

**PRELIMINARY VERSION**

**INTRODUCTION**

The RTU8E unit is a compact outstation with data logging facilities designed for use in the industrial environment.

The unit is designed in a very compact 265 mm wide module for DIN-rail mounting (35 mm symmetrical ). Dimensions conform to DIN 43880 (used for circuit breakers) thus insuring easy installation in standard installation panels and boxes widely available in the electrical industry.

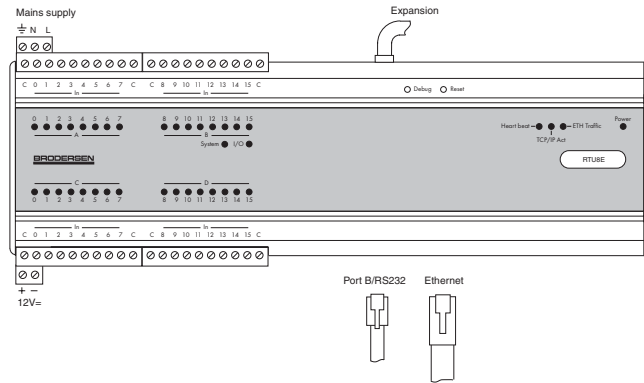
The RTU8E can be delivered with a built-in mains power supply or a 24-60VDC power supply

The RTU8E has a number of integral inputs and outputs and further I/O's can be added via an expansion bus. The RTU8E is compatible with the Brodersen Series 2000/4000 product range and thus a wide variety of expansion modules can be easily connected to the unit by standard cables.

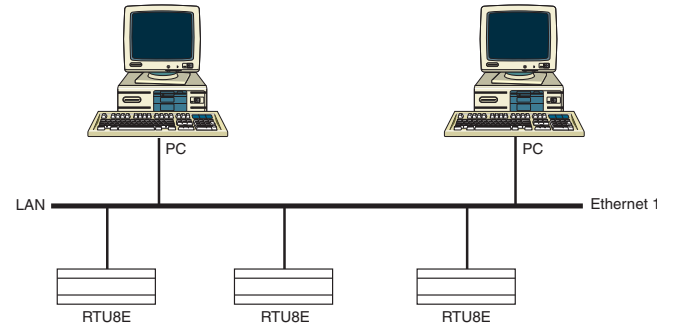
The unit can be programmed to perform simple control sequences using an IEC 1131-3 (PLC) programming language. The RTU8E includes facilities for local data logging, the process values to be logged are defined as part of the IEC 1131-3 application program. Programming, setup and data transfer is achieved by using the IOTOOL32.

The Ethernet/ModbusRTU protocol is used for data transfer from the RTU8E to a PC via Ethernet TCP/IP networks. Optional the RTU8E also support TCP/IP serial tunnelled Modbus RTU.

**RTU8E**



**Typical RTU8E application**



**VERSIONS/ORDERING CODES**

<b>Type</b>	UCR	UCR-32DI /RE 4 10. D1
<b>Input/output</b>	32 digital input (10-30V DC)	32DI
	16 digital input/16 digital output	16DIO
	16 digital input/8 digital output/	28IOB
	4 analogue input	28IOC
	16 digital input/8 digital output/	
	4 analogue/Pt-100 input	
<b>Options/module</b>	RTU Ethernet module 10Mbit	/RE
	RTU Ethernet module 100Mbit	/NRE
<b>Add. Serial Protocol</b>	None (Modbus RTU)	Blank
	Transparent protocol	4
<b>Power supply</b>	Built-in mains PS 110-240V	10
	Built-in PS 24-48VDC	30
	Built-in PS 24-60VDC	50
<b>Digital Input range</b>	12-24VDC	D1
	24-48VDC	D2
<b>Analogue input (28IO only)</b>		D

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### TECHNICAL DESCRIPTION

#### Input/output

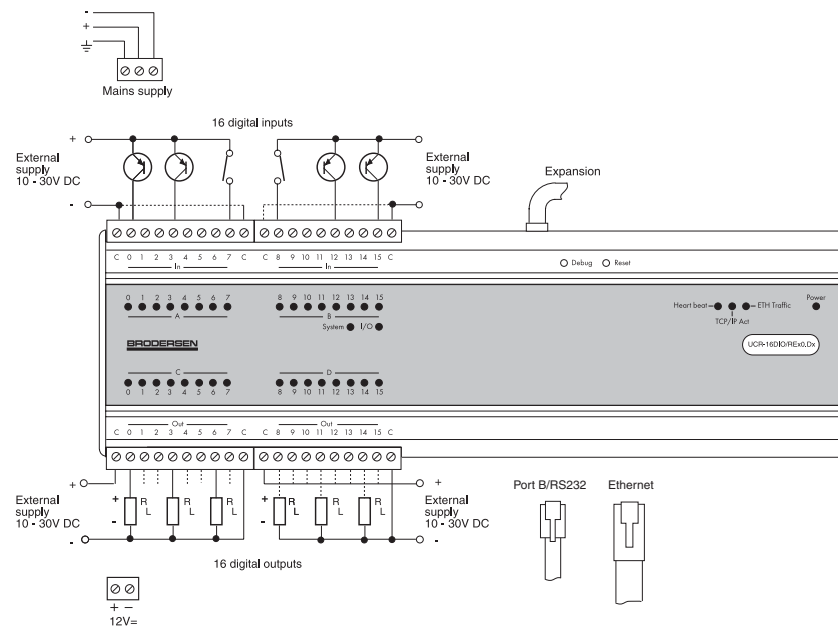
The RTU8E basic I/O fit can include to 32 input/output terminals. The following options are available:

Version	UCR-16DIO	32DI	28IOB	28IOC
Digital inputs (10-30V DC)	16	32	16	16
Digital outputs (PNP o. c.)	16	0	8	8
Analogue input (Process signals)	0	0	4	0
Analogue input (Process + Pt100 signals)	0	0	0	4

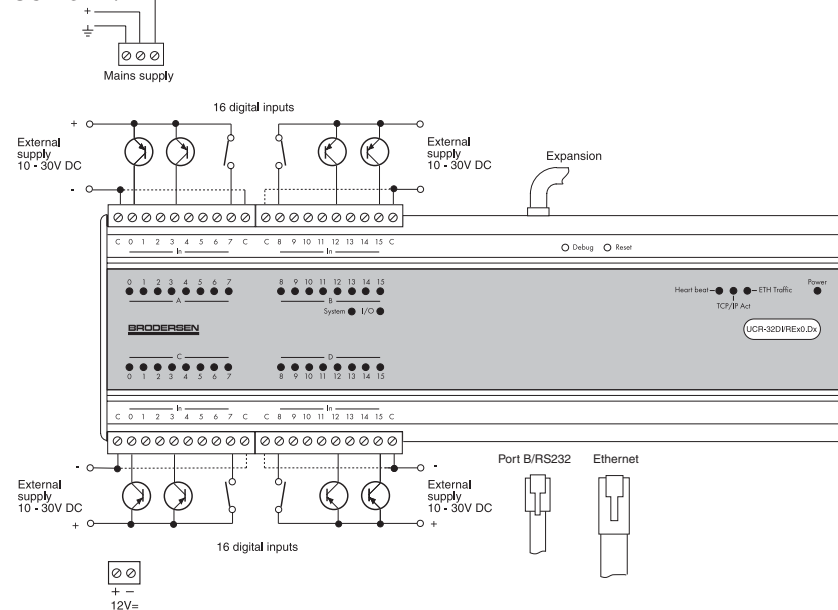
All digital I/O's are equipped with opto-couplers.

#### Wiring diagram

##### UCR-16DIO/RE



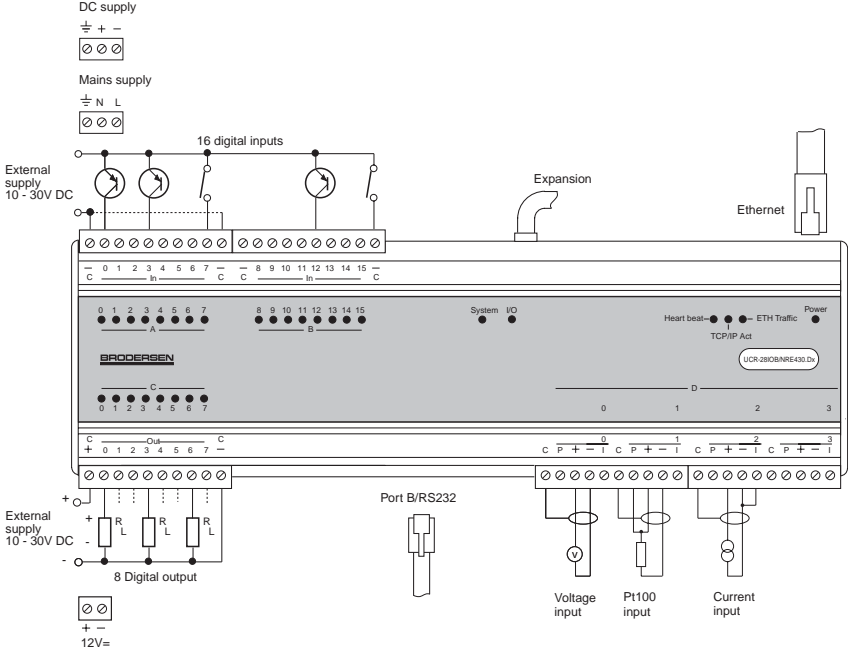
##### UCR-32DI/RE



**Compact outstation with data logging and local control  
RTU8E**

**PRELIMINARY VERSION**

UCR-28IOX/NRE



**PRELIMINARY VERSION**

**RTU8E in general**

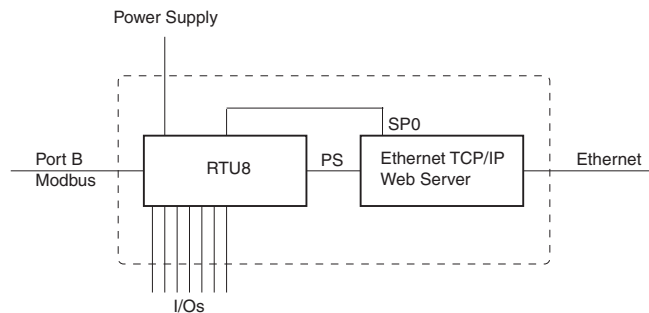
The RTU8E is a RTU8 with a built in Ethernet gateway.

The Ethernet RTU is a combined module with RTU8 functionality and Ethernet interface. Basic programming of the RTU is exactly the same as on a standard RTU8. All RTU application programming and configuration is done using IOTOOL32Pro on a PC connected the Ethernet interface. In other words this interface offers all the functionality as the primary port on an RTU8. The configuration is limited to handle NullModem features – Modem features are neither supported nor relevant in this module.

Ethernet connectivity options offer standard ModbusTCP communication protocol and serial tunnelling options for passing the ModbusRTU protocol data through TCP/IP networks. The conversion is basically that the Brodersen ModbusRTU data frames are encapsulated in IP packets and distributed like any other TCP/IP protocol data in network environments. Communication from Master to the Ethernet RTUs is done with IOTOOL32Pro driver software. It has a specific Modbus on TCP/IP driver working via the Windows Winsock interface. Each IP node will represent one Net in the IOExplorer. The Ethernet speed is fixed to 10Mbit or 100Mbit.

Configuration of the TCP/IP network settings is easily done via the built-in WebServer. All network-related settings are done with a normal browser. To run the Ethernet RTU, you will only need to setup the specific IP address applicable for your network for each RTU. The rest is configured from the manufacture – but as you will see the network part has a lot of additional options.

**Block diagram**



**IMPORTANT**

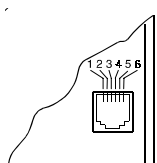
Before you start working with the RTU8E Ethernet RTU, it is necessary to have basic knowledge of TCP/IP and Ethernet networking. If not, you will have difficulties dealing with technical aspects and events, you will meet while working with this industrial networking module. We recommend that you get a basic training course in TCP/IP and IT networking.

**Network interface**

The network interface is Ethernet via a RJ45 connector for 10BASE-T/10/100BASE-T

**2nd serial interface**

The serial RS232 port is based on a 6 pole RJ45 connector, and therefore not full blown. Only one input, and one output handshake signals are provided. The data signals are connected to the additional UART on the Dallas 80C320 micro controller.



**The RS232 port provide the following signals:**

Pin 1	SG	Signal Ground	Electronic GND
Pin 2	RTS	Request To Send	Output
Pin 3	RX	Receive data	Input
Pin 4	TX	Transmit data	Output
Pin 5	CTS	Data Carrier Detect	Input
Pin 6		Shield	Module housing

The driver will use RX, TX, CTS and RTS ( and GND ) signals to communicate. Handshake is setup in configuration table.

**Gateway driver general**

The RTU8 gateway driver interface can be used for simple protocols that can be implemented in a B-CONW program. The serial driver is a simple general purpose driver that can handle exchange of commands, requests and responses. The driver can be configured through a number of parameter settings at the physical layer- and data link layer level. The application specific protocol is to be programmed in B-CONW.

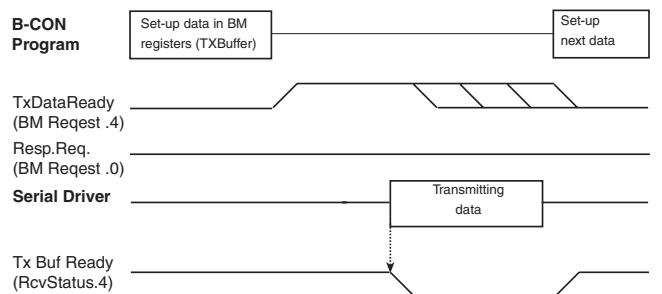
**Serial driver – BCONW interface**

The BM registers used for the serial gateway driver are fixed.

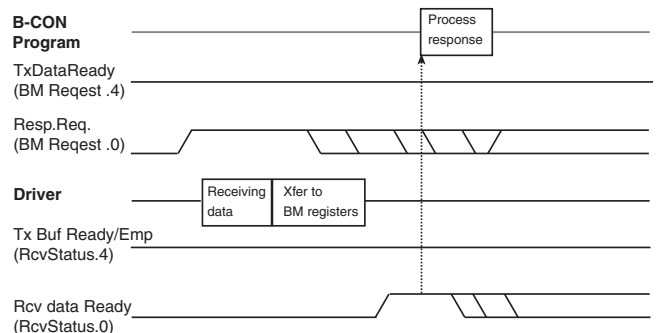
All input data from the serial gateway driver is handled in BM600 to BM799. BM600 are used for receive status flags as data ready, errors, buffer overrun etc., and BM601 defining the number of received data bytes. Max. receive data buffer is 126 bytes. BM602 to BM7xx will contain the received data bytes.

Request/data output from BCONW to the serial driver is located in BM800 to BM999. BM800 and BM801 are used for defining response/recv requests, data transmit ready and also defining the number of bytes of data to transmit from the transmit buffer. Again the max. transmit data buffer is 126 bytes. BM802 and upwards is the data bytes to transmit placed.

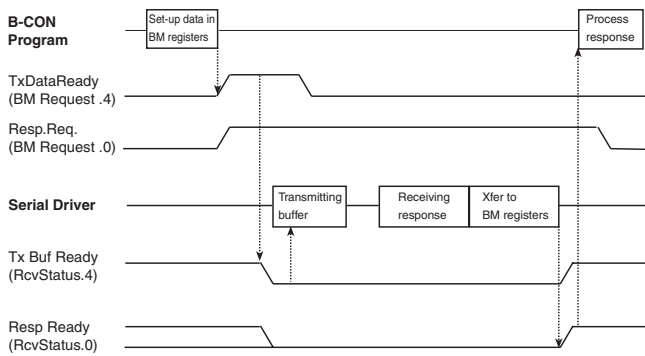
**Serial driver / BCONW data exchange diagram**



**Figure 1 Sending only**



**Figur 3 Send data – Get response**



**Notes.**  
Requests from the BCONW program is detected immediately after execution of a BCONW scan .  
If the serial driver is idle at this point , a new serial driver session is initiated and status flags in BCONW (RcvStatus) are cleared. While the driver is busy (transmitting or receiving , new requests from the application program is not registered

**Transparent gateway (T3) driver communication registers**  
The BM registers used for the serial driver are fixed.  
BM RcvStatus (input data to B-CONW from serial driver) is located at BM 600. BM Request (output data from B-CONW to serial driver) is located at BM800

The serial driver has a 126 byte receive buffer and a 126 byte transmit buffer.

Register	Description
BM600	RcvStatus Receive Status Flags, (from serial driver to appl. Program)
m600.0	Receive/Resp data ready
m600.1	Receive Error (Frame, Parity, Timeout )
m600.2	Receive Response Timeout
m600.3	Receive Buffer overrun
m600.4	Transmit buffer ready
m600.5	reserved
m600.6	CTS timeout (RTS/CTS handshake)
m600.7	reserved
BM601	RcvCnt - Defines the number of received data bytes / number of bytes in receive buffer
BM602 to BM728	RcvBuffer - Receive data (bufferlength = 126 bytes)
BM800	Request - B-CONW serial I/O request flag (from application program to serial driver)
m800.0	Resp/Rcv message request-
m800.1	not used
m800.2	not used
m800.3	not used
m800.4	transmit data ready
m800.5	not used
m800.6	not used
m800.7	reserved
BM801	TxCnt - Number of bytes to transmit / number of bytes in transmit buffer.
BM802 to BM928	TxBuffer - Transmit data (bufferlength = 126 bytes)

**Internal serial interface to built-in Ethernet gateway**  
The RTU8E internal serial interface includes a driver which is able to handle also both the Modbus protocol (RTU slave) and Brodersen RAC commands. Full mirrored with the configuration interface. On this interface Modbus NullModem driver is communicating with the Ethernet gateway. Default speed is 38400baud. Data format is 8N1.

**Other technical descriptions**  
Of other technical description of the basic RTU functions listed below, please consult the RTU8 data sheet document no 40073.

- List of basic RTU functions which you find in the RTU8 data sheet:
- I/O Expansion
  - Application programming
  - I/O addressing
  - Data logging
  - Real time clock
  - Memory register overview and details

## PRELIMINARY VERSION

### TECHNICAL DATA

#### INTERFACES

##### Network interface:

Ethernet: RJ45 10/100BASE-T  
Speed: 10Mbit or 100Mbit

##### Serial interface / T3 protocol port:

Signal level: RS232C/v.24.  
Connector: RJ11 6 pole.  
Hardware handshake: RTS, CTS  
Baud Rate: 300 - 9600  
Format (default): 8 bit (binary), 1 start bit.  
No parity, 1 stop bit.  
Protocol: Modbus slave (RTU mode).  
Error Check: CRC (16).

#### NETWORK/WEB SERVER

##### Memory:

1 Mb EDO RAM  
2 Mb Flash

##### Real time clock:

Optional. RTU has its own real time clock.

##### Protocols:

Protocols supported: ARP/RARP, PPP, UDP, TCP, DHCP, HTTP, FTP, SMTP, Telnet, DNS, MIME, SMP, ModbusTCP and serial tunnelling.

### CONTROL AND DATA LOGGING

#### IEC 1131-3 (B-CON)

Program memory (Flash): 23 Kbytes.  
Memory usage per instruction line: 6-24 bytes.  
Typical maximum program size: 1500 instruction lines.  
Scan interval: 50-250 ms.  
  
Internal registers (BM): 2048  
BM512-2047 battery backed.

##### Real time clock

Automatic correction for leap years.  
Accuracy: 25°C: Better than +/- 1 second per day.  
-20 + 50°C: Better than +/- 5 seconds per day.  
Adjustment accuracy: ±1s.

Back-up battery: Internal Lithium battery (800 mAh).

Back-up time: min. 2 years (without external battery or mains supply).

#### Data logging

Cyclic log interval: 0.1, 1, 10 seconds. 1, 10 minutes. 1, 10 hours.  
Log memory: up to 480 kBytes.  
Time stamp: Time, date, year (compressed for mat).  
Resolution: 0.1 second.  
Number of log elements: max. 32.  
Log record: ID, time stamp, process values (max. 120 words), see note 1.  
Back-up battery: Internal Lithium battery (800 mAh).  
Back-up time: min. 2 years (without external battery or mains supply).

#### I/O expansion bus

Capacity: max. 31 I/O sections (up to 30 expansion modules).  
max. 104 analogue or 496 digital I/O (104 words total).  
Connector: RJ45 Modular jack, 8/10 pole.  
Signal level: 5V (CMOS).  
Protocol: Synchronous data (shift register type).  
Local bus cable length: Max. 1 m between 2 modules.  
Max. 5 m totally.

### POWER SUPPLY

#### Supply versions:

	10	30	50
Supply voltage nominal	110-240V AC/DC	24-48V DC	24-60V DC
Supply voltage absolute maximum input range	100-265V	20-65V	20-72V
Mains frequency	40-60 Hz	DC only	DC only
Power consumption	Max 18W	Max 14W	Max 14W
<b>Outputs:</b>			
Output current, total	1.1 A	0.9 A	1.0A
Output 12V expansion (local bus)	12V+/-0.5V (note5&6)	12V+/- 0.5V (note 5&6)	10-13.6V
Output 12V external output	12V +/- 1.5V max. 400mA (note 5, 6 & 7)	12V +/- 0.5V max. 400mA (note 5, 6 & 7)	20-28V max. 1A
Loop supply (optional)	12V±5% / max. 400mA 24V±5% / max. 200mA		
<b>Isolation:</b>			
Input/mains (primary) to electronics (secondary)	3,75 kV AC IEC class 2	1500V AC	1500V AC

### DIGITAL INPUT/OUTPUT

#### Inputs:

Input voltage activated: 10-30V DC (note 3, 4).  
Input voltage deactivated: Max. 3V DC.  
Input current: 12V DC: Typical 3mA.  
24V DC: Typical 6mA.  
Input delay: Typical 1ms.

**Outputs:**

External voltage: 10 - 30V DC (note 3, 4).  
 Output voltage drop: Max. 1.5V (output activated).  
 Output current: Max. 0.5A.  
 Output peak current: Max. 5A in 1 second (note 4).  
 Output leakage current (off): Max. 0.5mA.  
 Output delay: Max. 1ms.

**Isolation**

(input or output to electronics,  
 input to output): 1kV AC (note 2).

**Indicators:**

Digital input: One for each digital input (red) indicating active input.  
 Digital output: One for each digital output (yellow) indicating active output.  
 System: Indicating RTU OK (green)  
 I/O: Indicating I/O and local bus OK (green)  
 Power: Indicating power OK (green)  
 Heart beat: Indication of server loop activity. Infrequent flashing indicates "idle state" and frequent flash indicate high system activity (green).  
 TCP/IP Act: Indication of network packets sent or received from the network (red).  
 Eth traffic: Indication of network activity detected on the network interface (orange).

**ANALOGUE INPUT (Process signals)**

**Inputs:** 4 multiplexed bipolar analogue channels.

Input configuration: Differential (+/-). note 8)

Input measuring ranges: 0 - 10V  
 0 - 5V  
 -5 - +5V  
 -10 - +10V  
 0 - 20mA  
 4 - 20mA

Each input is can have individually input range and any combination is possible.

Resolution: 14 bit, 0-16383.

Error detection: Dedicated bit for underflow/overflow detection

Input impedance: Voltage: 100 kOhm.  
 Current: 100 Ohm.

**Absolute maximum ratings (note 10):**

Input voltage:  $\pm 40V$  DC.  
 Input current:  $\pm 30mA$  DC.

**Sampling interval:** Min. 100 ms (note 12).

**Measuring accuracy:**

25°C:  $\pm 0.2\% \pm 20LSB$  (typically  $0.05\% \pm 3LSB$ ).  
 -10°-55°C:  $\pm 0.3\% \pm 25LSB$  (typically  $0.1\% \pm 4LSB$ ).

**Linearity:** Better than  $\pm 12LSB$ .

**Temperature stability:** Better than  $\pm 50ppm/^\circ C$  (typical).

**Common mode input voltage:** Max.  $\pm 80V$  DC (note 8).

**Common mode rejection ratio:** Min. 60dB (typical 72dB).

**Series mode rejection:** Min. 30dB (50-120Hz)

**Isolation (input to input):** 500V (note 8).

**ANALOGUE INPUT (Pt100 signals)**

**Number of inputs:** 4 multiplexed analogue Pt-100 channel

**Input configuration:** 3 or 2 wire.

**Input measuring ranges:** 3 ranges selectable:  
 -50 - +100°C  
 -50 - +300°C  
 -50 - +850°C

**Resolution:** True 14 bit for full range.

**Conversion/settling time:** Max. 60ms per channel.  
 Max. 0.5s.

**Measuring accuracy:** Better than  $\pm 0.5\%$  of FSR

**Linearity:** Better than  $\pm 0.1\%$  of FSR (note 5).

**Temperature stability:** Better than  $\pm 100ppm/^\circ C$  (typical).

**Isolation**

(input to input): 500V

**Error detection:**

Over range detection: Cable breake etc. +10% FS  
 Under range detection: Short circuit etc. -10% FS

**GENERAL**

**Current consumption (12V):**

UCR-16DIO: max. 335 mA.  
 UCR-32DI: max. 320 mA.  
 UCR-28IO: max. 400 mA.

**Isolation:** IEC class II, 3,75 kV.  
 (mains supply versions)  
 Safety earth required.

**Ambient temperature:** -10 - +55°C.

**EMC:** EN 50081-2/EN50082-2.

**Climatic:**

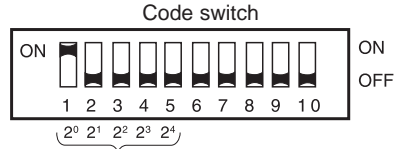
Dry heat: IEC 68-2-2, Test Bd, Temp. +55°C,  
 Duration 8h.

**PRELIMINARY VERSION**

Cold:	IEC 68-2-1, Test Ad, Temp. -10°C, Duration 8h.
Damp heat:	IEC 68-2-3, Test Ca, Temp. 40°C, RH 95%, Duration 8h.
<b>Mechanical:</b>	
Vibration:	IEC 68-2-6, Test Fc (sinusoidal), Freq. 10-150Hz, Amp. 4g, 5 sweeps in 3 orthogonal axes.
Shock:	IEC 68-2-27 (half sine), Acc. 15g, Pulse time 11msec., 3 x 6 shocks.
<b>Protection:</b>	IP20.
<b>Mounting:</b>	35 mm DIN-rail, EN50022.
<b>Terminals:</b>	Max. 1.5 mm <sup>2</sup> wire.
<b>Housing:</b>	Anodized aluminium with plastic ends. According to DIN 43880.
<b>Dimensions:</b>	HxWxD: 80 (+ connectors)x265x62 mm.

**CODE SWITCH/ADDRESS SELECTOR**

The code switch of the RTU8E selects the internal Modbus address, etc. Under normal use the Modbus address must be set to 1 (switch 1 = ON). The rest of the DIP switches are not used and must be set to OFF.

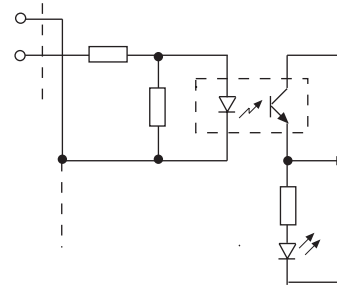


Modbus address.

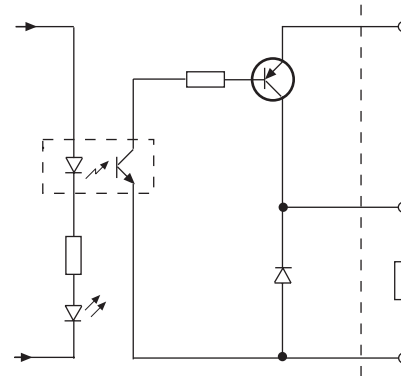
**Note:** The Modbus address settings is also the the address for the configuration port!

**CIRCUIT CONFIGURATION (DIGITAL)**

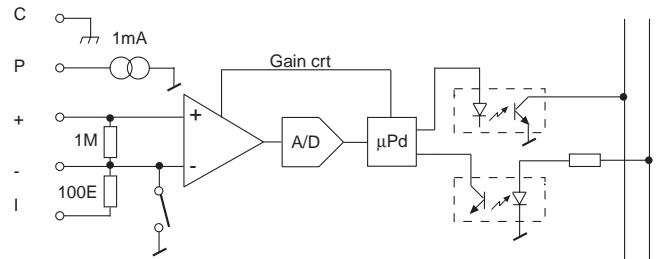
**Input**



**Output (PNP)**



**CIRCUIT CONFIGURATION (ANALOGUE)**



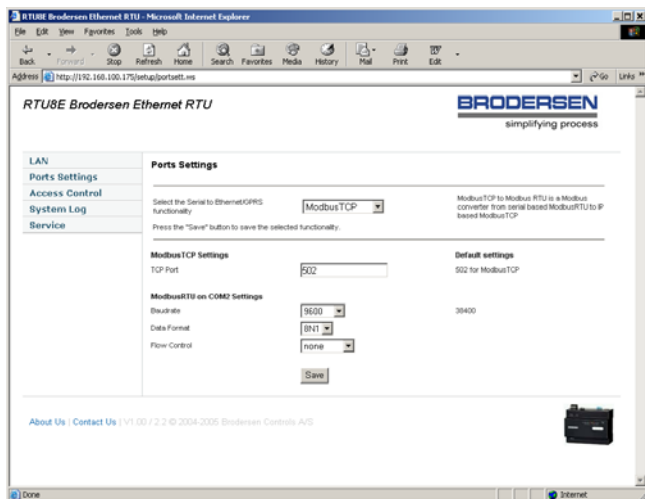
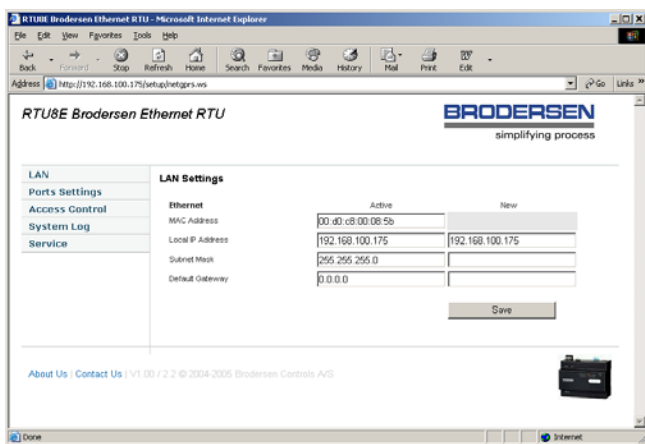
**CONFIGURATION**

**Network configuration**

Default the RTU8E has assigned IP address 192.168.100.175. Use your PC and a cross-wired patch cable to adjust the network settings to your requirements. To be able to communicate and configure the RTU8E, you must adjust the TCP/IP driver on your PC to:

- PC TCP/IP address: 192.168.100.xxx
- Subnet mask: 255.255.255.000
- Default gateway and DNS are left blank.

Open your browser (e.g. Internet Explorer) and enter: <http://192.168.100.175>. Now the configuration homepage of the RTU8E will appear.



**Note:** You must enter **both** the new IP address and the subnet mask.

**Ethernet communication protocol settings**

Choose the port settings menu in the configuration main page. Here you can select to run ModbusTCP or Serial Tunnelling (Modbus over TCP/IP). Leave the com port settings as default as it is the internal communication settings between the network engine and the RTU engine.

After each change of settings you must select "save" and after all changes is done the RTU8E must be rebooted to apply changes.

**RTU specific configuration**

The IOExplorer is used to configure the RTU8E. Can be done both through the configuration port, (if no transparent driver) but also via the network connection.

**RTU8E configuration table**

Field	Type	Description	( Min..Max )	: Current Value	Unit
1.	W	User	( 0..65535)	: 0	
2.	C	Date/Time	( Y/M/D H:M:S)	: 01/03/19 - 09:30:36	
3.		Boot delay		: 2	Seconds
4.	T	Table 101	( 0..33 )		
5.	T	Table 102	( 0..33 )		
6.	T	Table 103	( 0..33 )		
7.	W	Log Buf Size	( 5..100 )	: 100	Percent
8.		AI 0 Range		: 0..10V	
9.		AI 1 Range		: 0..10V	
10.		AI 2 Range		: 0..10V	
11.		AI 3 Range		: 0..10V	
12.		UCL 0 CFG		: -50-850°C	
13.		UCL 1 CFG		: -50-850°C	
14.		UCL 2 CFG		: -50-850°C	
15.		Port C cfg Modbus			
16.		Baud rate		: 38400	Port C
17.		T3 port cfg			
18.		Use Driver		: Yes	T3 Driver
19.		Baud rate		: 9600	300 - 19K2
20.		Data Bits		: 8	always 8
21.		Parity		: None	No, Even, Odd
22.	S	HandShake		: RTS Off	Hdw.flowctrl.
23.	W	RTS Leading		: 3	of 10 msec
24.	W	RTS Trailing		: 1	of 10 msec
25.		Resp Timeout		: 20	of 100 ms
26.		IntrChr time		: 2	of 10 ms

Field 4-6 should normally not be changed. They relate to special applications and usage with third party software or equipment.

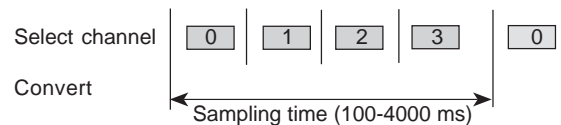
Field	Description
1	User defined parameter which can be used for set-points or other programme controls in the B-CON application programme. The value entered in field 10 is copied to registers bm6/bm7 (wm6) in the B-CON programme. The value is entered as an integer (0-65535), however in practice this could be separated into 16 individual bits or 2 bytes, each having a specific function in the application programme.
2	Real time clock adjustment. The actual time in the RTU8E can be monitored and adjusted either by entering the time or by copying the PC clock to the RTU8E.
3	Boot delay at power up. Ensure master and localbus expansion module is up running before system boot and localbus scan start.
4	User defined linearization tables for analogue I/O.
5	Default is down loaded tables for standard analogue AI and AO modules.
6	
7	Log buffer size. Define the size of log buffer in the range of 5 to 100% of 480kB. If changed all data in log is lost.

**PRELIMINARY VERSION**

<b>8</b>	Configuration of each analogue input.
<b>9</b>	0-10, 0-5V, -10V - +10V, -5V - +5V,
<b>10</b>	0-20mA, 4-20mA,
<b>11</b>	-50 - 100°C, -50 - 300°C, -50 - 850°C for Pt-100. Temperature ranges only valid for type "...D" versions.
<b>12</b> <b>13</b> <b>14</b>	When UCL-08AI.xP is connected to the localbus, each module input range can be configured here. Note that only 3 modules are supported.
<b>15</b>	Headline
<b>16</b>	Define the baud rate for Port C, the internal serial interface to Ethernet gateway. Configurable from 1200-115200 baud. Max. recommended speed is 38400 baud.
<b>17</b>	Headline
<b>18</b>	Enable/Disable T3 driver on serial gateway port
<b>19</b>	Defines baudrate for serial gateway port. Valid range: 300 – 19k2 bps
<b>20</b>	Defines bit length of characters. Valid Range: 5 – 8 bit
<b>21</b>	Defines parity bit generation and detection. Valid range : None, Even, Odd
<b>22</b>	Defines handshake protocol. Valid range: RTS Off, RTS On, RTS On/Off, RTS/CTS
<b>23</b>	Defines the delay from the driver activates RTS to transmission of first character. Used in multidrop - and radio links. Valid range: 0 – 5000 ms
<b>24</b>	Defines the delay from transmission of the last character to deactivation RTS. Valid range: 0 – 500 ms
<b>25</b>	Defines the maximum time the driver will wait for a response after detection of "Receive Request". Valid range : 1 – 255 x100ms ( 255 equals "Forever")
<b>26</b>	Defines this maximum allowed gap between two characters in the received message. A gap is used as an end-of-message indication. Valid range: 20-990ms.

**NOTES/REMARKS**

- 1) The scan interval can be selected by the user, however it should be noted that the capacity of the micro-controller will limit the minimum scan time. The time related performance versus capacity for the RTU8 is a result of the actual CPU load. The technical data related hereto, must be considered in total. A large application programme with the maximum number of I/O's, is not able to scan the I/O's with minimum interval and simultaneously log all process values.
- 2) Section A, B, C and D are isolated from each other.
- 3) The polarity at the input must be positive. The common terminal must be connected to the negative.
- 4) Input signals exceeding the maximum values **MAY CAUSE PERMANENT DAMAGE** to the module.
- 5) The 12V external supply is not isolated from the circuit supplying the electronics. It is therefore recommended to use an external source for the I/O if the I/O signals are influenced by electrical noise, e.g. from long cables or inductive load.
- 6) The sum of current consumed from the 12V rail, i.e. internal consumption, consumption from the external screw terminals and by expansion modules at the local bus, must never exceed the maximum total output current.
- 7) The external output is short circuit protected and overload protected. The maximum current is limited at high ambient temperature. The maximum load current should be de-rated approximately 1% per °C above 25°C.
- 8) Only one analogue input channel is active at a time, the multiplexing is automatic via the built-in micro-controller. The actual scan time for the analogues relates to the CPU load and hence the selected interval for the application program. If the application program is executed with a short interval there might not be sufficient time to perform the analogue multiplexing thus resulting in a slow sampling rate (worst case 4 seconds).



The analogue input is represented by an integer (binary number) from 0 to 16383 depending on the input signal, see table above.

**Appendix A**

**TYPICAL LOG UPLOAD TIME**

In general the log upload time depend on the actual data speed used. Log upload time can be reduced by only uploading data since last upload. Also reducing the log size, can minimize the log upload time.

The typical value is just to give an idea of the log upload time.

The log upload time has been measured to about 13 minutes for a full log upload at a LAN with medium TCP/IP traffic.