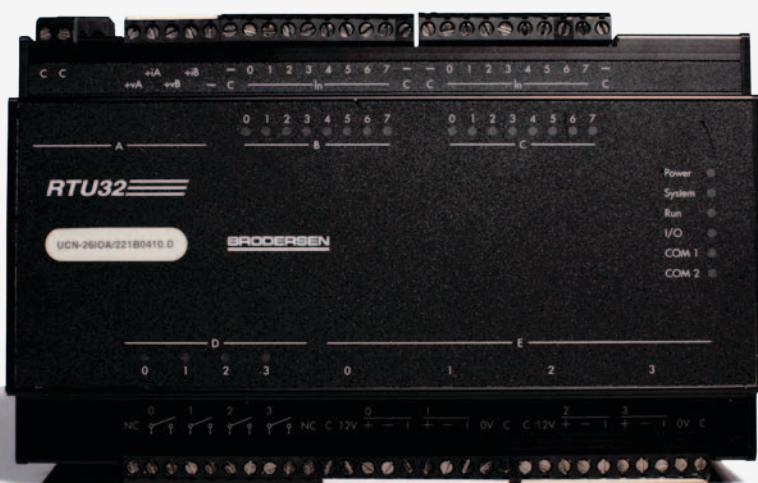




RTU32

A Universal Controller



BRODERSEN
simplifying systems

RTU32 RTU/PLC

The perfect choice for your Gateway application

RTU32 Universal Controller

Brodersens RTU32 offers the functionality and performance of a traditional RTU, PLC, Gateway and Data Concentrator in one. It supports the IEC61131-3 programming standard on Windows CE platform and offers real-time process communication with leading edge telemetry functionality.

Configuration Web Browser

Setting up the RTU32 is very easy. General settings, as well as network and SNMP settings, are configured using a standard Web Browser. The Ethernet TCP/IP interface offers remote access to any RTU32 connected to the network.

Powerful CPU and RTOS Platform

A powerful 32-bit processor with large memory capacity and real-time Windows CE Operating System ensures fast application processing, communication and data storage. Brodersen's RTU32 provides control capabilities that were previously only available in very large PLCs.

Time stamped event data

Our RTU32 provides flexible scan rates, event logging and time-tagged data. Time-tagged data and fast scan rates in the millisecond range allow sequence of event recording and archiving of data according to time of occurrence, rather than the time the host received the data.

Redundancy and event driven communication

Brodersens RTU32 in redundancy configuration is only a mouse click away - and is a standard feature in all versions. The Binding (or alternatively Dual Binding) Protocol and the two Ethernet ports of the RTU32 provide the ability to obtain fast and event based redundancy communication for applications that require high levels of system reliability. We take advantage of today's network technology by employing TCP/IP, UDP and event driven communication to optimize network bandwidth. This feature reduces network loading and increases data integrity for both centralized and distributed configurations.

IEC61131-3 Programming

The RTU32 is easy to configure and program but yet flexible enough to adapt to any application. It is programmed using the straton® Workbench, a full development diagnostic tool with comprehensive project tracking and simulation facilities. It supports all five IEC61131-3 languages (SFC, FBD, LD, ST & IL). The RTU32s can be configured remotely or locally, on-line or off-line, and from RTU to RTU, or PC to RTU.

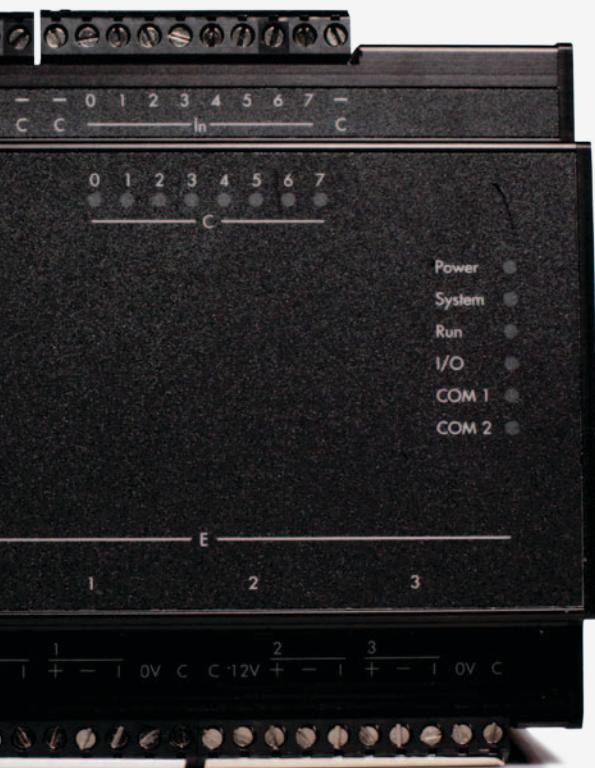


Data Logging

In the PLC application you can freely and according to your own requirements design your data logger. All data are stored in open text files. File handling can be done with PLC functions or remotely via FTP.

Embedded Web Server/HMI

The embedded Web Server/HMI provided on the RTU32 is not only used to configure the RTU but can also be used to display its current state using standard graphical symbols provided by the straton® Workbench. These include LED, slider, meter, bar graph and pie charts just to name a few. Once these symbols are linked to the appropriate variables and the web pages are built using the straton Workbench, the dynamic web pages can be viewed via a simple WebHMI browser.



RTU32 RTU/PLC

Bridging the gap between PLC, IPC & RTU

Compatible with many devices and networks

Brodersens RTU32 communicates using a wide range of protocols that provide connection to local devices such as PLCs, flow computers and other instrumentation devices. Connection to communication networks is also provided, including support of:

- IEC61850 Server, inclusive GOOSE
- IEC61850 Client
- IEC60870-5-101 Master & Slave
- IEC60870-5-103 Master
- IEC60870-5-104 Client & Server
- IEC61400-25
- WITS DNP3 Slave
- DNP3 Client & Server
- DNP3 Master & Slave
- Modbus Full Suite
- PowerLink
- ProfiBus DP Master
- ProfiNet Client
- COMLI Master
- SNMP Agent

.. and the number of supported drivers continues to grow. In addition serial drivers support Modem Dial Function and remote configuration.

IEC60870-5-101/103/104 Standard Utility Protocol with Configuration Tool

We have developed the IEC60870-5-101/104 standardized Configuration Tool which is widely used within the electricity and water/wastewater industries. Brodersen has enhanced this by also adapting the NUC (Norwegian User Convention) specifications. By using this tool, the configuration of the RTU32 is greatly simplified, thus saving considerable configuration and programming hours.

SNMP Protocol opens the way into IT Network administration and reduces downtime

SNMP (Simple Network Management Protocol) is the common language of network monitoring and used for telecommunications, facility and asset monitoring applications. The protocol allows IT Network Administration staff to easily monitor the RTU32s in big networks. An even more powerful feature of the RTU32 is retrieval of events and measurements connected via I/Os and by sending/receiving SNMP network Traps. This is a feature often used by network facility managers.

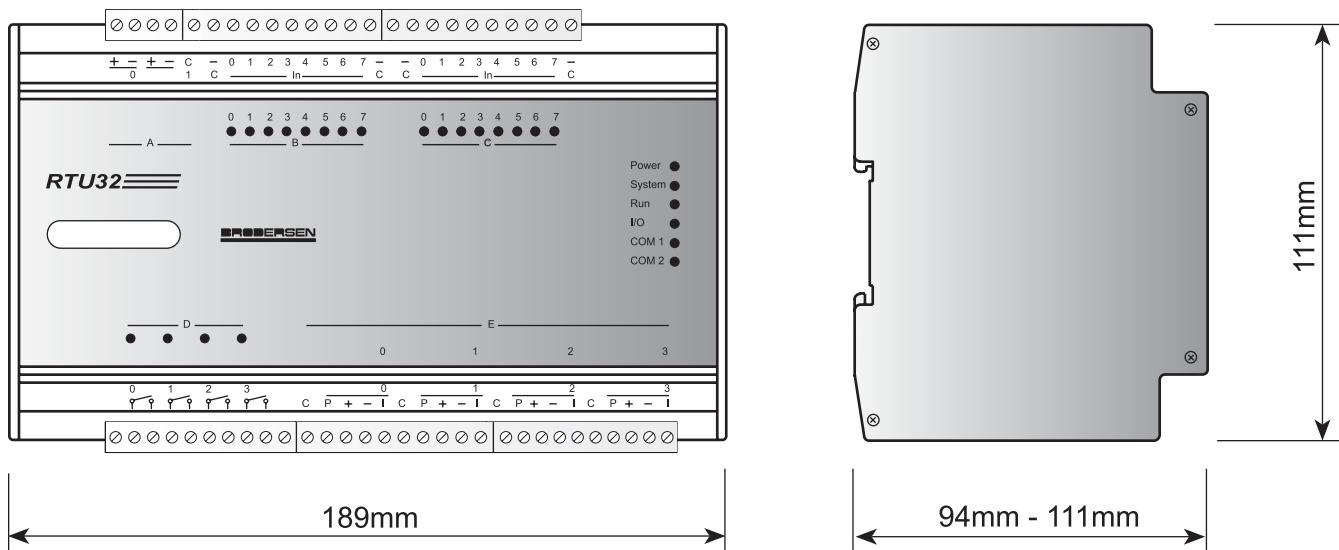
Integrated I/O and UPS

The RTU32 features integrated I/O: 16DI, 4RO, 4AI, 2AO. Analogue I/Os have 14bit resolution and the range is software configurable. The RTU32 supports up to 32 I/O expansion modules and over 1000 physical I/Os. Power supply options includes 110-230VAC/DC with optional 12V UPS battery/charger, as well as 24-48VDC with 12VDC external supply.

RTU32

Technical Data

CPU	AMD Geode 500MHz x86 CPU
RAM/Flash size	128MB RAM (up to 1GB RAM) 128MB Flash CompactFlash Type I/II socket supports up to 1GB
Operating System	Microsoft Windows CE 6.0
COM options	1 x RS232 + 1 x RS232/RS485 5 x RS232 + 1 x RS232/RS485 8 x RS232/RS485
Ethernet	2 x RJ45 10/100Mbit Ethernet interfaces Optional: Up to 2 USB 10/100 MBit Ethernet interface
USB	2 x USB 2.0 ports
PS/2	Single interface for keyboard and PS/2 mouse
VGA	1600 x 1200@32 bpp (85Hz)
Power supply options	110-230VAC/DC - optional with 12V UPS battery/charger 24-48VDC with 12VDC external supply
Ambient temperature	-30°C to +70°C
Mounting	35mm DIN-rail in black aluminum housing
Integrated IO	16DI, 4RO, 4AI, 2AO
Digital Inputs	Opto isolated input 10-30VDC, LED for each input, works also as 100Hz counters Other input ranges available on request
Relay Outputs	4 potential free SPST-N/O contacts, LED for each output
Analogue Inputs	4 x 14-bit multiplexed, isolated, bipolar analogue channels, software configurable Ranges: 0-10V, 0-5V, -5 to +5V, -10 to +10V, 0-20mA, 4-20mA
Analogue Outputs	2 x 14-bit sourced analogue channels, software configurable Ranges: 0-10V, 0-5V, -5 to +5V, -10 to +10V, 0-20mA, 4-20mA
I/O Expansion	RJ45 LocalBus interface for Brodersen I/O Expansion modules. Supports up to 32 I/O expansion modules and over 1000 physical I/Os



Powerful software tools and automated engineering reduce programming



straton
do it your way

straton® Workbench

The straton® Workbench is the developing environment for the RTU32 and it supports several languages: English, German, French, Italian, Spanish and Korean. With an intuitive graphical user interface and the usage of drag and drop technology the user becomes easy familiar with the different tools used for application development.

IEC 61131-3 languages

The five programming languages of the IEC61131-3 standard are supported: Sequential Function Chart (SFC), Function Block Diagram (FBD), Ladder Diagram (LD), Structured Text (ST) and Instruction List (IL). The editor integrates a very powerful tool which converts a straton application program between ST, IL, LD and FDB languages.

straton® online tools

Powerful tools are provided for online debugging and simulation including:

- Built-in simulation
- Cycle by cycle mode
- Individual start/stop program
- Debug instances of function blocks
- Breakpoints
- Call stack
- Recipes
- Soft oscilloscope
- Spy list that allows the user to watch the application variables during run time.

Data types supported

Boolean, Integer (8bit, 16bit, 32bit, 64bit), Real (32bit, 64bit), Timer, String, Array (up to 3 dimensions) and Data structures. All variables is assigned with your name and type. Define more than 65000 variables. Freely assign variable type - no limits in number of e.g. timer etc.

Database

- Variable editing in several formats (IEC, XML and CSV)
- Instant access to variable lists
- Open to any third party tools or applications

Function & Function Block library

The straton® Workbench provides a wide range of standard functions and Function Blocks. And you can design and implement your own UDFB (User Define Function Blocks) in any IEC61131 language or C.

Communication function blocks for serial and TCP/IP are available for creating your own protocol directly in IEC61131.

Powerful Online changes

- Freely add variables and function block instances in runtime
- Online changes add from one cycle to another
- Change mapping of individual I/O channels
- Lock and force any I/O or internal variable

Fieldbus configuration tool

Configure your communication driver by a few mouse clicks. Configuration or importing a communication driver configuration is very easy.

Profile editor tool

Get full overview of your connectivity, complete driver configuration and driver variables with parameters. Supports auto addressing and parameter numbering which saves time.

Graphical HMI editor

Use the HMI editor for creating simple HMI application in the RTU32 WebServer. It is fully dynamically linked to the PLC runtime executed in the RTU32.

Distributed applications / Fast event based Ethernet communication

It is easy to link several straton® runtimes with the Binding protocol (fast event based TCP/IP), which allows different applications on different target systems to exchange real time data. It is a powerful function for distributed communication of data accross the network - any input can be linked to any output. Include status and time stamp information.

Global management of several nodes/RTUs as well as updating all projects at once is easy with the Binding Editor.

Other features

- Tool for creating complete HTML application documentation
- HMI Monitoring Viewer/Browser
- Comparison of projects
- Program scheduler for runtime cycle time optimizing
- Cross reference management

The flexibility of Brodersen RTUs means they can be used in a wide range of applications

Electricity Industry

The acceptance and use of industry standard protocols such as IEC61850, IEC60870 and DNP3 makes the Brodersen RTU32 the obvious choice for applications in connection with sub-station automation, power plant control and customer metering. The RTU32 gateway functionality allows connection to all types of IEDs like protection relays, switchgear etc.

Brodersen clients in the Electricity industry include:

- Areva
- ABB
- Cegelec
- Alstom
- ...

Oil & Gas Industry

In the Oil & Gas industry our RTUs are used in various pipeline management and monitoring systems. The RTUs are used in all kind of distributed networks based on medias such as satellite communication, fiber-optics, Radio modems and GSM. Our radio modem based monitoring application of a gas pipeline in Tunisia spans over 2000 km and the 180 RTUs are operating in many different climates and temperatures.

Brodersen clients in the Oil & Gas industry include:

- Cegelec
- ABB
- STEG Gaz, Tunisia
- ...

Water and Wastewater Industry

Applications for Brodersen RTU32s in the water industry include monitoring and control of equipment at pump stations, reservoirs, treatment plants, pipelines, valve stations, dosing points and water quality sites.

Brodersen clients in the Water industry include:

- Logica, UK
- Anglian Water, UK
- Yorkshire Water, UK
- Latakia Water, Syria
- Ministry of Works, Bahrain
- National Water Supply and Drainage Board, Sri Lanka
- ...

Transportation Industry

Brodersen RTUs are used in a variety of monitoring and control solutions in the transportation industry. Air transport applications include monitoring of aircraft landing systems, which require a system solution with a high level of failsafe and redundant features.

Brodersen clients in the Transportation industry include:

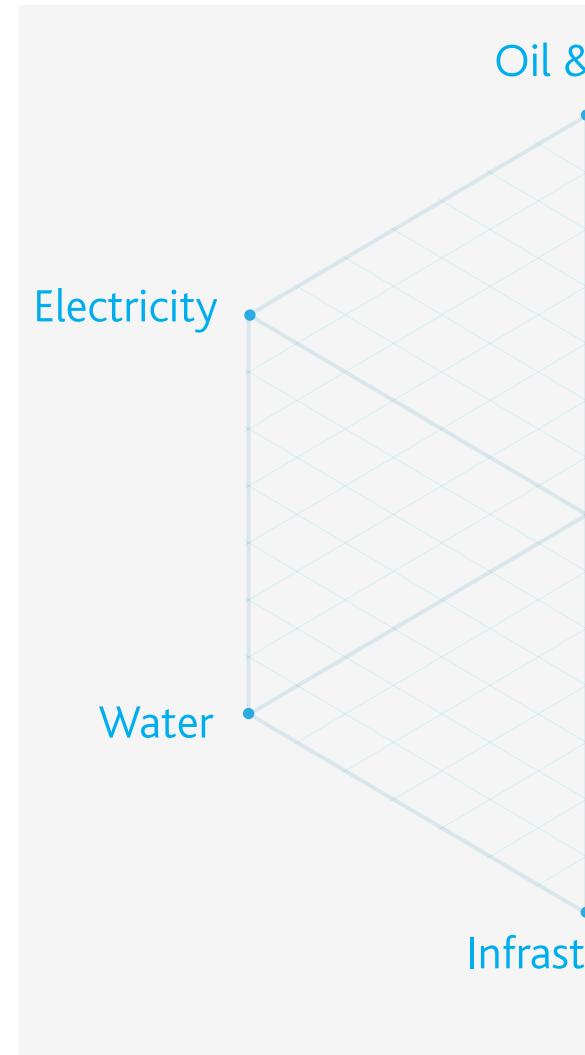
- Copenhagen Airport, Denmark
- Frankfurt Airport, Germany
- Athens Municipal, Greece
- ...

Telecommunications Industry

Brodersen offers a total solution for telecommunication companies with a demand for environmental alarm monitoring. The turnkey solution incorporates hardware and software components and includes maintenance and system support. The system is located at transmission sites and monitors, for example, temperature, humidity, door open/close, fire alarms and access control.

Brodersen clients in the Telecommunication industry include:

- Telia, Sweden
- Telenor, Norway
- ...



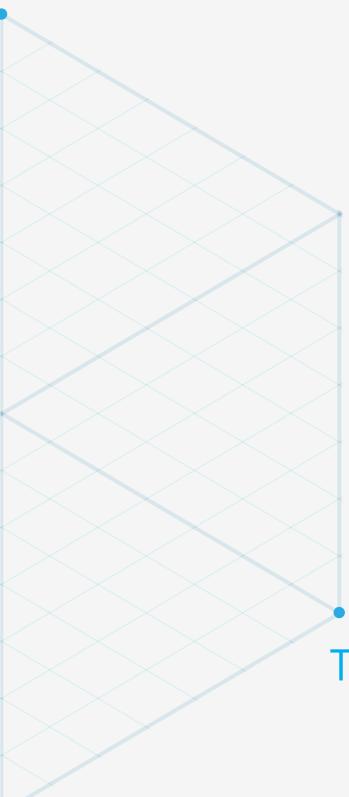
Brodersen has many years' experience in adding value to customer solutions

Bringing added value to our customers

Through a flexible organisation and high level of application knowledge in the market Brodersen operate, we are a valued supplier/partner to our customers. By means of product adaptations and modifications we have extended the range of applications our system integrator clients cover. This is achieved by providing RTUs and PLCs supporting in total the necessary functions and features required in their specific field of operation.

Brodersens support and availability of experienced application specialist are just one more of the added values you gain by working with us.

Gas



Brodersen segment

Our products

Our product line includes a range of versatile RTUs/PLCs, complementary software products and communication modules for the utility, process and automation industry.

Our products offer solutions for communicating with remote processes via Ethernet, telephone, radio, cellular telephone, satellite and the Internet. They are intended for remote installation in harsh, unattended environments and can withstand extremes of temperature and humidity. Our products have been selected in the following industries.

- Electric power transmission and distribution
- Renewable Energy applications
- Water distribution and Wastewater
- Oil and Gas
- Infrastructure (airport, railways, traffic control)
- Telecom (Network management)
- Asset and facility management

Our customers in these fields comprise System Integrators, engineering companies, OEMs and Utilities both public and private.



About Brodersen

Brodersen designs and manufactures all-in-one automation controllers and communication devices with unsurpassed platform adaptability. The company is based on four decades of industrial automation development. We serve partners and customers from both the public and private sectors, including system integrators, engineering companies, OEMs and application end users.

The very robust design of our products is specifically developed for outstations in harsh environments. Our track record speaks for itself. The quality of our products is reflected in a distinct durability in the field.

Our experience is obtained through in-depth collaboration and support in solution design for some of the most demanding and successful companies in the world.

Brodersen has deep roots in Scandinavia, the region of which is known for dynamic utility distribution, complex infrastructure and high expectations to quality standards.

Owing to product capabilities, flexibility and the niche application knowhow of our specialists, Brodersen is able to offer customers more simplified systems. In this way we reduce total project lifecycle costs to the benefit of both integrators and end users.

How to reach us:

Denmark:

Brodersen A/S
Islevdalvej 187
DK-2610 Roedovre
Tel: +45 45 35 26 27
Fax: +45 45 35 26 29

Asia Pacific:

Brodersen Asia Pacific
832 High Street
Kew East VIC 3102, Australia
Tel: +61 3 9249 9505
Fax: +61 3 9249 9600

E-mail: sales@brodersen.com
Web: www.brodersen.com

Or through one of our distributors or valued partners. You also find our comprehensive list of references online

North America:

Brodersen N. A. Inc.
Five Concourse Parkway, Suite 1000
Atlanta, Georgia 30328, USA
Tel: +1 (404) 965 3631

Korea:

502-#1303, Gong-Duk Raemian
Gong-Duk Dong
Mapo-Gu, Seoul, Korea
Tel: +82-2-6383-5910

United Kingdom:

35 Cathering Place
London
SW1E 6DY
Tel: +44 (0) 207 592 8963



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