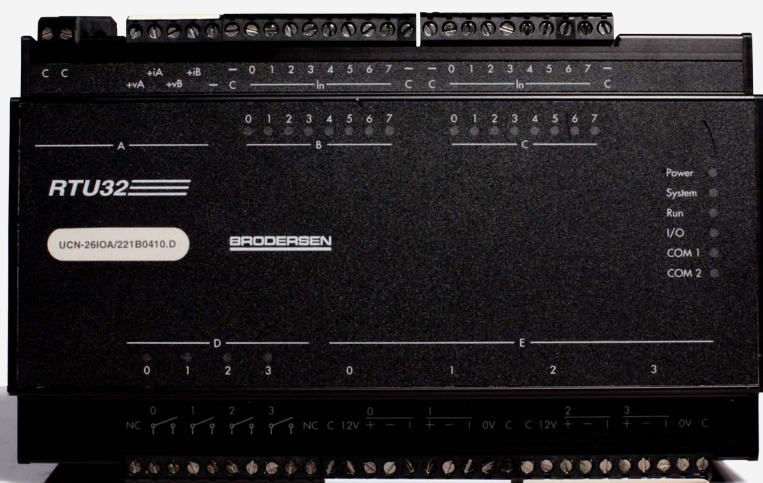# RTU32

A Universal Controller

BRODERSEN
simplifying systems

RTU32 RTU/PLC
The perfect choice for your Gateway application

RTU32 Universal Controller

The Brodersen RTU32 RTU and PowerPLC offers the functionality and performance of a traditional RTU, PLC, IPC and Data Concentrator in one. It supports IEC61131-3 programming on WinCE 5.0 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 via the Ethernet network interface either directly or remotely 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 WinCE 5.0 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 RTUs provide 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

RTU32 PLC in redundancy configuration is only a mouse click away - and is standatd feature is 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 optimise network bandwidth. This feature reduces network loading and increases data integrity for both centralised and distributed configurations.

IEC61131-3 Programming via STRATON

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, CFC, LD, IL). The RTUs can be configured remotely or locally, on-line or off-line, and from RTU to RTU, or PC to RTU.
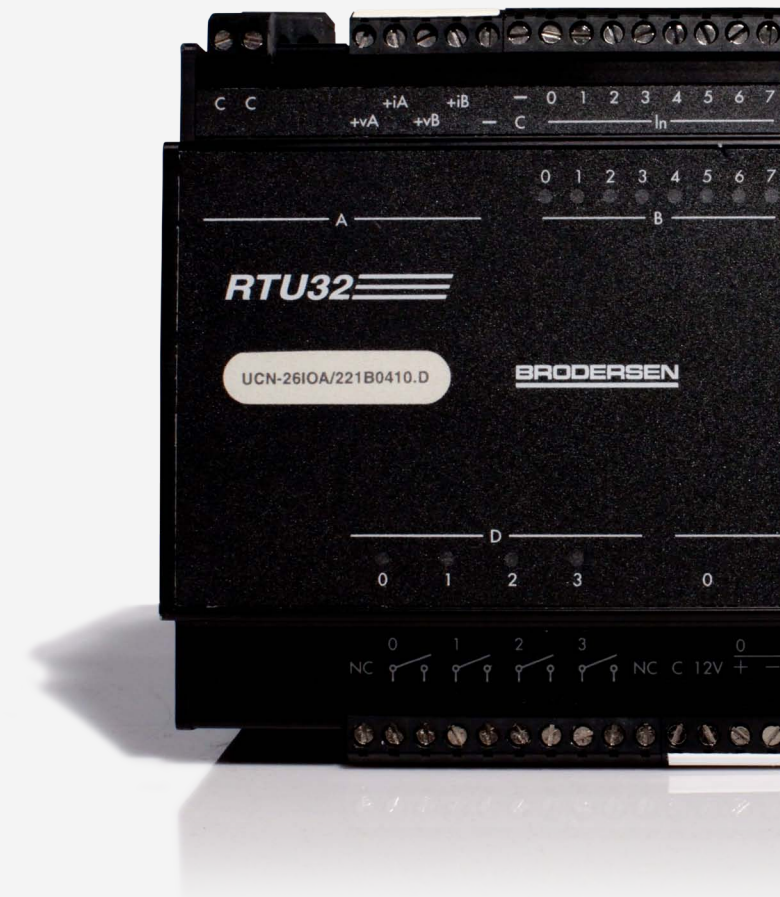
Data Logging

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 RTU 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 via the STRATON Workbench, the web pages can be dynamically viewed via a simple WebHMI browser.
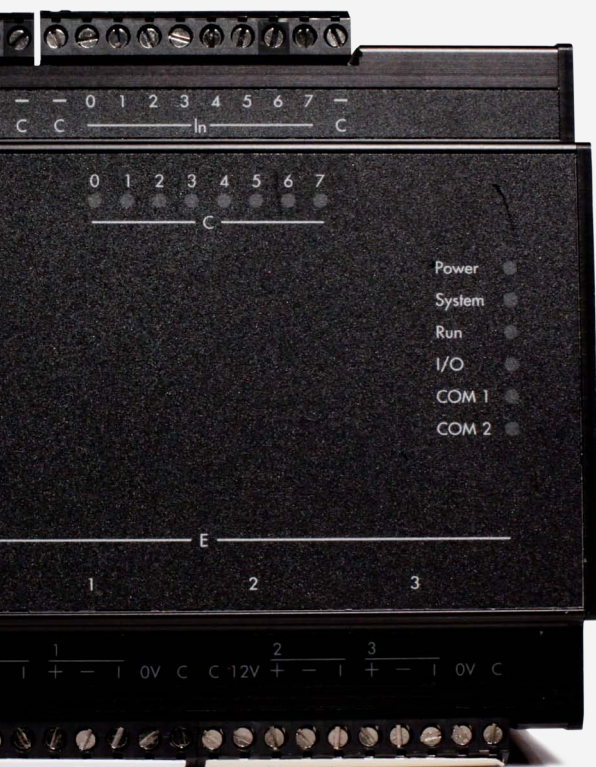
RTU32 RTU/PLC
Bridging the gap between PLC, IPC & RTU

Compatible with many devices and networks

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

- EN/IEC60870-5-101/103/104 Master/Slave/
  Client/Server
- IEC61850 Client & Server incl. GOOSE
- DNP3 Serial/Ethernet
- Full Modbus Suite
- SNMP
- ProfiBus DP Master
- ProfiNet Client
- PowerLink

.. and the supported number of supported drivers are growing all the time. In addition serial drivers support Modem Dial Function and remote configuration.

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

We have developed the EN/IEC60870-5-101/104 standardised 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 a considerable number of 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 RTUs in big networks. An even more powerful feature of the protocol is to use the RTU to monitor the network by sending/receiving SNMP network alarms. 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 IOs are 14bit with 0-16383 resolution. Supports up to 32 I/O expansion modules and over 1000 physical I/Os. Power supply options include 115-230VAC with optional 12V UPS battery/charger, as well as 24-48VDC with 12VDC external supply.

RTU32
Technical Data

CPU	500MHz x86CPU
RAM/Flash size	128MB RAM (up to 512MB RAM) 128MB Flash CompactFlash Type I/II socket supports up to 1GB
Operating System	WinCE 5.0
COM options	1 x RS232 + 1 x RS232/RS485 5 x RS232 + 1 x RS232/RS485
Dual Ethernet	2 x RJ45 10/100Mbit Ethernet interfaces
USB	2 x USB ports
PS/2	Single interface for keyboard and PS/2 mouse
VGA	1280 x 1024@8bbp (60Hz)
Power supply options	115-230VAC - optional with 12V UPS battery/charger 24-48VDC with 12VDC external supply
Ambient temperature	-10 to +60°C
Mounting	35mm DIN-rail in black aluminium housing
Integrated IO	16DI, 4RO, 4AI, 2AO
Digital Inputs	Opto isolated input 10-30VDC, LED for each DI, can function as 100Hz counter intputs
Relay Outputs	4 potential free SPST-N/O contacts, LED for each output
Analogue Inputs	4 multiplexed, isolated, bipolar analogue channels 0-10V, 0-5V, -5 to +5V, -10 to +10V, 0-20mA, 4-20mA individually configurable in software 14bit, 0-16383 resolution
Analogue Outputs	2 sourced analogue channels 0-10V, 0-5V, -5 to +5V, -10 to +10V, 0-20mA, 4-20mA individually configurable in software 14bit, 0-16383 resolution
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
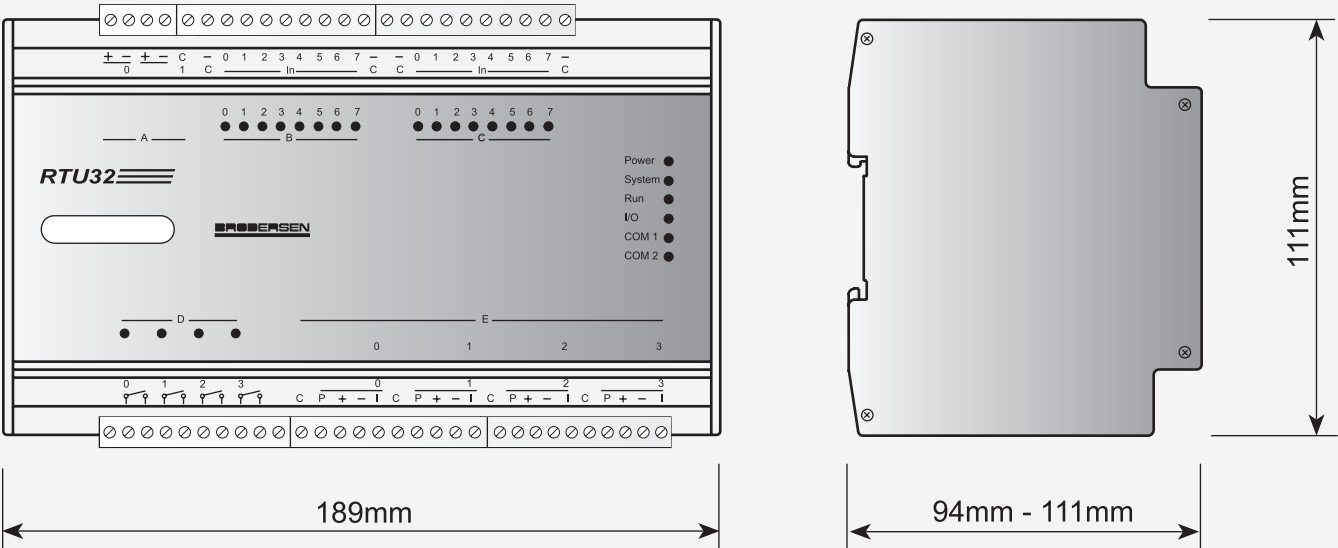
Powerful software tools and automated engineering reduce programming

straton
do it your way

STRATON WorkBench

STRATON WorkBench is the developing environment which supports several language: English, German, French, Italian, Spanish and Korean. With a single window for user friendliness and simple toolbar which allows easy adaption for the user. The WorkBench uses a drag'n drop technology and has powerful online help.

IEC 61131-3 languages

The 5 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 support a very powerful free conversion between ST, FBD, LD and IL.

STRATON online tools

Powerful tools are provided for online debugging and simulation including;
- Built-in simulation; a runtime is integrated for simulation
- Cycle by cycle mode
- Individual start/stop
- Debug instances af function blocks
- Call stack
- Recepies
- Soft oscilloscope
- Watch window that allows the user to spy on the application variables during runtime.

Data types supported

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

Database

- Variable editing in several formats
- Instant access to variable lists
- Open to any third party tools or applications

Function & Function Block library

STRATON WorkBench provide a wide range of standard functions and Function Blocks. And you can design and implement your own UDFB (User Defined 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 variable and function block instances in runtime
- Online changes add from one cycle to another
- Change mapping og individual I/O channals
- Lock and force any I/O or internal variable

Fieldbus configuration tool

Configure your communication driver by a few simple mouse clicks. Configuration of or import a communication driver is easy.

Profile editor tool

Get full overview of your connectivity, complete driver configuration and driver variables with parameters. Support several auto addressing and parameter numbering features that saves time.

Graphical HMI editor

Use the HMI editor for creating simple HMI applications in the RTU32 WebServer. Is fully dynamically linked to the PLC runtime executed in 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. 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 RTU the obvious choice for applications in connection with sub-station automation, power plant control and customer metering. The connectivity of the RTU32 allows the connection of the RTUs to intelligent reclosers and other field devices.

Brodersen clients in the Electricity industry include:
• Areva
• ABB
• Cegelec
• Alstom

Oil & Gas Industry

Our pipeline management system includes distributed network control and metering as well as leakage detection with satellite communication. Our satellite based monitoring and alarm system of a gas pipeline in Iran spans over 1000km and the 115 RTUs are operating in many different climates and temperatures.

Brodersen clients in the Oil & Gas industry include:
• Cegelec
• ABB
• STEG, Tunesia

Water and Wastewater Industry

Applications for Brodersen RTUs in the water industry include monitoring and control of equipment at pump stations, reservoirs, treatment plants, pipelines, meters, 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

Oil &

Electricity

Water

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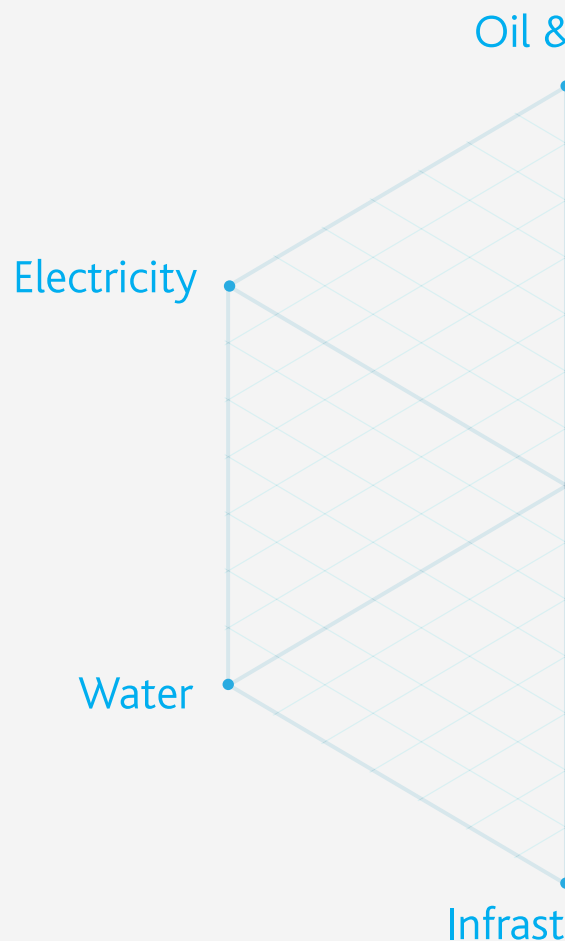
Brodersen has many years' experience in adding value to customer solutions

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 nessesary functions and features required in their specific field of operation.

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

Gas

Brodersen
segment

Telecom

ructure

Our products

Our product line includes a range of versatile RTUs/PLCs, complemenatry software products and communication modules for the utillty, 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 Waste water
- 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 Systems

Brodersen design and manufacture 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; comprising system integrators, engineering companies, OEMs and application end users – both public and private.

 The 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 their durability in the field.

Our experience is obtained through in-depth collaboration and support in solution design to some of the most demanding and successful companies in the world. Our roots are Scandinavian. A region known for the dynamic utility distribution and complex infrastructure with high expectations to quality standards.

Combining product performance, the versatility of our product series applied with niche application knowhow; **Brodersen contribute to more simplified systems that decrease overall project lifecycle cost, to the benefit of both integrators and end users.**

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

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