read, output data can be written and the DeviceNet diagnosis can be displayed. Furthermore it is possible to read and write any object independent of the state of communication.

The DeviceNet Master Simulator offers the possibility to scan a DeviceNet network and find all connected slaves. The I/O data is displayed binary and hexadecimal.

In single bit mode it is possible to set an output as long as the mouse button is pressed.

The device identification is read out of the DeviceNet slave and displayed together with the I/O data.

The DeviceNet Master Simulator consists of the software and a DeviceNet dongle. The DeviceNet dongle is the ideal interface converter between an USB port (the parallel interface of a PC) and DeviceNet. The converter needs no extra power supply. Therefore it is also suitable for mobile use with a laptop or a note-book.

Article no.	BW1255	BW1420	BW1625
Type	DeviceNet Dongle		PCI Board
Interfaces	Standard parallel PC interface with 25 pin D-sub-plug (male) CAN interface with 9 pin D-sub-plug (male)	USB interface CAN interface with 9 pin D-sub-plug (male)	16 Bit PCI bus interface, CAN interface with 9 pin D-sub-plug (male)
Power supply	Powered by the keyboard interface of the PC	Powered by the USB port of the PC	Powered by the PCI port of the PC
Length of connector cables	max. 2 m		
Transfer rates	125, 250 or 500 KBaud		
Operating temperature	0°C … +55°C		
Sorage temperature	-25°C … +70°C		
Connections of D-sub plug	CAN_H ——— 1 2 CAN_L 6 7 3 8 4 9 5 CAN		

Requirements:
IBM compatible PC
80486 or higher
Plug and Play Bios

Operating system:
Windows 98, Windows NT, Windows 2000, Windows Me, Windows XP

Specification:
• Software:
• DeviceNet Master Simulator
• DeviceNet Dongle/PCI board

At the end of the DeviceNet line a bus termination (120 Ohm) has to be used

32 Bit DLL an examples (in C as sourcecode) are available for download on the homepage and are not delivered with.

Accessories: D-sub-data transmission cord for AS-i Gateways with CAN interface (Art. no. BW1226, see page 146)

CANopen Master Simulator

Monitoring Software
for CANopen Slaves

CAN Dongle
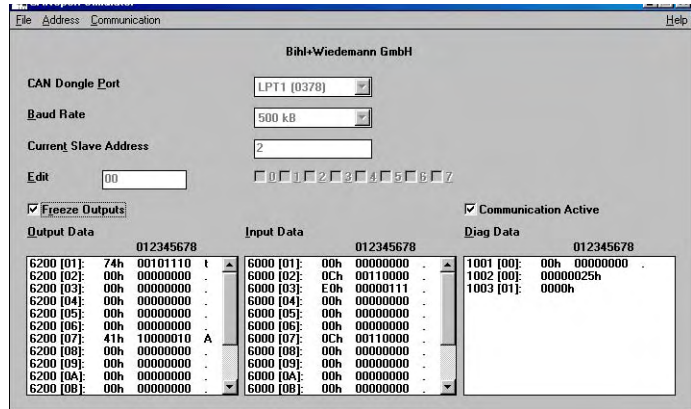
Article no. BW1453 with USB interface

The CANopen Master Simulator is an easy to use software for data exchange with CANopen slaves of many suppliers without CANopen Master. The CANopen Master Simulator can exchange data with the slaves even without EDS-file. Input data can be read, output data can be written and the CANopen diagnosis can be displayed. Furthermore it is possible to read and write any object independent of the state of communication.

The CANopen Master Simulator offers the possibility to scan a CANopen network and find all connected slaves. The digital I/O

data and the CANopen diagnosis can be displayed binary, hexdecimal and also as ASCII code. Analog I/O data are displayed decimal. The CANopen output data can be transmitted consistently to the CANopen slave.

The CANopen Master Simulator consists of the software and a CAN dongle. The CAN dongle is the ideal interface converter between the USB interface of a PC and CANopen. The converter needs for power supply only the USB interface. Therefore it is also suitable for mobile use with a laptop or a notebook.

Technical data of the CAN Dongle	
Type	CAN dongle
Interfaces	USB interface CAN interface with 9-pin D-sub-plug (male)
Power supply	powered by the USB interface of the PC
Length of connector cables	max. 2 m
Transfer rates	5, 10, 20, 50, 100, 125, 250, 500 or 1000 KBaud
Operating temperature	0°C … +55°C
Storage temperature	-25°C … +70°C
Connections D-sub plug	

Requirements:
IBM compatible PC 80486 or higher

Operating system:
Windows 95,
Windows 98,
Windows NT,
Windows 2000
Windows Me
Windows XP

Specification:
Software:
• CANopen Master Simulator
• CANopen dongle

Accessories: D-sub-data transmission cord for AS-i Gateways with CAN interface (Art. no. BW1226, see page 146)

AS-i-Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

Interface Converter RS 232C/RS 485

Bihl
+Wiedemann

Automatisierungstechnik

Interface converter RS 232C/RS 485
for Bihl+Wiedemann´s
AS-i Master

AS-i Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists
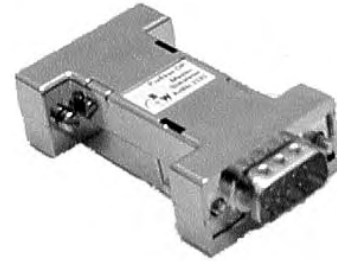
Article no. BW1094

Function

The interface converter is the ideal interface between the RS 232 interface of the PC and the RS 485 interface of the AS-i Gateways. The converter is very compact and does not need any additional external power supply. Therefore it is also suitable in mobile use with a laptop or a notebook. The converter is simply inserted between AS-i Gateway with RS 232 connector cable and PC.

Only one device with RS 485 interface can be connected to the converter.

The RS 232C/RS 485 converter can be used under different operating systems. Using the AS-i Control Tools for Windows an AS-i Master with RS 485 interface can be handled now just as an AS-i Master with RS 232 interface. The RS 232C/RS 485 converter works up to transfer rates of 57600 Baud.

Technical data	
Type	RS 232C/RS 485-Konverter
Dimensions (L, W, H)	63 mm, 54 mm, 17 mm
Interfaces	Standard PC RS 232 interface with 9-pin sub-D plug (female) RS 485 interface with 9-pin sub-D plug (male)
Power supply	gets its power from the RS 232 interface of the PC, therefore external power supply is not necessary. Pin 4 (DTR) has to be high.
Length of connector cables	RS 232: max. 2 m, RS 485: 2 m
Transfer rate	up to 57600 KBaud
Operating temperature	0°C … +55°C
Storage temperature	-25°C … +70°C

Overview other Fieldbuses/Couplers

Housing	Coupler	Art. No.	Characteristic	P.
	PROFIBUS Option Board	BW1261	straight	166
		BW1271	crooked	
	CAN/PROFIBUS Coupler CANrho/PROFIBUS Coupler	BW1246 BW1184		167
	CAN/InterBus Coupler	BW1243 BW1323	InterBus baud rate 500 KBaud InterBus baud rate 2 MBaud	168

AS-i-Master/Gateways/
Links/Scanner

AS-i Slaves

AS-i Accessories/
Diagnostics/Development

Other Fieldbuses/
Master Simulators

AS-i Safety

Price Lists

PROFIBUS Option Board

How to interface your device to a PROFIBUS network?

The simplest way: PROFIBUS Option Board

Rugged and quick mounting

Coupling via serial interface (TTL-level)

straight

crooked

Article no. BW1261: PROFIBUS Option Board (straight)
Article no. BW1271: PROFIBUS Option Board (crooked)

How to interface your device to a PROFIBUS network? With the PROFIBUS Option Board.

The PROFIBUS Option Board is an embedded PROFIBUS slave interface for manufacturers of industrial automation products. It features an inexpensive PROFIBUS module with a serial interface to the host product.

The board is designed for rugged and quick mounting. The D-Sub connector for PROFIBUS can be delivered crooked or straight according to requirements of installation.

The serial connection to the host device is made flexibly via a 14 pin connector.

With the help of the PROFIBUS Option Board any devices can be offered with PROFIBUS interface without high development expenses.

The PROFIBUS Option Board is mounted in combination with the host hardware inside the housing of the host product.

The PROFIBUS Option Board provides the PROFIBUS DP slave interface between a host product with a serial interface and the PROFIBUS network.

For the use there is no need of any knowledge about PROFIBUS. The PROFIBUS Option board is served by the host product via the serial interface with a very simple serial telegram.
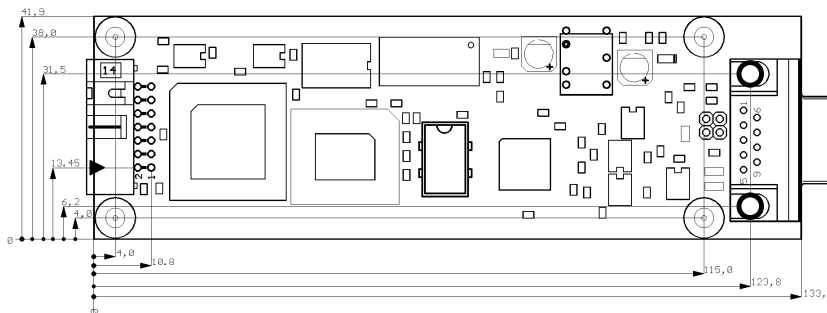
Pining of 14-pin connector	
2	CTS
3	TXD
4	RXD
9	+5V supply
10, 11	GND
others	NC.

Article no.	BW1261/BW1271
Connections	PROFIBUS: optional D-Sub 9-pin 180° or 90° serial interface: pinhead
PROFIBUS interface	according to DIN 19245 part 1-3
PROFIBUS baud rates	9,6 KBaud to 12000 KBaud, automatic recognition
DP funkcions	Imaging of the serial data as I/O data of the PROFIBUS Complete diagnosis and configuration via DP-Master
Connection to the host	14 pin connector, 2 row type, 2,54mm pitch, optional 180° or 90°
Serial baud rates	19,2 KBaud/57,6 KBaud
Transfer format	8N1
Signal level of the serial interface	0 V, +5 V (not ±12 V)
Operating current	max. 400 mA incl. PROFIBUS bus terminal
Operating voltage	+5 V, ±5%
Voltage of insulation	≥ 500 V
EMC directions	EN 50082, EN 50081
Operating temperature	0°C … +55°C
Storage temperature	-25°C … +85°C
Dimensions (L, W, H)	133,4 mm, 41,9 mm, 8 mm
Mounting	4 holes with 3,5mm diameter

CAN/PROFIBUS Coupler

Bihl+Wiedemann

Automatisierungstechnik

**Connection of a CAN network
and a PROFIBUS network
via integrated interfaces**

**Easy data exchange
between CAN and PROFIBUS
via the internal coupling**

AS-i-Master/Gateways/
Links/Scanner

AS-i Slaves

AS-i Accessories/
Diagnostics/Development

Other Fieldbuses/
Master Simulators

AS-i Safety

Price Lists

CE

Article no. BW1246: CAN/PROFIBUS Coupler
Article no. BW1184: CANrho/PROFIBUS Coupler

The CAN/PROFIBUS Coupler is the easiest solution to exchange data between CAN and PROFIBUS.

In big applications is often a need to exchange data between a control of a CAN network and another PLC, e. g. to report the process status. This problem was solved in the past with the help of normal I/O modules, with the inputs of the control of the CAN network connected to the outputs of the other PLC and vice versa. With the use of the CAN/PROFIBUS Coupler to solve this problem the installation costs as well as the components costs can be reduced.

The CAN/PROFIBUS Coupler consists of a CAN slave with n bytes (8, 16 or 24 bytes) input data and n bytes output data and

a PROFIBUS slave with n bytes input data and 8 bytes output data in one housing. The outputs of one slave are connected to respective inputs of the other slave and vice versa (output data byte 1 of the CAN slave with input data byte 1 of the PROFIBUS slave and vice versa, etc.).

There is a galvanic isolation between CAN and PROFIBUS.

A seven digit display can be used for commissioning and diagnosis.

As long as one of both slaves does not exchange data the other slave reads on each input a 0 as default.

Technical data

Article no.	BW1184	BW1246
Connections	PROFIBUS: D-Sub 9-pin CAN: 4-pin COMBICON plug	
PROFIBUS interface	according to DIN 19245 part 1-3	
Baud rates	9,6 KBaud to 12000 KBaud, automatic recognition	
DP functions	Imaging of the CAN Data as I/O data of the PROFIBUS Complete diagnosis and configuration via DP master	
CAN baud rates	125 KBaud, 250 KBaud, 500 KBaud, 1 MBaud	
Display	seven digit	
Operating current	< 120 mA at 24 V	
Operating voltage	24 V DC	
Voltage of insulation	$\geq$ 500 V	
EMC directions	EN 50 082, EN 50 081	
Operating temperature	0°C … +55°C	
Storage temperature	-25°C … +85°C	
Housing	Housing for DIN-rail mounting	
Dimensions (L, W, H)	100 mm, 25 mm, 120 mm	
Protection category (DIN 40 050)	Housing IP20	
Weight	120 g	

CAN/PROFIBUS connections

CAN/PROFIBUS Coupler

CAN — CAN (n bytes O / n bytes I) — PROFIBUS (n bytes I / n bytes O) — PROFIBUS

1: GND_CAN
2: FE
3: CAN_H
4: CAN_L

5: +24V
6: +24V
7: GND
8: GND

CAN/InterBus Coupler

Bihl + Wiedemann

Automatisierungstechnik
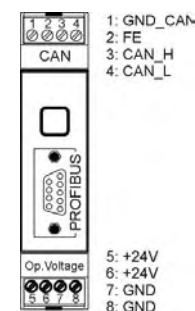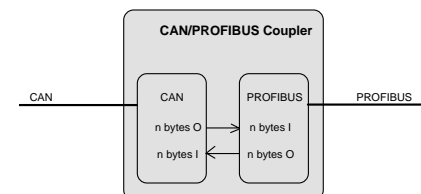
**Connection of a CAN network
and a InterBus network
via integrated interfaces**

**Easy data exchange
between CAN and InterBus
via the internal coupling**

CE

Article no. BW1243: InterBus baud rate 500 KBaud
Article no. BW1323: InterBus baud rate 2 MBaud

The CAN/InterBus Coupler is the easiest solution to exchange data between CAN and InterBus.

In big applications is often a need to exchange data between the robot control and another PLC, e. g. to report the process status. This problem was solved in the past with the help of normal I/O modules, with the inputs of the robot control connected to the outputs of the other PLC and vice versa. With the use of the CAN/InterBus coupler to solve this problem the installation costs as well as the components costs can be reduced.

The CAN/InterBus coupler consists of a CAN slave with 20 bytes input data and 20 bytes output data and an InterBus slave with 20 bytes input data and 20 bytes output data in one housing. The outputs of one slave are connected to respective inputs of the other slave and vice versa.

There is a galvanic isolation between CAN and InterBus.

The device has got 6 LEDs for commissioning and diagnosis.

As long as one of both slaves does not exchange data the other slave reads on each input a 0 as default.

Technical data

Article no.	BW1243	BW1323
Connections	CAN: D-Sub 9-pin InterBus: Fiber optic interface	
InterBus interface	on basis SUPI 3	auf Basis SUPI 3 OPC
Baud rates	500 KBaud	2 MBaud
Functions	Imaging of the CAN Data as I/O data of the InterBus	
CAN baud rates	20 KBaud, 125 KBaud, 500 KBaud, 1 MBaud	20 kBaud, 125 kBaud, 250 kBaud, 500 kBaud
Display	6 LEDs	
Operating current	< 100 mA at 24 V	
Operating voltage	24 V DC	
Volage of insulation	≥ 500 V	
EMC directions	EN 50 082, EN 50 081	
Operating temperature	0°C … +55°C	
Storage temperature	-25°C … +85°C	
Housing	Housing for DIN-rail mounting	
Dimensions (L, W, H)	110 mm, 105 mm, 60 mm	
Protection category (DIN 40 050)	Housing IP00	
Weight	200 g	

CAN/InterBus connections
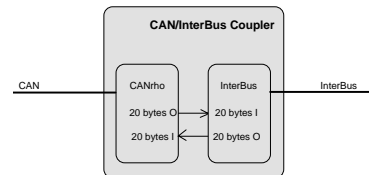
Distribución: **ER-SOFT, S.A.** Email: **er@er-soft.com**, Tel: +34 916 408 408

Overview AS-i Safety

Housing	Module	Art. No.	Characteristic	P.
	AS-i Safety Monitor	BW1764	advanced monitor, 1 OSSD (release circuit), 40 ms	170
		BW1765	advanced monitor, 2 OSSD (release circuit), 40 ms	
	AS-i Safety OEM Slave	BW1751	with screw terminals	171
		BW1896	with plug-in screw terminals	
		BW1801	with wiring pins	
		BW1934	none connection	
	Software AS-i Safety Monitor	BW1770	programminng software ASIMON with cable	172
	Interface cable	BW1771	for connection of the Safety Monitor to a PC	172
		BW1772	for connection of 2 Safety Monitors	

AS-i-Master/Gateways/
Links/Scanner

AS-i Slaves

AS-i Accessories/
Diagnostics/Development

Other Fieldbuses/
Master Simulators

AS-i Safety

Price Lists

AS-i Safety Monitor

AS-i Safety Monitor

1 or 2 channel release circuits

**Meets safety-relevant standards
according to category 4 by EN 954-1**

Protection category IP20

Article no. BW1764: AS-i Safety Monitor, advanced monitor, 1 OSSD (release circuit), 40 ms

Article no. BW1765: AS-i Safety Monitor, advanced monitor, 2 OSSD (release circuit), 40 ms

The AS-i Safety Monitor allows the connection of Safety at Work slaves for safety-relevant tasks.

During intended connection the AS-i Safety Monitor permits the use of sensor-steered safety devices and further safety parts up to category 4 by EN 954-1.

Likewise the prescribed emergency stop function can be taken over by the AS-i Safety Monitor for all not hand-guided machines and furthermore the dynamic monitoring of the restart and the contactor control function.

Further the use of extensive logic components is made available. Also the grouping of AS-i slaves (e.g. to the partial disconnection of machines) is possible.

Article no.	BW1764	BW1765
Release circuit	1 channel	2 channel
Start delay	< 10 s	
Respond delay	< 40 ms	
Safety Monitor	Advanced monitor,	
Electrical data		
Interface	RS 232	
Baud rate	9600 baud, no parity, 1 start bit, 1 stop bit, 8 data bits	
Operating voltage	24 V DC (26,5 … 31,6 V out of AS-i)	
Operating current	approx. 150 mA out of 24 V DC approx. 45 mA out of AS-i	approx. 200 mA out of 24 V DC approx. 45 mA out of AS-i
Displays/Buttons		
LED green	Contacts of the safety outputs (OSSD) are: out: open lighting: closed flashing: delay time is running at stop category 1	
LED yellow	lighting: start lock/restart lock active flashing: external test necessary	
LED red	Contacts of the safety outputs (OSSD) are: lighting: open flashing: error	
LED green (POWER)	AS-i voltage OK	
LED red (AS-i)	Communication error	
Button	1 (Service)	
Housing		
Connection	Screw terminals	
Operating temperature	-20°C … +60°C	
Storage temperature	-30°C … +70°C	
Housing	Housing for DIN-rail mounting	
Dimensions (L, W, H)	105 mm, 45 mm, 120 mm	
Protection category	Housing IP20	
Weight	360 g	450 g
Standard conformity		
Standards	EN 50 295, EN 60 947-5-1, IEC61508 (up to SIL 3), IEC 61 496-1, EN 610 204-1, EN 1088, EN 418, EN 954-1 (up to category 4)	

Accessories:
- Programminng software ASIMON with cable (article no. BW1770)
- Interface cable for connection of the Safety Monitor to the PC (article no. BW1771)
- Interface cable for connection of 2 Safety Monitors (article no. BW1772)

AS-i Safety OEM Slave

AS-i Safety OEM Slave

Connection of 2 safe switching contacts

Applications up to category 4

Safe inputs supplied by AS-i

Outputs supplied by galvanical separated 24 V

BW1896   BW1751

CE
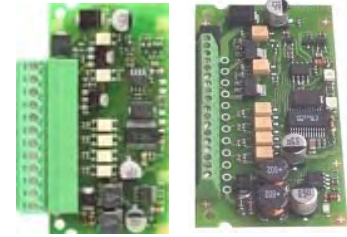
Article no. BW1896 with plug-in screw terminals

Article no. BW1751 with screw terminals

Article no. BW1801 with wiring pins

Article no. BW1934

The AS-i Safety OEM Slave meets the requirements of AS-i Safety. With the help of the AS-i Safety OEM Slave it is possible to supply applications up to category 4. The supply of the safe inputs is made out of AS-i. The outputs are powered out of galvanical separated 24 V. Besides the in- and outputs are short-circuit-protected, overload-proof and pole-protected.

If bus communication is interrupted, the outputs are switched to their currentless switching state by the watchdog.

Using the outputs, you can drive up to 2 indicator lights, with the power being drawn from the separated 24 V.

Customer-specific special orders are possible on short notice. The circuit board dimensions and the plug connections can be changed as well.

The AS-i Safety OEM Slave offers additionally 2 holes for mounting angulars.

Article no.	BW1896	BW1751	BW1801	BW1934
Connection	Plug-in screw terminals	Screw terminals	Wiring pins	-
Current input out of AS-i	< 80 mA			
Current input out of 24 V	1,5 A at output short-circuit			
Voltage range AS-i	22 .. 31,6 V			
Voltage range 24 V	24 V (20 .. 30 V DC) (PELV)			
Outputs	2, electronic, short-circuit-protected			
Loading capacity of outputs	Max. 100 mA per output			
Length of connector cable	I/O: max. 15 m			
Max. resistor of the switches	200 Ohm			
Displays				
LED red	Error			
LED green	Power			
2x LED yellow	Safe inputs			
2x LED yellow	Outputs			
Operating voltage	Via AS-i			
EMC directions	EN 61 000-6-2, EN 61 000-6-4			
Functional safety	EN 954-1:1996 (up to category 4)			
Operating temperature	0°C .. +70°C			
Storage temperature	-40°C .. +70°C			
Protection category (EN 60 529)	IP00			
Allowable shock and vibration stress	$\leq$ 15 g, T $\leq$ 11 ms 10 .. 55 Hz, 0,5 mm amplitude			
Dimensions (L, W, H)	73 mm, 37,5 mm, 12 mm			

Programming (Bit-setting)

Data bit
(input via AS-i)
Bit Function
D0 Safe input S1/Output A1
D1 Safe input S1/Output A2
D2 Safe input S2
D3 Safe input S2

Parameter bit
Bit Function
P0 Not used
P1 Not used
P2 Not used
P3 Not used

Programming:
Address preset 0
changeable via bus master or programming devices

IO code   7
ID code   B
ID2 code 0

Hint:
The module can not be used with the OEM carrier board BW1484.

AS-i-Master/Gateways/Links/Scanner

AS-i Slaves

AS-i Accessories/Diagnostics/Development

Other Fieldbuses/Master Simulators

AS-i Safety

Price Lists

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Automatisierungstechnik

AS-i Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists
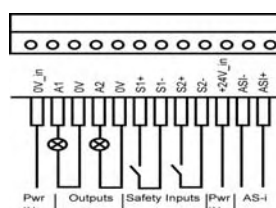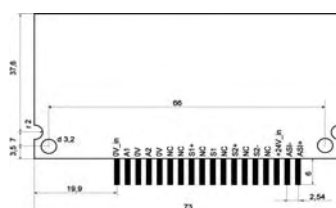
Software AS-i Safety Monitor

Article no. BW1770

Programming software ASIMON with cable

Interface cable for connection of the Safety Monitor to the PC

Article no. BW1771	
Connection	RS 232 interface
Length	2 m

Interface cable for connection of 2 Safety Monitors

Article no.BW1772	
Connection	2 x RJ45
Length	0,1 m

AS-i Gateways

Article	Art.-No.	Price/Pice		Price/Pice	
AS-i 3.0 PROFIBUS DP Gateway in Stainless Steel	BWU1567	EUR	509.00	USD	785.00
AS-i/PROFIBUS DP Gateway in Stainless Steel, AS-i 2.1 without RS232 diagnosis interface, without recognition of duplicate AS-i addresses	BWU1773	EUR	377.00	USD	575.00
AS-i 3.0 PROFIBUS DP Gateway, 2 Masters, Master Power Supply, in Stainless Steel	BWU1568	EUR	677.00	USD	1050.00
AS-i/PROFIBUS DP Gateway, 2 Masters, Master Power Supply, in Stainless Steel, AS-i 2.1 without RS232 diagnosis interface, without recognition of duplicate AS-i addresses	BWU1774	EUR	560.00	USD	835.00
AS-i 3.0 PROFIBUS DP Gateway, 2 Masters, Version 1 Gateway, 1 Power Supply for 2 AS-i circuits, in Stainless Steel	BWU1569	EUR	690.00	USD	1085.00
AS-i 3.0 PROFIBUS DP Gateway in Stainless Steel, Basic Master	BWU1746	EUR	295.00	USD	460.00
AS-i 3.0 DeviceNet Gateway in Stainless Steel	BWU1818	EUR	609.00	USD	885.00
AS-i 3.0 DeviceNet Gateway in Stainless Steel, 2 Masters, Master Power Supply	BWU1819	EUR	790.00	USD	1195.00
AS-i 3.0 DeviceNet Gateway in Stainless Steel, 2 Masters, Version 1 Gateway, 1 Power Supply for 2 AS-i circuits	BWU1820	EUR	790.00	USD	1195.00
AS-i 3.0 CANopen Gateway in Stainless Steel	BWU1821	EUR	509.00	USD	765.00
AS-i 3.0 CANopen Gateway in Stainless Steel, 2 Masters, Master Power Supply	BWU1822	EUR	690.00	USD	1020.00
AS-i 3.0 CANopen Gateway in Stainless Steel 2 Masters, Version 1 Gateway, 1 Power Supply for 2 AS-i circuits	BWU1823	EUR	690.00	USD	1020.00
AS-i 3.0 Modbus Gateway in Stainless Steel	BWU1641	EUR	509.00	USD	795.00
AS-i 3.0 Modbus Gateway, 2 Masters, Master Power Supply, in Stainless Steel	BWU1642	EUR	677.00	USD	995.00
AS-i 3.0 Modbus Gateway, 2 Masters, Version 1 Gateway, 1 Power Supply for 2 AS-i circuits, in Stainless Steel	BWU1643	EUR	690.00	USD	1020.00
AS-i 3.0 Ethernet Gateway in Stainless Steel	BWU1650	EUR	596.00	USD	885.00
AS-i 3.0 Ethernet Gateway in Stainless Steel, 2 Masters, Master Power Supply	BWU1651	EUR	776.00	USD	1195.00
AS-i 3.0 Ethernet Gateway in Stainless Steel, 2 Masters, Version 1 Gateway, 1 Power Supply for 2 AS-i circuits	BWU1652	EUR	790.00	USD	1235.00
AS-i 3.0 EtherNet/IP Gateway in Stainless Steel	BWU1828	EUR	609.00	USD	945.00
AS-i 3.0 EtherNet/IP Gateway in Stainless Steel, 2 Masters, Master Power Supply	BWU1829	EUR	790.00	USD	1145.00
AS-i 3.0 EtherNet/IP Gateway in Stainless Steel, 2 Masters, Version 1 Gateway, 1 Power Supply for 2 AS-i circuits	BWU1833	EUR	790.00	USD	1145.00
AS-i 3.0 PROFINET Gateway in Stainless Steel	BWU1912	EUR	609.00	USD	945.00
Complete Set: AS-i Master for Allen-Bradley ControlLogix BWU1488 plus Accessories BW1563	BW1611	EUR	1090.00	USD	1705.00
AS-i Master for Allen-Bradley ControlLogix	BWU1488	EUR	845.00	USD	1335.00
Complete Set: AS-i Master for Allen-Bradley CompactLogix and MicroLogix BWU1416 plus Accessories BW1563	BW1610	EUR	790.00	USD	1245.00
AS-i Master for Allen-Bradley CompactLogix and MicroLogix	BWU1416	EUR	570.00	USD	895.00
AS-i/PROFIBUS DP Gateway graphical display	BW1307	EUR	470.39	USD	765.00
AS-i/PROFIBUS DP Gateway	BW1249	EUR	368.13	USD	585.00
AS-i/PROFIBUS DP Gateway - 2 Masters graphical display	BW1309	EUR	572.65	USD	985.00
AS-i/PROFIBUS DP Gateway IP65	BW1253	EUR	439.71	USD	765.00
AS-i/PROFIBUS DP Gateway IP65, M12 connector	BW1371	EUR	439.71	USD	765.00
AS-i/DeviceNet Gateway graphical display	BW1334	EUR	506.18	USD	855.00
AS-i/DeviceNet Gateway - 2 Masters graphical display	BW1335	EUR	608.44	USD	1025.00
AS-i/CANopen Gateway graphical display	BW1448	EUR	506.18	USD	855.00
AS-i/CANopen Gateway - 2 Masters graphical display	BW1449	EIHL	608.44	USD	1025.00
AS-i/CANrho Gateway	BW1174	EUR	508.74	USD	745.00
AS-i/InterBus Gateway IP65 (Remote bus)	BW1127	EUR		USD	
AS-i/CC-Link Gateway IP65	BW1435	EUR	506.18	USD	730.00
AS-i/CC-Link Gateway IP65	BW1172	EUR	506.18	USD	745.00

Side tabs (right margin):
- AS-i-Master/Gateways/Links/Scanner
- AS-i Slaves
- AS-i Accessories/Diagnostics/Development
- Other Fieldbuses/Master Simulators
- AS-i Safety
- Price Lists

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Article	Art.-No.	Price		Price	
AS-i/LON-Gateway	BW1237	EUR		USD	
AS-i/Modbus Plus Gateway 2.1	BWU1583	EUR	713.25	USD	1105.00
AS-i/Modbus Plus Gateway	BW1090	EUR	713.25	USD	1145.00
AS-i/Modbus Plus Gateway	BW1091	EUR	764.38	USD	1175.00
AS-i/Ethernet TCP/IP Gateway	BW1177	EUR		USD	

AS-i Control - AS-i Master with serial Interface

Article	Art.-No.	Price/Pice		Price/Pice	
AS-i Control with mini-PLC, RS 232	BW1247	EUR	363.02	USD	565.00
AS-i Control with mini-PLC, RS 485	BW1263	EUR	398.81	USD	605.00
AS-i Control with mini-PLC, RS 422	BW1265	EUR	398.81	USD	605.00
AS-i Control with mini-PLC, RS 232	BW1248	EUR	414.15	USD	645.00
AS-i Control with mini-PLC, RS 485	BW1264	EUR	449.94	USD	695.00
AS-i Control with mini-PLC, RS 422	BW1266	EUR	449.94	USD	644.00
AS-i Master with serial interface, RS 232	BW1198	EUR	363.02	USD	560.00
AS-i Master with serial interface, RS 485	BW1267	EUR	398.81	USD	605.00
AS-i Master with serial interface, RS 422	BW1269	EUR	398.81	USD	604.00
AS-i Master with serial interface, RS 232	BW1199	EUR	414.15	USD	605.00
AS-i Master with serial interface, RS 485	BW1268	EUR	449.94	USD	644.00
AS-i Master with serial interface, RS 422	BW1270	EUR	449.94	USD	644.00
AS-i Control with mini-PLC, 2 AS-i Masters, RS 232	BW1147	EUR	465.28	USD	715.00
AS-i Control with mini-PLC, 2 AS-i Masters, RS 485	BWU1148	EUR	501.07	USD	745.00
AS-i Control with mini-PLC, 2 AS-i Masters, RS 422	BW1149	EUR	501.07	USD	745.00
AS-i Control with mini-PLC, 2 AS-i Masters, RS 232	BW1150	EUR	541.97	USD	835.00
AS-i Control with mini-PLC, 2 AS-i Masters, RS 485	BW1151	EUR	577.76	USD	865.00
AS-i Control with mini-PLC, 2 AS-i Masters, RS 422	BW1152	EUR	577.76	USD	865.00
AS-i Master with serial interface, 2 AS-i Masters, RS 232	BW1135	EUR	465.28	USD	725.00
AS-i Master with serial interface, 2 AS-i Masters, RS 485	BW1136	EUR	501.07	USD	745.00
AS-i Master with serial interface, 2 AS-i Masters, RS 422	BW1137	EUR	501.07	USD	745.00
AS-i Master with serial interface, 2 AS-i Masters, RS 232	BW1138	EUR	541.97	USD	775.00
AS-i Master with serial interface, 2 AS-i Masters, RS 485	BW1139	EUR	577.76	USD	865.00
AS-i Master with serial interface, 2 AS-i Masters, RS 422	BW1140	EUR	577.76	USD	865.00
AS-i Control IP65	BW1105	EUR	398.81	USD	605.00
AS-i Control IP65	BW1276	EUR	398.81	USD	615.00

AS-i Master Boards

Article	Art.-No.	Price/Pice		Price/Pice	
AS-i 3.0 Double Master with advanced diagnostics	BW1922	EUR	490.00	USD	760.00
AS-i 3.0 Compact PCI Double Master	BW1911	EUR	980,00	USD	1520.00
AS-i 2.1 Double Master without AS-i 7.4 analog profile	BW1195	EUR	375.80	USD	605.00
AS-i PC2 (short PC Board)	BW1228	EUR	350.23	USD	545.00
AS-i PC2 (short PC Board)	BW1081	EUR	350.23	USD	530.00
AS-i/PC104 Master	BW1229	EUR	350.23	USD	545.00
AS-i/PC104 Master	BW1065	EUR	350.23	USD	530.00
AS-i Master M-Modul	BW1230	EUR	265.87	USD	395.00
AS-i Master M-Modul	BW1066	EUR	265.87	USD	425.00
AS-i/VMEbus Master	BW1106	EUR		USD	
AS-i Master OEM Modul for use together with the evaluation kit BW1565	BW1670	EUR	218.00	USD	330.00
AS-i Master OEM Module for AS-i 2.1 for customer applications	BW1588	EUR	218.00	USD	320.00
AS-i Master OEM Module sample for different options	BW1554	EUR		USD	
Evaluation Kit for the AS-i Master OEM Module	BW1565	EUR	480.00	USD	720.00

Sidebar tabs: AS-i Master/Gateways/Links/Scanner · AS-i Slaves · AS-i Accessories/Diagnostics/Development · Other Fieldbuses/Master Simulators · AS-i Safety · Price Lists

Software

Article	Art.-No.	Price/Pice		Price/Pice	
AS-i Control Tools with serial cable for AS-i Master in Stainless Steel	BW1602	EUR	300.00	USD	425.00
AS-i Control Tools with serial cable for Allen-Bradley AS-i Master	BW1563	EUR	300.00	USD	429.00
AS-i Control Tools full version with diagnostic functions	BW1203	EUR	250.00	USD	385.00
AS.i Sim: Programming and Simulation Software for AS-i (Mini-PLC)	BW1902	EUR	590.00	USD	850.00

AS-i Analog Modules

Article	Art.-No.	Price/Pice		Price/Pice	
AS-i Analog Input Module 0-10 V/4-20 mA, 2 channels, IP20	BWU1345	EUR	149.00	USD	235.00
AS-i Analog Input Module 0-10 V/4-20 mA, 2 channels, IP20, scale SIEMENS compatible	BWU1447	EUR	149.00	USD	225.00
AS-i Analog Input Module 0-10 V/4-20 mA, 2 channels, IP20, default power supply 24V external	BWU1726	EUR	149.00	USD	245.00
AS-i Analog Output Module 0-10 V/4-20 mA, 2 channels, IP20	BWU1412	EUR	149.00	USD	235.00
AS-i Analog Output Module 0-10 V/4-20 mA, 2 channels, IP20, default power supply 24 V external	BWU1727	EUR	149.00	USD	245.00
AS-i Analog Input Module 4I, 4-20 mA, IP20	BWU1364	EUR	209.50	USD	330.00
AS-i Analog Input Module 4I, 0-10 V, IP20	BWU1365	EUR	209.50	USD	330.00
AS-i Analog Output Module 4O, 0-20 mA, IP20	BWU1366	EUR	214.50	USD	335.00
AS-i Analog Output Module 4O, 0-10 V, IP20	BWU1367	EUR	214.50	USD	335.00
AS-i Analog Module 4Pt100 Inputs, IP20	BWU1368	EUR	205.00	USD	315.00
AS-i Analog Input Module 2I, 4-20 mA	BWU1232	EUR	139.00	USD	215.00
AS-i Analog Input Module 2I, 0-10 V	BWU1233	EUR	139.00	USD	215.00
AS-i Analog Output Module 2A, 0-20 mA	BWU1234	EUR	149.00	USD	235.00
AS-i Analog Output Module 2O, 0-10 V	BWU1235	EUR	149.00	USD	235.00
AS-i Analog Module 4 Pt100 Inputs	BWU1254	EUR	179.00	USD	275.00
AS-i Analog Module 2 Pt100-Inputs + 2 Relais Outputs	BW1552	EUR	229.00	USD	355.00
AS-i Balance Controller	BW1465	EUR	349.00	USD	545.00
AS-i Analog Input Module 2I, 4 .... 20 mA, AS-i 3.0 AB Slave, IP65	BWU1893	EUR	128.00	USD	195.00
AS-i Analog Input Module 2E, 4 ... 20 mA, AS-i 2.1 AB Slave, IP65	BWU1894	EUR	128.00	USD	195.00
AS-i Analog Module 2 Pt100 Inputs, AS-i 3.0 AB Slave, IP65	BWU1895	EUR	128.00	USD	195.00
AS-i 3.0 Analog Module 1I/1O, 4 ... 20 mA or 0 ... 10 V, 24 V auxiliary on M12, IP65	BWU1853	EUR		USD	
AS-i 3.0 Analog Module 1I/1O, 4 ... 20 mA or 0 ... 10 V, supplied out of AS-i, IP65	BWU1917	EUR	248.00	USD	385.00
AS-i Analog Input Module 4I, 4-20 mA, IP65	BWU1359	EUR	214.50	USD	335.00
AS-i Analog Input Module 4I, 0-10 V, IP65	BWU1360	EUR	214.50	USD	335.00
AS-i Analog Input Module 4I, 0-10 V, advanced temperature range, IP65	BWU1742	EUR	248.00	USD	395.00
AS-i Analog Output Module 4O, 0-20 mA, IP65	BWU1361	EUR	218.00	USD	345.00
AS-i Analog Output Module 4O, 0-10 V, IP65	BWU1362	EUR	218.00	USD	345.00
AS-i Analog Output Module 4O, 0-20 mA, IP65	BWU1722	EUR	218.00	USD	345.00
AS-i Analog Output Module 4O, 0-10 V, advanced temperature range, IP65	BWU1736	EUR	248.00	USD	395.00
AS-i Analog Module 4Pt100 Inputs, 24 V external on M12, IP65	BWU1363	EUR	206.00	USD	330.00

AS-i-Master/Gateways/ Links/Scanner

AS-i Slaves

AS-i Accessories/ Diagnostics/Development

Other Fieldbuses/ Master Simulators

AS-i Safety

Price Lists

OEM Modules

Article	Art.-No.	Price/Pice		Price/Pice	
AS-i 2I/2O AB Module	BW1421	EUR	43.50	USD	75.00
AS-i 2I/2O AB Module with screw terminals	BW1443	EUR	45.50	USD	77.00
AS-i 2I/2O AB Module without galvanical separation, screw terminal only on AS-i pins	BW1957	EUR		USD	
AS-i 2I/2O AB Module with wiring pin	BW1444	EUR	45.50	USD	75.00
AS-i 2I/2O AB Module with Fault LED output	BW1490	EUR		USD	
AS-i 4I/3O AB Module with wiring pin	BW1386	EUR	53.69	USD	85.00
AS-i 4I/3O AB Module with screw terminals	BW1387	EUR	56.24	USD	89.00
AS-i 4I/4O Module with wiring pin	BW1218	EUR	53.69	USD	85.00
AS-i 4I/4O Module with screw terminals	BW1219	EUR	56.24	USD	89.00
AS-i 4I/4O OEM Module with screw terminals	BW1628	EUR	59.00	USD	92.00
AS-i 4I/4O Module, galvanical seperated, with wiring pin	BW1388	EUR	53.69	USD	85.00
AS-i 4I/4O Module, galvanical seperated, with screw terminals	BW1389	EUR	56.24	USD	89.00
AS-i 4I/4O Module with LEDs	BW1468	EUR		USD	
AS-i 4I/4O Module with LEDs with wiring pin	BW1469	EUR		USD	
AS-i 4I/4O Module with LEDs with screw terminals	BW1470	EUR	59.00	USD	93.00
AS-i 4I/4O Module with LEDs with screw terminals, lacquered	BW1789	EUR		USD	
AS-i 6I-AB Module with screw terminals	BW1627	EUR	97.15	USD	145.00
AS-i 8I Module with wiring pin	BW1351	EUR	94.59	USD	145.00
AS-i 8I Module with screw terminals	BW1352	EUR	97.15	USD	150.00
AS-i 8I/8O OEM Module, 2 4I/4O Single Slave	BW1898	EUR	86.00	USD	135.00
AS-i 3.0 8I/8O OEM Module, 2 4I/4O-AB Slave	BW1899	EUR		USD	
AS-i 16I/16O OEM Module, 4 4I/4O Single Slave	BW1900	EUR	146.00	USD	220.00
AS-i 3.0 16I/16O OEM Module, 4 4I/4O-AB Slave	BW1901	EUR		USD	
AS-i OEM Slave with serial interface		EUR		USD	
AS-i OEM Power Supply Module	BW1485	EUR	109.00	USD	170.00
AS-i OEM Carrier Board	BW1484	EUR	150.00	USD	235.00
AS-i Motor Control Module (2I/2O)	BW1101	EUR	45.50	USD	70.00
AS-i 4I Module for Building Automation	BW1100	EUR	41.41	USD	65.00

Specialities

Article	Art.-No.	Price/Pice		Price/Pice	
AS-i Counter Module: 2 channel input	BWU1574	EUR		USD	
AS-i Counter Module: 2 x 2 channel input	BWU1710	EUR		USD	
AS-i Counter Module: 1 channel input (analog)	BW1723	EUR		USD	
AS-i Counter Module: 1 channel input (0 to 15)	BW1711	EUR		USD	
AS-i Code Block with 2 code switches	BW1527	EUR	138.00	USD	215.00
AS-i Analog Module: 2 inputs for Leuze ODSL 30 Distance Sensors	BW1664	EUR		USD	
AS-i/AS-i Coupler	BW1187	EUR	113.12	USD	175.00
AS-i/AS-i Coupler IP65	BW1280	EUR	140.61	USD	215.00

Drive Solutions with AS-i

Article	Art.-No.	Price/Pice		Price/Pice	
Cylindrical AS-i Actuator 1I/3O	BW1275	EUR	80.78	USD	125.00
Cylindrical AS-i Actuator 1I/3O	BW1647	EUR	80.78	USD	125.00
AS-i Slave for Frequency Inverter MOVIMOT by SEW IP65	BW1164	EUR	126.29	USD	195.00

Sidebar (left margin): AS-i Master/Gateways/Links/Scanner · AS-i Slaves · AS-i Accessories/Diagnostics/Development · Other Fieldbuses/Master Simulators · AS-i Safety · Price Lists

Diagnostics/Commissioning

Article	Art.-No.	Price/Pice	Price/Pice
AS-i Analyser Innovation Step 2	BW1415	EUR 1300.00	USD 1705.00
AS-i Signal Measuring Adapter	BW1559	EUR 2200.00	USD 3450.00
AS-i Programming Device with Plugin Recharger 230 V	BW1191	EUR	USD
AS-i Programming Device with Plugin Recharger 115 V	BW1646	EUR	USD
AS-i addressing cable - infrared addressing adapter	BW1935	EUR	USD
Connecting cable (Module/programming device)	BW1802	EUR	USD

Repeater/AS-i Tuner/AS-i Bus Ternmination

Article	Art.-No.	Price/Pice	Price/Pice
AS-i Diagnostic Tuner	BWU1843	EUR 425.00	USD 630.00
AS-i Tuner	BWU1648	EUR 325.00	USD 505.00
AS-i Bus Termination	BWU1644	EUR 51.00	USD 79.00
Advanced Repeater, IP20	BWU1855	EUR 193.00	USD 355.00
AS-i Repeater, IP20	BWU1460	EUR 193.00	USD 305.00
AS-i Repeater, IP65	BWU1273	EUR 193.00	USD 305.00

Power Supply

Article	Art.-No.	Price/Pice	Price/Pice
AS-i Power Supply 4 A	BW1649	EUR 169.00	USD 275.00
24 V to 30 V AS-i Power Supply in Stainless Steel 2 A	BW1745	EUR 197.00	USD 310.00
4A Power Supply for AS-i Master in Stainless Steel in Version 1 Power Supply for 2 AS-i circuits	BW1592	EUR 221.00	USD 340.00
8A Power Supply for AS-i Master in Stainless Steel in Version 1 Power Supply for 2 AS-i circuits	BW1593	EUR 275.00	USD 425.00
8 A Power Supply with 3 Phases for AS-i Master in Stainless Steel	BW1676	EUR 325.00	USD 510.00
AS-i Power Supply Decoupling Unit: Supply 2 AS-i networks via 1 power supply	BWU1943	EUR	USD
AS-i Power Extender 2,8 A	BW1197	EUR 116.57	USD 185.00
AS-i Power Extender 4,0 A	BW1477	EUR 116.57	USD 185.00

AS-i-Master/Gateways/Links/Scanner

AS-i Slaves

AS-i Accessories/Diagnostics/Development

Other Fieldbuses/Master Simulators

AS-i Safety

Price Lists

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Cables/Substructure Modules/Distributors

Article	Art.-No.	Price/Pice		Price/Pice	
AS-i Cable-Stripper	BW1920	EUR		USD	
AS-i Micro-Wire-Stripper	BW1921	EUR		USD	
Serial cable for AS-i Scanner, length: 2,0 m	BW1417	EUR		USD	
D-Sub data transmission cord for AS-i Master in IP65, length: 1,5m	BW1097	EUR	34.26	USD	55.00
D-Sub data transmission cord 9-pins length: 1,8m	BW1058	EUR	9.71	USD	15.00
D-Sub data transmission cord for AS-i Gateways with CAN interface	BW1226	EUR	34.26	USD	55.00
Reduction sleeve Stainless Steel	BW1241	EUR	9.97	USD	13.00
Reduction sleeve M25/M18x1	BW1282	EUR	7.67	USD	13.00
Cross-Link Cable for AS-i/Ethernet Gateway	BW1304	EUR	13.80	USD	23.00
AS-i Probe	BW1745	EUR	187.00	USD	280.00
AS-i Substruture Module to connect 2 AS-i flat Cables	BW1180	EUR	11.00	USD	18.00
AS-i Substruture Module to connect 2 AS-i flat Cables with addressing socket	BW1438	EUR	14.00	USD	23.00
AS-i Substruture Module to connect 1 AS-i flat Cable, 1 flat Cable for additional supply	BW1181	EUR	13.00	USD	21.00
AS-i Substruture Module to connect 2 AS-i round Cables	BW1182	EUR	11.00	USD	18.00
AS-i Substruture Module to connect 1 AS-i round Cable, 1 round Cable for additional supply	BW1183	EUR	14.00	USD	22.00
Lid for standard AS-i substructure modules	BW1946	EUR		USD	
AS-i ribbon cable seal for use in cable gland	BW1945	EUR		USD	
AS-i Passive Distributor H	BW1239	EUR	9.00	USD	14.00
AS-i Passive Distributor L	BW1238	EUR	7.00	USD	11.00

Development/Manufacturing of AS-i Components

Article	Art.-No.	Price/Pice		Price/Pice	
AS-i 3.0 Function and EMC-Test Master, with Master RS 232 (for AS-i specification 3.0)	BW1728	EUR	1100.00	USD	1755.00
A²SI- and SAP4-Programming- and Testtool	BW1355	EUR	1100.00	USD	1755.00
AS-i 3.0 Compact PCI Board	BW1783	EUR		USD	
AS-i 3.0 development service	BW1729	EUR		USD	
AS-i 3.0 development service	BW1730	EUR		USD	
AS-i Slave Board on basis ASI-SW+	BW1423	EUR	25.05	USD	40.00
AS-i Slave Board on basis A²SI	BW1190	EUR	25.05	USD	40.00
AS-i Slave Board on basis ASI3+	BW1057	EUR	25.05	USD	40.00

Master Simulators
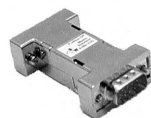
Article	Art.-No.	Price/Pice		Price/Pice	
PROFIBUS DP Master Simulator, PROFIBUS UART	BW1131	EUR	199.00	USD	315.00
PROFIBUS DP Master Simulator DP V1	BW1257	EUR	409.00	USD	625.00
Serial PROFIBUS DP Master	BW1258	EUR	509.00	USD	775.00
DeviceNet Master Simulator with USB interface	BW1420	EUR	559.00	USD	820.00
DeviceNet Master Simulator with parallel port	BW1255	EUR	409.00	USD	645.00
DeviceNet Master Simulator as PCI Board	BW1625	EUR	495.00	USD	765.00
CANopen Master Simulator with USB interface	BW1453	EUR	599.00	USD	920.00
RS 232C/RS 485 Converter (for Windows) (B+W)	BW1094	EUR	47.55	USD	75.00

Other Fieldbusses

Article	Art.-No.	Price/Pice		Price/Pice	
PROFIBUS Option Board (straight)	BW1261	EUR	201.70	USD	310.00
PROFIBUS Option Board (crooked)	BW1271	EUR	201.70	USD	295.00
CAN/PROFIBUS Coupler	BW1246	EUR	455.05	USD	655.00
CANrho/PROFIBUS Coupler	BW1184	EUR	639.11	USD	1025.00
CAN/Interbus Coupler	BW1243	EUR	741.37	USD	1125.00
CAN/Interbus Coupler	BW1323	EUR	850.00	USD	1290.00

AS-i Safety

Article	Art.-No.	Price/Pice		Price/Pice	
AS-i Safety Monitor, advanced monitor, 1 OSSD (release circuit), 40 ms	BW1764	EUR	366.00	USD	565.00
AS-i Safety Monitor, advanced monitor, 1 OSSD (release circuit), 40 ms	BW1765	EUR	466.00	USD	715.00
AS-i Safety OEM Slave with plug-in screw terminals	BW1896	EUR	84.00	USD	135.00
AS-i Safety OEM Slave with screw terminals	BW1751	EUR	84.00	USD	129.00
AS-i Safety OEM Slave with wiring pins	BW1801	EUR	84.00	USD	119.00
AS-i Safety OEM Slave	BW1934	EUR		EUR	
AS-i Safety Monitor, programminng software ASIMON , incl. BW1771 (interface cable for connection of the Safety Monitor to a PC, length: 2,0 m) and BW1772 (interface cable for connection of 2 Safety Monitors, length: 0,1 m)	BW1770	EUR	92.50	USD	145.00

Services

Article	Art.-No.	Price/Pice		Price/Pice	
AS-i Hotline Service	.	EUR	95.00	USD	124.00
Development service	.	EUR		USD	

Price · Payment · General Conditions for the Supply of Products and Services

This price list is valid from 17.07.2006 and replaces all previous price lists. The price list is valid until the next price list will be published.

Net. prices above do not include VAT, packaging or transportation. All orders to be paid within ten days, from the invoice date.

For all products and services the latest version of the "General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry (ZVEI)" as well as the added "Retention of Title" are exclusively in force.

AS-i-Master/Gateways/Links/Scanner

AS-i Slaves

AS-i Accessories/Diagnostics/Development

Other Fieldbusses/Master Simulators

AS-i Safety

Price Lists

Price List by Article Numbers

Art. No.	Article	Price/Pice		Price/Pice	
.	Development service	EUR		USD	
.	AS-i Hotline Service	EUR	95.00	USD	124.00
	AS-i OEM Slave with serial interface	EUR		USD	
BW1057	AS-i Slave Board on basis ASI3+	EUR	25.05	USD	40.00
BW1058	D-Sub data transmission cord 9-pins length: 1,8m	EUR	9.71	USD	15.00
BW1065	AS-i/PC104 Master	EUR	350.23	USD	530.00
BW1066	AS-i Master M-Module	EUR	265.87	USD	425.00
BW1081	AS-i PC2 (short PC Board)	EUR	350.23	USD	530.00
BW1090	AS-i/Modbus Plus Gateway	EUR	713.25	USD	1145.00
BW1091	AS-i/Modbus Plus Gateway	EUR	764.38	USD	1175.00
BW1094	RS 232C/RS 485 Converter (for Windows) (B+W)	EUR	47.55	USD	75.00
BW1097	D-Sub data transmission cord for AS-i Master in IP65, length: 1,5m	EUR	34.26	USD	55.00
BW1100	AS-i 4I Module for Building Automation	EUR	41.41	USD	65.00
BW1101	AS-i Motor Control Module (2I/2O)	EUR	45.50	USD	70.00
BW1105	AS-i Control IP65	EUR	398.81	USD	605.00
BW1106	AS-i/VMEbus Master	EUR		USD	
BW1127	AS-i/InterBus Gateway IP65 (Remote bus)	EUR		USD	
BW1131	PROFIBUS DP Master Simulator, PROFIBUS UART	EUR	199.00	USD	315.00
BW1135	AS-i Master with serial interface, 2 AS-i Masters, RS 232	EUR	465.28	USD	725.00
BW1136	AS-i Master with serial interface, 2 AS-i Masters, RS 485	EUR	501.07	USD	745.00
BW1137	AS-i Master with serial interface, 2 AS-i Masters, RS 422	EUR	501.07	USD	745.00
BW1138	AS-i Master with serial interface, 2 AS-i Masters, RS 232	EUR	541.97	USD	775.00
BW1139	AS-i Master with serial interface, 2 AS-i Masters, RS 485	EUR	577.76	USD	865.00
BW1140	AS-i Master with serial interface, 2 AS-i Masters, RS 422	EUR	577.76	USD	865.00
BW1147	AS-i Control with mini-PLC, 2 AS-i Masters, RS 232	EUR	465.28	USD	715.00
BW1148	AS-i Control with mini-PLC, 2 AS-i Masters, RS 485	EUR	501.07	USD	745.00
BW1149	AS-i Control with mini-PLC, 2 AS-i Masters, RS 422	EUR	501.07	USD	745.00
BW1150	AS-i Control with mini-PLC, 2 AS-i Masters, RS 232	EUR	541.97	USD	835.00
BW1151	AS-i Control with mini-PLC, 2 AS-i Masters, RS 485	EUR	577.76	USD	865.00
BW1152	AS-i Control with mini-PLC, 2 AS-i Masters, RS 422	EUR	577.76	USD	865.00
BW1164	AS-i Slave for Frequency Inverter MOVIMOT by SEW IP65	EUR	126.29	USD	195.00
BW1172	AS-i/CC-Link Gateway IP65	EUR	506.18	USD	745.00
BW1174	AS-i/CANrho Gateway	EUR	508.74	USD	745.00
BW1177	AS-i/Ethernet TCP/IP Gateway	EUR		USD	
BW1180	AS-i Substruture Module to connect 2 AS-i flat Cables	EUR	11.00	USD	18.00
BW1181	AS-i Substruture Module to connect 1 AS-i flat Cable, 1 flat Cable for additional supply	EUR	13.00	USD	21.00
BW1182	AS-i Substruture Module to connect 2 AS-i round Cables	EUR	11.00	USD	18.00
BW1183	AS-i Substruture Module to connect 1 AS-i round Cable, 1 round Cable for additional supply	EUR	14.00	USD	22.00
BW1184	CANrho/PROFIBUS-Coupler	EUR	639.11	USD	1025.00
BW1187	AS-i/AS-i Coupler	EUR	113.12	USD	175.00
BW1190	AS-i Slave Board on basis A²SI	EUR	25.05	USD	40.00
BW1191	AS-i Programming Device with Plugin Recharger 230 V	EUR		USD	
BW1195	AS-i PCI Board	EUR	375.80	USD	605.00
BW1197	AS-i Power Extender 2,8 A	EUR	116.57	USD	185.00
BW1198	AS-i Master with serial interface, RS 232	EUR	363.02	USD	560.00
BW1199	AS-i Master with serial interface, RS 232	EUR	414.15	USD	605.00
BW1203	AS-i Control Tools full version with diagnostic functions	EUR	250.00	USD	385.00
BW1218	AS-i 4I/4O Module with wiring pin	EUR	53.69	USD	85.00
BW1219	AS-i 4I/4O Module with screw terminals	EUR	56.24	USD	89.00
BW1226	D-Sub data transmission cord for AS-i Gateways with CAN interface	EUR	34.26	USD	55.00

Side tabs (left margin):
- AS-i Master/Gateways/ Links/Scanner
- AS-i Slaves
- AS-i Accessories/ Diagnostics/Development
- Other Fieldbuses/ Master Simulators
- AS-i Safety
- Price Lists

Art. No.	Article	Price/Pice		Price/Pice	
BW1228	AS-i PC2 (short PC Board)	EUR	350.23	USD	545.00
BW1229	AS-i/PC104 Master	EUR	350.23	USD	545.00
BW1230	AS-i Master M-Module	EUR	265.87	USD	395.00
BWU1232	AS-i Analog Input Module 2I, 4-20 mA	EUR	139.00	USD	215.00
BWU1233	AS-i Analog Input Module 2I, 0-10 V	EUR	139.00	USD	215.00
BWU1234	AS-i Analog Output Module 2A, 0-20 mA	EUR	149.00	USD	235.00
BWU1235	AS-i Analog Output Module 2O, 0-10 V	EUR	149.00	USD	235.00
BW1237	AS-i/LON-Gateway	EUR		USD	
BW1238	AS-i Passive Distributor L	EUR	7.00	USD	11.00
BW1239	AS-i Passive Distributor H	EUR	9.00	USD	14.00
BW1241	Reduction sleeve Stainless Steel	EUR	9.97	USD	13.00
BW1243	CAN/Interbus Coupler	EUR	741.37	USD	1125.00
BW1246	CAN/PROFIBUS Coupler	EUR	455.05	USD	655.00
BW1247	AS-i Control with mini-PLC, RS 232	EUR	363.02	USD	565.00
BW1248	AS-i Control with mini-PLC, RS 232	EUR	414.15	USD	645.00
BW1249	AS-i/PROFIBUS DP Gateway	EUR	368.13	USD	585.00
BW1253	AS-i/PROFIBUS DP Gateway IP65	EUR	439.71	USD	765.00
BWU1254	AS-i Analog Module 4 Pt100 Inputs	EUR	179.00	USD	275.00
BW1255	DeviceNet Master Simulator with parallel port	EUR	409.00	USD	645.00
BW1257	PROFIBUS DP Master Simulator DP V1	EUR	409.00	USD	625.00
BW1258	Serial PROFIBUS DP Master	EUR	509.00	USD	775.00
BW1261	PROFIBUS Option Board (straight)	EUR	201.70	USD	310.00
BW1263	AS-i Control with mini-PLC, RS 485	EUR	398.81	USD	605.00
BW1264	AS-i Control with mini-PLC, RS 485	EUR	449.94	USD	695.00
BW1265	AS-i Control with mini-PLC, RS 422	EUR	398.81	USD	605.00
BW1266	AS-i Control with mini-PLC, RS 422	EUR	449.94	USD	644.00
BW1267	AS-i Master with serial interface, RS 485	EUR	398.81	USD	605.00
BW1268	AS-i Master with serial interface, RS 485	EUR	449.94	USD	644.00
BW1269	AS-i Master with serial interface, RS 422	EUR	398.81	USD	604.00
BW1270	AS-i Master with serial interface, RS 422	EUR	449.94	USD	644.00
BW1271	PROFIBUS Option Board (crooked)	EUR	201.70	USD	295.00
BWU1273	AS-i Repeater in IP65	EUR	193.00	USD	305.00
BW1275	Cylindrical AS-i Actuator 1I/3O	EUR	80.78	USD	125.00
BW1276	AS-i Control IP65	EUR	398.81	USD	615.00
BW1280	AS-i/AS-i Coupler IP65	EUR	140.61	USD	215.00
BW1282	Reduction sleeve M25/M18x1	EUR	7.67	USD	13.00
BW1304	Cross-Link Cable for AS-i/Ethernet Gateway	EUR	13.80	USD	23.00
BW1307	AS-i/PROFIBUS DP Gateway graphical display	EUR	470.39	USD	765.00
BW1309	AS-i/PROFIBUS DP Gateway - 2 Masters graphical display	EUR	572.65	USD	985.00
BW1323	CAN/Interbus Coupler	EUR	850.00	USD	1290.00
BW1334	AS-i/DeviceNet Gateway graphical display	EUR	506.18	USD	855.00
BW1335	AS-i/DeviceNet Gateway - 2 Masters graphical display	EUR	608.44	USD	1025.00
BWU1345	AS-i Analog Input Module 0-10 V/4-20 mA, 2 channels, IP20	EUR	149.00	USD	235.00
BW1351	AS-i 8I Module with wiring pin	EUR	94.59	USD	145.00
BW1352	AS-i 8I Module with screw terminals	EUR	97.15	USD	150.00
BW1355	A²SI- and SAP4-Programming- and Testtool	EUR	1100.00	USD	1755.00
BWU1359	AS-i Analog Input Module 4I, 4-20 mA, IP65	EUR	214.50	USD	335.00
BWU1360	AS-i Analog Input Module 4I, 0-10 V, IP65	EUR	214.50	USD	335.00
BWU1361	AS-i Analog Output Module 4O, 0-20 mA, IP65	EUR	218.00	USD	345.00
BWU1362	AS-i Analog Output Module 4O, 0-10 V, IP65	EUR	218.00	USD	345.00
BWU1363	AS-i Analog Module 4Pt100 Inputs, 24 V external on M12, IP65	EUR	206.00	USD	330.00
BWU1364	AS-i Analog Input Module 4I, 4-20 mA, IP20	EUR	209.50	USD	330.00

Sidebar tabs:
- AS-i-Master/Gateways/Links/Scanner
- AS-i Slaves
- AS-i Accessories/Diagnostics/Development
- Other Fieldbuses/Master Simulators
- AS-i Safety
- Price Lists

Art. No.	Article	Price/Pice		Price/Pice	
BWU1365	AS-i Analog Input Module 4I, 0-10 V, IP20	EUR	209.50	USD	330.00
BWU1366	AS-i Analog Output Module 4O, 0-20 mA, IP20	EUR	214.50	USD	335.00
BWU1367	AS-i Analog Output Module 4O, 0-10 V, IP20	EUR	214.50	USD	335.00
BWU1368	AS-i Analog Module 4Pt100 Inputs, IP20	EUR	205.00	USD	315.00
BW1371	AS-i/PROFIBUS DP Gateway IP65, M12 connector	EUR	439.71	USD	765.00
BW1386	AS-i 4I/3O AB Module with wiring pin	EUR	53.69	USD	85.00
BW1387	AS-i 4I/3O AB Module with screw terminals	EUR	56.24	USD	89.00
BW1388	AS-i 4I/4O Module, galvanical seperated, with wiring pin	EUR	53.69	USD	85.00
BW1389	AS-i 4I/4O Module, galvanical seperated, with screw terminals	EUR	56.24	USD	89.00
BWU1412	AS-i Analog Output Module 0-10 V/4-20 mA, 2 channels, IP20	EUR	149.00	USD	235.00
BW1415	AS-i Analyser Innovation Step 2	EUR	1300.00	USD	1705.00
BWU1416	AS-i Master for Allen-Bradley CompactLogix and MicroLogix	EUR	570.00	USD	895.00
BW1417	Serial cable for AS-i Scanner, length: 2,0 m	EUR		USD	
BW1420	DeviceNet Master Simulator with USB interface	EUR	559.00	USD	820.00
BW1421	AS-i 2I/2O AB Module	EUR	43.50	USD	75.00
BW1423	AS-i Slave Board on basis ASI-SW+	EUR	25.05	USD	40.00
BW1435	AS-i/CC-Link Gateway IP65	EUR	506.18	USD	730.00
BW1438	AS-i Substruture Module to connect 2 AS-i flat Cables with addressing socket	EUR	14.00	USD	23.00
BW1443	AS-i 2I/2O AB Module with screw terminals	EUR	45.50	USD	77.00
BW1444	AS-i 2I/2O AB Module with wiring pin	EUR	45.50	USD	75.00
BWU1447	AS-i Analog Input Module 0-10 V/4-20 mA, 2 channels, IP20, scale SIEMENS compatible	EUR	149.00	USD	225.00
BW1448	AS-i/CANopen Gateway graphical display	EUR	506.18	USD	855.00
BW1449	AS-i/CANopen Gateway - 2 Masters graphical display	EUR	608.44	USD	1025.00
BW1453	CANopen Master Simulator with USB interface	EUR	599.00	USD	920.00
BWU1460	AS-i Repeater in IP20	EUR	193.00	USD	305.00
BW1465	AS-i Balance Controller	EUR	349.00	USD	545.00
BW1468	AS-i 4I/4O Module with LEDs	EUR		USD	
BW1469	AS-i 4I/4O Module with LEDs with wiring pin	EUR		USD	
BW1470	AS-i 4I/4O Module with LEDs with screw terminals	EUR	59.00	USD	93.00
BW1477	AS-i Power Extender 4,0 A	EUR	116.57	USD	185.00
BW1484	AS-i OEM Carrier Board	EUR	150.00	USD	235.00
BW1485	AS-i OEM Power Supply Module	EUR	109.00	USD	170.00
BWU1488	AS-i Master for Allen-Bradley ControlLogix	EUR	845.00	USD	1335.00
BWU1490	AS-i 2I/2O AB Module with Fault LED output	EUR		USD	
BW1527	AS-i Code Block with 2 code switches	EUR	138.00	USD	215.00
BW1552	AS-i Analog Module 2 Pt100-Inputs + 2 Relais Outputs	EUR	229.00	USD	355.00
BW1554	AS-i Master OEM Module sample for different options	EUR		USD	
BW1557	AS-i 8I/8O Special Slave (Adapter D-sub 25 pins to AS-i)	EUR		USD	
BW1559	AS-i Signal Measuring Adapter	EUR	2200.00	USD	3450.00
BW1563	AS-i Control Tools with serial cable for Allen-Bradley AS-i Master	EUR	300.00	USD	429.00
BW1564	AS-i 16I/11O Special Slave (Adapter D-sub 37 pins to AS-i)	EUR		USD	
BW1565	Evaluation Kit for the AS-i Master OEM Module	EUR	480.00	USD	720.00
BWU1567	AS-i 3.0 PROFIBUS DP Gateway in Stainless Steel	EUR	509.00	USD	785.00
BWU1568	AS-i 3.0 PROFIBUS DP Gateway, 2 Masters, Master Power Supply, in Stainless Steel	EUR	677.00	USD	1050.00
BWU1569	AS-i 3.0 PROFIBUS DP Gateway, 2 Masters, Version 1 Gateway, 1 Power Supply for 2 AS-i circuits, in Stainless Steel	EUR	690.00	USD	1085.00
BWU1574	AS-i Counter Module: 2 Channel Input	EUR		USD	
BWU1583	AS-i/Modbus Plus Gateway 2.1	EUR	713.25	USD	1105.00
BW1588	AS-i Master OEM Module for AS-i 2.1 for customer applications	EUR	218.00	USD	320.00
BW1592	4 A Power Supply for AS-i Master in Stainless Steel in Version 1 Power Supply for 2 AS-i circuits	EUR	221.00	USD	340.00
BW1593	8 A Power Supply for AS-i Master in Stainless Steel in Version 1 Power Supply for 2 AS-i circuits	EUR	275.00	USD	425.00

Sidebar labels (left margin):
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- AS-i Accessories/Diagnostics/Development
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- Price Lists

Art. No.	Article	Price/Pice		Price/Pice	
BW1602	AS-i Control Tools with serial cable for AS-i Master in Stainless Steel	EUR	300.00	USD	425.00
BW1610	Complete Set: AS-i Master for Allen-Bradley CompactLogix and MicroLogix BWU1416 plus Accessories BW1563	EUR	790.00	USD	1245.00
BW1611	Complete Set: AS-i Master for Allen-Bradley ControlLogix BWU1488 plus Accessories BW1563	EUR	1090.00	USD	1705.00
BW1625	DeviceNet Master Simulator as PCI Board	EUR	495.00	USD	765.00
BW1627	AS-i 6I-AB Module with screw terminals	EUR	97.15	USD	145.00
BW1628	AS-i 4I/4O OEM Module with screw terminals	EUR	59.00	USD	92.00
BWU1641	AS-i 3.0 Modbus Gateway in Stainless Steel	EUR	509.00	USD	795.00
BWU1642	AS-i 3.0 Modbus Gateway, 2 Masters, Master Power Supply, in Stainless Steel	EUR	677.00	USD	995.00
BWU1643	AS-i 3.0 Modbus Gateway, 2 Masters, Version 1 Gateway, 1 Power Supply for 2 AS-i circuits, in Stainless Steel	EUR	690.00	USD	1020.00
BWU1644	AS-i Bus Termination	EUR	51.00	USD	79.00
BW1646	AS-i Programming Device with Plugin Recharger 115 V	EUR		USD	
BW1647	Cylindrical AS-i Actuator 1I/3O	EUR	80.78	USD	125.00
BWU1648	AS-i Tuner	EUR	325.00	USD	505.00
BW1649	AS-i Power Supply 4 A	EUR	169.00	USD	275.00
BWU1650	AS-i 3.0 Ethernet Gateway in Stainless Steel	EUR	596.00	USD	885.00
BWU1651	AS-i 3.0 Ethernet Gateway in Stainless Steel, 2 Masters, Master Power Supply	EUR	776.00	USD	1195.00
BWU1652	AS-i 3.0 Ethernet Gateway in Stainless Steel, 2 Masters, Version 1 Gateway, 1 Power Supply for 2 AS-i circuits	EUR	790.00	USD	1235.00
BW1664	AS-i Analog Module: 2 inputs for Leuze ODSL 30 Distance Sensors	EUR		USD	
BW1670	AS-i Master OEM Modul for use together with the evaluation kit BW1565	EUR	218.00	USD	330.00
BW1676	8 A Power Supply with 3 Phases for AS-i Master in Stainless Steel	EUR	325.00	USD	510.00
BWU1710	AS-i Counter Module: 2 x 2 channel input	EUR		USD	
BW1711	AS-i Counter Module: 1 channel input (0 to 15)	EUR		USD	
BWU1722	AS-i Analog Output Module 4O, 0-20 mA, IP65	EUR	218.00	USD	345.00
BW1723	AS-i Counter Module: 1 channel input (analog)	EUR		USD	
BWU1726	AS-i Analog Input Module 0-10 V/4-20 mA, 2 channels, IP20, default power supply 24 V external	EUR	149.00	USD	245.00
BWU1727	AS-i Analog Output Module 0-10 V/4-20 mA, 2 channels, IP20 , default power supply 24 V external	EUR	149.00	USD	245.00
BW1728	AS-i 3.0 Function and EMC-Test Master, with Master RS 232 (for AS-i specification 3.0)	EUR	1100.00	USD	1755.00
BW1729	AS-i 3.0 development service	EUR		USD	
BW1730	AS-i 3.0 development service	EUR		USD	
BWU1736	AS-i Analog Output Module 4O, 0-10 V, advanced temperature range, IP65	EUR	248.00	USD	395.00
BWU1742	AS-i Analog Input Module 4I, 0-10 V, advanced temperature range, IP65	EUR	248.00	USD	395.00
BWU1745	AS-i Probe	EUR	187.00	USD	280.00
BWU1746	AS-i 3.0 PROFIBUS DP Gateway in Stainless Steel, Basic Master	EUR	295.00	USD	460.00
BW1751	AS-i Safety OEM Slave with screw terminals	EUR	84.00	USD	129.00
BWU1760	24 V to 30 V AS-i Power Supply\nin Stainless Steel 2 A	EUR	197.00	USD	310.00
BW1764	AS-i Safety Monitor, advanced monitor, 1 OSSD (release circuit), 40 ms	EUR	366.00	USD	565.00
BW1765	AS-i Safety Monitor, advanced monitor, 2 OSSD (release circuit), 40 ms	EUR	466.00	USD	715.00
BW1770	AS-i Safety Monitor, programminng software ASIMON with cable	EUR	92.50	USD	145.00
BW1771	Interface cable for connection of the Safety Monitor to a PC	EUR		USD	
BW1772	Interface cable for connection of 2 Safety Monitors	EUR		USD	
BWU1773	AS-i/PROFIBUS DP Gateway in Stainless Steel, As-i 2.1 without RS232 diagnosis interface, without recognition of duplicate AS-i addresses	EUR	377.00	USD	575.00
BWU1774	AS-i/PROFIBUS DP Gateway, 2 Masters, Master Power Supply, in Stainless Steel, AS-i 2,1 without RS232 diagnosis interface, without recognition of duplicate AS-i addresses	EUR	560.00	USD	835.00
BW1783	AS-i 3.0 Compact PCI Board	EURR		USD	
BW1789	AS-i 4I/4O Module with LEDs with screw terminals, lacquered	EUR		USD	
BW1801	AS-i Safety OEM Slave with wiring pins	EUR	84.00	USD	119.00
BW1802	Connecting cable (Module/programming device)	EUR		USD	
BWU1818	AS-i 3.0 DeviceNet Gateway in Stainless Steel	EUR	609.00	USD	885.00

Side tabs: AS-i-Master/Gateways/Links/Scanner | AS-i Slaves | AS-i Accessories/Diagnostics/Development | Other Fieldbuses/Master Simulators | AS-i Safety | Price Lists

Bihl
+ Wiedemann

Automatisierungstechnik

Art. No.	Article	Price/Pice		Price/Pice	
BWU1819	AS-i 3.0 DeviceNet Gateway in Stainless Steel, 2 Masters, Master Power Supply	EUR	790.00	USD	1195.00
BWU1820	AS-i 3.0 DeviceNet Gateway in Stainless Steel, 2 Masters, Version 1 Gateway, 1 Power Supply for 2 AS-i circuits	EUR	790.00	USD	1195.00
BWU1821	AS-i 3.0 CANopen Gateway in Stainless Steel	EUR	509.00	USD	765.00
BWU1822	AS-i 3.0 CANopen Gateway in Stainless Steel, 2 Masters, Master Power Supply	EUR	690.00	USD	1020.00
BWU1823	AS-i 3.0 CANopen Gateway in Stainless Steel, 2 Masters, Version 1 Gateway, 1 Power Supply for 2 AS-i circuits	EUR	690.00	USD	1020.00
BWU1828	AS-i 3.0 EtherNet/IP Gateway in Stainless Steel	EUR	609.00	USD	945.00
BWU1829	AS-i 3.0 EtherNet/IP Gateway in Stainless Steel, 2 Masters, Master Power Supply	EUR	790.00	USD	1145.00
BWU1833	AS-i 3.0 EtherNet/IP Gateway in Stainless Steel, 2 Masters, Version 1 Gateway, 1 Power Supply for 2 AS-i circuits	EUR	790.00	USD	1145.00
BWU1843	AS-i Diagnostic Tuner	EUR	425.00	USD	630.00
BWU1853	AS-i 3.0 Analog Module 1I/1O, 4 ... 20 mA or 0 ... 10 V, 24 V auxiliary on M12, IP65	EUR		USD	
BWU1855	Advanced Repeater, IP20	EUR	193.00	USD	355.00
BWU1893	AS-i Analog Input Module 2I, 4 ... 20 mA, AS-i 3.0 AB Slave, IP65	EUR	128.00	USD	195.00
BWU1894	AS-i Analog Input Module 2E, 4 ... 20 mA, AS-i 2.1 AB Slave, IP65	EUR	128.00	USD	195.00
BWU1895	AS-i Analog Module 2 Pt100 Inputs, AS-i 3.0 AB Slave, IP65	EUR	128.00	USD	195.00
BW1896	AS-i Safety OEM Slave with plug-in screw terminals	EUR	84.00	USD	135.00
BW1898	AS-i 8I/8O OEM Module, 2 4I/4O Single Slave	EUR	86.00	USD	135.00
BW1899	AS-i 3.0 8I/8O OEM Module, 2 4I/4O-AB Slave	EUR		USD	
BW1900	AS-i 16I/16O OEM Module, 4 4I/4O Single Slave	EUR	146.00	USD	220.00
BW1901	AS-i 3.0 16I/16O OEM Module, 4 4I/4O-AB Slave	EUR		USD	
BW1902	AS.i Sim: Programming and Simulation Software for AS-i (Mini-PLC)	EUR	590.00	USD	850.00
BW1911	AS-i 3.0 Compact PCI Double Master	EUR		USD	
BWU1912	AS-i 3.0 PROFINET Gateway in Stainless Steel	EUR	609.00	USD	945.00
BWU1917	AS-i 3.0 Analog Module 1I/1O, 4 ... 20 mA or 0 ... 10 V, supplied out of AS-i, IP65	EUR	248.00	USD	385.00
BW1920	AS-i Cable-Stripper	EUR		USD	
BW1921	AS-i Micro-Wire-Stripper	EUR		USD	
BW1922	AS-i 3.0 PCI Board with advanced diagnostics	EUR	490.00	USD	760.00
BW1934	Module Safety OEM AS-i	EUR		USD	
BW1945	AS-i ribbon cable seal for use in cable gland	EUR		USD	
BW1946	Lid for standard AS-i substructure modules	EUR		USD	
BW1957	AS-i 2I/2O AB Module without galvanical separation, screw terminal only on AS-i pins	EUR		USD	

Price · Payment · General Conditions for the Supply of Products and Services

This price list is valid from 17.07.2006 and replaces all previous price lists. This price list is valid until the next price list will be published.

Net. prices above do not include VAT, packaging or transportation. All orders to be paid within ten days, from the invoice date.

For all products and services the latest version of the "General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry (ZVEI)" as well as the added "Retention of Title" are exclusively in force.

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The AS-Interface Masters