

## ДОПЪЛНИТЕЛНО СПОРАЗУМЕНИЕ

№ .....3 | 02.08.2022г.....

Към договор № 0023-ЦДУ/ 15.07.2019 г.  
с предмет „Доставка на телемеханични системи“

Днес, 02.08. 2022 г., в гр. София, между:

„ЕЛЕКТРОЕНЕРГИЕН СИСТЕМЕН ОПЕРАТОР“ ЕАД (ЕСО ЕАД) със седалище и адрес на управление гр. София 1618, община Столична, район Витоша, бул. „Цар Борис III“ № 201, ЕИК 175201304, представлявано от Ангелин Николаев Цачев – Изпълнителен директор, съгласно Решение по т. 1 от протокол № 25/05.07.2021г. от заседание на Управителния съвет на ЕСО ЕАД, Решение по т. 1 от протокол № 27/05.07.2021г. от заседание на Надзорния съвет на ЕСО ЕАД и решения по т. 1 и т. 2 от протокол № 145 от 16.07.2021г. от заседание на КЕВР, наричан по-долу за краткост ВЪЗЛОЖИТЕЛ, от една страна

и

„ХИТАЧИ ЕНЕРДЖИ БЪЛГАРИЯ“ ЕООД, със седалище и адрес на управление: гр. Севлиево п.к. 5400, област Габрово, община Севлиево, ул. „Никола Петков“ № 32, с ЕИК 205722229, представлявано от Стефан Василев Минчев и Андреа Броняра заедно и поотделно в качеството им на управители, наричано по-долу за краткост ИЗПЪЛНИТЕЛ, от друга страна,

### Предвид това ,че :

А. С уведомително писмо вх. № ЕСО - 9892/ 07.12.2021г. ВЪЗЛОЖИТЕЛЯТ е уведомен писмено за промяна на наименованието на ИЗПЪЛНИТЕЛЯ от „АББ Пауър Гридс България“ ЕООД на „Хитачи Енерджи България“ ЕООД, без промяна на ЕИК на ИЗПЪЛНИТЕЛЯ, с което се установява идентичност на правния субект.

Б. С уведомително писмо вх. № ЕСО-6389/30.06.2022г. ВЪЗЛОЖИТЕЛЯТ е уведомен писмено, че цифрови входове модул 560BIR01R0001 с поръчков номер 1KGT034000R0001 се заменя от модул 560BIR01R0101 с поръчков номер 1KGT034000R0101. Цифрови изходи модул 560BOR01R0002 с поръчков номер 1KGT036800R0002 се заменя с модул 560BOR01R0102 с поръчков номер 1KGT036800R0102. Предлага се заместващите модули, които са напълно съвместим технически с останалото оборудване да бъдат доставени по поръчка № 4240261635 от 10.05.2022 г, както и по бъдещи поръчки по договора, като договорената цена остава непроменена. Приложени са технически спецификации на заместващите модули, на основание на които техническият екип на ВЪЗЛОЖИТЕЛЯ е потвърдил писмено еквивалентността им. Въз основа на горното и на основание чл. 116, ал. 1, т. 7 от Закона за обществените поръчки (ЗОП), се сключи настоящият анекс за следното:

**Чл. 1.** При изпълнение на поръчки за доставка на стоки по договор № 0023-ЦДУ/ 15.07.2019 г. с предмет „Доставка на телемеханични системи“ цифрови входове модул 560BIR01R0001 с поръчков номер 1KGT034000R0001 се заменя от модул 560BIR01R0101 с поръчков номер 1KGT034000R0101. Цифрови изходи модул 560BOR01R0002 с поръчков номер 1KGT036800R0002 се заменя с модул 560BOR01R0102 с поръчков номер 1KGT036800R0102, които са напълно съвместими технически с оферираните модули, като договорената цена остава непроменена.

**Чл. 2.** Настоящото допълнително споразумение влиза в сила от датата на регистрирането му в деловодната система на **ВЪЗЛОЖИТЕЛЯ**, която се поставя на всички екземпляри на допълнителното споразумение, за което **ВЪЗЛОЖИТЕЛЯТ** незабавно, но не по-късно от три работни дни уведомява **ИЗПЪЛНИТЕЛЯ**.

**Чл. 3.** Настоящото допълнително споразумение се състави в два оригинални екземпляра, един за **ВЪЗЛОЖИТЕЛЯ** и един за **ИЗПЪЛНИТЕЛЯ**.

**Приложение:** Технически спецификации на заместващите модули за цифрови входове 560BIR01R0101 и за цифрови изходи 560BOR01R0102;

ЗА „ХИТАЧИ ЕНЕРДЖИ БЪЛГАРИЯ“ ЕООД:  
**СТЕФАН МИНЧЕВ**

**Заличено на основание чл. 37 от ЗОП**

**АНДРЕА БРОНЯРА** ИДН ДИРЕКТОР  
УПРАВИТЕЛ

**Заличено на основание чл. 37 от ЗОП**

**АНГЕЛИН ЦАЧЕВ**  
ИЗПЪЛНИТЕЛЕН ДИРЕКТОР

**Заличено на основание чл. 37 от ЗОП**

**Заличено на основание чл. 37 от ЗОП**

**Заличено на основание чл. 37 от ЗОП**

**Заличено на основание чл. 37 от ЗОП**

ДО  
Ангелин Цачев  
Изпълнителен директор  
ЕСО ЕАД  
гр. София 1618  
бул. „Цар Борис III” №201



**Относно: Договор № 0023-ЦДУ/15.07.2019г. с предмет „Доставка на телемеханични системи“**

Уважаеми г-н Цачев,

Поради недостига на материали и компоненти, и недостига на електронни компоненти се наложи да бъде променен дизайна на някои I/O модули. Новият вариант на модулите е с нов контролер.

Направените промени не влияят на електромагнитната съвместимост и работните условия и в този смисъл типовите изпитания остават валидни.

Съгласно вътрешните процеси свързани с доставката и логистиката на оборудването, тези модули се преименуват, както следва:

Тип на модула	Код на модул съгласно Договора	Нов код на модул
Цифрови входове	560BIR01R0001 с поръчков номер 1KGT034000R0001	560BIR01R0101 с поръчков номер 1KGT034000R0101
Цифрови изходи	560BOR01R0002 с поръчков номер 1KGT036800R0002	560BOR01R0102 с поръчков номер 1KGT036800R0102

Приложени към настоящото писмо изпращаме:

- Уведомително писмо от производителя на оборудването за промяната в хардуерните елементи на модулите;
- Техническа документация с характеристики на новите варианти на модулите.

Моля за Вашето потвърждение, че новите версии на модулите могат да бъдат доставени по Ваша поръчка №4240261635 от 10.05.2022г., както и по бъдещи поръчки съгласно Договора.

#### Хитачи Енерджи България ЕООД

Търговски Офис – бул. „Витоша” № 89Б, ОББ Милениум център, сграда А, вт. 17, 1463, София, България  
Регистриран Офис – ул. Никола Петков № 32, 5400, Севлиево, България  
ЕИЖ: 205722229, ДДС №: BG205722229, Факс: +359 (0) 2 807 55 98  
Банкови данни: ИНГ Банк, клон София – IBAN: BG74INGB91451000000611 (BGN),  
BGCSINGB91451400000365 (EUR), BGG6INGB91451100000134 (USD), BIC: INGBBG5F  
ISO Сертификати: 9001:2015, 14001:2015, 27001:2017, 45001:2018  
[www.hitachienergy.com](http://www.hitachienergy.com)

Приложение 1 – Уведомително писмо от производителя на оборудването

Приложение 2 – Техническа спецификация на модул цифрови входове 560BIR01R0101 и цифрови изходи 560BOR01R0102

Дата: 30.06.2022г.

**Заличено на основание чл. 37 от ЗОП**

Управител  
Хитачи Енерджи България ЕООД

**Хитачи Енерджи България ЕООД**

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Банкови данни: ИНГ Банк, клон София – IBAN: BG74INGB91451000000611 (BGN),  
BG05INGB91451400000365 (EUR), BG96INGB91451100000134 (USD), BIC: INGBBG33  
ISO Сертификати: 9001:2015, 14001:2015, 27001:2017, 45001:2018  
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To whom it may concern

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REFERENCE NO.

DATE

2022-05-19

## RTU560, material information

**Hitachi Energy Germany AG**, who are official manufacturers of **RTU500 series (RTU560, RTU540, RTU530, RTU520)**, having production facilities at **Mannheim, Germany**, hereby would like to inform that

Based on material shortages and allocation situation on the electronic components market it was necessary to change the design of some I/O modules with a new controller to maintain production

This new design is pin and function compatible (plug and play) and does not need configuration changes. The PCB changes do not affect EMC and environmental behavior, as such the type test remain valid.

According to internal supply and logistic processes, these modules are renamed as per below:

Current Part Code	New Part Code	Remark
Binary input module 560BIR01R0001 1KGT034000R0001	Binary input module 560BIR01R0101 1KGT034000R0101	New IO controller
Binary input module 560BIR01R0002 1KGT034000R0002	Binary input module 560BIR01R0102 1KGT034000R0102	New IO controller
Binary output module 560BOR01R0002 1KGT036800R0002	Binary output module 560BOR01R0102 1KGT036800R0102	New IO controller

We hereby would like to ensure that those changes are full aligned with our quality standards and will allow us to maintain production and standard delivery times

We look forward on your understanding and keep open for any concern or support you can need

## Hitachi Energy Germany AG

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Head Office: Mannheim

Registry Court: Mannheim

Commercial Register: HRB 733113

Tax identification no.: 37003/34083

VAT no: DE323647980

Chairman of the Supervisory Board:

Dr. Markus Heimbach

Managing Board:

Pascal Daleiden (Chairman)

Christoph Käubler

Yours sincerely,

Hitachi Energy Germany AG

**Заличено на основание чл. 37 от ЗОП**

Sigbert Reimann  
Product Manager - RTU500 series

Thorsten Platz  
Global operation unit manager RTU500

Remote Terminal Units - Data sheet

## Binary input 560BIR01 RTU560 product line



Binary input module with 16 channels, 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 560BIR01 of the RTU560 product line 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

The module is available in four versions (rubrics):

- 560BIR01 R0001: process voltage 24 to 60 V DC. LED signaling for each input, common return per 8 inputs.
- 560BIR01 R0101: process voltage 24 to 60 V DC. LED signaling for each input, common return per 8 inputs., Pin and function compatible with R0001, only a alternative IO controller is used.

- 560BIR01 R0002: process voltage 110 to 125 V DC. LED signaling for each input, common return per 8 inputs.
- 560BIR01 R0102: process voltage 110 to 125 V DC. LED signaling for each input, common return per 8 inputs., pin and function compatible with R0002, only a alternative IO controller is used.

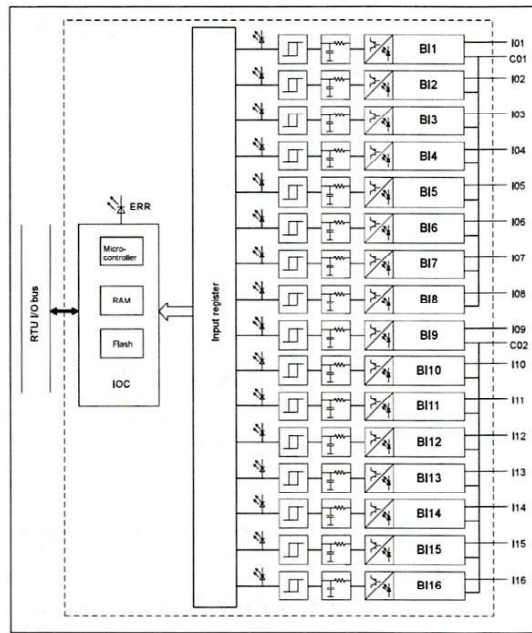


Figure 1: Block diagram 560BIR01



## **Characteristics**

### **Binary inputs**

The inputs are galvanic isolated by means of optical couplers. 8 inputs are building a group with a common return. The input circuit is designed to keep the input current constant by using current regulative diodes.

The binary input channels are protected against reverse voltage installation. If the input signal is installed with wrong polarity the input current will be zero.

The module has 16 LEDs to indicate the signal state at the inputs. The LEDs follow direct the input signal.

The maximum frequency for counter pulses is 120 Hz.

### **Power supply input**

The required power for the module is supplied via the RTU560 backplane.

### **I/O controller (IOC)**

The micro-controller on the module processes all time critical I/O tasks of the parameterized processing functions. Moreover it carries out the interactive communication with the RTU560 I/O bus. All configuration data and processing parameters are loaded by the communication unit via the RTU560 I/O bus.

The module is equipped with a serial interface to the RTU560 I/O bus on the backplane.

The binary input unit can execute the following processing functions for the different types of signals:

- Digital filtering to suppress contact bounce
- Suppression of oscillating signals caused by the process
- Validity check and suppression of intermediate input states for double indications
- Consistency check for all channels allocated to digital measured values or step position information
- Summation of increment pulses to form integrated totals in registers of 31 bit resolution
- Copying of integrated totals values into freezing registers for data conservation

The module provides a data buffer for temporally storing of up to 50 event messages including time stamps. The events are stored in chronological order designated for transmission to the communication unit (CMU).

During initialization and operation the module carries out a number of tests. If a fault occurs it is reported to the communication unit. All fault conditions impairing the function of the module are displayed as common fault signal by a red LED. A failure of the connected module(s) is detected and signaled by the communication unit.

### Technical data

In addition to the RTU500 series general technical data, the following applies:

#### Binary input channels 560BIR01 R0001 and R0101

Inputs	16 channels,  common return for 2 groups of 8 channels,  isolated by opto-couplers
Nominal input voltage	24... 60 V DC (+/- 20%)
Max. input voltage	72 V DC
Input current	1.8... 2.2 mA constant
Logical '1' definitely detected	≥ 18 V DC
Logical '0' definitely detected	≤ 9 V DC
Reverse voltage protection	yes
Max. input frequency for integrated totals	120 Hz

#### Binary input channels 560BIR01 R0002 and R0102

Inputs	16 channels,  common return for 2 groups of 8 channels,  isolated by opto-couplers
Nominal input voltage	110... 125 V DC (+/- 20%)
Max. input voltage	150 V DC
Input current	1.0... 1.6 mA constant
Logical '1' definitely detected	≥ 85 V DC
Logical '0' definitely detected	≤ 45 V DC
Reverse voltage protection	yes
Max. input frequency for integrated totals	120 Hz

#### Binary inputs - immunity and insulation tests

Electrical fast transient / Burst, IEC 61000-4-4	4 kV (level 4), criterion A
Surge 1.2/50 µs, IEC 61000-4-5	4 kV (level 4)
Conducted disturbances, induced by radio-frequency fields, IEC 61000-4-6	10 V (level 3), criterion A
Ring wave, IEC 61000-4-12	2.5 kV line to earth, 1 kV line to line (level 3)
Conducted, common mode disturbances in the frequency range 0 Hz to 150 kHz, IEC 61000-4-16	30 V continuous disturbance/ 300 V short duration disturbance (level 4), criterion A
Damped oscillatory wave, IEC 61000-4-18	2.5 line to earth, 1 kV line to line (level 3), criterion A
AC dielectric voltage test, IEC 60255-27, IEC 61000-4-16, IEC 60870-2-1 (class VW3)	2.5 kV, 50 Hz, 1 min

#### Binary inputs - immunity and insulation tests

Impulse voltage withstand test of insulation, IEC 60255-27, IEC 60870-2-1 (class VW3)	5 kV (1.2 / 50 µs)
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#### Current consumption for power supplied via RTU560 backplane

5 V DC	100 mA
24 V DC	--

#### Signaling by LEDs

ERR (red)	Common fault information for the module
1... 16	LED displays the active inputs

#### Mechanical layout

Dimensions	160 mm x 100 mm, 3HE euro card format 4R (20 mm) front panel
Housing type	Printed circuit board
Mounting	I/O voltage ≤ 60 V DC: for mounting in all RTU560 racks I/O voltage ≥ 110 V DC: for mounting only in 560MPR03 and 560SFR02 racks
Weight	0.2 kg

#### Connection type

RTU560 backplane connector	48 pole type F DIN 41612
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#### Insulation tests

Insulation classification according to	IEC 60664-1 • Pollution degree 2 • Overvoltage category II • Altitude: ≤ 3,000 m  Pollution degree 2  Overvoltage category II  Altitude: ≤ 3,000 m
AC dielectric voltage test, IEC 60255-27, IEC 61000-4-16, IEC 60870-2-1 (class VW3)	2.5 kV, 50 Hz Test duration: 1 min
Impulse voltage withstand test of insulation, IEC 60255-27, IEC 60870-2-1 (class VW3)	5 kV (1.2 / 50 µs)
Insulation resistance, IEC 60255-27	> 100 MΩ at 500 V DC
Insulation resistance to earth at 500 V DC, IEC 60255-27	500 V DC isolated for 1 min

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**Insulation tests**

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Inverted polarity and voltage 1 V/ min  
ramp delay, IEC 60255-27

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**Immunity test**

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Electrostatic discharge IEC 61000-4-2 8 kV air / 6 kV contact (level 3)

Performance criteria A

Electrical fast transient / Burst IEC 61000-4-4 4 kV (level 4)

Performance criteria A

Surge IEC 61000-4-5 4 kV (level 4)

Performance criteria A

Damped oscillatory wave IEC 61000-4-18 2.5 / 1 kV (level 3)

Performance criteria A

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**Environmental conditions - climatic**

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Operating temperature EN 60068-2-14 -25 °C ... 70 °C

Start up EN 60068-2-1 -40 °C

Max. operating temperature, +85 °C  
max. 96h  
EN 60068-2-2

Relative humidity EN 60068-2-30 5 ... 95 %  
(non condensing)

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**Ordering information**

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560BIR01 R0001 1KGT034000R0001

560BIR01 R0002 1KGT034000R0002

560BIR01 R0101 1KGT034000R0101

560BIR01 R0102 1KGT034000R0102

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Remote Terminal Units - Data sheet

## Binary output 560BOR01

### RTU560 product line



#### Binary output, 16 channels

- 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
- I<sub>max</sub>: 2 A ≤ 30 V DC (resistive load)

#### Application

The module 560BOR01 of the RTU560 product line 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
- 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.

The module is available in two versions (rubrics):

- 560BOR01 R0002
- 560BOR01 R0102 pin and function compatible with R0002, only an alternative IO controller is used.

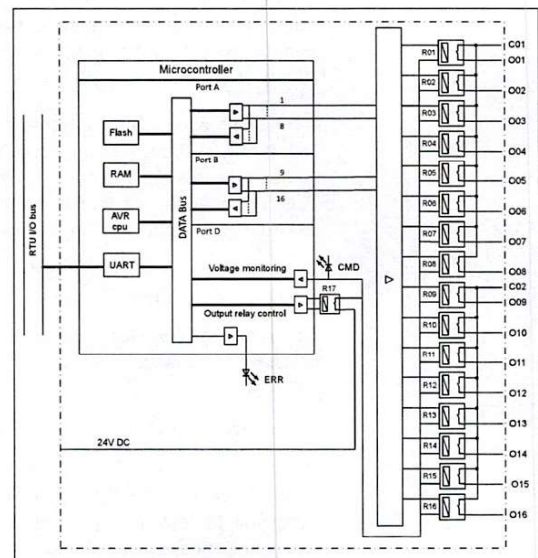


Figure 1: Block diagram 560BOR01

#### Characteristics

## Binary outputs

Relay contacts are used for the binary outputs.

The 16 outputs are combined into two groups. Each 8 outputs have a common return. The groups are isolated from one another as well as from the internal electronic.

The supply voltage for the coils of the relays (24 V DC) is switched by an internal switching transistor and is monitored internally before and during the command output.

The command output to the process equipment can be effected either directly or in conjunction with a command output supervision module. The command output supervision module covers the (1 out of n) check of the output circuits. More details can be found in the data sheet of the command output monitoring module.

Following modules with command output supervision function are supported:

- 23BA23 (max. 60 V DC)

The 1.5 pole command output is only possible in combination with a command output supervision module. With the 1.5 pole command output, one output relay of the 560BOR01 switches the command to the interposing relay. The process voltage for the interposing relay is switched by the command output supervision module.

Two output relays are required for each command in case of 2 pole commands.

Another possibility for direct switching of process relays on electrical apparatus (disconnectors, circuit-breakers) with high switching capacity is given by using an additional booster relay connected to the command output monitoring module 23BA23 (see 23BA23 Data sheet).

Before and during command output the module 560BOR01 carries out several command monitoring functions. These tests ensure correct output. With a command output monitoring module these tests can be further improved.

If the command monitoring detects fault the command will be canceled. The switching through of the output relays by the release relay R17 occurs only after a successful test. A defective driver or a fault in the release relay R17 leads to complete inhibition of the command output module.

## Power supply input

The required power for the module is supplied via the RTU560 backplane.

## I/O controller (IOC)

The micro-controller on the module processes all time critical I/O tasks of the parameterized processing functions. Moreover it carries out the interactive communication with the RTU560 I/O bus. All configuration data and processing parameters are loaded by the communication unit via the RTU560 I/O bus.

The module is equipped with a serial interface to the RTU560 I/O bus on the backplane.

The binary output unit can execute the following processing functions on the individual signal types:

- Control of the command output duration

Command monitoring functions:

- (m out of 16) check of the output relays on the module
- monitoring of the output bit patterns by reading back the output state
- switching voltage monitoring (24 V DC coil voltage) before and during output
- command output duration monitoring

During initialization and operation the module carries out a number of tests. If a fault occurs it is reported to the communication unit. All fault conditions impairing the function of the module are displayed as common fault signal by a red LED. A failure of the connected module(s) is detected and signalized by the communication unit.

### Technical data

In addition to the RTU500 series general technical data, the following applies:

#### Binary output channels 560BOR01

Outputs	16 Relay contacts, single pole, normal open, 2 groups of 8 outputs with common return
Coil voltage	24 V
Max. switching voltage	150 V DC
Continuous current	2 A total current for one group with the same common return
Max breaking current (resistive load)	2 A @ 30 V DC 1 A @ 60 V DC 0.3 A @ 110 V DC 0.15 A @ 150 V DC
Max. breaking capacity (inductive load)	50 VA (L/R= 40 ms)
AC dielectric voltage test, IEC 60255-27, IEC 61000-4-16, IEC 60870-2-1 (class VW3)	2.5 kV, 50 Hz, 1 min
Impulse voltage withstand test of insulation, IEC 60255-27, IEC 60870-2-1 (class VW3)	5 kV (1.2 / 50 $\mu$ s)
Electrical fast transient / Burst, IEC 61000-4-4	4 kV (level 4), criterion A
Surge 1.2/50 $\mu$ s, IEC 61000-4-5	4 kV (level 4), criterion A
Conducted disturbances, induced by radio-frequency fields, IEC 61000-4-6	10 V (level 3), criterion A
Conducted, common mode disturbances in the frequency range 0 Hz to 150 kHz, IEC 61000-4-16	30 V continuous disturbance/ 300 V short duration disturbance (level 4), criterion A
Damped oscillatory wave, IEC 61000-4-18	2.5 kV line to earth, 1 kV line to line (level 3), criterion A

#### Current consumption for power supplied via RTU560 backplane

5 V DC	120 mA
24 V DC	10 mA per active relay

#### Signaling by LEDs

ERR (red)	Common fault information for the module
CMD	Command output, displayed during active output time of any output relay

#### Mechanical layout

Dimensions	160 mm x 100 mm, 3HE euro card format 4R (20 mm) front panel
Housing type	Printed circuit board

#### Mechanical layout

Mounting	for mounting in RTU560 racks
Weight	0.3 kg

#### Connection type

RTU560 backplane connector	48 pole type F DIN 41612
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#### Insulation tests

Insulation classification according to	IEC 60664-1 <ul style="list-style-type: none"><li>• Pollution degree 2</li><li>• Overvoltage category II</li><li>• Altitude: <math>\leq</math> 3,000 m</li></ul> Pollution degree 2 Overvoltage category II Altitude: $\leq$ 3,000 m
AC dielectric voltage test, IEC 60255-27, IEC 61000-4-16, IEC 60870-2-1 (class VW3)	2.5 kV, 50 Hz Test duration: 1 min
Impulse voltage withstand test of insulation, IEC 60255-27, IEC 60870-2-1 (class VW3)	5 kV (1.2 / 50 $\mu$ s)
Insulation resistance, IEC 60255-27	> 100 M $\Omega$ at 500 V DC
Insulation resistance to earth at 500 V DC, IEC 60255-27	500 V DC isolated for 1 min
Inverted polarity and voltage ramp delay, IEC 60255-27	1 V/ min

#### Immunity test

Electrostatic discharge IEC 61000-4-2	8 kV air / 6 kV contact (level 3) Performance criteria A
Electrical fast transient / Burst IEC 61000-4-4	2 kV (level 3) Performance criteria A
Surge IEC 61000-4-5	2 kV (level 3) Performance criteria A

#### Environmental conditions - climatic

Operating temperature EN 60068-2-14	-25 °C ... 70 °C
Start up EN 60068-2-1	-40 °C
Max. operating temperature, max. 96h EN 60068-2-2	+85 °C
Relative humidity EN 60068-2-30	5 ... 95 % (non condensing)

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**Ordering information**

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560BOR01 R0002      1KGT036800R0002

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560BOR01 R0102      1KGT036800R0102

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