BRODERSEN

simplifying process

Asset Management

Facility Management

Total Solutions

Supply Chain Management

Utilities

RTU32

BRODERSEN

Power
System
Run
I/O
COM 1
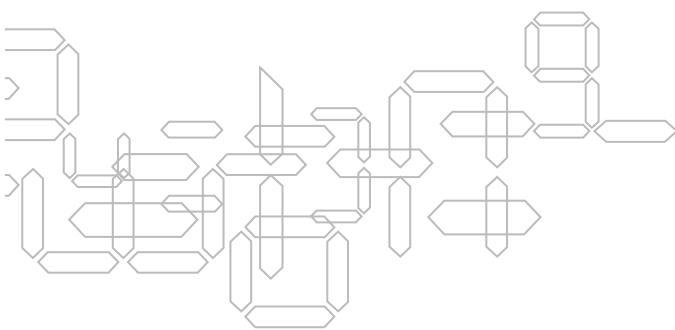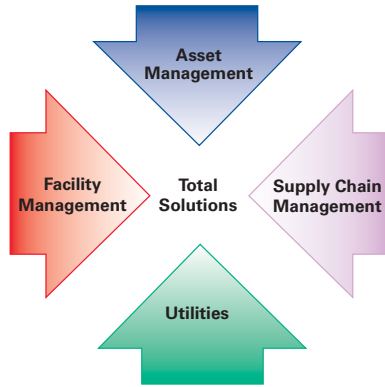COM 2

Series 4500

Series 4500   -   RTU32 Controller

POWERFUL RTU AND INDUSTRIAL CONTROLLER

The new Brodersen RTU32 Controller is a powerful RTU offering real time process communication and leading edge telemetry functionality. The 32 bit platform makes it possible to perform embedded data processing, data logging, control and monitoring. It is a powerful **networking communicator** for data transfer via standard and application specific protocols.

OPEN PLATFORM WITH WinCE OPERATING SYSTEM

The RTU32 outstation and industrial controller is based on a fanless industrial PC platform with WinCE 4.2 NET operating system. This enables anyone familiar with the Windows environment to easily set up the RTU. WinCE provides an open environment with the power and functionality required to control advanced industrial applications.

CONFIGURATION

RTU32 main settings, such as network settings and serial port settings, are configured via the WinCE user interface or via a WebPage.

A small user-tool to assign network settings is provided for initial set-up via the Ethernet / TCP/IP interface. This offers remote access to any RTU32 connected to a specific network segment.

PROGRAMMING

The **Straton Workbench** is used for configuring protocols, programming and debugging. It supports several tools for multi-programme handling and documentation. It is also a powerful tool for complete system design and programming, providing unique functions for event based communication. The Global Binding Editor makes it possible to publish and subscribe variables in a large network with minimum communication load. The events are time stamped and can also be used directly in ZenOn SCADA HMI applications.
Programming, debugging and upload and download of application programs can be done remotely via Ethernet or RS232.

STRATON® Workbench

• Supports all five IEC 61131-3 languages.

• Fast compiler.

• German, English, French, Italian.

• Supports cold restart, hot restart and on-line changes.
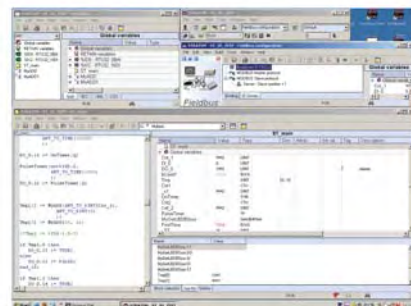
The Straton programming tool fully supports EN/IEC61131 and is used for making SoftPLC programs in the RTU32. The application program kernel is implemented and runs in WinCE real-time task. Straton offers complete SoftPLC functionality and supports all features needed in today's industrial environment.

Once the RTU32s have been set up, Straton identifies all the global variables defined. It is easy to design the exchange of these variables by using the Global Binding Editor. The RTU32 can be programmed from anywhere on the network.

STRATON® Virtual Machine in RTU32

STRATON Workbench

LAN

WAN

RTU32

Program download/upload
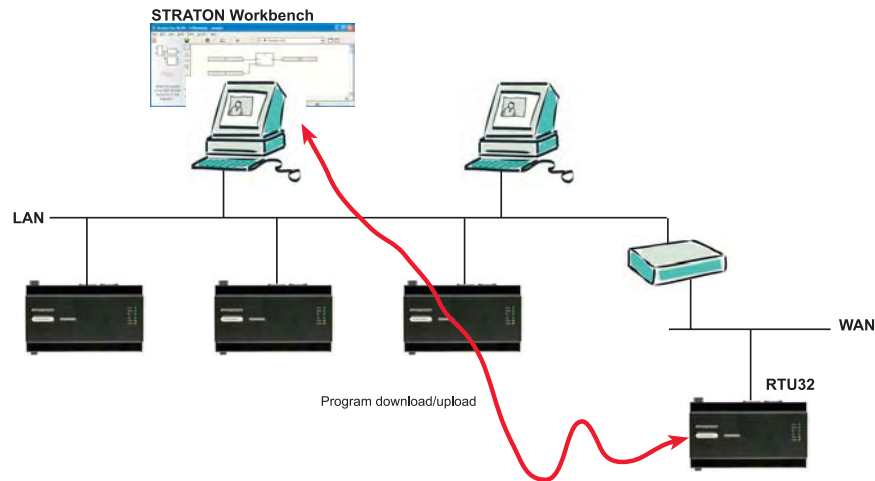
NETWORKING

The Straton **event based networking Binding Protocol** provides extremely fast, time stamped and globally distributed data in any network application.

The **Event based protocol** updates the RTU32 only when a change of value has taken place, **minimising** the **data traffic.**

This, combined with the Straton SoftLogic support for WinXP runtime SoftPLC and ZenOn HMI SCADA, provides all the features necessary for **designing total systems** in the **same software environment.**

Ethernet network for primary communication provides all the advantages of existing TCP/IP networking facilities (FTP, HTTP etc). Fast, reliable and secure communication is a main feature and all networking components (software, routers, switches, etc.) are available. In addition, serial ports for interfacing to application specific protocols (e.g. Modbus, Fieldbus, utility and traffic proprietary protocols etc.) are available.
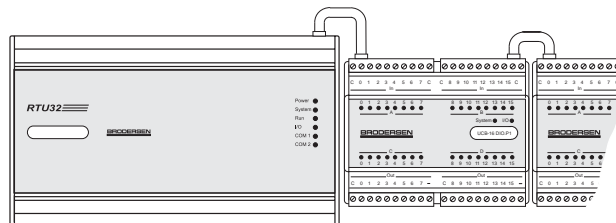
REDUNDANCY

The **Dual Binding Protocol** provides the unique ability to obtain fast and event based redundancy communication. It is possible to enable 2 RTU32s working parallel on 2 separate network segments by simple user-configuration. Straton automatically ensures that all data from A to B is sent the fastest way through the network and that no single data change is reported more than once. All data is time stamped and access to both data and time stamps is available from the application program.

LAN1
LAN2
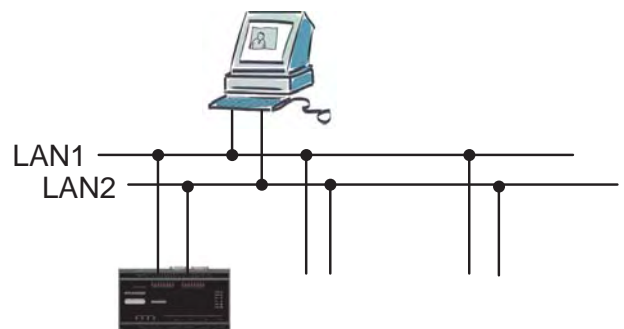
WIDE RANGE OF INTERFACES
- Dual Ethernet 10/100Mbit
- 2 serial COM ports
- USB ports
- VGA, Keyboard/mouse
- Localbus for Brodersen I/O Expansion

PROTOCOLS
- I/O drivers for integrated I/O and I/O Expansion.
- ModbusRTU Master and Slave.
- Modbus TCP Client and Server.
- EN/IEC60870-5-101 Master and Slave.
- EN/IEC60870-5-104 Client and Server.

In addition, the RTU32 can run ZenOn CE-runtime application which expands the number of available protocols.

TYPICAL APPLICATIONS INCLUDE CONTROL AND MONITORING OF:
- Electricity Transmission and Distribution
- Water and Waste Water Treatment
- Oil, Gas and Water Distribution
- Traffic Monitoring and Control

The RTU32 is based on the flexible hardware layout and design known from the existing Brodersen product range. It is supplied in a robust black aluminium enclosure for DIN rail mounting.
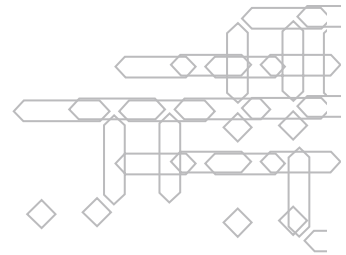
I/O's AND DATABASE
The I/O database is designed as a multi-accessible structure. The database runs in its own task providing fast and reliable I/O communication. The Straton SoftPLC has drivers to access the database both at board level, where the I/O is accessed in I/O sections, and in single level where each I/O can be accessed individually according to the specific application requirement.
In addition, an API for WinCE provides access to the database from a C++ program.

EN/IEC60870-5-101/104
Utility protocols EN/IEC60870-5-10x provide full configuration flexibility of any inter-operability requirements. The protocol links are provided as a driver in Straton and the application layer data and protocol structures are generated in Structured Text (ST). This gives full access to set up any Interrogation and ASDU required for the application.
In addition, the protocol drivers support advanced features for gateway functions where, for example, information in monitor direction can be moved from one protocol interface to another without compromising the actual value and original time stamp.

DATA LOGGING
A special data logging function block is available for logging event based or cyclical data to the flash file system. The data logging also supports functions for formatted log directly exportable to ZenOn HMI and SCADA software.

MODEM CONTROL / DIAL-UP / DIAL-IN
Both dial-up and dial-in functions via a PSTN, ISDN or GSM modem connected to the serial port of the RTU32 are possible when using the Straton modem function. It can be used for ModbusRTU and EN/IEC60870 serial protocols.
In addition, a dial-on-demand function for TCP/IP based protocols is provided.

REAL-TIME / REAL-TIME CLOCK
The WinCE real-time task is used for the application program execution. Time stamps and cyclic execution are also based on the WinCE real-time clock. Time stamps are reported in milliseconds.

RTU32 Technical Data

BASIC 32-BIT SYSTEM

CPU:	AMD Geode™ GX1 300 MHz
RAM:	One 144-pin SODIMM socket supports up to 256 MB SDRAM. Standard configuration; 64MB.
Flash/SSD:	CompactFlash Type I/II socket support up to 512MB Standard configuration: 64MB.
Watchdog timer:	Reste/IRQx; 16 sec. ~ 127 min. and 30 sec./step.
VGA/LCD:	PCI bus VGA/LCD interface. Support 9/12/18-bit TFT panels.
Resolution:	CRT mode: 1280x1024@8bbp (60Hz) LCD/Simultaneous mode: 1024x768@16bbp (60Hz)

PHYSICAL INTERFACES

Dual Ethernet:	2 x RJ45 Ethernet interfaces, IEEE 802.3c 100Base-Tx Fast Ethernet compatible.
COMS:	1 x RS232 and 1 x RS232/RS485.
USB:	2 x USB 1.0 ports.
PS/2:	Single interface for keyboard and PS/2 mouse. Twin interface cable included.
I/O Expansion:	RJ45 LocalBus interface for Brodersen I/O Expansion modules. See industrial I/O section.

INDUSTRIAL I/O

Expansion I/O:	Expansion I/O is possible via the Brodersen I/O LocalBus system to all Brodersen I/O Expansion modules. Supports up to 32 I/O exp. modules. Scantime I/O default 100ms. Scantime in device driver can be configured from 5-1000ms.
Integrated I/O:	See Ordering Codes
Digital Inputs:	Opto isolated input 10-30V DC.
Indicators:	LED for each digital input (red) indicating active input.

Relay outputs: 4 potential free SPST-N/O contacts.
   Output voltage: Max. 240V AC.
   Output current: Max. 1A AC (resistive).
   Isolation (coils-contacts):   2kV AC 50Hz 1 min (IEC255-5).
                                     4kV 1,2/50micro s. / impulse withstand (IEC255-5).
   Indicators: One LED for each output (yellow) indicating active output.

Analogue inputs (Process signals)
   Inputs: 4 multiplexed, isolated, bipolar analogue channels.
   Input configuration: Differential (+ / -).
   Input measuring ranges: 0 - 10V, 0 - 5V, -5 - +5V, -10 - +10V, 0 - 20mA, 4 - 20mA
                                     Each input is individually configurable within these input ranges.
   Resolution: 12 bit, 0-4095.
   Error detection: Dedicated bit for underflow/overflow detection.
   Input impedance: Voltage: > 0,5 mOhm.
   Current: 100 Ohm.

   Absolute maximum ratings:
   Input voltage: ±40V DC.
   Input current: ±30mA DC.

   Sampling interval: Min. 100 ms.

   Measuring accuracy:
   25°C: ±0.2%±20LSB(typically 0.05%±3LSB).
   -10°-55°C: ±0.3%±25LSB (typically 0.1% ± 4LSB).

   Linearity: Better than ± 12LSB.

   Temperature stability: Better than ± 50ppm/°C (typical).

   **Common mode input
   voltage:**   Max. ±80V DC
   Common mode rejection ratio: Min. 80dB (typical 72dB).
   Series mode rejection: Min. 40dB (50-120Hz)

   Isolation (input to input): 500V

Analogue outputs: 2 sourced analogue channels
   Output ranges: 0-10V, 0-20mA, 4-20mA, 0-5V
   Resolution: 12 bit, 0-4095.

POWER SUPPLY: See Ordering Codes
   Isolation: Power supply to electronics: 3750V

GENERAL
Indicators (LEDS):
   Power (green):   Indicating power ON.
   System (green):   Indicate system status.
   Run (green):   Indicate SoftPLC program status.
   I/O (green):   Indicate status of integrated and expansion I/O.
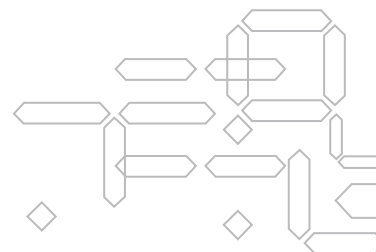   Com x (yellow):   Indicate Rx/Tx activity on the specific com port.

Ambient temperature: -10 - +60°C.
EMC: EN 50081-1/EN50082-1.
Protection: IP20.
Mounting: 35 mm DIN-rail, EN50022.
Housing: Black aluminium housing.

ORDERING CODES

UCN-26IO / 1 2 1 B 01 50. D1

Type
UCN   UCN

26I/O type and counts. Versions:
RTU32 basic without I/O   B
16 dig. in/4 relay out./
4 analog in./4 analog out.   26IO

CPU Motherboard type
300MHz x 86 CPU   1

RAM/Flash size
32MB RAM/32MB Flash   1
64MB RAM/64MB Flash   2

Operating System
WinCE Core version   1
WinCE Professional version   2

Branding
Brodersen   B

COMs options
1 x RS232 + 1 x RS232/RS485   01
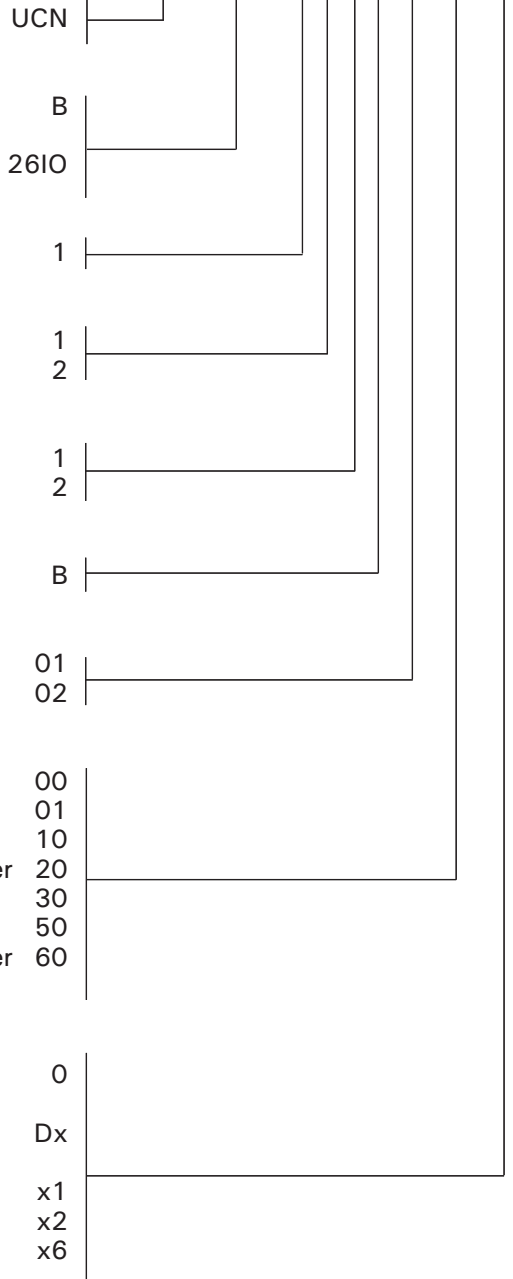5 x RS232 + 1 x RS232/RS485   02

Power supply option
5VDC incl. Ext. 230V Power supply   00
5VDC   01
115-230VAC   10
115-230VAC incl. 12V UPS Battery/charger   20
24-60VDC incl. 12VDC ext. supply   30
24-60VDC incl. 24VDC ext. supply   50
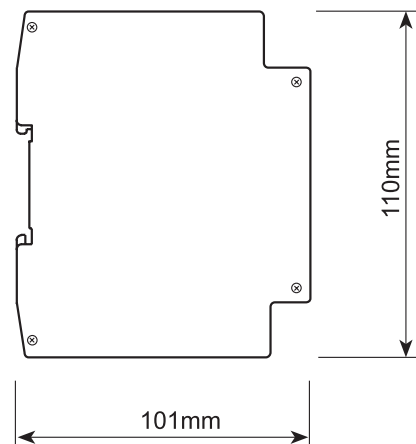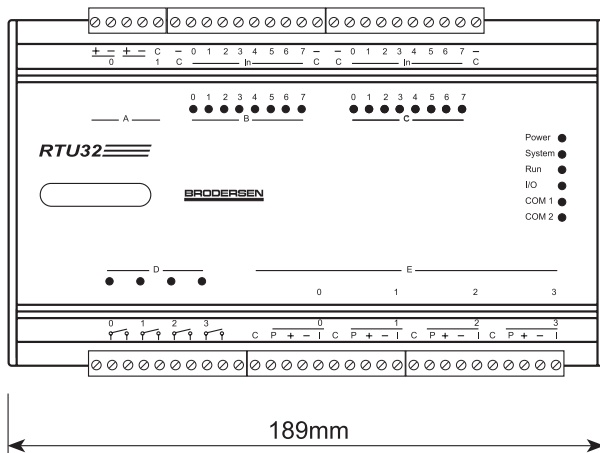115-230VAC incl. 24V UPS Battery/charger   60

Input options TBD
No IO type   0

Analogue input range adjustable   Dx

Analogue output range: 0-10VDC   x1
Analogue output range: 4-20mADC   x2
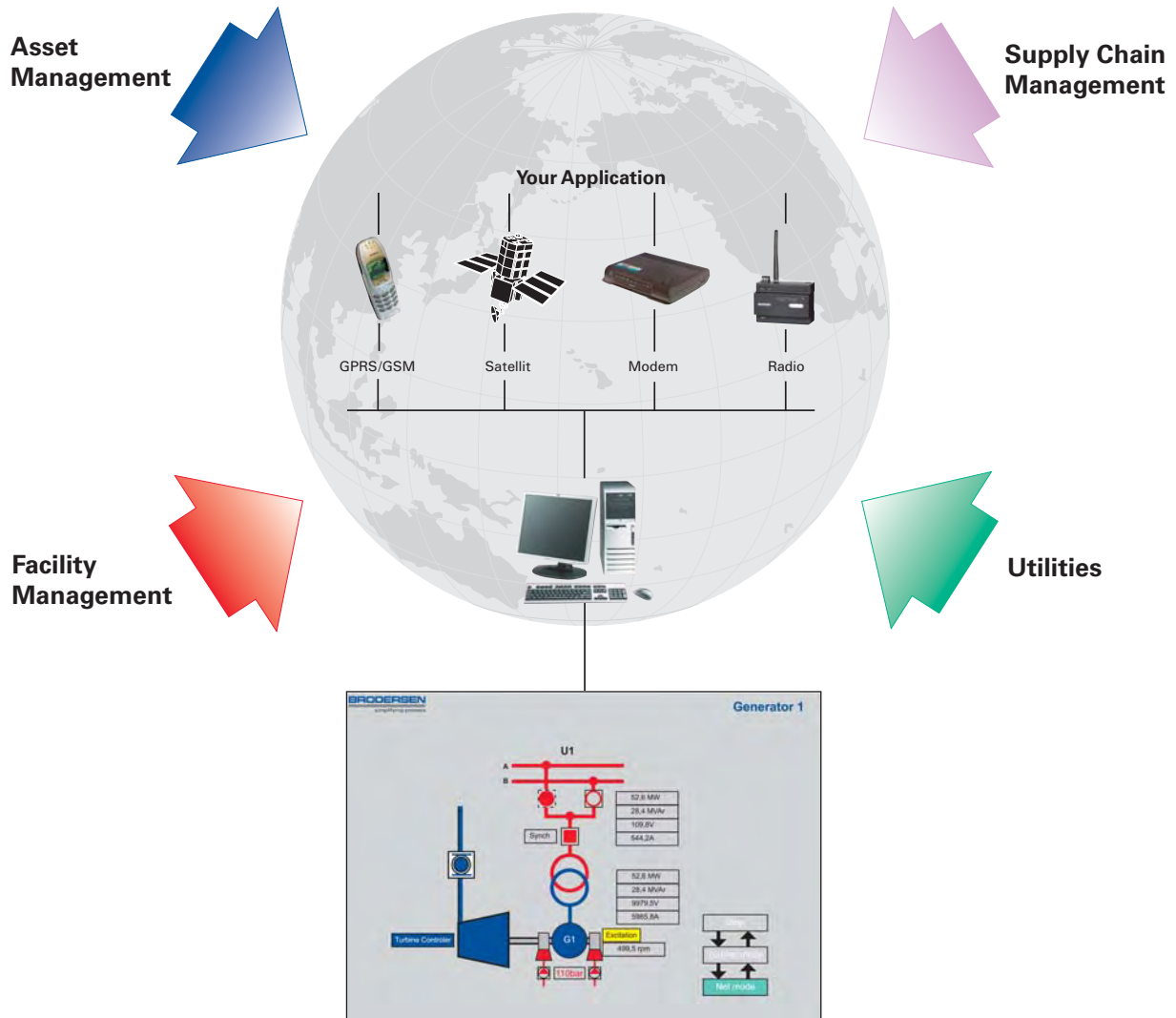Analogue output range: 0-20mADC   x6
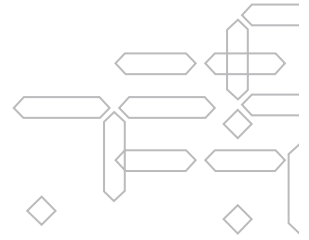
DIMENSIONS

BRODERSEN

simplifying process

Asset Management

Supply Chain Management

Your Application

GPRS/GSM   Satellit   Modem   Radio

Facility Management

Utilities

Generator 1

Brodersen Controls has for more than 30 years designed and produced industrial process components including remote outstations, data loggers and data communication systems for the process and automation industry.

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