



Product catalog

Remote Terminal Units RTU500 series



Power and productivity
for a better world™



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Remote Terminal Units Introduction

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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 leaders 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,



i.V. Helmut Weber
Global product line manager RTU

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Global product manager RTU



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Remote Terminal Units

RTU500 series – Intelligence distributed across your power grid

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Remote Terminal Units

Overview – Your benefits at a glance

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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

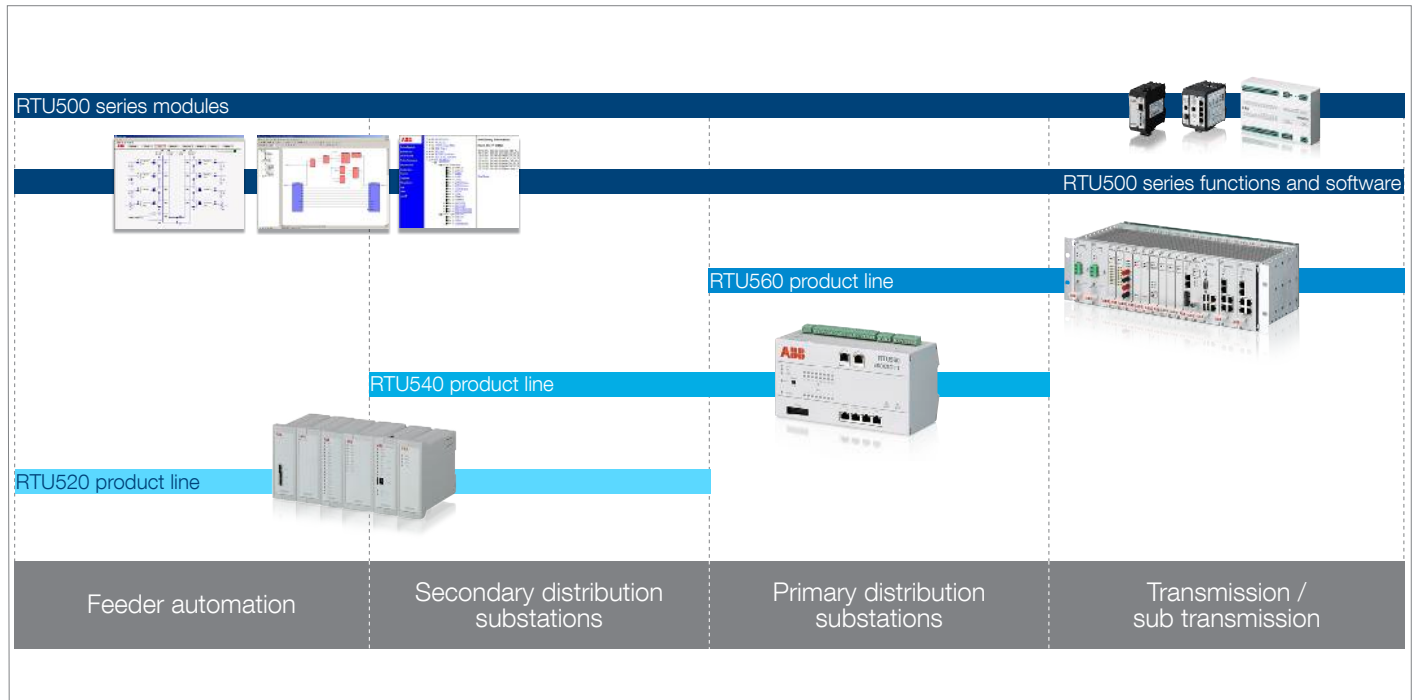
Our RTU500 series brings the information from the physical power grid to your SCADA system. The modular Remote Terminal Units (RTU) are designed to meet your needs in transmission and distribution automation, enabling you to have the

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

Overview - RTU500 series



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.

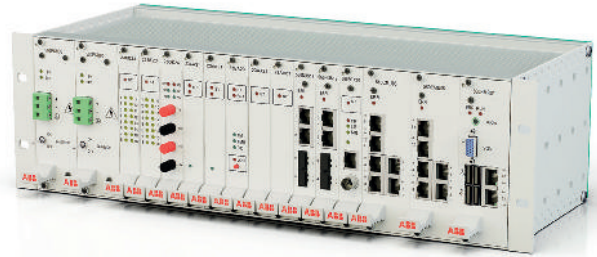
To protect your investments over a long time, existing installations can be upgraded to modern RTUs with only little effort. The available migration kits and ABB's extensive knowledge makes it very easy to exchange your installed base in just a few steps.



Remote Terminal Units

RTU560 product line – Superior scalability for grid automation and control

3



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 61850. 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
- 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

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Remote Terminal Units

RTU560 product line – Communication units



Description

Central module of the RTU560 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

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 station and synchronizing the I/O modules.
- Handling the dialog between RTU560 and Web-Browser via the LAN and USB interfaces.

Within the RTU560 racks the board occupies one slot. The communication unit is able to handle Ethernet-, UART-character based communication protocols.



Description

Central 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

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 station and synchronizing the I/O modules.
- Handling the dialog between RTU560 and Web-Browser via the LAN and USB interfaces.

Within the RTU560 racks the board occupies two slots. The communication unit is able to handle Ethernet-, UART-character based communication protocols.

Remote Terminal Units

RTU560 product line – Communication units



560CMU05
1KGT012700R0002

Communication unit (CMU) for RTU560, 4 serial ports, 2 Ethernet ports

Application

The 560CMU05 communication unit is one of the CMU boards of the RTU560.

The essential tasks are:

- Managing and controlling of the I/O boards via the interfaces to the RTU serial peripheral bus
- Reading process events from the input boards
- Send commands to the output boards
- Communication with control centers and local HMI systems via the integrated serial line interfaces and the implemented Ethernet 10/100 BaseT LAN interface
- Managing the time base for the RTU560 station and synchronizing the I/O boards
- Handling the dialog between RTU560 and web browser via LAN interface
- Support of bit oriented protocols

Within the RTU560 racks the board occupies two slots. It contacts itself via a DIN F socket connector to the rack. The Communication unit 560CMU05 is able to handle Ethernet-, UART- and all non UART-character based communication protocols, and serial peripheral bus.

Description

Central module of the RTU560 with 32 bit CPU

- 4x serial communication interface (RS-232 or RS-485) for local/remote communication
- 2x Ethernet interface (10/100BaseT)

Licences for protocol, functions and compact flash are not included.



560HMR01
1KGT030500R0001
1KGT030500R0002

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

Application

The 560HMR01 is a rack based human machine interface board of the RTU560 system.

The essential tasks of the 560HMR01 are:

- Interface to RTUs that are running web-server and RTU560 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 RTU560 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
1KGT026500R0001

Description

Power supply unit for RTU560 racks

- Input voltage 24...60 VDC
- Output voltage: 5 and 24 VDC
- Suitable for redundant power supply in 560MPR03/560SFR02

Power supply unit for RTU560, 24...60 VDC, 44.3 W

Application

The power supply unit 560PSR00 generates the two supply voltages (5 VDC and 24 VDC) for the RTU560 racks 560MPR03 and 560SFR02. The output power is sufficient to supply a sub-rack with up to 4 communication units.

It is possible to configure redundant power supplies for project configurations with higher requirements to availability. In this configuration 2 power supply units 560PSR00 are operating in parallel mode. They are able to take over the 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 VDC (-20...+15 %)



560PSU01
1KGT006600R0002

Description

Power supply unit for RTU560 racks

- Input voltage 110...220 VDC
- Output voltage: 5 and 24 VDC
- Suitable for redundant power supply in 560MPR03/560SFR02

Power supply unit for RTU560, 110...220 VDC, 44.3 W

Application

The power supply unit 560PSU01 generates the two supply voltages (5 VDC and 24 VDC) for the RTU560 racks 560MPR03 and 560SFR02. The output power is sufficient to supply a sub-rack with up to 4 communication units.

It is possible to configure redundant power supplies for project configurations with higher requirements to availability. In this configuration 2 power supply units 560PSU01 are operating in parallel mode. They are able to take over the load, if one power supply fails.

The power supply unit 560PSU01 is available in the following version (rubric):

- R0002: Input range 110...220 VDC (-20...+15 %)

Remote Terminal Units

Product line RTU560 – Power supply units



560PSU02
1KGT011900R0001

Description

Power supply unit for RTU560 racks

- Input voltage: 48...220 VDC
- Output voltage: 5 and 24 VDC
- Suitable for redundant power supply in 560MPR03/560SFR02

Power supply unit for RTU560, 48...220 VDC, 85 W

Application

The power supply unit 560PSU02 generates the two supply voltages (5 VDC and 24 VDC) for the RTU560 communication units (CMU) within the rack. The output power is sufficient to supply the whole communication subrack with up to 8 CMU modules.

It is possible to configure redundant power supplies for project configurations with higher requirements for availability. In this configuration 2 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 VDC (-20...+15%)

Remote Terminal Units

RTU560 product line – Input/output modules



Description

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

- Resolution: 1 ms
- Process voltage: 24...60 VDC
- LED signal for each input

Binary input, 16 channels, LED's

Application

Isolated input of up to 16 binary process signals. Scanning and processing of the inputs are executed with the high time resolution of 1 ms. Allocation of an input to a processing function can be done according to the rules of configuration.

The board 23BE23 can process the following types of signals:

- 16 single indications with time stamp
- 8 double indications with time stamp
- 2 digital measured values with 8 bit
- 1 digital measured value with 16 bit
- 16 pulse counters (max. 120 Hz)
- 2 step position information each with 8 bit
- Two 8 bit string information
- One 16 bit string information

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Description

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

- Resolution: 1 ms
- Process voltage: 110/125 V DC
- LED signal for each input

Binary input, 16 channels, LED's

Application

The binary input 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 bit string input each with 8 bit (BSI8)
- 1 bit string input with 16 bit (BSI16)
- or combinations of this signal types

Remote Terminal Units

RTU560 product line – Input/output modules



23BA20
GSNE000700R5312

Binary output, 16 channels

Application

The binary output board 23BA20 can be used for the potentially isolated output of up to 16 binary signals to the process. The assignment of an output to a number of processing functions can be managed within the scope of the configuration rules.

The 23BA20 can be used for the following types of signals :

- Object commands with 1 or 2 pole output without (1 out of n) check
- Object command with 1.5 or 2 pole output with (1 out of n) check
- Set-point messages
- General output messages

Description

- 16 output contacts configured as
 - 1-pole command
 - 2-pole command
 - 1.5-pole command in configuration with 23BA23
- Operating voltage 24...60 VDC, 60 W
- I_{max}: 2 A @ 24 VDC (ohmic load)



23BA23
1KGT020800R0001

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 feasible only if all interposing relays connected to one check circuit have the same resistance value.

The 23BA23 board allows to check two 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

Description

- Two test and switching circuits
- Auxiliary test voltage 24...60 VDC

Remote Terminal Units

RTU560 product line – Input/output modules



Description

- Resolution 12 bit + sign
- Measuring ranges: +/-2 mA; +/-5 mA; +/-10 mA; +/-20 mA; +/-40 mA; +/-2 VDC; 0...20 VDC

Analog input, 8 channels

Application

The 23AE23 board records up to 8 analog measured values. The 23AE23 board allows it to connect all typical measured value ranges. It can be configured for the following measurement ranges by setting switches and jumpers:

- ± 2 mA
- ± 5 mA
- ± 10 mA
- ± 20 mA
- ± 40 mA
- ± 2 VDC
- 0 ... +20 VDC

Other effective ranges and live zero signals become generated out of these ranges through conversion of the communication unit (CMU).



Description

- Analog signal represented digitally by 11 bit + sign
- Selectable current outputs: +/-2.5 mA; +/-5 mA; +/-10 mA; +/-20 mA; +4...20 mA

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, measurement recorders etc. can be connected to the RTU560. The 23AA21 board has 2 output channels which are isolated and can be configured to different output current ranges. The output format, unipolar or bipolar resp. live zero (4...20 mA) can be configured by software parameters.

The following output current ranges can be configured independently per channel via plug-in jumpers:

- ± 2.5 mA
- ± 5 mA
- ± 10 mA
- ± 20 mA (4...20 mA)

Remote Terminal Units

RTU560 product line – Input/output modules



23BE50
1KGT020900R0001

Description

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

- Resolution: 1 ms
- Process voltage: 24...60 VDC
- LED signal for each input

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 each up to 16 binary signals. Scanning and processing of the inputs are executed with the high time resolution of 1 ms.

Allocation of an input to a processing function 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)



23BA40
1KGT011200R0011

Description

- 16 output contacts configured as 16 single contact outputs or 8 double contact outputs
- Switching voltage: 24...220 VDC / 250 VAC
- Max. switching capacity: 120 W (DC)
- Max. switching current: 300 mA at 110 VDC, 200 mA at 220 VDC (L/R = 40 ms)
- Isolated relay output contacts NO, 2-pole connection

Command output module 110...220 VDC

Application

The binary output board 23BA40 can be used for the potentially isolated output of up to 16 binary output signals to the process. The assignment of an output to a number of processing functions can be freely undertaken within the scope of the configuration rules. Secure command output with (n out of 16) check of the output relays.

The 23BA40 can be used for the following types of signal:

- Object commands with single or double contact outputs
- Regulation commands
- Digital setpoints
- Bitstring output, 1, 2 or 16 bit

Remote Terminal Units

RTU560 product line – Input/output modules



23BE40
1KGT011100R0011
1KGT011100R0012

Description

- 16 channel potential isolated inputs, without common return
- Process voltage: 110...125 VDC and 220...250 VDC

Binary input, 16 channels 110...125 VDC (R0011) and 220...250 VDC (R0012)

Application

The binary input board 23BE40 is used for the isolated input of up to 16 binary process signals. Scanning and processing of the inputs are executed with the high time resolution of 1 ms.

The board is available in two versions (rubrics):

- 23BE40 R0011: 110...125 VDC
- 23BE40 R0012: 220...250 VDC

Allocation of an input signal to a processing function can be done according to the rules of configuration. The 23BE40 can process the following types of signals:

- 16 single indications with time stamp
- 8 double indications with time stamp
- 2 step position information each with 8 bit
- 8/16 bit digital measured value(s)
- 8/16 bit string information
- 16 pulse counters (max. 25 Hz)

Remote Terminal Units

RTU560 product line – Racks



560MPR01
1KGT012500R0001

Description

- Mounting panel for RTU with plug for serial peripheral bus for extension
- Max. 8 slots for peripheral modules
- Max. 2 CMUs (560CMU02/05)

Rack with 9 slots, wall mounted

Application

The mounting plate rack 560MPR01 accommodates up to 2 communication units (CMU) 560CMU02 or 560CMU05 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).

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Additional material:

Bus connection unit for 560MPR01



1KGT007900R0001

560BCU02 R0001

- Alarm and warning contacts
- Minute pulse in- and output

Process connector 2-/17-/19-pole for 560MPR01/03



1KGN000556R2019
1KGN000556R2017
1KGN000556R2002

23XS20 R2019

- 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

23XS20 R2017

- 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

23XS20 R2002

- 2-pole connector with screw-terminals AWG12 for process connections to the I/O modules on 560MPR01/03; 100 pcs per package

Blanking front plate



1KGT007700R1002

560FPR01 R1002

- Blanking front plate to cover free slots within a module sub rack (1 slot)
- light beige, plastic, with ABB logo grip
- Incl. screws
- 100 pcs per package

Remote Terminal Units

RTU560 product line – Racks



560MPR03
1KGT022100R0001

Description

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

Mounting panel for 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 (560CMU05/560CMU02).

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.

Additional material:

Bus connection unit for 560MPR03 (Basic, Extension and CAN bus termination)



1KGT022300R0001
1KGT022300R0002
1KGT022300R0003

560BCU04 R0001 (Basic)

- Alarm and warning contacts
- Minute pulse in- and output
- Supervision of redundant power supply
- For 2 units 560CMU0x (one basic unit, one extension unit)

560BCU04 R0002 (Extension)

- Extension kit for 10 additional 560CMU0x, 10 pcs per package

560BCU04 R0003 (CAN bus termination)

- Single CMU CAN bus termination only (no alarm and warning contacts, no minute pulse in- and output, no supervision of redundant power supply)

Process-connector 2-/ 17-/ 19-pole for 560MPR03/01



1KGN000556R2019
1KGN000556R2017
1KGN000556R2002

23XS20 R2019

- 19-pole connector with screw-terminals AWG12 for process connections to the I/O modules on 560MPR03/01 (one connector per module); 100 pcs per package

23XS20 R2017

- 17-pole connector with screw-terminals AWG12 for process connections to the I/O modules on 560MPR03/01 (one connector per module); 100 pcs per package

23XS20 R2002

- 2-pole connector with screw-terminals AWG12 for process connections to the I/O modules on 560MPR03/01; 100 pcs per package

Blanking front plate



1KGT007700R1002

560FPR01 R1002

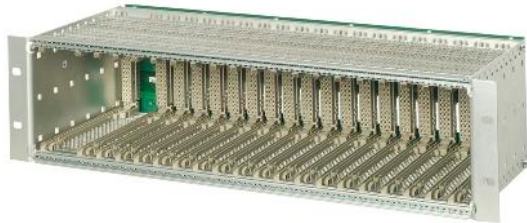
- Blanking front plate to cover free slots within a module sub rack (1 slot)
- light beige, plastic, with ABB logo grip
- Incl. screws
- 100 pcs per package

Remote Terminal Units

RTU560 product line – Racks



3



560SFR02
1KGT022200R0001

Description

- With flexible configuration for I/O, CMU and power supply

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 (560CMU05/ 560CMU02). 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.

Additional material:

Bus connection unit for 560MPR03 (Basic, Extension and CAN bus termination)



1KGT022400R0001
1KGT022400R0002
1KGT022400R0003

560BCU05 R0001 (Basic)

- Alarm and warning contacts
- Minute pulse in- and output
- Supervision of redundant power supply
- For 2 units 560CMU0x (one basic unit, one extension unit)

560BCU05 R0002 (Extension)

- Extension kit for 10 additional 560CMU0x, 10 pcs per package

560BCU05 R0003 (CAN bus termination)

- Single CMU CAN bus termination only (no alarm and warning contacts, no minute pulse in- and output, no supervision of redundant power supply)

Process-connector-housing 560SFR02



1KGN000758R3001

23XS40 R3001

- 18-pole plug for connectors of 560SFR02 (housing only, without snap-in contacts)
- 100 pcs per package

Snap-in contacts for 23XS40 R3001



1KGN000758R4001

23XS40 R4001

- Snap-in contacts for 23XS40 R3001 (18 contacts per plug required)
- Suitable for AWG20-AWG26
- 500 pcs per package

Remote Terminal Units

RTU560 product line – Serial communication



23OK24
1KGT011800R5001

Fiber optic coupler (BFOC/2.5) for 2 glass-fibre optic 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 board can be used for signal conversion to fiber optic signals of the received and transmitted data for the following electrical interface standards:

- RTU560 I/O bus
- RS-485 bus
- RS-232 C

The fiber optic coupler 23OK24 can be connected to the RTU500 coupler 560FOC40.

Description

- Fiber optic coupler for glass-fiber optic cable with emission wave length of 820 nm
- Fiber optic connection with bayonet socket BFOC/2.5 (IEC-SC86B)
- Optical isolation of RTU560 bus
- Suitable as star coupler for RS-485 bus and RS-232 bus
- Interfacing of IEC 60870-5-103 devices
- Connector for 2 optical lines on frontplate



23WT23
1KGT008200R0001
1KGT008200R0002

Modem V.23, power supply 5...24 VDC

Application

The 23WT23 board is a modem which converts the serial data according to FSK-channel CCITT V.23 standard. Therefore it can be used for transmission via leased PTT-lines or private networks.

The modem 23WT23 is available in two versions (rubrics):

- 23WT23 R0001: V.23 modem power supply +5 VDC
- 23WT23 R0002: V.23 modem power supply +24 VDC

Two- or four-wire operation mode is selectable by jumper. The voice frequency (VF) output has a high impedance which allows that up to 10 remote stations can be connected to a multi-drop line.

Description

- Voice frequency telegraphy device (VFT) according CCITT V.23 standard with max. 1200 baud

Remote Terminal Units

RTU560 product line – Serial communication



23WT24
1KGT010500R0001

Description

- FSK device with 9600 bps transmission speed
- Connector for RS-232 testing and disconnecting on frontplate
- Communication over pilot cables
- Auxilliary voltage: 5 V DC

Modem 9600 baud, 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 cables.

The board operates on the frequency shift keying principle (FSK). Two- or four-wire operation mode is selectable by jumper. The frequency output can be set to high impedance which allows that up to 10 remote stations can be connected to a multi-drop line.

3



23WT25
1KGT012400R0001
1KGT012400R0002

Description

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

Modem 50-2400 baud, power supply 5...24 VDC

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 a two- or four-wire line with communication 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).

There are two versions (rubrics) available:

- 23WT25 R0001: 5 VDC supply
- 23WT25 R0002: 24 VDC supply

Additional material:

Programming cable for 23WT25



1KGT013200R0001

23PK31

- For download of project specific firmware version to 23WT25

Remote Terminal Units

RTU560 product line – Ethernet communication



560NUS04
1KHW001891R0001

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 auto-negotiating 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
1KHW001892R0001

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 auto-negotiating 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

Additional material:

SFP (small form-factor pluggable) for optical switch



1KHW001893R0001
1KHW001894R0001
1KHW001895R0001

560NFO13

- For 560NUS12, 560NMD11, 500NMD20; monomode, distance of typically 15 km

560NFO15

- For 560NUS12, 560NMD11, 500NMD20; monomode, distance of typically 40 km

560NFO85

- For 560NUS12, 560NMD11, 500NMD20; multimode, distance of typically 2 km

Remote Terminal Units

RTU560 product line – Ethernet communication



560NMS24
1KHW002108R0001

Description

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

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 560MPPR01, 560MPPR03 and 560SFR02.

The switch is intended for distributing Ethernet within a station through the RJ45-ports. The SDSL-ports can be used for inter-connecting 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.



560NMS34
1KHW023538R0001

Description

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

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

Application

The RTU component 560NMS34 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 560MPPR01, 560MPPR03 and 560SFR02.

The switch is intended for distributing Ethernet within a station through the RJ45-ports. The SDSL-port can be used for inter-connecting 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.

Remote Terminal Units

RTU560 product line – Real time clocks



560RTC01
1KGT006700R0001

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

Real time clock GPS for RTU560

Application

A RTU560 product line unit can be synchronized with the time information received from the global positioning system (GPS) satellites using the module 560RTC01. The RTU560 reads the time and date from the module 560RTC01 and synchronizes its internal time to the standard time by the means of a minute pulse. The use of the module 560RTC01 ensures that process information from several terminal units are synchronized, when they include time information.



560RTC02
1KGT007800R0001

Description

For synchronization of the RTU560 with the standard time of the long-wave transmitter DCF77.

- Antenna and cable have to be ordered separately

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.

Remote Terminal Units

RTU560 product line – Real time clocks



560RTC03
1KGT012000R0001

Real time clock IRIG-B for RTU560

Application

A remote terminal unit RTU560 can be synchronized with the standard time of the IRIG-B signal using the module 560RTC03. The RTU560 reads the time and date from the module 560RTC03 and synchronizes its internal clock to the standard time by means of a minute pulse. The use of the module 560RTC03 ensures that indications from several terminal units are synchronized, if they include time information.

3

Description

For synchronization of the RTU560 with the standard time of the IRIG-B signal.

- Receiver and cable have to be ordered separately

Additional material:

Connection cable 20 m/ 50 m for real time clock



1KGT006900R0020
1KGT006900R0050

23AC02 R0020

- Cable to connect real time clock module 560RTC01 with 23AN02 or 560RTC02 with 25AN01
- Length 20 meters

23AC02 R0050

- Cable to connect real time clock module 560RTC01 with 23AN02 or 560RTC02 with 25AN01
- Length 50 meters

Ferrite antenna for outside installation



GSNP812601R0003

25AN01 R0003

- Ferrite antenna for real time clock module 560RTC02
- Incl. wall mounting kit, 360° rotatable

GPS antenna



1KGT006800R0001

23AN02 R0001

- Active antenna for real time clock module 560RTC01