

# **Anybus X-gateway Modbus-TCP**

Exchanging data between a Modbus-TCP slave and a PROFIBUS master







Rev. 1.00

# History

Revision	Date	Description	Responsible
1.00	2011-05-18	First release	KaD

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## **1 Applicable Anybus Products**

Description	Name / Type
Anybus X-gateway Modbus-TCP	PROFIBUS DP-V1

### 2 Requirements

Name / Type	Version
AB9001	N/A
-	N/A
-	N/A
Software	N/A
Software	N/A
Software	N/A
	Name / Type AB9001 - - Software Software Software

Note: The GSD file can be downloaded at the HMS website <u>www.anybus.com</u>.



## **3 Solution Overview**

An overview of the system described in this document is found below. This application note describes the necessary steps needed to be able to exchange data between a Modbus-TCP slave and a PROFIBUS master, using an Anybus X-gateway Modbus-TCP to PROFIBUS DP-V1 from HMS Industrial networks AB. The contents describe step by step how a configuration is done. This document assumes the reader is familiar with industrial communication.





#### 4 Hardware Installation

Perform the following steps when installing the hardware:

- 1. Mount the module. See "Mounting the X-gateway" on page 16 in the manual for details.
- 2. Connect the X-gateway to the Modbus-TCP network. See "External View" on page 15 in the manual.
- 3. Connect the power cable and apply power.
- 4. Connect a PC to the Modbus-TCP network connector (see "External View" on page 15 in the manual) and open a web browser. Enter the IP address of the X-gateway and access the configuration web pages.
- 5. If the IP address of the X-gateway is unknown, use the Anybus IPconfig tool to find it. See "Anybus IPconfig Tool" on page 36 in the manual. For this example, set the IP address of the X-gateway to 192.168.0.207.
- 6. Connect the Modbus-TCP Server (slave) to exchange data with. In this example a simple I/O-block with 16 inputs and 16 outputs is used. The inputs are connected to the outputs to loop the data. For this example, use IP address 192.168.0.206.
- 7. Connect the PROFIBUS DP-V1 slave interface of the X-gateway to the PROFIBUS master used in the setup. In this example a master from Siemens is used, configured with STEP7, Anybus NetTool for PROFIBUS and the PROFIBUS Master Simulator.



The Anybus X-gateway is configured via Internet Explorer version 7.0 or later and with JavaScript enabled.

The configuration and status web pages are divided into three sections.

For further information, see chapter 5.3 in the manual.

#### 5.1 The X-gateway Start Page

Access the configuration web pages using the IP address of the X-gateway (<u>http://192.168.0.207</u> is used as the client address). The start page of the X-gateway looks like this:

() Anybus'	Anybus X-	gateway Modbus-TCP	- PROFIBU	JS DP	-V1	
OVERVIEW Home CONFIGURATION	Anybus X-gateway configuratio Use the left side menu to navigate. gateway Management page.	n and status web pages. Welcome to t Changes to the configuration do not take e	the configuration inte ffect until the X-gate	erface of th way is res	e Anybus X-g tarted from the	ateway. e X-
Medhue Client	lde	ntification	Ethe	ernet link :	status	
Modbus Client	Product name:	Anybus X-gateway Modbus-TCP	Port 1:			
Modbus Servers	Firmware version:	1.01	Speed:	100 M	bps	
PROFIBUS DP-V1	Serial number:	12345678	Duplex:	Full Du	plex	
TOOLS	MAC ID:	00:30:11:FF:02:72	Port 2:			
X-gateway	Uptime:	0 days, 0h:3m:0s	Speed:	-		
Management	CPU Load:	34% (auto updated every 5s)	Duplex:	-		
Backup & Restore	Oper	ation Mode	Ether	net link st	tatistics	
Manaira Oversion	PROFIBUS DP-V1 (Network 1):	No VO data exchanged	In pkts:	439	Errors:	0
mapping Overview	Modbus-TCP (Network 2):	Run	Out pkts:	440	Errors:	0
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This window of the configuration and status web pages presents important error tracking information, as well as general information and statistics.

For further information see chapter 5.3.1 in the manual.



#### 5.2 Modbus Client Settings

Select the Modbus Client tab from the menu on the left. Configure the Modbus-TCP client (master).

For further info see chapter 5.4.2 in the manual.

() Anybus'	Any	vbus X-gateway	Modbu	s-TCP - PROFI	BUS D	P-V
OVERVIEW Home CONFIGURATION	Modbus client con	figuration. Configure the Mo	odbus-TCP netv	vork settings.		
Madhua Cliant			IP Cont	figuration		
Modbus Client		IP address		192.168.0.207		
Modbus Servers		Subnet mask		255.255.255.0		
PROFIBUS DP-V1		Router IP address		0.0.0.0		
TOOLS		DHCP		Disabled		-
X-gateway		Anybus IPconfig (HICP)		Disabled		-
Management			I/O s	ettings		
Backup & Restore		Start-up operation mode		Running		-
Mapping Overview		When PROFIBUS DP-V1 (Ne exchanging I/O data	etwork1) is not	Clear data to Modbus serve	ers	•
			Cancel	Save settings		

To be sure that the IP address cannot be changed from the DHCP server, disable DHCP.

To be sure that the IP address cannot be changed from the Anybus IPconfig tool, disable HICP.

As mentioned before, the IP address of the Modbus-TCP client of the X-gateway is set to 192.168.0.207. Set subnet mask to 255.255.255.0 and router address to 0.0.0.0, as all modules are on the same local network.

Leave Start-up operation mode as "running", as the control word will not be used.

Select to clear data from the Modbus-TCP client to the servers when the PROFIBUS network is not exchanging data.

Click 'Save settings' to save the settings in the web server. Please note that the changes will not take effect until they are applied in the X-gateway Management section later on.



#### 5.3 Modbus Servers Settings

Select the Modbus Servers tab from the menu on the left. Add a server by clicking 'Add new server' and then click 'Edit' to configure the Modbus-TCP Server.

For further information see chapter 5.4.3 in the manual.

( Anybus'	Α	nybus X-g	ateway	/Modbu	ıs-TC	P - PR	OFIB	USDF	P-V1
OVERVIEW Home CONFIGURATION Authentication	N         Server configuration. Add, edit or delete Modbus connections on this page. On each connection several transactions towards a Modbus server can be set up. Press 'Add new server' button to add a new connection, then edit it to set server properties and finally click the Transactions' link to set up transactions used to call Modbus functions on the server. The global limit is 64 transactions and i is not possible to map more process data than the X-gateway can handle.           Cation         Clobal configuration limits								
Modbus Client	Transactions: 2/6	ation limits. 54   Input process da	ata: 10/244 b	ytes Output p	rocess dat	ta: 2/244 byt	es   Total	process da	ta: 12/368 bytes
Modbus Servers	Alias	IP address	Port	Protocol	Trans	actions			
PROFIBUS DP-V1	IO_loop	192.168.0.206	502	TCP		2	Edit	Delete	Transactions
TOOLS X-gateway Management	Add/edit server			Add	new serv	er			
Backup & Restore				S	ettings				
Mapping Overview	Alias	IO_loop		Proto	col	TCP			<b>v</b>
	Server addres	s 192.168.0.	206	Port		502			
				Can	cel O	k			

For this example, rename the server to 'IO\_loop' in the Alias field. Note that it is only possible to use uppercase and lowercase characters, numerals and underscore (\_) for a maximum of 12 characters.

Set the IP address of the server: for this example, use 192.168.0.206.

The default Modbus-TCP port is 502.

Click 'OK' to save the settings. Please note that the changes will not take effect until they are applied in the X-gateway Management section later on.



### 5.4 Modbus Server Transactions Settings

Still in the Modbus Servers section, click 'Transactions'. Click 'Add new transaction' to add a new default transaction to the list and click 'edit' to edit it.

Modbus Servers	Global configuration lim	its.				
PROFIBUS DP-V1	Transactions: 1/64 Minimi data: 10/368 bytes	um allowed scan time: 10 I	nput process data: 10/244	bytes Output proce	ess data: 0/244 bytes Total p	process
TOOLS	Alias	IP	address	Port	Protocol	
Management	IO_loop	192.	168.0.206	502	TCP	
Backup & Restore	# Functi	on Encoding Scan tin	ne Timeout UID Addre	ss Data Type El	ements Registers	
Mapping Overview	Read_1_word 3	overing mouse over an eler	nent where the cursor show	vs a question mark o	1 Edit L displays help.	Jelete
		Back to :	server list Add new	transaction		
	r Add/edit transaction					
			General transaction setti	ngs		
	Alias	Read_1_word	Function code	3-Read Holding Re	gisters 💌	
	Timeout (ms)	5000	Data encoding	Byte Big Endlan, Wo	rd Big Endlan 💌	
	Scan time (ms)	200	Unit Id	255		-
			Read settings			
	Starting address	1	Data type	uint16	•	
	Elements	1	Registers	1		
			Cancel Ok			

- For this example, choose Read Holding Registers (function code 3) and name the transaction 'Read\_1\_word'.
- Use the default value for the data encoding as the server is a standard Modbus-TCP module.
- Use the default value for unit id (255) as the client connects directly to the server via TCP/IP.
- Use default values for timeout time and update time/scan time.
- Set start address to 1, number of elements to 1 and data type to UINT 16 (resulting in one 16-bit register).

Click 'OK' to save the settings. The changes will not take effect until they are applied in the X-gateway management section later on.

	General transaction se	ttings	
Write_1_word	Function code	6-Write Single Register	
5000	Data encoding	Byte Big Endlan, Word Big Endlan	
200	Unit Id	255	
	Write settings		
1	Data type	ulnt16	
1	Registers	1	
	Write_1_word 5000 200 1	General transaction se Write_1_word Function code 5000 Data encoding 200 Unit Id Write settings 1 Data type 1 Registers	General transaction settings       Write_1_word     Function code     6-Write Single Register       5000     Data encoding     Byte Big Endlan, Word Big Endlan       200     Unit Id     255       Write settings     Unit16       1     Data type     ulnt16       1     Registers     1

Click 'Add new transaction' to add another default transaction to the list and click 'edit'.

- This time, choose Write Single Register (function code 6) and rename the transaction 'Write\_1\_word'.
- Use default values for data encoding, unit id, timeout time and scan time.
- Set start address to 1 and number of elements to 1 of the type uint 16 (one 16-bit register).

Click 'OK' to save the settings. The changes will not take effect until they are applied in the X-gateway management section later on.

```
Saved: 2011-05-18
```



#### 5.5 PROFIBUS Settings

Select the PROFIBUS DP-V1 tab from the menu on the left to configure the PROFIBUS slave interface of the X-gateway. For further information see chapter 5.4.4 in the manual.

() Anybus'	Any	/bus X-gateway	Modbu	IS-TCP - P	ROFIBUS	B DP-V1	I			
OVERVIEW	The X-gateway needs gateway or cancel cha	to be restarted for configuration inges.	changes to t	ake effect. Go to X-	gateway Manag	ement page t	o restart the X-			
CONFIGURATION	PROFIBUS DP-V1 (N control/status word or	PROFIBUS DP-V1 (Network 1) configuration. Configure the network 1 side of the X-gateway. Enabling or disabling the mapping of the control/status word or the live list affects the process data size.								
Authentication										
Modbus Client										
Modbus Servers PROFIBUS DP-V1	Global configuratio Transactions: 2/64	n limits. nput process data: 10/244 byte:	s Output proc	ess data: 2/244 byt	es Total process	a data: 12/368	bytes			
TOOLS		Setting		Conf	igured	Actual				
X-gateway		Node address		77		77				
Management		When Modbus-TCP (Network	2) error	Clear data to master	•					
Backup & Restore		I/O mapped control/status wo	rd	Disabled	•					
Mapping Overview		I/O mapped live list		Enabled	•					
			Cancel	Save settings						

- For this example, set the node address to 77.
- Choose to clear data from the PROFIBUS slave to the master when the Modbus-TCP network is not exchanging data.
- Disable the control/status word.
- Enable the live list.

Click 'Save settings' to save the settings. The changes will not take effect until they are applied in the X-gateway management section later on.

#### 5.6 Applying the Settings in the X-gateway

To save and apply the settings in the X-gateway, select the X-gateway Management tab from the menu on the left. Click the 'Apply' button under Apply changes. For further information see chapter 5.5.1 in the manual.



The X-gateway will go offline for a little while, and the Modbus-TCP network side as well as the PROFIBUS network side will be restarted and reinitialized.



### 6 **PROFIBUS** Master Configuration

Select the 'Mapping Overview' tab from the menu on the left, to find information about how the PROFIBUS slave of the X-gateway is configured. For further information see chapter 5.5.3 in the manual.

🛞 Anybus'		Anybus X-	gatew	ay Modb	us-TC	P - P	ROFIB	USC	P-V1
OVERVIEW Home CONFIGURATION	Data Mapp PROFIBUS	ing Overview. Shows h DP-V1 side of the X-gat	ow configu eway and v	red Modbus-TCP tr vice versa.	ansactions	and cont	rol word, statu	is word a	and live list are mapped to the
Authentication	CONFIGUR	PATION DATA							
Modbus Client	CONFIGUR				Data				
Modbus Servers	Slot	CFG data		Designation		Input v	vords		Output words
PROFIBUS DP-V1	1	0x97	Live list		4			-	
7001.0	2	0x40,0xc0	Input dat	a	1			-	
TUULS	3	0x80,0xc0	Output d	ata	-			1	
X-gateway	SLOT DETA	AILS							
Management					SLOT 1				
Backup & Restore		Transaction alias		Element size (b	vtes)		Elements		Relative address
Hanning Oversien	Live-List		1		1.0.27	8		0.7	
mapping Overview			1.1		SLOT 2	, i		·	
		Transaction alias		Element size (b	vtes)		Elements		Relative address
	Read 1	word	2			1		0.1	
			-		SLOT 3				
		Transaction alias		Element size (b	ytes)		Elements		Relative address
	Write_1	word	2			1		01	

Download the appropriate GSD file from http://www.anybus.com/upload/HMSA1837.zip.

This example will show how configuration is made in "STEP7", "Anybus NetTool PROFIBUS" and via the "PROFIBUS Master Simulator".

# 6.1 Configure the X-gateway PROFIBUS Slave to the PROFIBUS DP-V1 Master via STEP7

Load the GSD-file into STEP7.

Find the X-gateway PROFIBUS slave interface under PROFIBUS DP\Additional Field devices\gateways\...



Add as slave node 77.



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	SIMAT	IC 400 (Configura	ation) App note ETN	M-DPV1				_ 🗆 🗙			
Proprint of the start of t	1	PS 407 10A							Profi	e: Stan PROFIBU Addit	dard JS DP ional Field Devices
Image: Second	X2 X7 IF1 5	DP MPI/DP			PROFIBUS	: DP S7-400 М	laster (1)	-			ieneral witching Devices /0 iateway AS-1 Arybus X-gateway Modbus-TCP
3 word output         5 word output         6 word output         7 word output         8 word output         8 word output         11 word output         12 word output         13 word output         14 word output         15 LiveList         151       LiveList         151       LiveList         151       LiveList         128       1 word output         18 word output         19 word output         21 word output         22 word output         23 word output         24 word output         25 word output	7 8 9					DP-NORM					Universal module     Control/Status Word     LiveList     1 word output     2 word output
8 word output         9 word output         9 word output         11 word output         12 word output         13 word output         11 word output         13 word output         13 word output         14 word output         15 word output         17 Word output         18 word output         19 word output         12 word output         12 word output         13 word output         15 word output         15 word output         12 word output         12 word output         13 word output         14 word output         15 word output         12 word output         12 word output         12 word output         13 word output         14 word output         15 word output         12 word output         13 word output         14 word output         15 word output         12 word output         12 word output         12 word output         12 word o											3 word output     4 word output     5 word output     5 word output     6 word output     9 word output
11 Work output         128         1 Work output         128         1 work output         01         128         1 word output         01         128         1 word output         01         128         1 word output         2 word output											8 word output     9 word output     10 word output
(77) Anybus X-gateway Modbus-       14 word output         at       DP ID       Order Number / Designation       1 Address       Q Address       Comment         151       LiveList       1017       17 word output       17 word output         128       1 word output       01       19 word output       19 word output         128       1 word output       01       20 word output       21 word output         21 word output       01       22 word output       21 word output         22 word output       21 word output       22 word output         23 word output       24 word output       24 word output											12 word output     13 word output
Image: DP ID       Order Number / Designation       I Address       Q Address       Comment       I for word output         151       LiveList       1017       I word output       I for word output         64       1 word output       01       I word output       I word output         128       1 word output       01       I word output       I word output         I word output       01       I word output       I word output         I word output       01       I word output       I word output         I word output       01       I word output       I word output         I word output       01       I word output       I word output         I word output       I word output       I word output       I word output         I word output       I word output       I word output       I word output         I word output       I word output       I word output       I word output         I word output       I word output       I word output       I word output         I word output       I word output       I word output       I word output         I word output       I word output       I word output       I word output         I word output       I word output       I word		(77) Anybus X-ga	teway Modbus-								14 word output 15 word output
151         LiveList         1017         1117           64         1 word input         01         1117         1117           128         1 word output         01         1117         1117           128         1 word output         01         1217         1217           120 word output         01         1217         1217         1217           21 word output         01         1217         1217         1217         1217           21 word output         01         1217         1217         1217         1217           22 word output         2217         2217         2217         2217         2217           22 word output         2217         2217         2317         2317         2317	ot   [	DPID	Order Number / Designa	ation	I Address	Q Address	Comment	1			16 word output
54         1 word input         01         19 word output           128         1 word output         01         20 word output           21 word output         01         21 word output         21 word output           21 word output         01         21 word output         21 word output           21 word output         01         21 word output         21 word output           22 word output         22 word output         23 word output         23 word output           24 word output         24 word output         24 word output         24 word output		151	LiveList		1017						18 word output
120     1 Word output     01       20     0       21     word output       22     word output       22     word output       23     word output       23     word output       24     word output	_	64	1 word input		01	0.1					19 word output
Image: Constraint of the second se		120	r word output			01					20 word output
22 Wold Output											21 word output
											22 word output
											24 word output

Select the data modules according to the 'Mapping Overview' in the configuration web pages of the X-gateway. (STEP7 shows decimal values: 97h=151, 40h=64, 80h=128).

#### 6.1.1 Monitor Data in STEP7

Start up and monitor data in the PROFIBUS slave.

Monitor/Modify - 151 - (R-/S1) X	Monitor/Modify - 64 - (R-/52)	Monitor/Modify - 128 - (R-/S3)
Online via assigned CPU services Path: Ann note ETNM-OPV1\SIMATIC-400\CPU 414-3.DP	Online via assigned CPU services Path: Jaconzels ETMADPV1/SIMATIC 400/CPU 414-3 DP	Dnine via assigned CPU services Path Asso note ETNM-DPV1\SIMATIC 400xCPU 414-3 DP
Image: Symbol         Display format         Status value         Modify value           1         1         0.0         BOOL         True           2         1         10.0         BOOL         True           3         1         10.2         BOOL         True           4         1         10.3         BOOL         Table           5         1         10.5         BOOL         Table           6         1         10.5         BOOL         Table           7         1         10.6         BOOL         Table           0         1         10.7         BOOL         Table           9         1         11.0         BOOL         Table	Inw 0 Hex W#16#1234	Addess Symbol Dicplay format Status value Modify value     QN 0 MEX W#16#1294 W#16#1294
Row Not Effective Update Force Symbol with F5  Run conditionally Monitor Modily Con Modily RUNNING Close Hotp KC Status Value F 1/0 Display RUNNING	Now Not Effective         Update Faces Symbol with F5           Run conditionally         Run intendiately           P Models         dot Status Value           Modely         D Display           Ctore         Heb	Konv Not Effective     Update Force Symbol with F5     Run conditionally     Monitor     Modily     Q_T Mage     Index Price Dublicity     (0) Display     (0) RUNNING     (0) RUNNING

The live list rows I10.0 and I10.1 show that the two transactions are working ok.

Modify the output data field for address QW0 and press "Modify". The data is looped back to the Modbus-TCP server and can be seen in the status value of address IW0.



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#### 6.1.2 Check Transaction State via Live List Monitoring in STEP7

Monitor/Modify - 15	1 - (R-/51)		×	Monitor/Modify - 64 - (R-/52)	D	Monitor/Modify - 128	- (R-/53)	
Online via assigned CPU a	ervices			Online via assigned CPU services		Online via assigned CPU ser	vices	
Path App note ETN	IM OPV1\SIMATIC 400\CPU 4	414-3 DP		Path: App note ETNM-DPV1\SIMATIC 400\	CPU 414-3 DP	Path: App note ETNM	OPV1\SIMATIC 400\CPI	U 414-3 DP
Address Symbo	ol Display formal	t Status value Modify value	-	Address Symbol Display form	at Status value Modify value	Address Symbol	Display forma	at Status value Modify value
1 I 10.0	BOOL	false		1 IW 0 HEX	W#16#0000	1 QW 0	HEX	W#16#1234 W#16#1234
2 I 10.1	BOOL	false						
3 I 10,2	BOOL	false						
• I 10.3	BOOL	talse						
5 I 10.4	BOOL	false						
5 1 10.5	BOOL	false						
7 I 10.6	BOOL	false						
B I 10.7	BOOL	false						
9 I 11.0	BOOL	false						
101 1 11 1	ROOK		-	1		1		
X Row Not Effective	Update Force Symbol v	with F5		X Row Not Effective Update Force Sy	mbol with F5	X Row Not Effective	Update Force Symbo	ol with F5
Run conditionally	Run immediately			- Bun conditionally - Bun mmediately		- Run conditionally	- Run immediately	
P Monitor	Art: Status Value	Enable Parioh, Outputs		🔽 Monitor 🔐 Status Value	1 Engle Perch Outrop	P Monitor	Art Status Value	Enable Perioh Gutouts
- Martin		-				E Mode		
1 models	Modily Value	T 1/O Display		Modify Value	I 1/0 Display	1 moory	Modily Value	T 1/O Deplay
Qt Trigger				Ct Trigger		Ct Trigger		
			. 1					
Close		H	0	Close	Help	Close		Help

If the Modbus-TCP server is disconnected, the live list will go empty. No transactions will show in the list. The IW0 data will also be empty, since the selection of 'Clear data to master' when there is a Modbus-TCP (Network 2) error, on the PROFIBUS DP-V1 configuration page.

# 6.2 Configure the Slave to the PROFIBUS DP-V1 Master via Anybus NetTool for PROFIBUS

Selecting the data modules according to the "Mapping Overview" in the configuration web pages of the X-gateway in "Anybus NetTool for PROFIBUS" from HMS, will generate the following screen:

Anybus NetTool for PROFIBUS - Untitle	d - [bus configuration 1]				
🛞 Project View PROFIBUS Online Option Tr Dh 🚘 🔲 🚑 Dk ් 📥 රැ	ools Windows Help				_ @ X
Manus NetTool for Profibus\GSD     Anybus NetTool for Profibus\GSD     Gateway     Gateway     Gateway     Gateway     Gontrol/Status Word     ViveList     Gontrol/Status Word     ViveList     Gontrol/Status Word     ViveList     Gond output     G S word output	(1) Anybus Anybus (77) Anybus (77) Anybus (77) Anybus (77) Anybus				
🕅 7 word output	Slot CEG data	Order number / designation	Input address	Output address	
Image: Second and the second and t	1         0.437           2         0x40, 0xC0           3         0x80, 0xC0           4         5           6         7           8	LiveList 1 word input 1 word output	07 89	01	

The data can be monitored and changed when the tool is connected to the master, by clicking the configured modules.



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# 6.3 Configure the Slave to the PROFIBUS DP-V1 Master via the PROFIBUS Master Simulator

Select the data modules according to the 'Mapping Overview' in the configuration web pages of the X-gateway in "PROFIBUS Master Simulator" from HMS, to generate the output below (the simulator can access the slave without a GSD-file or any mapping of modules):

et all e sur unit en
Hie Address Communication Window Extra
Communicator
Bihl+Wiedemann GmbH
Norm Diagnosis
🖯 Ext Diag
Current <u>S</u> lave Address 77
Exercise Outputs
Single Bit Mode Status Communication Active Ident Number 1837
Parameter C0 00 00 Config 97 40 C0 80 C0
Output Data User Diagnosis
76543210 76543210 76543210 76543210
1: AA 10101010 . 170 1: 03 00000011 . 3
2: 55 01010101 U 85 2: 00 00000000 . 0
4: 00 0000000 . 0
5: 00 00000000 . 0
7: 00 0000000 . 0
8: 00 00000000 . 0
9: AA 10101010 . 170
10: 55 01010101 0 85

Data is looped between the first two bytes of the output data and byte nine and ten in the input data.

The first eight bytes of the input data contain the live list. The first two bits in the first byte of the live list show that the two Modbus-TCP transactions are working ok.



# 7 More Information about the X-gateway and PROFIBUS

The latest information and manuals can be found on the HMS website, www.anybus.com.

The PROFIBUS user organisation, found on <u>www.profibus.org</u>, provides useful information about PROFIBUS.