PRODUCT CATALOG

Remote Terminal Units
RTU500 Series
# Table of contents

<table>
<thead>
<tr>
<th>Page</th>
<th>Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>002</td>
<td>Introduction</td>
</tr>
<tr>
<td>003–005</td>
<td>RTU500 series – Intelligence distributed across your power grid</td>
</tr>
<tr>
<td>006–029</td>
<td>Product line RTU560</td>
</tr>
<tr>
<td>030–033</td>
<td>Product line RTU540</td>
</tr>
<tr>
<td>034–042</td>
<td>Product line RTU520</td>
</tr>
<tr>
<td>044–057</td>
<td>Product line RTU500</td>
</tr>
<tr>
<td>058–063</td>
<td>RTU500 series functions and software</td>
</tr>
</tbody>
</table>
Dear Madam and Sir,

this catalog will give you an overview of our Remote Terminal Units (RTU) product portfolio - the RTU500 series. The products are divided into the product lines RTU560 (rack), RTU540 (DIN rail), RTU520 (DIN rail) and RTU500 series modules. Complementing the RTU500 series functions and software are adjustable to the respective product lines and requirements. The catalog will inform you about each single module and its additional material.

With more than 100,000 installed RTUs at around 2,000 customers in more than 100 countries, ABB is among the world market leader for RTU applications.

ABB has been working successfully in the area of remote control applications for more than 40 years and offers the security of a strong and experienced partner. Worldwide presence with local partners in almost all regions allows quick access to service and support.

For more information please ask your local sales and service contact or visit us at www.abb.com/remote-terminal-units.

Yours sincerely,

Helmut Weber
Global product line manager RTU

Sigbert Reimann
Global product manager RTU

Thorsten Platz
Global sales manager RTU
Remote Terminal Units
RTU500 series – Intelligence distributed across your power grid

Your benefits at a glance

4  Intelligence distributed across your power grid
5  RTU service and support
5  Product life cycle management
Remote Terminal Units
Your benefits at a glance

Intelligence distributed across your power grid
The RTU500 series is suitable for the future requirements of the automation market. It offers a future proofed and reliable series of products. Our RTU500 series brings the information from the physical power grid to your SCADA system. The modular Remote Terminal Units (RTU) are designed to meet your needs in transmission and distribution automation, enabling you to have the most efficient solution for your requirements. As with many of ABB’s products - our RTUs have been designed from the ground up with strong and resilient cyber security enabling you to communicate securely via all forms of networks - offering peace-of-mind and confidence in your network. Functional and hardware extensions can be realized easily and the complete series can be quickly engineered to your needs using our proven software tool enabling greater flexibility and cost savings in training.
Remote Terminal Units
Intelligence distributed across your power grid

RTU Service and support
Professional service and support over the complete product lifecycle have always been of great interest within ABB. The high quality of technical support also adds to the track record of RTUs, ensuring optimized and reliable system operations. Product support of RTU specialists worldwide and support with engineering and programming provide you effective and reliable solutions.

Product life cycle management
Through the extensive product lifecycle policy ABB has a long standing commitment to protect its customers’ investments in ABB products and technologies.
To protect your investments over a long time, existing installations can be upgraded to modern RTUs with only little effort. The available migration kits and ABB’s extensive knowledge makes it very easy to exchange your installed base in just a few steps.
Substation automation product for transmission and sub-transmission. RTU560 represents high-end network interfacing - offering maximum flexibility with the highest number of supported protocols for sub and host communications. Designed to handle the highly complex systems in grid automation and control interfacing. RTU560 connects to all kinds of IEDs, parallel I/Os, serial connected and communication via IEC 68150. All this real time data can then be transmitted to your central SCADA systems for critical actions - protecting your primary equipment from overloading of the grid. Optimize your investments with our long life cycle policy and benefit from our agile migration concepts.

Your benefits
- Adaptability to changing conditions in your network
- Secure flexibility with our modular platform that allows hot swap depending on your requirements
- Precise data handling gives you peace-of-mind
- Superior performance with up to 16 CMUs enables mass data handling
- IT security according to the latest standard, including usability and critical infrastructure, BDEW conformance and support of the certificate process

• Experience of more than 40 years in substation automation make RTU560 a secure investment for you
• Our agile migration concept saves your money and time

Application examples
In complex network environments you are challenged by a large amount of data. Our RTU560 is the perfect solution for various applications for automation and control.
• The migration solution allows you to retrofit your secondary equipment with reduced investment.
• The combination of parallel wired I/Os, serial links and IEC 61850 is efficiently feasible with our RTU560 allowing you to work with infrastructures from different generations
• Our flexible redundancy concepts provide high availability where you need it

Application Areas
Transmission network substations
• Automation of transmission substation
• Digital substation
• Migration
• Electrical distribution network, primary substation
• Automation of primary substation
• Transformer automation and control
Remote Terminal Units
RTU560 product line – Superior scalability for grid automation and control

RTU560 Communication units
- 560CMR01 P. 9
- 560CMR02 P. 10
- 560CMR01 P. 10

RTU560 Power supply units
- 560PSR00 P. 11
- 560PSU01 P. 11
- 560PSU02 P. 12

RTU560 Input/output modules
- 560AIR01 P. 13
- 560AIR01 P. 14
- 560AIR01 P. 15
- 560AIR02 P. 15
- 23BA23 P. 15
- 23BA23 P. 16
- 23AA21 P. 17
- 23BE50 P. 17
- 23BA40 P. 18
- 23BE40 P. 18

RTU560 Racks
- 560MPR01 P. 19
- 560MPR03 P. 20
- 560SFRO2 P. 21

RTU560 Serial Communication
- 23OK24 P. 23
- 23WT23 P. 23
- 23WT24 P. 24
- 23WT25 P. 25

RTU560 Ethernet communication
- 560NUS04 P. 26
- 560NUS12 P. 26
- 560NMS24 P. 27
- 560NMS34 P. 27
Remote Terminal Units
RTU560 product line – Superior scalability for grid automation and control

RTU560 Real time clocks

560RCR01
P. 28

560RTC02
P. 28
Remote Terminal Units
RTU560 product line – Communication units

Description
Communication module of the RTUS60 with 32 bit CPU
- 2x serial communication interface (RS-232 or RS-485) for remote communication
- 2x Ethernet interface (10/100BaseT)
- 1x USB port
- 1x serial peripheral bus
- battery buffered real time clock
Licences for protocol, functions and SD card are not included.

560CMR01 - Communication unit (CMU) for RTU560, 2 serial ports, 2 Ethernet ports

Application
The 560CMR01 communication unit is one of the CMU modules of the RTU560 product line.
The essential tasks are:
- Managing and controlling of the I/O modules via the interface to the serial I/O bus.
- Reading Process events from the input modules.
- Send commands to the output modules.
- Communicating with control systems and local HMI systems via the serial interfaces (RS232) and the Ethernet 10/100BaseT interfaces.
- Communication with Sub-RTU’s, IED’s or multimeter devices via the interfaces (RS485) and the Ethernet interfaces.
- Managing the time base for the RTU560 product line station and synchronizing the I/O modules.
- Handling the dialog between RTU560 product line and Web-Browser via the LAN interfaces.
Within the RTUS60 racks the board occupies . The communication unit is able to handle Ethernet- and UART-character based communication protocols. The unit has a battery buffered real time clock (RTC).
Remote Terminal Units
RTU560 product line – Ethernet communication

560CMR02 - Communication unit (CMU) for RTU560, 6 serial ports, 2 Ethernet ports

Application
The 560CMR02 communication unit is one of the CMU modules of the RTU560 product line. The essential tasks are:

- Managing and controlling of the I/O modules via the interface to the serial I/O bus.
- Reading Process events from the input modules.
- Send commands to the output modules.
- Communicating with control systems and local HMI systems via the serial interfaces (RS232) and the Ethernet 10/100BaseT interfaces.
- Communication with Sub-RTU’s, IED’s or multimeter devices via the interfaces (RS485) and the Ethernet interfaces.
- Managing the time base for the RTU560 product line station and synchronizing the I/O modules.
- Handling the dialog between RTU560 product line and Web-Browser via the LAN interfaces.

Within the RTU560 racks the board occupies two slots. The communication unit is able to handle Ethernet- and UART-character based communication protocols. The unit has a battery buffered real time clock (RTC).

Description
Communication module of the RTU560 with 32 bit CPU

- 6x serial communication interface (RS-232 or RS-485) for remote communication
- 2x Ethernet interface (10/100BaseT)
- 1x USB port
- 1x serial peripheral bus
- battery buffered real time clock

Licences for protocol, functions and SD card are not included.

560HMR01 - Human machine interface (HMI) for RTU560, 2 Ethernet ports, 4 USB ports, VGA, audio

Application
The 560HMR01 is a rack based human machine interface module of the RTU560 system. The essential tasks of the 560HMR01 are:

- Interface to RTUs that are running Web server and RTU500 series Integrated HMI. It communicates via Ethernet LAN interfaces and provides interfaces to connect a local monitor, mouse and keyboard
- Runs Windows based operating system for RTU500 series Integrated HMI

The 560HMR01 takes two slots of the module rack. The connection from the 560HMR01 to the 19" rack is done via a DIN 41612 F-connector. The unit is available in 2 versions:

- R0001: Interface module to RTU500 integrated web HMI
- R0002: Interface module to RTU500 bundled with SDM600 Software

Description
Interface board to RTU500 integrated web HMI

- Windows Embedded Standard 7 (english, 32 bit)
- 2x Ethernet interface (10/100BaseT)
- 4x USB port (for keyboard and mouse)
- 1x VGA port (for monitor)
- 1x stereo audio-out
- Windows 7 recovery DVD
Remote Terminal Units
RTU560 product line – Power supply units

560PSR00 - Power supply unit for RTU560, 24 ... 60 V DC, 44.3 W

Application
The power supply unit 560PSR00 generates the two supply voltages (5 V DC and 24 V DC) for the RTU560 subracks 560MPR03 and 560SFR02. The output power is sufficient to supply a subrack with up to 4 communication units (CMU).

It is possible to configure redundant power supplies for project configurations with higher requirements to availability. In this configuration two power supply units 560PSR00 are operating in parallel mode. They are able to take over the full load, if one power supply fails. Only power supplies of the same type and rubric should be used for redundant operation.

The power supply unit 560PSR00 is available in the following version (rubric):
• R0001 Input range 24 ... 60 V DC (-20%... +15%)

Description
Power supply unit for RTU560 racks
• Input voltage 24...60 V DC
• Output voltage: 5 and 24 V DC
• Suitable for redundant power supply in 560MPR03/560SFR02

560PSU01 - Power supply unit for RTU560, 110 ... 220 V DC, 44.3 W

Application
The power supply unit 560PSU01 generates the two supply voltages (5 V DC and 24 V DC) for the RTU560 subracks 560MPR03 and 560SFR02. The output power is sufficient to supply a subrack with up to 4 communication units (CMU).

It is possible to configure redundant power supplies for project configurations with higher requirements to availability. In this configuration two power supply units 560PSU01 are operating in parallel mode. They are able to take over the full load, if one power supply fails.

The power supply unit 560PSU01 is available in the following version (rubric):
• R0002 Input range 110 ... 220 V DC (-20%... +15%)

Description
Power supply unit for RTU560 racks
• Input voltage 110...220 V DC
• Output voltage: 5 and 24 V DC
• Suitable for redundant power supply in 560MPR03/560SFR02
Remote Terminal Units
RTU560 product line – Power supply units

560PSU02 - Power supply unit for RTU560, 48 ... 220 V DC, 85 W

Application
The power supply unit 560PSU02 generates the two supply voltages (5 V DC and 24 V DC) for the RTU560 communication units (CMU) within the rack. The output power is sufficient to supply a subrack with up to 8 communication units (CMU). It is possible to configure redundant power supplies for project configurations with higher requirements to availability. In this configuration two power supply units 560PSU02 are operating in parallel mode. They are able to take over the full load, if one power supply fails.

The power supply unit 560PSU02 is available in the following version (rubric):
- R0001 Input range 48 ... 220 V DC (-20%...+15%)

Description
Power supply unit for RTU560 racks
- Input voltage: 48 ... 220 V DC
- Output voltage: 5 and 24 V DC
- Suitable for redundant power supply in 560MPR03/560SFR02
**560BIR01** - Binary input, 16 channels, LED’s

**Application**
The module 560BIR01 provides 16 galvanic isolated inputs for up to 16 binary process signals. Scanning and processing of the inputs are executed with the high time resolution of 1 ms. The allocation of an input signal to the processing functions can be done according to the rules of configuration.

The module 560BIR01 is able to process the following types of signals or a combination of them:

- 16 single point information with time stamp (SPI)
- 8 double point information with time stamp (DPI)
- 2 digital measured values each with 8 bit (DMI8)
- 1 digital measured value with 16 bit (DMI16)
- 16 integrated totals (max. 120 Hz) (ITI)
- 2 step position information each with 8 bit (STI)
- 2 bitstring input each with 8 bit (BSI8)
- 1 bitstring input with 16 bit (BSI16)
- or combinations of this signal types
- LED signaling for each input, common return per 8 inputs.

The module is available in two versions (rubrics):

- 560BIR01 R0001: process voltage 24 to 60 V DC.
- 560BIR01 R0002: process voltage 110 to 125 V DC.

**Description**
To be used for single indications, double indications, digital measurands and pulse counters.

- Resolution: 1 ms
- Process voltage: 24...60 V DC and 110...125 V DC
- LED signal for each input
Remote Terminal Units
RTU560 product line – Input/output modules

Description
- 16 output contacts configured as
- 1-pole command
- 2-pole command
- 1.5-pole command in configuration with 23BA23
- Operating voltage 24...125 V DC, 60 W
- Imax: 2 A ≤ 30 V DC (ohmic load)

560BOR01 - Binary output, 16 channels, LED’s

Application
The module 560BOR01 can be used for the control of 16 binary process signals using relay contacts. The allocation of an output signal to the processing functions can be done according to the rules of configuration.
The module 560BOR01 is able to process the following types of signals:
- Single or double commands (SCO or DCO) with 1 or 2 pole output without (1 out of n) check
- Single or double commands (SCO or DCO) with 1.5 or 2 pole output with (1 out of n) check
- Regulation step command (RCO), 1 or 2 pole
- Digital setpoints commands, 8 or 16 Bit without strobe (DSO8 or DSO16)
- Digital setpoint commands, 8 or 16 Bit with strobe (DSO8 or DSO16)
- Bitstring output, 1, 2, 8 or 16 Bit (BSO1, BSO2, BSO8 or BSO16)
The module allows switching voltages up to 150 V DC or max. 2 A continuous current.
Remote Terminal Units
RTU560 product line – Input/output modules

23BA23 - Command output monitoring (1 out of n) check

Application
The 23BA23 board is intended for use in the RTU560 product line. The 23BA23 board should be installed if the output circuit of an object command has to be checked before the actual command is given. The 23BA23 board executes a (1 out of n) check. It checks if only one interposing relay will be activated in the output circuit. This is only possible if all interposing relays connected to one check circuit have the same resistance value.

The 23BA23 board allows to check 2 different interposing relay types by using two separated check circuits. The permissible tolerance range is defined by means of parameters. Up to 16 23BA23 boards can be used in one RTU560.

• Galvanic isolation of the check circuit
• Suppression of line frequency during measuring

560AIR01 - Analog input, 8 channels

Application
The 560AIR01 module records up to 8 analog measured values.

The module 560AIR01 is able to process the following types of signals:
• Analog measured values (AMI)
• Measured floating point information (MFI)

Following measurement ranges can be configured:
• ± 2 mA
• ± 5 mA
• ± 10 mA
• ± 20 mA
• ± 40 mA
• ± 2 V DC
• 0...20 V DC

Other effective ranges and live zero signals become generated out of these ranges through conversion of the communication unit (CMU).
Remote Terminal Units
RTU560 product line – Input/output modules

560AIR02 - Analog input, 8 channels

Application
The 560AIR02 module records up to 8 analog measured values.
The module 560AIR02 is able to process the following types of signals:
• Analog measured values (AMI)
• Measured floating point information (MFI)
Following measurement ranges can be configured:
• ± 2 mA
• ± 5 mA
• ± 10 mA
• ± 20 mA
• ± 40 mA
Other effective ranges and live zero signals become generated out of these ranges through conversion of the communication unit (CMU).

Description
• AD converter resolution: 16 bit
• Measuring ranges: +/-2 mA; +/-5 mA; +/-10 mA; +/-20 mA; +/-40 mA

23AA21 - Analog output, 2 channels with potential isolation

Application
Via the analog output board 23AA21, analog control outputs for sequential or closed loop control, display instruments, measurand recorders etc. can be connected to the RTU560. The 23AA21 board has 2 isolated output channels which can be configured to different output current ranges. The output format, unipolar or bipolar resp. Live-Zero (4...20 mA), can be set by software parameters.
The following output current ranges can be configured independently per channel via plug-in jumpers:
• ± 2,5mA
• ± 5 mA
• ± 10 mA
• ± 20 mA (4...20 mA)
Remote Terminal Units
RTU560 product line – Input/output modules

23BE50 - Binary input, 64 channels, LED's

**Application**
The binary input board 23BE50 is used for the isolated input of 64 process signals in 4 groups with up to 16 binary signals each. Scanning and processing of the inputs are executed with the high time resolution of 1 ms.

The Allocation of an input signal to the processing functions can be done according to the rules of configuration. The board 23BE50 can process the following types of signals:
- 64 single indications with time stamp
- 32 double indications with time stamp
- 8 step position information each with 8 bit
- 8/16 bit digital measured value(s)
- 8/16 bit string Information
- 64 pulse counters (max. 120Hz)

**Description**
To be used for single indications, double indications, digital measurands and pulse counters.
- Resolution: 1 ms
- Process voltage: 24...60 V DC
- LED signal for each input

23BA40 - Command output module 110 … 220 VDC

**Application**
The module 23BA40 can be used for the control of 16 binary process signals using relay contacts. The allocation of an output signal to the processing functions can be done according to the rules of configuration.

The module 23BA40 is able to process the following types of signals:
- Single or double commands (SCO or DCO) with 1 or 2 pole output without (1 out of n) check
- Regulation step command (RCO), 1 or 2 pole
- Digital setpoints commands, 8 or 16 Bit without strobe (DSO8 or DSO16)
- Bitstring output, 1, 2, 8 or 16 Bit (BSO1, BSO2, BSO8 or BSO16)

The module allows switching voltages up to 250 V DC or max. 8 A continuous current.

**Description**
- 16 output contacts configured as 16 single contact outputs or 8 double contact outputs
- Switching voltage: 24...220 V DC / 250 V AC
- Max. switching capacity: 120 W (DC)
- Max. switching current: 300 mA at 110 V DC, 200 mA at 220 V DC (L/R = 40 ms)
- Isolated relay output contacts NO, 2-pole connection
23BE40 - Binary input, 16 channels 110...125 V DC (R0011) and 220...250 V DC (R0012)

Application
The module 23BE40 provides 16 galvanic isolated inputs for up to 16 binary process signals. Scanning and processing of the inputs are executed with the high time resolution of 1 ms. The allocation of an input signal to the processing functions can be done according to the rules of configuration.

The module 23BE40 is able to process the following types of signals or a combination of them:

• 16 single point information with time stamp (SPI)
• 8 double point information with time stamp (DPI)
• 2 digital measured values each with 8 bit (DMI8)
• 1 digital measured value with 16 bit (DMI16)
• 16 integrated totals (max. 25 Hz) (ITI)
• 2 step position information each with 8 bit (STI)
• 2 bitstring input each with 8 bit (BSI8)
• 1 bitstring input with 16 bit (BSI16)
• or combinations of this signal types

The module is available in two versions (rubrics):
• 23BE40 R0011: process voltage 110 to 125 V DC.
• 23BE40 R0012: process voltage 220 to 250 V DC.
Remote Terminal Units
RTU560 product line – Racks

560MPR01 - Rack with 9 slots, wall mounted

Application
The mounting plate rack 560MPR01 accommodates up to 2 communication units (CMU) 560CMR01 or 560CMR02 and up to 8 peripheral modules in a RTU560 substation. One additional (extension) mounting plate rack can be connected to the 560MPR01 via the RTU560 serial peripheral bus (SPS).

Description
- Mounting panel for RTU with plug for serial peripheral bus for extension
- Max. 8 slots for I/O modules
- Max. 2 CMUs (560CMR01/02)

<table>
<thead>
<tr>
<th>Additional material</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus connection unit for 560MPR01</td>
<td>1KGT007900R0001 560BCU02 R0001</td>
</tr>
<tr>
<td>• Alarm and warning contacts</td>
<td>• Minute pulse in- and output</td>
</tr>
<tr>
<td>Process connector 2-/ 17-/ 19-pole for 560MPR01/03</td>
<td>1KGN000556R2002 23XS20 R2019</td>
</tr>
<tr>
<td>• 19-pole connector with screw-terminals AWG12 for</td>
<td>• 19-pole connector with screw-terminals AWG12 for process connections to</td>
</tr>
<tr>
<td>process connections to the I/O modules on 560MPR01/03</td>
<td>the I/O modules on 560MPR01/03 (one connector per module); 100 pcs per</td>
</tr>
<tr>
<td></td>
<td>package</td>
</tr>
<tr>
<td>• 17-pole connector with screw-terminals AWG12 for</td>
<td>23XS20 R2017</td>
</tr>
<tr>
<td>process connections to the I/O modules on 560MPR01/03</td>
<td>• 17-pole connector with screw-terminals AWG12 for process connections to</td>
</tr>
<tr>
<td></td>
<td>the I/O modules on 560MPR01/03 (one connector per module); 100 pcs per</td>
</tr>
<tr>
<td></td>
<td>package</td>
</tr>
<tr>
<td>• 2-pole connector with screw-terminals AWG12 for</td>
<td>23XS20 R2002</td>
</tr>
<tr>
<td>process connections to the I/O modules on 560MPR01/03</td>
<td>• 2-pole connector with screw-terminals AWG12 for process connections to</td>
</tr>
<tr>
<td></td>
<td>the I/O modules on 560MPR01/03; 100 pcs per package</td>
</tr>
<tr>
<td>Blanking front plate</td>
<td>560FPR01 R1002</td>
</tr>
<tr>
<td>• Blanking front plate to cover free slots within a</td>
<td>• Blanking front plate to cover free slots within a module sub rack (1 slot)</td>
</tr>
<tr>
<td>module sub rack (1 slot)</td>
<td>• light beige, plastic, with ABB logo grip</td>
</tr>
<tr>
<td></td>
<td>• Incl. screws</td>
</tr>
<tr>
<td></td>
<td>• 100 pcs per package</td>
</tr>
</tbody>
</table>
Remote Terminal Units
RTU560 product line – Racks

**560MPR03 - Mounting panel rack for optional redundant power supply**

**Application**
The 560MPR03 rack is designed to be used with or without redundant power supply. Therefore, it has 2 slots for redundant power supply units (PSU). Up to 18 slots can be used for I/O boards, communication units (CMU) or a mixture of both. It is interfaced to other racks via the RTU560 serial peripheral bus. Up to 7 560MPR03 racks can be connected to an I/O bus segment. By using the bus connection unit 560BCU04, the 560MPR03 becomes a rack with up to 8 communication units (560CMR01/ 560CMR02). Also for some functions the usage of 560BCU04 is required, even if only one communication unit is inserted. The rack 560MPR03 is mounted on a mounting plate in a cubicle. Only in slot 19 the second PSU can be inserted and will be operated. It is not allowed to put in other modules. Slot 18 is available when the option of the second PSU is not used.

**Description**
With flexible configuration for I/O, CMU and power supply (23XS20 not included).

**Additional material**

<table>
<thead>
<tr>
<th>Additional material</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus connection unit for 560MPR03 (Basic, Extension and CAN bus termination)</td>
<td>1KGT023000R0001/1/2/3</td>
<td>560BCU04 R0001 (Basiseinheit)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Alarm and warning contacts</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Minute pulse input and output</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Supervision of redundant power supply</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• For 2 units 560CMU0x (one basic unit, one extension unit)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>560BCU04 R1002 (Erweiterungseinheit)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Extension kit for 10 additional 560CMU0x, 10 pcs per package</td>
</tr>
<tr>
<td></td>
<td></td>
<td>560BCU04 R0003 (CAN-Bus-Terminierung)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Single CMU CAN bus termination only (no alarm and warning contacts, no minute pulse in- and output, no supervision of redundant power supply)</td>
</tr>
<tr>
<td>Process connector 2- / 17- / 19-pole for 560MPR01/03</td>
<td>1KGN000556R2002/1/7/19</td>
<td>23XS20 R2019</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 19-pole connector with screw-terminals AWG12 for process connections to the I/O modules on 560MPR01/03 (one connector per module), 100 pcs per package</td>
</tr>
<tr>
<td></td>
<td></td>
<td>23XS20 R2017</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 17-pole connector with screw-terminals AWG12 for process connections to the I/O modules on 560MPR01/03 (one connector per module), 100 pcs per package</td>
</tr>
<tr>
<td></td>
<td></td>
<td>23XS20 R2002</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 2-pole connector with screw-terminated AWG12 for process connections to the I/O modules on 560MPR01/03, 100 pcs per package</td>
</tr>
<tr>
<td>Blanking front plate</td>
<td>1KGT007700R1002</td>
<td>560FPR01 R1002</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Blanking front plate to cover free slots within a module sub rack (1 slot)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• light beige, plastic, with ABB logo grip</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Incl. screws</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 100 pcs per package</td>
</tr>
</tbody>
</table>
Remote Terminal Units
RTU560 product line – Racks

560SFR02 - 19" Swing frame rack for optional redundant power supply

Application
The 560SFR02 rack is designed to be used with or without redundant power supply. Therefore, it has 2 slots for redundant power supply units (PSU). Up to 18 slots can be used for I/O boards, communication units (CMU) or a mixture of both. It is interfaced to other racks via the RTU560 serial peripheral bus. Up to 7 560SFR02 racks can be connected to an I/O bus segment. By using the bus connection unit 560BCU05, the 560SFR02 becomes a rack with up to 8 communication units (560CMR01/560CMR02). Also for some functions the usage of 560BCU05 is required, even if only one CMU is inserted it is installed in a swing frame cabinet or in a frame.
Only in slot 19 the second PSU can be inserted and will be operated. It is not allowed to put in other modules. Slot 18 is available, when the option of the second PSU is not used.

Description
With flexible configuration for I/O, CMU and power supply
## Additional material

<table>
<thead>
<tr>
<th>Component Description</th>
<th>Part Number</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bus connection unit for 560MPR03 (Basic, Extension and CAN bus termination)</strong></td>
<td>1KGT022400R0001</td>
<td>560BCU04 R0001 (Basiseinheit)</td>
</tr>
<tr>
<td>- Alarm and warning contacts</td>
<td>1KGT022400R1002</td>
<td>• Minute pulse input and output</td>
</tr>
<tr>
<td>- Supervision of redundant power supply</td>
<td>1KGT022400R0003</td>
<td>• For 2 units 560CMU0x (one basic unit, one extension unit)</td>
</tr>
<tr>
<td><strong>560BCU04 R1002 (Erweiterungseinheit)</strong></td>
<td></td>
<td>• Extension kit for 10 additional 560CMU0x, 10 pcs per package</td>
</tr>
<tr>
<td><strong>560BCU04 R0003 (CAN-Bus-Terminierung)</strong></td>
<td></td>
<td>• Single CMU CAN bus termination only (no alarm and warning contacts, no minute pulse in- and output, no supervision of redundant power supply)</td>
</tr>
<tr>
<td><strong>Process-connector-housing 560SFR02</strong></td>
<td>1KGN000758R3001</td>
<td>23XS40 R3001</td>
</tr>
<tr>
<td>- 18-pole plug for connectors of 560SFR02 (housing only, without snap-in-contacts)</td>
<td></td>
<td>• Suitable for AWG20 - AWG26</td>
</tr>
<tr>
<td>- 100 pcs per package</td>
<td></td>
<td>• 500 pcs per package</td>
</tr>
<tr>
<td><strong>Snap-in contacts for 23XS40 R3001</strong></td>
<td>1KGN000758R4001</td>
<td>23XS41 R0001</td>
</tr>
<tr>
<td>- Snap-in contacts for 23XS40 R3001 (18 contacts per plug required)</td>
<td></td>
<td>• Tool to connect wires to snap-in-contacts (23XS40 R4001)</td>
</tr>
<tr>
<td><strong>Crimp tool for 23XS40 R4001</strong></td>
<td>1KGN000797R0001</td>
<td>23XS42 R0001</td>
</tr>
<tr>
<td>- Tool to connect wires to snap-in-contacts (23XS40 R4001)</td>
<td></td>
<td>• Suitable for AWG20 - AWG26</td>
</tr>
<tr>
<td><strong>Removal tool for snap-in contacts</strong></td>
<td>1KGN000798R0001</td>
<td>23XS43 R0001</td>
</tr>
<tr>
<td>- Tool to extract snap-in contacts (23XS40 R4001)</td>
<td></td>
<td>• Suitable for AWG20 - AWG26</td>
</tr>
<tr>
<td><strong>Removal tool for process connector 23XS40 R3001</strong></td>
<td>1KGN000799R0001</td>
<td>560FPR01 R1002</td>
</tr>
<tr>
<td>- Tool to remove connector housing 23XS40 R3001 from subrack 560SFR02</td>
<td></td>
<td>• Blanking front plate to cover free slots within a module sub rack (1 slot)</td>
</tr>
<tr>
<td>- Light beige, plastic, with ABB logo grip</td>
<td></td>
<td>• Incl. screws</td>
</tr>
<tr>
<td>- 100 pcs per package</td>
<td></td>
<td>• Suitable for AWG20 - AWG26</td>
</tr>
<tr>
<td><strong>Blanking front plate</strong></td>
<td>1KGT007700R1002</td>
<td>560FPR01 R1002</td>
</tr>
<tr>
<td>- Blanking front plate to cover free slots within a module sub rack (1 slot)</td>
<td></td>
<td>• Suitable for AWG20 - AWG26</td>
</tr>
<tr>
<td>- Light beige, plastic, with ABB logo grip</td>
<td></td>
<td>• Incl. screws</td>
</tr>
<tr>
<td>- 100 pcs per package</td>
<td></td>
<td>• Suitable for AWG20 - AWG26</td>
</tr>
</tbody>
</table>
Remote Terminal Units
RTU560 product line – Serial communication

23OK24 - Fibre optic coupler (BFOC/2.5) for 2 glass-fibre optical lines

Application
The fiber optic coupler 23OK24 is intended for use in the RTU560. The module is used to transmit data via 2 independent optical links (receive and transmit).
Optical fiber cables are not sensitive to inductive and capacitive interferences, as well for potential differences between the 2 data communication equipments. Fiber optic cables will be used to bridge over distances in critical environments, or if a potential isolation is required. The maximum distance can be up to 2600 m via fiber optic cable type 200 μm.
The module can be used for signal conversion to fiber optic signals of the received and transmitted data for the following electrical interface standards:
• RTU560 SPB I/O bus
• RS-485 bus
• RS-232 C
The fiber optic coupler 23OK24 can be connected to the RTU500 series coupler 560FOC40.

Description
• Fibre optic coupler for glass-fibre optic cable with emission wave length of 820 nm
• Fiber optic connection with bayonet socket BFOC/2.5 (IEC-SC86B)
• Optical isolation of RTU560 I/O bus
• Suitable as star coupler for RS485 and RS232
• Interfacing of IEC 60870-5-103 devices
• Connector for 2 optical lines on frontplate

23WT23 - Modem V.23, power supply 5...24 V DC

Application
The 23WT23 board is a modem which converts the serial data according to CCITT V.23 standard. Therefore it can be used for the transmission via leased PTT-lines, private networks or for radio transmission.
Two- or four-wire operation mode is selectable by jumper. The voice frequency (VF) output has a high impedance which enables the connection of up to 10 remote stations to a multi drop line.
The modem 23WT23 is available in two versions (rubrics):
• R0001: 5 V DC power supply
• R0002: 24 V DC power supply

Description
• Voice frequency telegraphy device (VFT) according CCITT V.23 standard with max. 1200 baud
Remote Terminal Units
RTU560 product line – Serial communication

23WT24 - Modem 9.6 kBaud. power supply 5 VDC

Application
The 23WT24 board is a modem with 9600 baud transmission speed. Therefore it can be used for the transmission via private networks over pilot cable. The board operates on the frequency shift keying principle (FSK). Two- or four-wire operation mode is selectable by jumper. The voice frequency (VF) output has high impedance enabling connection of up to 10 remote stations to a multi drop line.

Description
- FSK device with 9600 baud transmission speed
- Connector for RS-232 testing and disconnecting on frontplate
- Communication over pilot cables
- Auxiliary voltage: 5 V DC
Remote Terminal Units
RTU560 product line – Serial communication

23WT25 - Modem 50-2400 Baud, power supply 5 VDC (R0001) and 24 VDC (R0002)

Application
The 23WT25 modem is designed for the operation on telecontrol lines together with the RTU560. However, it can also be connected to other data terminal equipments because it operates at the interfaces like a universal FSK-modem in the voice-band range (300-3400 Hz) according to CCITT.

The 23WT25 modem allows the assignment of communications channels for 50 baud up to 2400 baud (24 channels 50 baud, 12 channels 100 baud, 6 channels 200 baud, 2 channels 600 baud, 1 channel 1200 baud). The modem 23WT25 is available in two versions (rubrics):
- R0001: 5 V DC power supply
- R0002: 24 V DC power supply

Description
- Voice frequency telegraphy device (VFT)
- Channel-frequencies and -bandwidth are selectable according to CCITT standards (R35...R38) and V.23/1200 baud
- Additional 600 baud and 2400 baud channels

Additional material
- Programming cable 23WT25 1KGT013200R0001 23PK31
  - For download of project specific firmware version to 23WT25
Remote Terminal Units
RTU560 product line – Ethernet communication

560NUS04 - Integrated unmanaged switch with 4 Ethernet ports

Application
The RTU component 560NUS04 is an unmanaged plug and play 10/100 Mbps Ethernet switch providing 4 fast Ethernet autonegotiating RJ45-ports with auto MDI/X (automatic crossover detection and correction). The switch is intended for distributing Ethernet within a station and supplying a local area network (LAN) with additional ports and can be used with rack types 560MPR01, 560MPR03, 560SFR02.

Description
- Unmanaged switch
- 4x 10/100 BaseT port (electrical)
- Linear network structure supported

560NUS12 - Integrated unmanaged switch with 2 SFP slot

Application
The RTU component 560NUS12 is an unmanaged plug and play 10/100 Mbps Ethernet switch providing 2 fast Ethernet autonegotiating RJ45-ports with auto MDI/X (automatic crossover detection and correction) and 2 fiber optic 100 Mbps slots for use with SFP (small form-factor pluggable) modules. The switch is intended for distributing Ethernet within a station through the RJ45-ports. The fiber optic ports can be used for interconnecting stations with a maximum distance of 40 km.

Description
- Unmanaged switch
- 2x SFP slot, without optical transmitter/receiver
- Additional SFP modules are required (see 560NFOxx)
- 2x 10/100 BaseT port (electrical)
- Linear network structure supported
Remote Terminal Units
RTU560 product line – Ethernet communication

560NMS24 - Integrated managed switch with 2 SDSL-ports and 4 Ethernet ports

Application
The RTU component 560NMS24 is a managed plug and play Layer-2-switch providing 4 fast Ethernet auto-negotiating RJ45-ports with auto MDI/X (Automatic Crossover Detection and Correction) and two 2-wire SDSL-ports for use with private copper cables. It can be used with rack types 560MPR01, 560MPR03 and 560SFR02. The switch is intended for distributing Ethernet within a station through the RJ45-ports. The SDSL-ports can be used for interconnecting stations with a maximum distance of 20 km (copper cable with diameter of 0.8 mm). Longer distances can be achieved by cascading multiple 560NMS24. The switch is able to provide redundant topologies by the (Rapid) Spanning Tree Protocol. The switch supports VLAN frames and tunneling of serial data.

Description
- Integrated managed layer-2-switch
- 4x 10/100 BaseT port (RJ45, electrical, autonegotiating)
- 2x SDSL-port for copper wire
- Provides redundant topologies by the (Rapid) Spanning Tree Protocol (RSTP)
- 1x RS-232 port suitable for serial protocols

560NUS34 - Integrated managed switch with 1 SDSL-port and 4 Ethernet ports

Application
The RTU component 560NUS34 is a managed plug and play Layer-2-switch providing 4 fast Ethernet auto-negotiating RJ45-ports with auto MDI/X (automatic crossover detection and correction) and one 2-wire SDSL-port for use with private copper cables. It can be used with rack types 560MPR01, 560MPR03 and 560SFR02. The switch is intended for distributing Ethernet within a station through the RJ45-ports. The SDSL-port can be used for interconnecting stations with a maximum distance of 20 km (copper cable with diameter of 0.8 mm). The switch is able to provide redundant topologies by the (Rapid) Spanning Tree Protocol. The switch supports VLAN frames and tunneling of serial data.

Description
- Integrated managed layer-2-switch
- 4x 10/100 BaseT port (RJ45, electrical, autonegotiating)
- 1x SDSL-port for copper wire
- Provides redundant topologies by the (Rapid) Spanning Tree Protocol (RSTP)
- 1x RS-232 port suitable for serial protocols
Remote Terminal Units
RTU560 product line – Real time clocks

560RCR01 - Real time clock GPS for RTU560

Application
A remote terminal unit RTU560 can be synchronized with the time information received from the global positioning system (GPS) satellites using the module 560RCR01. The RTU560 reads the time and date from the module 560RCR01 and synchronizes its internal time to the standard time by the means of a minute pulse. The use of the module 560RCR01 ensures that process information from several terminal units are synchronized, when they include time information.

Description
Real time clock for synchronization of the RTU560 with the standard time of the GPS satellite including configuration tool.
- Antenna and cable have to be ordered separately

560RTC02 - Real time clock DCF77 for RTU560

Application
A RTU560 product line unit can be synchronized with the standard time of the long-wave transmitter DCF77 using the module 560RTC02. The RTU560 reads the time and date from the module 560RTC02 and synchronizes its internal clock to the standard time by means of a minute pulse. The use of the module 560RTC02 ensures that indications from several terminal units are synchronized, when they include time information.

Description
For synchronization of the RTU560 with the standard time of the long-wave transmitter DCF77.
- Antenna and cable have to be ordered separately
## Remote Terminal Units
### RTU560 product line – Real time clocks

<table>
<thead>
<tr>
<th>Additional Material</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connection cable 20 m for real time clock</td>
<td>1KGT0069000R0020</td>
<td>Cable to connect real time clock module 560RCR01 with 23AN02 or 560RTC02 with 25AN01</td>
</tr>
<tr>
<td></td>
<td>1KGT0069000R0050</td>
<td>Length 20 meters</td>
</tr>
<tr>
<td></td>
<td>23AC02 R0020</td>
<td>Cable to connect real time clock module 560RCR01 with 23AN02 or 560RTC02 with 25AN01</td>
</tr>
<tr>
<td></td>
<td>23AC02 R0050</td>
<td>Length 50 meters</td>
</tr>
<tr>
<td>Ferrite antenna for outside installation</td>
<td>GSNP812601R0003</td>
<td>Ferrite antenna for real time clock module 560RTC02</td>
</tr>
<tr>
<td></td>
<td>25AN01 R0003</td>
<td>Incl. wall mounting kit, 360° rotatable</td>
</tr>
<tr>
<td>GPS Antenna</td>
<td>1KGT0068000R0001</td>
<td>Active antenna for real time clock module 560RCR01</td>
</tr>
</tbody>
</table>
Remote Terminal Units
Technology translator for past and future system integration: RTU540 product line

Gateway product for distribution and subtransmission. Bridges old and new technology and combines existing devices and new standards protocols (such as IEC 61850) in one substation automation system. RTU540 incorporates advanced features like programmable logic control and a human machine interface allowing for instant insight into the status of the grid. The high-quality, compact metal housing includes input and output modules which lead to space savings in the control cabinet.

Your benefits
- Powerful protocol gateway to bridge old and new technologies in one system
- Intelligent device for automated load and voltage control
- Robust and compact housing for fan-less operation enables you to handle a complex network due to distributed intelligence
- Agile functionality allows easy adaption of automation based on changing system requirements
- Selective interpretation allow fast decision making in the network control center and safes primary equipment
- Communication redundancy for peace of mind and confidence in your network

Application examples
Being responsible for a whole network puts you in the situation where some devices might be brand new while others are working since a very long time. RTU540 is the perfect product for you to bring them together in one system. As a gateway between IEDs and network control system (communication protocols and station bus) it is able to interpret information from all standard protocols. Additionally our gateway is perfect if you want to integrate serial I/Os into your digital station bus.

We offer full protocol support and are able to digitize your data. The changing topology of modern electric networks requires a constant voltage control. This can be automated with the integration of RTU540 in the transformer. The device can independent from the network control center control the voltage levels and send signals to adjust them. This gives you the time to focus on more important topics in the control center and peace of mind that the RTU540 is the reliable solution for automation.

Application Areas
Automation of primary distribution substation
- Gateway between IEDs and Network control system
- Interfacing of station level I/Os into station bus
- Integration of serial IEDs into station bus
- Transformer monitoring and control
- Voltage control
Remote Terminal Units
Technology translator for past and future system integration: RTU540 product line

RTU540 Communication units

540CMD01
P. 32

540CID01
P. 33
Remote Terminal Units
RTU540 product line - Communication units

Description
DIN rail mounted base module RTU540
- Metal housing
- 4x serial port (RS-232 or RS-485)
- 2x Ethernet interface (10/100BaseT)
- USB configuration interface
- Power supply 24...125 V DC
- Integrated I/O (16 binary inputs, 8 binary outputs, 8 analog inputs)
- (1 out of n) check
- With connection interface to RTU500 I/O-extension modules
- Battery buffered real time clock
- Process voltage R0001: 24...60 V DC
- Process voltage R0002: 110...125 V DC

540CID01 - RTU540 base module with 2 Ethernet ports

Application
The 540CID01 is a module of the RTU540 product line consisting of a communication unit (CMU), a multi-I/O module (IOM) and a galvanic isolated wide range power supply (PSM) in a metal DIN rail housing.

The essential tasks are:
- Managing and controlling of the RTU520 I/O modules via the serial I/O bus
- Reading Process events from the input modules.
- Send commands to the output modules.
- Communicating with control systems and local HMI systems via the serial interfaces (RS232) and the Ethernet 10/100BaseT interfaces.
- Communication with Sub-RTU’s, IED’s or multimeter devices via the interfaces (RS485) and the Ethernet interfaces.
- Managing the time base for the RTU540 product line station and synchronizing the I/O modules.
- Handling the dialog between RTU540 product line and Web-Browser via the LAN interfaces.
- Capturing of 8 analog input signals (mA or V signals), fast scan cycle of 100 ms for 2 inputs
- Capturing of 16 digital input signals, 1 high speed counter input (max. 16 kHz)
- 8 output contacts (normal open), 1 or 2 pole output
- (1 out of n) check

The unit is suitable for Ethernet and UART based communication protocols, as well as for the serial I/O bus (WRB).

The unit has a battery buffered real time clock (RTC).

The unit is available in 2 versions:
- R0001: 24 ... 60 V DC process voltage for binary I/Os
- R0002: 110 / 125 V DC process voltage for binary I/Os
Remote Terminal Units
RTU540 product line - Communication units

540CMD01 - RTU540 base module with 2 Ethernet ports

Application
The 540CMD01 is a module of the RTU540 product line consisting of a communication unit (CMU) and a galvanic isolated wide range power supply (PSM) in a metal DIN rail housing. The essential tasks are:
- Managing and controlling the RTU520 I/O modules via the serial I/O bus
- Reading Process events from the input modules.
- Send commands to the output modules.
- Communicating with control systems and local HMI systems via the serial interfaces (RS232) and the Ethernet 10/100BaseT interfaces.
- Communication with Sub-RTU’s, IED’s or multimeter devices via the interfaces (RS485) and the Ethernet interfaces.
- Managing the time base for the RTU540 product line station and synchronizing the I/O modules.
- Handling the dialog between RTU540 product line and Web-Browser via the LAN interfaces.

The unit is suitable for Ethernet and UART based communication protocols, as well as for the serial I/O bus (WRB). The unit has a battery buffered real time clock (RTC).

Description
DIN rail mounted base module RTU540
- Metal housing
- 4x serial port (RS-232, RS-485)
- 2x Ethernet interface (10/100BaseT)
- USB configuration interface
- Power supply 24...125 V DC
- With connection interface to RTU500 I/O-extension modules
- Battery buffered real time clock
Remote Terminal Units
RTU520 product line – Intuitive insight for distribution systems

Distribution automation product for power grids. Interface with your SCADA to obtain a complete understanding of the status of your grid on a distribution level with RTU520. Allowing for the simple integration of renewables into your existing networks. Low power consumption saves costs for uninterruptible power supply and makes your installation greener. Highly customizable design enables the adaptation of input and output modules based on your application requirements.

Your benefits
• Efficient footprint allows to fit the RTU520 into small control cabinets
• Intuitive handling allows faster project execution
• User friendly design enables your employees to work fast and efficient with the products
• Secure communication in public networks saves time and money and fulfills highest cyber security standards
• Customizable product solution adapts fast and simple to changing requirements

Application examples
As your distribution network develops towards an intelligent network you will need more and more independent monitoring and control devices to handle all different tasks. With our RTU520 you will keep your costs down while ensuring a stable supply for your customers.
• RTU520 takes over the function of monitoring and control of switching devices for pole-top switch monitoring and control applications. The advantage for you is that you save costs for maintenance staff and that you will reduce the average outage duration for each customer (SAIDI).
• Recent developments bring distributed energy resources into the distribution grid and they need to be controlled in order to protect primary equipment and ensure power quality. With the RTU520 you can monitor and control the distributed energy resources (DER). This enables you to focus on the critical tasks of network management while the RTU locally controls DER.
• In the automation of secondary substation and ring main units the RTU520 monitors and controls your transformer and intelligently handles loads.

Application areas
Electrical distribution network
• Pole-top switch monitoring and control
• Capacitor bank automation
• Demand response management
• Automation of DER
• Energy storage
• Automation of secondary substation / ring main unit
• Transformer automation and control

Oil and gas application
• Wellhead automation
• Pipeline supervision
• Monitoring and control of pumping stations

Water distribution network
• Monitoring and control of water reservoirs
• Monitoring and control of pumping stations
Remote Terminal Units
RTU520 product line – Intuitive insight for distribution systems

Produktlinie 520 – Communication units

520CMD01
P. 36

Produktlinie 520 – Power supply units

520PSD01
P. 37

Produktlinie 520 – Input/Output modules

520AID01
P. 38
520AOD01
P. 38
520BID01
P. 39
520BOD01
P. 39
520CSD01
P. 40
520PTD01
P. 40

Produktlinie 520 – Input/Output adapters

520ADD01
P. 41
520ADD02
P. 41
520ADD03
P. 42
Remote Terminal Units
RTU520 product line - Communication units

Description
DIN rail mounted base module RTU520
- 3x serial port (2x RS-232, 1x RS-485)
- 1x Ethernet interface (10/100BaseT)
- 1x USB port
- With connection interface to RTU520 I/O-extension modules
- Battery buffered real time clock (R0002)

520CMD01- Base module

Application
The 520CMD01 communication unit is the CMU module of the RTU520 product line.
The essential tasks are:
- Managing and controlling of the RTU520 I/O modules via the serial I/O bus
- Reading Process events from the input modules.
- Send commands to the output modules.
- Communicating with control systems via the serial interfaces (RS232) and the Ethernet 10/100BaseT interface.
- Communication with Sub-RTU’s, IED’s or multimeter devices via the interfaces (RS485) and the Ethernet interface.
- Managing the time base for the RTU520 product line station and synchronizing the I/O modules.
- Handling the dialog between RTU520 product line and Web-Browser via the LAN interfaces.

The communication unit will be mounted on a DIN-rail, together with the power supply module and the I/O modules. The communication unit is able to handle Ethernet- and UART character based communication protocols.

The unit is available in 2 versions:
- R0001: without battery buffered real time clock (RTC)
- R0002: with battery buffered real time clock (RTC)
Remote Terminal Units
RTU520 product line – Power supply unit

520PSD01 - Power supply unit

Application
The power supply unit 520PSD01 generates or switches the voltages 24 VDC, ±15 VDC and 5 VDC for the RTU520 system. The output power is sufficient to supply a RTU520 with up to 16 I/O modules.

Description
- Power supply unit in combination with 520CMD01
- Input voltage: 24 V DC
- Output power: 20 W
Remote Terminal Units
RTU520 product line – Input/Output modules

520AID01 - 6 analog inputs, mA signals / V signals

**Application**
The 520AID01 module records up to 6 analog measured values. The module 520AID01 is able to process the following types of signals:
- Analog measured values (AMI)
- Measured floating point information (MFI)

Following measurement ranges can be configured:
- ± 2.5 mA
- ± 5 mA
- ± 10 mA
- ± 20 mA
Other effective ranges and live zero signals become generated out of these ranges through conversion of the communication unit (CMU).

**Description**

R0001:
- Resolution 11 bit + sign; accuracy class 0.25
- Measuring range: +/- 5 mA; +/- 10 mA; +/- 20 mA; 4…20 mA
- Resolution 10 bit + sign; accuracy class 0.5
- Measuring range: +/- 2.5 mA

R0002:
- Resolution 11 bit + sign; accuracy class 0.25
- Measuring range: +/- 1 V DC; +/- 10 VDC

520AOD01 - 2 analog outputs

**Application**
Analog control outputs for sequential or closed-loop control, display instruments, measurement recorders etc. can be connected by the analog output board 520AOD01. The board 520AOD01 has 2 output channels, which can be configured to different output current ranges. The module 520AOD01 is able to process the following types of signals:
- analog setpoint commands (ASO)
- floating point setpoint commands (FSO)

The output format unipolar, bipolar or live zero (4 … 20 mA) can be configured by software parameters.

**Description**
- Resolution 12 bit + sign; accuracy class 0.25
- Measuring range: +/- 2.5 mA; +/- 5 mA; +/- 10 mA; +/- 20 mA; 4…20 mA; +/- 1 V DC; +/- 10 VDC
Remote Terminal Units
RTU520 product line – Input/Output modules

**Description**
- To be used for single indications, double indications, digital measurands and pulse counters
- Resolution: 1ms
- Process voltage: 24...60 V DC / 110...125 V DC
- LED signal for each input
- Common return per 8 inputs

**Application**
The module 520BID01 provides 16 galvanic isolated inputs for up to 16 binary process signals. Scanning and processing of the inputs are executed with the high time resolution of 1 ms. The allocation of an input signal to the processing functions can be done according to the rules of configuration.

The module 520BID01 is able to process the following types of signals or a combination of them:
- 16 single point information with time stamp (SPI)
- 8 double point information with time stamp (DPI)
- 2 digital measured values each with 8 bit (DMI8)
- 1 digital measured value with 16 bit (DMI16)
- 16 integrated totals (max. 25 Hz) (ITI)
- 2 step position information each with 8 bit (STI)
- 2 bitstring input each with 8 bit (BSI8)
- 1 bitstring input with 16 bit (BSI16)
- or combinations of this signal types

The module is available in two versions (rubrics):
- 520BID01 R0001: process voltage 24 to 60 V DC.
- 520BID01 R0002: process voltage 110 to 125 V DC.

**Description**
- 8 single commands 1-pole NO contact (high capacity relays)
- Max. switching voltage: 150 V DC
- Max. load: 110 V DC / 3 A

**Application**
The module 520BOD01 can be used for the control of 8 binary process signals using relay contacts. The allocation of an output signal to the processing functions can be done according to the rules of configuration.

The module 520BOD01 is able to process the following types of signals:
- Single or double commands (SCO or DCO) with 1 or 2 pole output without (1 out of n) check
- Single or double commands (SCO or DCO) with 1.5 or 2 pole output with (1 out of n) check
- Regulation step command (RCO), 1 or 2 pole
- Digital setpoints commands, 8 Bit without strobe (DSO8)
- Bitstring output, 1 or 8 Bit (BSO1 or BSO8)

The module allows switching voltages up to 150 V DC or max. 8 A continuous current.
Remote Terminal Units
RTU520 product line – Input/Output modules

520CSD01 - I/O adapter Command output monitoring (1 out of n check) and 4 binary outputs

Application
The command output and supervision module 520CSD01 can be used for the control of 4 binary process commands using relay contacts. In addition it can be used if the output circuit of an object command has to be checked before the actual command is given. The 520CSD01 board executes a (1 out of n) check. It checks if only one interposing relay will be activated in the output circuit. Therefore all interposing relays connected to the check circuit must have the same resistance value.

The module 520CSD01 is able to process the following types of signals:
• Single or double commands (SCO or DCO) with 1 pole output without (1 out of n) check
• Single or double commands (SCO or DCO) with 1.5 pole output with (1 out of n) check
• Regulation step command (RCO), 1 pole
• Bitstring output, 1Bit (BSO1)

The command outputs of the 520CSD01 allows switching voltages up to 72 V DC or max. 5 A continuous current. The (1 out of n) test circuit can be used for voltage up to 150 V DC in combination with the command output relays of the 520BOD01.

Description
• 1 out of n check function
• Input voltage range of measuring circuit: 0.1...10 V
• Max. switching voltage (UP): 150 VDC
• Max. switching capacity (resistive/inductive): 120 W / 50 VA (L/R = 40 ms)
• 4 single commands 1-pole NO contact
• Max. switching voltage of switching relay: 72 VDC
• Max. breaking current (resistive/inductive): 5 A <= 55 VDC / 50 VA (L/R = 40 ms)

520PTD01 - Temperatur module for 6 PT100 inputs

Application
The 520PTD01 board is used to connect PT100 temperature transmitter directly. Up to six transmitters can be connected to the board. The measurement range is ±200 °C.

Description
• 6 PT100 inputs
• 2…4 wires per channel
• Resolution: 11 bit + sign
• Accuracy class: +/-1 °C (-25 °C...125 °C)
• Measuring range: -25 °C...150 °C
• Overrange: -200 °C...200 °C
• Measuring current: 6 mA
Remote Terminal Units
RTU520 product line – Input/Output adapters

520ADD01 - I/O adapter

**Application**
The I/O adapter 520ADD01 is used to connect RTU520 I/O modules to a RTU520 or RTU540 communication module.

**Description**
- Standard adapter module for up to 8 I/O modules
- 520BID01, 520BOD01, 520AID01, 520AOD01, 520PTD01
- Incl. 20 pole ribbon cable, cable length 300 mm

520ADD02 - I/O adapter, RS-485, optionally with fiber optical interface

**Application**
The I/O adapter 520ADD02 is used to connect more than 16 RTU520 I/O modules to an I/O bus with RS485 or fiber optic connection in RTU520 or RTU540.
The adapter is also used to extend the WRB I/O bus for decentralized I/O applications up to 2 km distance and if distances of more than 30 cm between the I/O adapters are required.
In addition the I/O adapter 520ADD02 is used as a stand-alone module to connect RTU560 I/O modules (e.g. 23BE40, 23BE50, 23BA40) to an RTU540.
The module is available in two versions (rubrics):
- R0001: RS485
- R0002: RS485 and glass fiber optical, 840 nm

**Description**
- Standard adapter module for up to 8 I/O modules
- 520BID01, 520BOD01, 520AID01, 520AOD01, 520PTD01 and interface to further I/O extension
- RS-485: 19,2 kbaud, 200 m
- Incl. 20 pole ribbon cable, cable length 300 mm
**Remote Terminal Units**

**RTU520 product line – Input/Output adapters**

**Description**

Adapter to connect more than 16 RTU520 I/O modules to an I/O bus with connection in RTU520 or RTU540

- Also used to extend the WRB I/O bus for decentralized I/O applications up to 2 km distance and if distances of more than 30 cm between the I/O adapters are required
- In addition used to connect RTU520 I/O modules to an RTU560
- Is always used together with the power supply unit 520PSD01

**520ADD03 - I/O adapter, remote I/O**

**Application**

The I/O adapter 520ADD03 is used to connect more than 16 RTU520 I/O modules to an I/O bus with RS485 or fiber optic connection in RTU520 or RTU540. The adapter is also used to extend the WRB I/O bus for decentralized I/O applications up to 2 km distance and if distances of more than 30 cm between the I/O adapters are required. In addition the I/O adapter 520ADD03 is used to connect RTU520 I/O modules to an RTU560. The I/O adapter is always used together with the power supply unit 520PSD01.

The module is available in two versions (rubrics):

- R0001: RS485
- R0002: glass fiber optical, 840 nm
Remote Terminal Units
Flexible extension modules for the whole RTU500 series: RTU500 series modules

The RTU500 series modules can be used with all product lines to provide additional and extended functionality. The modules offer special functions to complete a RTU for your specific application. RTU500 series modules include:

- RTU500 series power supply units
- RTU500 series I/Os
- RTU500 series I/O adapter
- RTU500 series multimeters
- RTU500 series serial communication
- RTU500 series ethernet communication

Multimeters
RTU’s multimeter devices enable direct measurement of voltage, current and power. The configuration of the devices is completely integrated into the easy-to-use RTU5i500 and the DIN rail wizard. Multimeters provide for a detailed monitoring of the network. To locate a fault, multimeters offer fault current detection with directional information. Additionally, the increased and reliable information about the network protect your investments and allow for precise new investments, if need be.

Communication
Flexibility of communication is a precondition for modern RTU systems. To guarantee an error-free and comprehensive communication to a variety of devices, the RTU500 series offers modules for Ethernet and serial communication.

Serial communication:
- Modems are used for serial communication. The RTU500 series modules offer modems with speed rates up to 9.600 Baud for distances up to 20 km. The modems operate in wide or voice band range to meet your requirements. What is more, the modems are available for CCITT V.23 standard.

Ethernet communication:
- unmanaged switches
- 4 port Ethernet switches distribute Ethernet with support of redundant topologies. Copper as well as fiber optical media are supported.
- managed switches with DSL

Available copper lines in combination with new fiber optical lines can be re-used for TCP/IP communication, allowing for an independent network for private communication. Additionally, tunneling of serial data via RS 232 interface allows for an easy migration from serial to Ethernet communication.
Remote Terminal Units
Flexible extension modules for the whole RTU500 series: RTU500 series modules

RTU500 Power supply units

- CP-E 24/2.5
  - P. 46
- 560PSU40
  - P. 46
- 560PSU41
  - P. 47
- 23VG23
  - P. 47
- 23VG24
  - P. 48

RTU500 Multimeters

- 560CVD03
  - P. 49
- 560CVD11
  - P. 51
- 500CVD21
  - P. 52

RTU500 Serial communication

- 500FSD10
  - P. 53
- 500FSD11
  - P. 53
- 500LT001
  - P. 54
- 500LT002
  - P. 54

RTU500 Ethernet communication

- 500NMD01
  - P. 55
- 500NMD02
  - P. 55
- 500NMD11
  - P. 56
- 500NMD20
  - P. 57
- 500LT003
  - P. 58
Remote Terminal Units
RTU500 series modules – Power supply units

---

**CP-E 24/2.5**

1SVR427032R0000

**Application**

The primary switch mode power supply offers two voltage input ranges. This enables the supply with AC or DC. Furthermore, it is equipped with two generous capacitors, which ensure mains buffering of at least 30 ms (at 230 V AC). That is why the devices can be used worldwide also in high fluctuating net-works and battery powered plants.

**Description**

Power supply module for DIN rail mounting
- Input voltage: 85...264 V AC, 90...375 V DC
- Output voltage: 24 V DC, max. 2.5 A, 60 W
- Typical efficiency of 89 %
- Ambient temperature range during operation -40...+70° C
- Power failure buffering time: min. 20 ms at 115 V AC, min. 30 ms at 230 V AC

---

**560PSU40**

1KGT011600R0001

**Application**

The power supply unit 560PSU40 is a galvanic isolated DIN rail power supply. It is designed to supply the DIN rail I/O-modules the 560MPRO1 and the communication modules of RTU500 series. In order to increase the availability 2 power supplies can be operated in parallel. External diodes are not necessary.

**Description**

Power supply module for DIN rail mounting
- Input voltage: 85...264 V AC or 85...375 V DC
- Output voltage: 24 V DC, max. 2.5 A, 60 W
- Suitable for supply of up to 8 interposing modules 23BEx0 / 23BA40 / 560FSMxx / 560MPRO1 / 560CVDxx / RTU540 / RTU520

---

**CP-E 24/2.5 - DIN rail power supply unit for 100 ... 240 V AC (85 ... 264 VAC, 90 ... 375 V DC), 60 W**

**560PSU40 - DIN rail power supply unit for 110 ... 220 V DC, 230 V AC**
Remote Terminal Units
RTU500 series modules – Power supply units

560PSU41 - DIN rail power supply unit for 24 ... 60 V DC

Application
The power supply unit 560PSU41 is a galvanic isolated DIN rail power supply. It is designed to supply the RTU560 DIN rail I/O-modules the 560MPR01 and the communication modules of RTU500 series.

Description
Power supply module for DIN rail mounting
- Input voltage: 24...60 V DC
- Output voltage: 24 V DC, max. 2.5 A, 60 W
- Suitable for supply of up to 8 interposing modules 23BE0 / 23BA40 / 560FSMxx / 560MPR01 / 560CVDxx / RTU540 / RTU520

23VG23 - Mains adapter 115 ... 230 V AC to 24 V DC, 48 W

Application
The mains adapter 23VG23 is an AC/DC converter in combination with an external back up battery for the use as an uninterruptible power system (UPS). It contains a switch-mode power supply of 92 V AC to 265 V AC without switch over the input voltage. The mains adapter supplies an output voltage of 24 V DC with an output current of min. 0,2 A and max. 2 A.
- Charge current: max. 0.35 A

Description
Mains adapter AC/DC converter for 115...230 V AC input, output 24 V DC, 2 A max.
- Designed for use with back-up battery 24 V DC nominal for maximum 1.5 hours full operation
Remote Terminal Units
RTU500 series modules – Power supply units

23VG24 - Mains adapter 115 ... 230 V AC to 24 V DC, 240 W

Application
The mains adapter 23VG24 is an AC/DC converter for an input voltage of 115 or 230 V AC. It supplies an output voltage of 24 V DC with an output current of max. 10 A. It can supply the module racks, the mounting panels and the I/O modules of a RTU560 station with a power output of approx. 240 W.

Description
Mains adapter AC/DC converter for 230 or 115 V AC input, output 24 V DC, 10 A max.
Remote Terminal Units
RTU500 series modules – Multimeters

560CVD03 - Multimeter 1A/5A, 3U3I

Application
The Multimeter 560CVD03 is used for measuring analog AC input signals from three independent phases. For each phase voltage and current are measured directly and a number of calculated values are generated by the module. The module supports configurations with 2 or 3 voltage transformers. There are several versions available.

Description
- CT/VT interface with 3 voltage and 3 current inputs for direct monitoring of 3 wire 85...400 V AC
- 1A / 5A inputs from AC transformers
- Serial interface to RTU500 (RS-485)
- LO power supply: 20...48 V DC
- HI power supply: 80...260 V AC, 80...330 V DC

<table>
<thead>
<tr>
<th>Version</th>
<th>Type</th>
<th>Display</th>
<th>LO</th>
<th>HI</th>
<th>1A</th>
<th>5A</th>
</tr>
</thead>
<tbody>
<tr>
<td>560CVD03 R0031</td>
<td>3U3I</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>560CVD03 R0035</td>
<td>3U3I</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>560CVD03 R0051</td>
<td>3U3I</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>560CVD03 R0055</td>
<td>3U3I</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Remote Terminal Units
RTU500 series modules – Multimeters

560CVD03 - Multimeter with display, 1A / 5A, 3U3I

**Application**
The Multimeter 560CVD03 is used for measuring analog AC input signals from three independent phases. For each phase voltage and current are measured directly and a number of calculated values are generated by the module. The module supports configurations with 2 or 3 voltage transformers.

There are several versions available.

**Description**
- CT/VT interface with 3 voltage and 3 current inputs for direct monitoring of 3 wire 85…400 V AC
- 1 A / 5 A inputs from AC transformers
- Serial interface to RTU500 (RS-485)
- With display on front
- LO power supply: 20…48 V DC
- HI power supply: 80…260 V AC, 80…330 V DC

<table>
<thead>
<tr>
<th>Version</th>
<th>Type</th>
<th>Display</th>
<th>LO</th>
<th>HI</th>
<th>1A</th>
<th>5A</th>
</tr>
</thead>
<tbody>
<tr>
<td>560CVD03 R0031</td>
<td>3U3I</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>560CVD03 R0035</td>
<td>3U3I</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>560CVD03 R0051</td>
<td>3U3I</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>560CVD03 R0055</td>
<td>3U3I</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>
Remote Terminal Units
RTU500 series modules - Multimeters

560CVD11 - Multimeter with FCD, 1A / 5A, 4U4I

Application
The Multimeter 560CVD11 is used for measuring analog AC input signals from three independent phases with addition input for neutral current and voltage. For each phase voltage and current are measured directly and a number of calculated values are generated by the module. In addition the module detects the fault current and the over current direction. The module supports configurations with 3 or 4 voltage transformers. There are several versions available.

Description
- CT/VT interface with 4 voltage and 4 current inputs for direct monitoring of 3/4 wire 10…300 V AC
- 1 A / 5 A signals
- Serial interface to RTU560 (RS-485)
- Fault current detection (FCD), directional information, 20x In

<table>
<thead>
<tr>
<th>Version</th>
<th>Type</th>
<th>LO</th>
<th>HI</th>
<th>1A</th>
<th>5A</th>
</tr>
</thead>
<tbody>
<tr>
<td>560CVD11 R0021</td>
<td>4U4I</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>560CVD11 R0025</td>
<td>4U4I</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>560CVD11 R0041</td>
<td>4U4I</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>560CVD11 R0045</td>
<td>4U4I</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Remote Terminal Units
RTU500 series modules – Multimeters

500CVD21 - Multimeter with FCD, 1A / 5A, 4U24I

Application
The Multimeter 500CVD21 is used for measuring analog AC input signals from three independent phases with optional inputs for neutral current and voltage. The module can measure currents from 6 or 8 feeders (3 phase systems) depending on the current input configuration. For each phase voltage and current are measured directly and a number of calculated values are generated by the module. In addition the module detects the fault current and the over current direction. The module supports configurations with 2, 3 or 4 voltage transformers. There are several versions available.

Description
- CT/VT interface with 4 voltage and 24 current inputs for direct monitoring of 3/4 wire 0…300 V AC (line to earth), 0...500 V AC (phase to phase)
- 1A / 5A from AC transformers
- Serial interface to RTU500 (RS-485)
- Fault current detection (FCD), directional information, 20x In
- LO power supply: 24...60 V DC
- HI power supply: 80...330 V AC, 80...260 V DC

<table>
<thead>
<tr>
<th>Version</th>
<th>Type</th>
<th>LO</th>
<th>HI</th>
<th>1A</th>
<th>5A</th>
</tr>
</thead>
<tbody>
<tr>
<td>500CVD21 R0121</td>
<td>4U24I</td>
<td>x</td>
<td></td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>500CVD21 R0125</td>
<td>4U24I</td>
<td>x</td>
<td></td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>500CVD21 R0141</td>
<td>4U24I</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>500CVD21 R0145</td>
<td>4U24I</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Zusatzmaterial</th>
<th>560KCA01</th>
</tr>
</thead>
<tbody>
<tr>
<td>Configuration kit for 560CVDxx</td>
<td></td>
</tr>
</tbody>
</table>
|                         | • Configuration kit for RTU500 series - multimeters  
|                         | • Set containing one cable mini-USB to DB-9 for RS-232 configuration port and CD with configuration tool for RTU500 series - multimeters |
Remote Terminal Units
RTU500 series modules – Serial communication

500FSD10 - Modem V.23

Application
The 500FSD10 is a modem which converts the serial data according to CCITT V.23 standard with 1200 baud. It operates on the frequency shift keying principle (FSK). Two- or four-wire operation mode is selectable by DIP-switch. The line output is capable to drive up to 10 remote stations connected in a multi-drop line. It can be connected to the 23WT23 modem for rack mounting and can be used as a self-contained counterpart of it.

Description
- Voice frequency telegraphy device (VFT)
- According CCITT V.23 standard with max. 1200 baud
- Can be connected to 23WT23
- DIN rail mounted
- Auxiliary voltage: 24…60 V DC

500FSD11 - Modem 9600 baud

Application
The 500FSD11 is a modem for transmitting serial data at rates up to 9600 baud. It operates on the frequency shift keying principle (FSK). Two- or four wire operation mode is selectable by DIP-switch. The line output is capable to drive up to 10 remote stations connected in a multi-drop line. It can be connected to the 23WT24 modem for rack mounting and can be used as a self-contained counterpart of it.

Description
- FSK device with 9600 baud transmission speed
- Communication over pilot cable
- Can be connected to 23WT24
- DIN rail mounted
- Isolation test voltage 3 kV
- Auxiliary voltage: 24…60 V DC
Remote Terminal Units
RTU500 series modules – Serial communication

---

500LTD01 - Line Transformer 10 kV, 300 Hz...3.4 kHz

Application
The line transformer 500LTD01 is designed for FSK channels in the range of 50 Bd to 2400 Bd and to isolate and protect the RTU500 series Modems 23WT23, 23WT25 and 500FSD10 from the telecontrol line. Moreover it can also be connected to other data terminal equipments. It is optimized for pilot wire communication with a frequency range from 300 Hz to 3400 Hz and for line impedances of 600 Ohms which applies to above mentioned modems. A high-resistance staggering is possible with all three types of modems on e.g. party lines and multi-drop lines. This is because of the line transformer has no additional load at the line. In configurations using full duplex communication channels two line transformers are required, one for transmitting direction and one for receiving direction.

Description
Isolated line transformer for galvanic isolation of transmission line
- Operates at a frequency range from 300 Hz to 3.4 kHz (23WT23, 23WT25 and 500FSD10)
- Isolation test voltage 10 kV/50 Hz/10 s
- Optimized for line impedances of 600 Ω
- Ratio 1:1
- Snap locked
- Screw terminals
- Insulation resistance: 10000 MΩ at 500 V between windings and the case

---

500LTD02 - Line Transformer 7.5 kV, 2-50 kHz

Application
The line transformer 500LTD02 is designed for FSK channels with 9600 baud to isolate and protect the RTU560 Modems 23WT24 and 500FSD11 from the telecontrol line. Moreover it can also be connected to other data terminal equipments. It operates at a frequency range from 2 kHz to 50 kHz and is optimized for line impedances of 150 Ohms which applies to above mentioned modems. A high resistance staggering is possible with both types of modems on e.g. party lines and multi-drop lines. This is because the line transformer has no additional load at the line. In configurations using full duplex communication channels two line transformers are required, one for transmitting direction and one for receiving direction.

Description
Isolated line transformer for galvanic isolation of transmission line
- Operates at a frequency range from 2 kHz to 50 kHz (23WT24 and 500FSD11)
- Isolation test voltage 7.5 kV
- Optimized for line impedances of 150 Ω
- Ratio 1:1
- Insulation resistance: 10000 MΩ at 500 V between windings and the case
Remote Terminal Units
RTU500 series modules – Ethernet communication

500NMD01 - DIN rail integrated managed switch with 1 SDSL-port, 4 Ethernet ports and 1 serial RS-232 port

**Application**
The DIN rail mountable 500NMD01 is a managed plug and play layer-2-switch providing 4 fast Ethernet auto-negotiating RJ45-ports with auto MDI/X (Automatic Crossover Detection and Correction) and one 2-wire SDSL-port for use with private copper cables. The switch is intended for distributing Ethernet within a station through the RJ45-ports.
The SDSL-port can be used for interconnecting stations with a maximum distance of 20 km (copper cable with diameter of 0.8 mm). The switch is able to provide redundant topologies by the (Rapid) Spanning Tree Protocol. The modem can be connected to 560NMS24 and 560NMS34.

**Description**
- Integrated managed layer-2-switch
- 4x 10/100 BaseT port (RJ45, electrical, autonegotiating)
- 1x SDSL-port for copper wire (pilot cable)
- Provides redundant topologies by the (Rapid) Spanning Tree Protocol (RSTP)
- 1x RS-232 port suitable for tunneling of serial protocols

500NMD02 - DIN rail integrated managed switch with 2 SDSL-ports, 4 Ethernet ports and 2 serial RS-232 ports

**Application**
The DIN rail mountable 500NMD02 is a managed plug and play layer-2-switch providing 4 fast Ethernet auto-negotiating RJ45-ports with auto MDI/X (Automatic Crossover Detection and Correction) and two 2-wire SDSL-ports for use with private copper cables. The switch is intended for distributing Ethernet within a station through the RJ45-ports.
The SDSL-ports can be used for interconnecting stations with a maximum distance of 20 km (copper cable with diameter of 0.8 mm). The switch is able to provide redundant topologies by the (Rapid) Spanning Tree Protocol in one device. The modem can be connected to 560NMS24 and 560NMS34.

**Description**
- Integrated managed layer-2-switch
- 4x 10/100 BaseT port (RJ45, electrical, autonegotiating)
- 2x SDSL-port for copper wire
- Provides redundant topologies by the (Rapid) Spanning Tree Protocol (RSTP)
- 2x RS-232 port suitable for tunneling of serial protocols
Remote Terminal Units
RTU500 series modules – Ethernet communication

Description
- Integrated managed layer-2-switch
- 4x 10/100 BaseT port (RJ45, electrical, autonegotiating)
- 1x SFP slot (without optical transmitter/receiver)
- Additional SFP modules are required (see 560NFOxx)
- 1x SDSL-port for copper wire
- Provides redundant topologies by the (Rapid) Spanning Tree Protocol (RSTP)
- 2x RS-232 port suitable for tunneling of serial protocols

Application
The DIN rail mountable 500NMD11 is a managed plug and play layer-2 switch providing 4 auto-negotiating fast Ethernet RJ45-ports with auto MDI/X (Automatic Crossover Detection and Correction), one 2-wire SDSL-port for use with private copper cables and one SFP (small form-factor pluggable) module slot for use with fiber optic transceivers. Ethernet may be distributed within a station through the 4 RJ45-ports of the switch. The SDSL-port can be used for interconnecting stations with a maximum distance of 20 km (diameter of 0.8 mm) copper cable. Depending on the SFP-module equipped, the unit is able to span distances by fiber optic cable up to 40 km. The switch is able to provide redundant topologies by the (Rapid) Spanning Tree Protocol in one device.

Additional material:
- SFP (small form-factor pluggable) for optical switch
  - 500SMM15 • for 560NUS12 and 500NMD11 mono mode.
    - Distance of typically 15km
  - 500SM40 • for 560NUS12 and 500NMD11 mono mode.
    - Distance of typically 40km
  - 500SM02 • for 560NUS12 and 500NMD11 mono mode.
    - Distance of typically 2km
- Configuration adapter for 560NMDxx
  - 560NMA01 • Saves configuration for one DIN rail integrated switch
  - Enable PC free replacement of modules
Remote Terminal Units
RTU500 series modules – Ethernet communication

500NMD20 - DIN rail integrated managed switch with 2 FX-ports and 4 Ethernet ports

Application
The DIN rail mountable 500NMD20 is a managed plug and play layer-2 switch providing four Fast Ethernet auto-negotiating RJ45-ports with auto MDI/X (Automatic Crossover Detection and Correction) and two SFP (small form-factor pluggable) module slots for use with fibre optic transceivers. Depending on the SFP module equipped, the unit is able to span distances by fibre optic cable up to 40 km (or even more with special SFP modules). The switch is able to provide redundant topologies by the (Rapid) Spanning Tree Protocol.

Description
- Integrated managed layer-2-switch
- 4x 10/100 BaseT port (RJ45, electrical, autonegotiating)
- 2x SFP-slot (without optical transmitter/receiver)
- Additional SFP module is required (see 560NFOxx)
- Provides redundant topologies by the (Rapid) Spanning Tree Protocol (RSTP)
- 2x RS-232 port suitable for tunneling of serial protocols

500LTD03 - DIN rail line transformer 7.5 kV. 1-1000 kHz

Application
The line transformer 500LTD03 is designed for DSL channels with up to 7168 kbps and to isolate and protect the RTU500 DSL Modems 500NMD01, 500NMD02, 500NMD11, 560NMS24 and 560NMS34 from the telecontrol line. Moreover it can also be connected to other data terminal equipments.

It operates at a frequency range from 1 kHz to 1 MHz and is optimized for line impedances of 100 Ohms.
In DSL modem configurations one line transformer is required at both ends of the line.

Description
Isolated line transformer for galvanic isolation of transmission line
- Designed for DSL channels with up to 7168 kbps
- Isolates and protects the RTU500 DSL modems 560NMDxx, 500NMDxx, 560NMSxx from the telecontrol line
- Operates at a frequency range from 1 kHz to 1000 kHz
- Isolation test voltage > 10 kV
- Optimized for line impedances of 100 Ohms
- Ratio 1:1
- Insulation resistance: 10,000 M Ohm at 500 V between windings and the case
Remote Terminal Units
One software for all product lines of RTU500 series – RTU500 series functions and software

<table>
<thead>
<tr>
<th>Licences Release 11</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Release 11 for RTU560 and RTU540 series</strong></td>
<td></td>
</tr>
<tr>
<td>Basic Licence</td>
<td></td>
</tr>
<tr>
<td>PLC/Archive Licence</td>
<td>60-61</td>
</tr>
<tr>
<td>HMI (human machine interface) Licence</td>
<td>60-61</td>
</tr>
<tr>
<td><strong>Release 11 for RTU520 series</strong></td>
<td></td>
</tr>
<tr>
<td>Basic Licence</td>
<td></td>
</tr>
<tr>
<td>PLC/Archive Licence</td>
<td>62</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Licences Release 12</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Release 12 for RTU560 and RTU540 series</strong></td>
<td></td>
</tr>
<tr>
<td>Basic Licence</td>
<td></td>
</tr>
<tr>
<td>SPS/Archive Licence</td>
<td>60-61</td>
</tr>
<tr>
<td>HMI (human machine interface) Licence</td>
<td>60-61</td>
</tr>
<tr>
<td>RTU Licences (Extension)</td>
<td>60-61</td>
</tr>
<tr>
<td><strong>Release 12 for RTU520 series</strong></td>
<td></td>
</tr>
<tr>
<td>Basic Licence</td>
<td></td>
</tr>
<tr>
<td>PLC/Archive Licence</td>
<td>62</td>
</tr>
<tr>
<td>RTU Licences (Extension)</td>
<td>62</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Configuration software</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>COMPROTware Tool</td>
<td>63</td>
</tr>
<tr>
<td>ITT600 SA Explorer</td>
<td>63</td>
</tr>
<tr>
<td>RTUtil500</td>
<td>63</td>
</tr>
<tr>
<td>IETG00</td>
<td>63</td>
</tr>
<tr>
<td>MULTIPROGwt</td>
<td>63</td>
</tr>
</tbody>
</table>
Remote Terminal Units

One software for all product lines of RTU500 series – RTU500 series functions and software

01 Presentation of analogue trends.

02 Human machine interface with example for station monitoring.

03 Settings of I/O adapters.

04 Web interface for RTU500 series.
## Remote Terminal Units
### RTU500 series functions and software

<table>
<thead>
<tr>
<th>Licence Type</th>
<th>Licence Code</th>
<th>Descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Licences Release 11 for RTU560 and RTU540 series</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Basic Licence</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1KGT201651R0011</td>
<td>(50 DP)</td>
<td></td>
</tr>
<tr>
<td>1KGT201648R0011</td>
<td>(250 DP)</td>
<td></td>
</tr>
<tr>
<td>1KGT201645R0011</td>
<td>(750 DP)</td>
<td></td>
</tr>
<tr>
<td>1KGT201437R0001</td>
<td>(5000 DP)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>50 DP/ 250 DP/ 750 DP/ 5000 DP</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Incl. IEC 61850 Server and Client</td>
</tr>
<tr>
<td></td>
<td></td>
<td>All protocols</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SD card</td>
</tr>
<tr>
<td><strong>PLC/Archive Licence</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1KGT201652R0011</td>
<td>(50 DP)</td>
<td></td>
</tr>
<tr>
<td>1KGT201649R0011</td>
<td>(250 DP)</td>
<td></td>
</tr>
<tr>
<td>1KGT201646R0011</td>
<td>(750 DP)</td>
<td></td>
</tr>
<tr>
<td>1KGT201643R0011</td>
<td>(5000 DP)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>50 DP/ 250 DP/ 750 DP/ 5000 DP</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Incl. basic licence</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SD card</td>
</tr>
<tr>
<td><strong>HMI Licence</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1KGT201653R0011</td>
<td>(50 DP)</td>
<td></td>
</tr>
<tr>
<td>1KGT201650R0011</td>
<td>(250 DP)</td>
<td></td>
</tr>
<tr>
<td>1KGT201647R0011</td>
<td>(750 DP)</td>
<td></td>
</tr>
<tr>
<td>1KGT201644R0011</td>
<td>(5000 DP)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>50 DP/ 250 DP/ 750 DP/ 5000 DP</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Incl. basic and PLC/Archive licence</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SD card</td>
</tr>
<tr>
<td><strong>Licences Release 12 for RTU560 and RTU540 series</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Basic Licence</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1KGT201651R0012</td>
<td>(50 DP)</td>
<td></td>
</tr>
<tr>
<td>1KGT201648R0012</td>
<td>(250 DP)</td>
<td></td>
</tr>
<tr>
<td>1KGT201645R0012</td>
<td>(750 DP)</td>
<td></td>
</tr>
<tr>
<td>1KGT201642R0012</td>
<td>(5000 DP)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>50 DP/ 250 DP/ 750 DP/ 5000 DP</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Incl. IEC 61850 Server and Client</td>
</tr>
<tr>
<td></td>
<td></td>
<td>All protocols</td>
</tr>
<tr>
<td><strong>SPS/Archive Licence</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1KGT201652R0012</td>
<td>(50 DP)</td>
<td></td>
</tr>
<tr>
<td>1KGT201649R0012</td>
<td>(250 DP)</td>
<td></td>
</tr>
<tr>
<td>1KGT201646R0012</td>
<td>(750 DP)</td>
<td></td>
</tr>
<tr>
<td>1KGT201643R0012</td>
<td>(5000 DP)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>50 DP/ 250 DP/ 750 DP/ 5000 DP</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Incl. basic licence</td>
</tr>
<tr>
<td><strong>HMI Licence</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1KGT201653R0012</td>
<td>(50 DP)</td>
<td></td>
</tr>
<tr>
<td>1KGT201650R0012</td>
<td>(250 DP)</td>
<td></td>
</tr>
<tr>
<td>1KGT201647R0012</td>
<td>(750 DP)</td>
<td></td>
</tr>
<tr>
<td>1KGT201644R0012</td>
<td>(5000 DP)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>50 DP/ 250 DP/ 750 DP/ 5000 DP</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Incl. basic licence and SPS/Archive Licence</td>
</tr>
<tr>
<td><strong>RTU Licences Release 12 (Extension)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1KGT036600R0001</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Advanced security features: VPN, IEC104 secure and IEEE 802.1X</td>
</tr>
<tr>
<td></td>
<td></td>
<td>License extension for Release 12 Firmware</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Adds the following features to the license:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- VPN</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- IEC104 secure</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- IEEE 802.1X authentication</td>
</tr>
</tbody>
</table>
### Remote Terminal Units
#### RTU500 series functions and software

**Licences Release 11 for RTU560 and RTU540 series**

**CF card for 560CMU02, 560CMU05, 560CIG10, 560CMD11, 560CID11**

<table>
<thead>
<tr>
<th>Licence Type</th>
<th>Licence Codes</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Basic Licence</strong></td>
<td></td>
<td>50 DP / 250 DP / 750 DP / 5000 DP</td>
</tr>
<tr>
<td>Basic Licence</td>
<td>1KGT201446R0011 (50 DP)</td>
<td>Incl. IEC 61850 Server and Client</td>
</tr>
<tr>
<td></td>
<td>1KGT201443R0011 (250 DP)</td>
<td>All protocols</td>
</tr>
<tr>
<td></td>
<td>1KGT201440R0011 (750 DP)</td>
<td>Compact flash card 128 MB</td>
</tr>
<tr>
<td></td>
<td>1KGT201437R0011 (5000 DP)</td>
<td></td>
</tr>
</tbody>
</table>

| **PLC/Archive Licence** | 1KGT201447R0011 (50 DP) | Incl. basic licence                              |
|                        | 1KGT201444R0011 (250 DP) | Compact flash card 128 MB                        |
|                        | 1KGT201441R0011 (750 DP) |                                              |
|                        | 1KGT201438R0011 (5000 DP) |                                              |

| **HMI Licence**       | 1KGT201448R0011 (50 DP) | 50 DP / 250 DP / 750 DP / 5000 DP               |
|                      | 1KGT201445R0011 (250 DP) | Incl. basic and PLC/Archive licence             |
|                      | 1KGT201442R0011 (750 DP) | Compact flash card 128 MB                       |
|                      | 1KGT201439R0011 (5000 DP) |                                              |

**Licences Release 12 for RTU560 and RTU540 series**

**CF card for 560CMU02, 560CMU05, 560CID11, 560CIG10, 560CMD11, 560CMG10**

<table>
<thead>
<tr>
<th>Licence Type</th>
<th>Licence Codes</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Basic Licence</strong></td>
<td></td>
<td>50 DP / 250 DP / 750 DP / 5000 DP</td>
</tr>
<tr>
<td>Basic Licence</td>
<td>1KGT201446R0012 (50 DP)</td>
<td>Incl. IEC 61850 Server and Client</td>
</tr>
<tr>
<td></td>
<td>1KGT201443R0012 (250 DP)</td>
<td>All protocols</td>
</tr>
<tr>
<td></td>
<td>1KGT201440R0012 (750 DP)</td>
<td>Compact flash card 128 MB</td>
</tr>
<tr>
<td></td>
<td>1KGT201437R0012 (5000 DP)</td>
<td></td>
</tr>
</tbody>
</table>

| **SPS/Archive Licence** | 1KGT201447R0012 (50 DP) | 50 DP / 250 DP / 750 DP / 5000 DP               |
|                        | 1KGT201444R0012 (250 DP) | Incl. basic licence                              |
|                        | 1KGT201441R0012 (750 DP) |                                              |
|                        | 1KGT201438R0012 (5000 DP) |                                              |

| **HMI Licence**       | 1KGT201448R0012 (50 DP) | Incl. basic licence and SPS/Archive licence     |
|                      | 1KGT201445R0012 (250 DP) |                                             |
|                      | 1KGT201442R0012 (750 DP) |                                             |
|                      | 1KGT201439R0012 (5000 DP) |                                             |

| **RTU Licences Release 12 (Extension)** | 1KGT036600R0001 | Advanced security features: VPN, IEC104 secure and IEEE 802.1X |
|                                         |                 | License extension for Release 12 Firmware       |
|                                         |                 | Adds the following features to the license:    |
|                                         |                 | - VPN                                          |
|                                         |                 | - IEC104 secure                                |
|                                         |                 | - IEEE 802.1X authentication                   |

**Remote Terminal Units**

**RTU500 series functions and software**
## Remote Terminal Units
### RTU500 series functions and software

<table>
<thead>
<tr>
<th>Licences Release 11 for RTU520 series</th>
<th>SD card</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Basic Licence</strong></td>
<td></td>
</tr>
<tr>
<td>1KGT201599R0011 (50 DP)</td>
<td>50 DP/ 250 DP/ 750 DP</td>
</tr>
<tr>
<td>1KGT201596R0011 (250 DP)</td>
<td>For all protocols</td>
</tr>
<tr>
<td>1KGT201593R0011 (750 DP)</td>
<td>SD card</td>
</tr>
<tr>
<td><strong>PLC/Archive Licence</strong></td>
<td></td>
</tr>
<tr>
<td>1KGT201600R0011 (50 DP)</td>
<td>50 DP/ 250 DP/ 750 DP</td>
</tr>
<tr>
<td>1KGT201597R0011 (250 DP)</td>
<td>Incl. basic licence</td>
</tr>
<tr>
<td>1KGT201594R0011 (750 DP)</td>
<td>SD card</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Licences Release 12 for RTU520 series</th>
<th>SD card für 520CMD01</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Basic Licence</strong></td>
<td></td>
</tr>
<tr>
<td>1KGT201599R0012 (50 DP)</td>
<td>50 DP/ 250 DP/ 750 DP</td>
</tr>
<tr>
<td>1KGT201596R0012 (250 DP)</td>
<td>For all protocols</td>
</tr>
<tr>
<td>1KGT201593R0012 (750 DP)</td>
<td>SD card</td>
</tr>
<tr>
<td><strong>SPS/Archive Licence</strong></td>
<td></td>
</tr>
<tr>
<td>1KGT201600R0012 (50 DP)</td>
<td>50 DP/ 250 DP/ 750 DP</td>
</tr>
<tr>
<td>1KGT201597R0012 (250 DP)</td>
<td>Incl. basic licence</td>
</tr>
<tr>
<td>1KGT201594R0012 (750 DP)</td>
<td>SD card</td>
</tr>
</tbody>
</table>

| RTU Licences Release 12 (Extension)  |                     |
| 1KGT036600R0001                      | Advanced security features: VPN, IEC104 secure and IEEE 802.1X |
|                                      | License extension for Release 12 Firmware |
|                                      | Adds the following features to the license: |
|                                      | - VPN |
|                                      | - IEC104 secure |
|                                      | - IEEE 802.1X authentication |
# Remote Terminal Units

## RTU500 series functions and software

<table>
<thead>
<tr>
<th>Configuration software</th>
<th>1KGT0000000R0003</th>
<th>Integrated test tool for telecontrol protocols</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>• The following protocols are available:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>IEC 870-5-101, IEC 870-5-102, IEC 870-5-103,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>IEC 870-5-104, MODBUS, SPABUS, RP570,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DNP 3.0 (serial, DNP 3.0 on LAN/WAN</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Scope of supply: Dongle (hardlock USB)</td>
</tr>
<tr>
<td>COMPROMware Tool</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| ITT600 SA Explorer      | 1KGT210239R0001   | IEC 61850 testing tool (single license)  |
|                         |                   | with following functions:  |
|                         |                   | • Explore IED's  |
|                         |                   | • Explore data models  |
|                         |                   | • Explore Ethernet  |
|                         |                   | • Explore GOOSE  |
|                         |                   | • Scope of supply: dongle (hardlock USB), CD  |

| RTUii500                | 1KGT210278R0001   | Utility software for industrial standard PC  |
|                         |                   | containing the program modules running under  |
|                         |                   | Windows 7 (single license):  |
|                         |                   | • Configuration of RTU500 (signal tree,  |
|                         |                   |   network tree, hardware tree)  |
|                         |                   | • Creation of download files for RTU500  |
|                         |                   | • EXCEL-Import/Export function  |
|                         |                   | • Scope of supply: one CD  |
|                         |                   | • For firmware release 11  |

| RTUii500 Rel 12         | 1KGT210278R0012   | Utility software for industrial standard PC  |
|                         |                   | containing the program modules running under  |
|                         |                   | Windows 7 (single license):  |
|                         |                   | • Configuration of RTU500 (signal tree,  |
|                         |                   |   network tree, hardware tree)  |
|                         |                   | • Creation of download files for RTU500  |
|                         |                   | • EXCEL-Import/Export function  |
|                         |                   | • Scope of supply: one CD-ROM  |
|                         |                   | • For firmware release 12  |

| IET600                  | 1KGT030900R0001   | Integrated Engineering tool IET600  |
|                         |                   | IET600 acts as a system tool which is used to define  |
|                         |                   | and share the system-wide 61850 parameters,  |
|                         |                   | such as communication addresses, horizontal  |
|                         |                   | communication data and its priorities and client/  |
|                         |                   | server (system level/IED) connections. The actual  |
|                         |                   | configuration of the IED and the downloading of  |
|                         |                   | configuration changes is done with PCM600.  |

| Multiprog 5 (PRO)       | 1KGT038500R0001   | Utility software for industrial standard PC  |
|                         |                   | containing the program modules running under  |
|                         |                   | Windows 7/Windows 10 (single license):  |
|                         |                   | • PLC programming according to IEC61131-3,  |
|                         |                   |   function-block-diagram (FBD), Instruction  |
|                         |                   |   list (IL), structured text (ST), sequential  |
|                         |                   |   function chart (SFC), ladder diagram (LD)  |
|                         |                   | • Import/export with external programming  |
|                         |                   |   and simulation systems (PLCopen)  |
|                         |                   | • Matlab Simulink XML Code Import  |
|                         |                   | • Source Code Conversion (FBS/KOP/AWL)  |
|                         |                   | • Project comparison and multi-user mode  |
|                         |                   | • Scope of supply: license key for one  |
|                         |                   |   workplace (single license)  |
|                         |                   | • for RTUii500 release 12.2 and newer  |
|                         |                   | • Tool is part of the RTUii500 CD-ROM  |
|                         |                   | (needs to be ordered separately)  |

| MULTIPROGwt            | 1KGT210204R0001   | Software package utilities RTU500 for PLC Utility software  |
|                         |                   | for industrial standard-PC containing the program  |
|                         |                   | modules running under Windows XP (single license):  |
|                         |                   | • PLC programming according to IEC61131-3  |
|                         |                   |   function-block-diagram (FBD), Instruction  |
|                         |                   |   list (IL), structured text (ST), sequential  |
|                         |                   |   function chart (SFC), ladder diagram (LD)  |
|                         |                   | • Scope of supply: dongle (hardlock USB), software  |
|                         |                   |   is part of RTUii500 and RTUii500 CD  |
|                         |                   | • For RTUii500 Version 11 and 12  |