

REX 521 General Parameters List

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MEAS, Technical data of measuring channels

The parameters are accessible through the relay setting tool or the front panel of the relay.

Menu path: Configuration\Analog scales\...

| Parameter | Values | Unit | Default | Data Direction | Explanation |
|----------------------------|--|------|---------|---------------------|---|
| Rated frequency | 50.00...60.00 | Hz | 50 | R/W(P) ² | Rated frequency of the network |
| Select Io | 0..2 [0=Io, 1/5 A;1=lob, 0.2/1 A;2=los] ¹ | - | 0 | R/W(P) | Select Io1, Io2 transformer or los (Io1= 1/5 A, Io2= 0.2/1 A) |
| IL1 pu-scale | 0...6000 | A | 0 | R | pu-scale of IL1 |
| IL2 pu-scale | 0...6000 | A | 0 | R | pu-scale of IL2 |
| IL3 pu-scale | 0...6000 | A | 0 | R | pu-scale of IL3 |
| Io pu-scale | 0...6000 | A | 0 | R | pu-scale of Io |
| Uo pu-scale ¹ | 0...440.000 | kV | 0 | R | pu-scale of Uo |
| U12 pu-scale ¹ | 0...440.000 | kV | 0 | R | pu-scale of U12 |
| U23 pu-scale ¹ | 0...440.000 | kV | 0 | R | pu-scale of U23 |
| U31 pu-scale ¹ | 0...440.000 | kV | 0 | R | pu-scale of U31 |
| U1 pu-scale ¹ | 0...440.000 | kV | 0 | R | pu-scale of U1 |
| U2 pu-scale ¹ | 0...440.000 | kV | 0 | R | pu-scale of U2 |
| U3 pu-scale ¹ | 0...440.000 | kV | 0 | R | pu-scale of U3 |
| lob pu-scale ¹ | 0...6000 | A | 0 | R | pu-scale of lob |
| U12b pu-scale ¹ | 0...440.000 | kV | 0 | R | pu-scale of U12b |
| los pu-scale ¹ | 0...6000 | A | 0 | R | pu-scale of virtual Io channel |
| Uos pu-scale ¹ | 0...440.000 | kV | 0 | R | pu-scale of virtual Uo channel |
| U12s pu-scale ¹ | 0...440.000 | kV | 0 | R | pu-scale of virtual U12 channel |
| U23s pu-scale ¹ | 0...440.000 | kV | 0 | R | pu-scale of virtual U23 channel |
| U31s pu-scale ¹ | 0...440.000 | kV | 0 | R | pu-scale of virtual U31 channel |

¹ Standard configuration specific

² P = Password protected

Communication

The parameters are accessible through the relay setting tool or the front panel of the relay.

Menu path: Configuration\Communication\Rear port\...

| Parameter | Values | Unit | Default | Data Direction | Explanation |
|---------------|--|------|---------|----------------|-----------------------------|
| Rear protocol | 0..7 [0=LON; 1=SPA; 2=IEC 103; 3=MODBUS; 4=SPA-RS485; 5=MODBUS-RS485; 6=DNP 3.0-RS485; 7=DNP 3.0] | - | 1 | R/W(P) | Protocol for rear connector |

IEC 103 Communication Protocol

The parameters are accessible through the relay setting tool or the front panel of the relay.

Menu path: Configuration\Communication\Comm.settings\IEC 103\...

| Parameter | Values | Unit | Default | Data Direction | Explanation |
|---------------|--------------------------------|------|---------|----------------|-----------------------------------|
| Unit address | 0..254 | - | 1 | R/W(P) | IEC 103 station address |
| Baud rate | 0..1 [0=9600; 1=19200] | bps | 0 | R/W(P) | Communication speed |
| Function type | 0..255 | - | 160 | R/W(P) | Identification function type |
| Scale factor | 0..1 [0=1.2; 1=2.4] | - | 0 | R/W(P) | Analog value scale factor |
| Frame type | 0..9 | - | 1 | R/W(P) | class 2 frame selection |
| Tx mode | 0..1 [0=Light Off; 1=Light On] | - | 1 | R/W(P) | Fiber optic transceiver idle mode |

LON Communication Protocol

The parameters are accessible through the relay setting tool or the front panel of the relay.

Menu path: Configuration\Communication\Comm.settings\LON\...

| Parameter | Values | Unit | Default | Data Direction | Explanation |
|------------------|--|------|---------|----------------|---|
| Subnet number | 1...255 | - | 1 | R/W(P) | LON subnet number |
| Node number | 1...127 | - | 1 | R/W(P) | LON node number |
| Bit rate | 0...7 [0=1250 kb/s; 1=625 kb/s; 2=312.5 kb/s; 3=156.3 kb/s; 4=78.1 kb/s; 5=39.1 kb/s; 6=19.5 kb/s; 7=9.8 kb/s] | kb/s | 0 | R/W(P) | LON communication speed |
| Neuron ID | - | - | 0 | R | Neuron ID from Neuron chip |
| Send Neuron ID | 0...1 [0=0; 1=Send ID] | - | 0 | W | Force sending Neuron chip ID to the network |
| Load def config. | 0...1 [0=0; 1=Execute] | - | 0 | R/W(P) | Force loding default configuration to the neuron chip |

SPA Communication Protocol (FRONT, REAR)

The parameters are accessible through the front panel of the relay.

Menu path: Configuration\Communication\Comm.settings\SPA xxxx\...

| Parameter | Values | Unit | Default | Data Direction | Explanation |
|--------------|---|------|---------|----------------|---|
| SPA address | 1...999 | - | 1 | R/W | Slave number for communication |
| Baud rate | 0..2 [0=4800 bps; 1=9600 bps; 2=19200 bps] | bps | 1 | R/W | Data transfer rate for communication (enumerator) |
| Slave status | 0...3 (0=normal state; 1=automatic reset; 2=event overf.; 3=reset and event overf.) | - | 0 | R/W | Slave status |

MODBUS Communication Protocol

The parameters are accessible through the relay setting tool or the front panel of the relay.

Menu path: Configuration\Communication\Comm.settings\MODBUS\...

| Parameter | Values | Unit | Default | Data Direction | Explanation |
|------------------|--|------|---------|----------------|--|
| Unit Address | 1..247 | - | 1 | R/W(P) | Address of the unit in the Modbus network |
| Baud rate | 0..5 [0=600; 1=1200; 2=2400; 3=4800; 4=9600; 5=19200] | bps | 4 | R/W(P) | Communication speed of modbus protocol |
| Modbus Mode | 0..1 [0=ASCII; 1=RTU] | - | 1 | R/W(P) | ASCII or RTU mode |
| No of data bits | 7..8 [7=7; 8=8] | - | 8 | R/W(P) | Number of data bits |
| No of stop bits | 1..2 [1=1; 2=2] | - | 1 | R/W(P) | Number of stop bits |
| Parity | 0..2 [0=None; 1=Odd; 2=Even] | - | 2 | R/W(P) | Parity setting |
| End of frame TO | 2..100 | ms | 4 | R/W(P) | End of frame timeout |
| CRC Order | 0..1 [0=Low/High; 1=High/Low] | - | 0 | R/W(P) | The order of CRC bytes in protocol frame 0 = LO/HI, 1 = HI/LO Not used in ASCII mode |
| User def.reg. 1 | 0..65535 | - | 0 | R/W(P) | Address of the data which should be replicated as User defined register in the beginning of the HR area. |
| User def.reg. 2 | 0..65535 | - | 0 | R/W(P) | " |
| User def.reg. 3 | 0..65535 | - | 0 | R/W(P) | " |
| User def.reg. 4 | 0..65535 | - | 0 | R/W(P) | " |
| User def.reg. 5 | 0..65535 | - | 0 | R/W(P) | " |
| User def.reg. 6 | 0..65535 | - | 0 | R/W(P) | " |
| User def.reg. 7 | 0..65535 | - | 0 | R/W(P) | " |
| User def.reg. 8 | 0..65535 | - | 0 | R/W(P) | " |
| User def.reg. 9 | 0..65535 | - | 0 | R/W(P) | " |
| User def.reg. 10 | 0..65535 | - | 0 | R/W(P) | " |
| User def.reg. 11 | 0..65535 | - | 0 | R/W(P) | " |
| User def.reg. 12 | 0..65535 | - | 0 | R/W(P) | " |
| User def.reg. 13 | 0..65535 | - | 0 | R/W(P) | " |
| User def.reg. 14 | 0..65535 | - | 0 | R/W(P) | " |
| User def.reg. 15 | 0..65535 | - | 0 | R/W(P) | " |
| User def.reg. 16 | 0..65535 | - | 0 | R/W(P) | " |
| User def.reg. 17 | 0..65535 | - | 0 | R/W(P) | " |
| User def.reg. 18 | 0..65535 | - | 0 | R/W(P) | " |
| User def.reg. 19 | 0..65535 | - | 0 | R/W(P) | " |
| User def.reg. 20 | 0..65535 | - | 0 | R/W(P) | " |
| User def.reg. 21 | 0..65535 | - | 0 | R/W(P) | " |
| User def.reg. 22 | 0..65535 | - | 0 | R/W(P) | " |
| User def.reg. 23 | 0..65535 | - | 0 | R/W(P) | " |
| User def.reg. 24 | 0..65535 | - | 0 | R/W(P) | " |
| User def.reg. 25 | 0..65535 | - | 0 | R/W(P) | " |
| User def.reg. 26 | 0..65535 | - | 0 | R/W(P) | " |
| User def.reg. 27 | 0..65535 | - | 0 | R/W(P) | " |
| User def.reg. 28 | 0..65535 | - | 0 | R/W(P) | " |
| User def.reg. 29 | 0..65535 | - | 0 | R/W(P) | " |
| User def.reg. 30 | 0..65535 | - | 0 | R/W(P) | " |
| User def.reg. 31 | 0..65535 | - | 0 | R/W(P) | " |
| User def.reg. 32 | 0..65535 | - | 0 | R/W(P) | " |

DNP 3.0 Communication Protocol

The parameters are accessible through the relay setting tool or the front panel of the relay.

Menu path: Configuration\Communication\Comm.settings\DNP\...

| Parameter | Values | Unit | Default | Data Direction | Explanation |
|------------------|---|------|---------|----------------|--|
| Unit Address | 0...65532 | - | 1 | R/W(P) | Address of the relay in the DNP network |
| Master Address | 0...65532 | - | 2 | R/W(P) | Address of the master station (destination address for unsolicited responses) |
| Baud rate | 0..6 [0=300; 1=600; 2=1200; 3=2400; 4=4800; 5=9600; 6=19200] | bps | 5 | R/W(P) | Communication speed of DNP protocol |
| No of stop bits | 1..2 | - | 1 | R/W(P) | Number of stop bits |
| Parity | 0..2 [0=None; 1=Odd; 2=Even] | - | 0 | R/W(P) | Parity setting |
| Link timeout | 100..10000 | ms | 300 | R/W(P) | This timeout is activated whenever the relay is sending data using service 3 (user data with confirmation) |
| Link retrans cnt | 0...100 | - | 0 | R/W(P) | Number of retries of data link layer when unit is acting as a primary station |
| Appl timeout | 1000...10000 | ms | 1000 | R/W(P) | This timeout is activated whenever the relay is acting as a primary station and sending APDU with confirmation bit set |
| Appl retrans cnt | 0...100 | - | 0 | R/W(P) | Application Layer retransmission count. Number of retries of the application layer when CON bit is set. |
| Link conf. type | 0..1 [0=Disabled; 1=Enabled] | - | 0 | R/W(P) | Data link layer Confirmation type selector. Please refer to DNP 3.0 Technical Description |
| Appl conf. type | 0..1 [0=Disabled; 1=Enabled] | - | 0 | R/W(P) | Application layer Confirmation type selector. Please refer to DNP 3.0 Technical Description |
| End of frame TO | 2..50 | ms | 10 | R/W(P) | End of frame timeout |
| Timesync request | 0..2 [0=Never; 1=Startup; 2=Periodic] | - | 2 | R/W(P) | Timesynchronisation request interval |
| Binary input | 1...2 | - | 2 | R/W(P) | Default variation of binary input object |
| Bin inp event | 1...3 | - | 2 | R/W(P) | Default variation of binary input change event object |
| Binary output | 1...2 | - | 2 | R/W(P) | Default variation of binary output object |
| Counter | 1...2 | - | 1 | R/W(P) | Default variation of counter object |
| Counter event | 1...2 | - | 1 | R/W(P) | Default variation of counter event object |
| Analog input | 1...2 | - | 1 | R/W(P) | Default variation of analogue input object |
| Analog inp event | 1...2 | - | 1 | R/W(P) | Default variation of analogue input event object |
| Analog outp stat | 1...2 | - | 2 | R/W(P) | Default variation of analogue output status object |
| Unsolicited rep. | 0...3 | - | 0 | R/W(P) | Unsolicited messages reporting behavior. Please refer to DNP 3.0 Technical Description |
| Class1 ev. delay | 0...1000 | s | 1 | R/W(P) | Minimum delay for reporting spontaneously events from class 1 |
| Class1 ev. count | 1...32 | - | 1 | R/W(P) | Minimum count of events for reporting spontaneously events from class 1 |
| Class2 ev. delay | 0...1000 | s | 1 | R/W(P) | Minimum delay for reporting spontaneously events from class 2 |
| Class2 ev. count | 1...32 | - | 1 | R/W(P) | Minimum count of events for reporting spontaneously events from class 2 |
| Class3 ev. delay | 0...1000 | s | 1 | R/W(P) | Minimum delay for reporting spontaneously events from class 3 |
| Class3 ev. count | 1...32 | - | 1 | R/W(P) | Minimum count of events for reporting spontaneously events from class 3 |
| Collision avoid | 0..1 [0=Disabled; 1=Enabled] | - | 0 | R/W(P) | Collision detection: avoidance |
| Silent interval | 10...65535 | ms | 20 | R/W(P) | Collision detection: silent interval |
| Time slot count | 1...255 | - | 8 | R/W(P) | Collision detection: time slot count |
| Time slot width | 10...65535 | ms | 10 | R/W(P) | Collision detection: time slot width |
| Avoidance count | 0..65535 | - | 0 | R | Collision detection: Avoidance counter |

DIPO, Digital input polling

The parameters are accessible through the front panel of the relay.

Menu path: Configuration\Digital inputs\Input states\...

| Parameter | Values | Unit | Default | Data Direction | Explanation |
|---------------|---------|------|---------|----------------|--------------------------|
| Input 1 state | 0 ... 1 | - | 0 | R/W | State of digital input 1 |
| Input 2 state | 0 ... 1 | - | 0 | R/W | State of digital input 2 |
| Input 3 state | 0 ... 1 | - | 0 | R/W | State of digital input 3 |
| Input 4 state | 0 ... 1 | - | 0 | R/W | State of digital input 4 |
| Input 5 state | 0 ... 1 | - | 0 | R/W | State of digital input 5 |
| Input 6 state | 0 ... 1 | - | 0 | R/W | State of digital input 6 |
| Input 7 state | 0 ... 1 | - | 0 | R/W | State of digital input 7 |
| Input 8 state | 0 ... 1 | - | 0 | R/W | State of digital input 8 |
| Input 9 state | 0 ... 1 | - | 0 | R/W | State of digital input 9 |

The parameters are accessible through the relay setting tool or the front panel of the relay.

Menu path: Configuration\Digital inputs\Input filtering\...

| Parameter | Values | Unit | Default | Data Direction | Explanation |
|----------------|-------------|------|---------|----------------|----------------------------------|
| Input 1 filter | 1 ... 65535 | ms | 5 | R/W(P) | Debounce filter time for input 1 |
| Input 2 filter | 1 ... 65535 | ms | 5 | R/W(P) | Debounce filter time for input 2 |
| Input 3 filter | 1 ... 65535 | ms | 5 | R/W(P) | Debounce filter time for input 3 |
| Input 4 filter | 1 ... 65535 | ms | 5 | R/W(P) | Debounce filter time for input 4 |
| Input 5 filter | 1 ... 65535 | ms | 5 | R/W(P) | Debounce filter time for input 5 |
| Input 6 filter | 1 ... 65535 | ms | 5 | R/W(P) | Debounce filter time for input 6 |
| Input 7 filter | 1 ... 65535 | ms | 5 | R/W(P) | Debounce filter time for input 7 |
| Input 8 filter | 1 ... 65535 | ms | 5 | R/W(P) | Debounce filter time for input 8 |
| Input 9 filter | 1 ... 65535 | ms | 5 | R/W(P) | Debounce filter time for input 8 |

The parameters are accessible through the relay setting tool or the front panel of the relay.

Menu path: Configuration\Digital inputs\Input inversion\...

| Parameter | Values | Unit | Default | Data Direction | Explanation |
|-----------------|---------|------|---------|----------------|----------------|
| Input 1 invert. | 0 ... 1 | - | 0 | R/W(P) | Invert input 1 |
| Input 2 invert. | 0 ... 1 | - | 0 | R/W(P) | Invert input 2 |
| Input 3 invert. | 0 ... 1 | - | 0 | R/W(P) | Invert input 3 |
| Input 4 invert. | 0 ... 1 | - | 0 | R/W(P) | Invert input 4 |
| Input 5 invert. | 0 ... 1 | - | 0 | R/W(P) | Invert input 5 |
| Input 6 invert. | 0 ... 1 | - | 0 | R/W(P) | Invert input 6 |
| Input 7 invert. | 0 ... 1 | - | 0 | R/W(P) | Invert input 7 |
| Input 8 invert. | 0 ... 1 | - | 0 | R/W(P) | Invert input 8 |
| Input 9 invert. | 0 ... 1 | - | 0 | R/W(P) | Invert input 9 |

The parameters are accessible through the relay setting tool or the front panel of the relay.

Menu path: Configuration\Digital inputs\Event masks\...

| Parameter | Values | Unit | Default | Data Direction | Explanation |
|--------------|----------------|------|---------|----------------|-------------------------------------|
| Event mask 1 | 0 ... 67108863 | - | 0 | R/W(P) | Event mask 1 for event transmission |
| Event mask 2 | 0 ... 67108863 | - | 0 | R/W(P) | Event mask 2 for event transmission |
| Event mask 3 | 0 ... 67108863 | - | 0 | R/W(P) | Event mask 3 for event transmission |
| Event mask 4 | 0 ... 67108863 | - | 0 | R/W(P) | Event mask 4 for event transmission |

MMI, Graphical MMI module (6x16 and 4x8)

The parameters are accessible through the relay setting tool or the front panel of the relay.

Menu path: Configuration\Display\...

| Parameter | Values | Unit | Default | Data Direction | Explanation |
|------------------|--|------|---------|----------------|--|
| Password HMI | 1...999 | - | 999 | R/W(P) | Password for entering setting values from the HMI |
| New trip indic. | 0...999 (999=indefinite) | min | 60 | R/W(P) | Time, after which, new trip indications overwrite old ones |
| Primary values | 0..1 [0=Per unit values; 1=Primary values] | - | 0 | R/W(P) | Setting values displayed in primary values |
| Start led latch | 0..1 [0= Non-latching; 1=Latching] | - | 0 | R/W(P) | Selection of latching feature for start led |
| FB naming conv. | 0..1 [0= IEC; 1= ANSI] | - | 0 | R/W(P) | Function block naming convention |
| Alarm LED states | 0..255 | - | 0 | R/W(P) | Status of the alarm LEDs |
| Test display | 0..1 [0=0; 1=Test display] | - | 0 | W | Runs display test |
| Event mask 1 | 0...31 | - | 0 | R/W(P) | Event mask 1 for event transmission |
| Event mask 2 | 0...31 | - | 0 | R/W(P) | Event mask 2 for event transmission |
| Event mask 3 | 0...31 | - | 0 | R/W(P) | Event mask 3 for event transmission |
| Event mask 4 | 0...31 | - | 0 | R/W(P) | Event mask 4 for event transmission |

General parameters

The parameters are accessible through the relay setting tool or the front panel of the relay.

Menu path: Configuration\General\Software\...

| Parameter | Values | Unit | Default | Data Direction | Explanation |
|------------------|---------------------------------------|------|---------|----------------|--|
| Identification | REX521 | - | - | R | Relay type designation |
| Active language | 0..20[0=English;1..20=Other language] | - | 0 | R/W | Index of active language |
| Config name | - | - | - | R | Relay configuration name |
| Config revision | - | - | - | R | Relay configuration revision |
| Config build nr | 1.0 | - | - | R | Relay configuration build number |
| Config level | 0 .. 255 | - | - | R | Relay configuration price level |
| Config date | - | - | - | R | Date when configuration was created |
| Bay name | ABB | - | - | R/W(P) | Bay name for the relay (user name for the relay) |
| Event mask 1 | 0..2 | - | 0 | R/W(P) | Event mask for GP |
| Event mask 2 | 0..2 | - | 0 | R/W(P) | Event mask for GP |
| Event mask 3 | 0..2 | - | 0 | R/W(P) | Event mask for GP |
| Event mask 4 | 0..2 | - | 0 | R/W(P) | Event mask for GP |
| Factory settings | 0..1 [0=Cancel; 1= Activate;] | - | - | R/W(P) | Default factory settings |

Hardware information

The parameters are accessible through the relay setting tool or the front panel of the relay.

Menu path: Configuration\General\Hardware\...

| Parameter | Values | Unit | Default | Data Direction | Explanation |
|-----------------|---------------|------|---------|----------------|--|
| Serial Number | 0..4294967295 | - | 0 | R | Relay serial number |
| HW name | REX521????? | - | - | R | Relay hardware name (overall, set up in production) |
| HW revision | A | - | - | R | Relay hardware revision (overall, set up in production) |
| Final test date | ??-??-?? | - | - | R | Date of the final tests |
| CPU Name | CPU_XXXXXX | - | - | R | CPU hardware name |
| CPU Version | 1..255 | - | 1 | R | CPU hardware version |
| CPU Rev | A | - | - | R | CPU hardware revision |
| MIM Name | MIM_XXXXXX | - | - | R | MIM/SIMM hardware name |
| MIM Ver | 1..255 | - | 1 | R | MIM/SIMM hardware version |
| MIM Rev | A | - | - | R | MIM/SIMM hardware revision |
| PS Name | PS_XXX | - | - | R | PS hardware name |
| PS Version | 1..255 | - | 1 | R | PS hardware version |
| PS Revision | A | - | - | R | PS hardware revision |

Special events

The parameters are accessible through the relay setting tool or the front panel of the relay.

Menu path: Configuration\General\Special events\...

| Parameter | Values | Unit | Default | Data Direction | Explanation |
|--------------|----------|------|---------|----------------|---------------------------|
| Event mask 1 | 0..16111 | - | 3823 | R/W(P) | Event mask for channel 10 |
| Event mask 2 | 0..16111 | - | 3823 | R/W(P) | Event mask for channel 10 |
| Event mask 3 | 0..16111 | - | 3823 | R/W(P) | Event mask for channel 10 |
| Event mask 4 | 0..16111 | - | 3823 | R/W(P) | Event mask for channel 10 |

DOHA, Digital output handling

The parameters are accessible through the relay setting tool or the front panel of the relay.

Menu path: Configuration\Output relays\Event masks\...

| Parameter | Values | Unit | Default | Data Direction | Explanation |
|--------------|-----------|------|---------|----------------|-------------------------------------|
| Event mask 1 | 0...16383 | - | 3 | R/W(P) | Event mask 1 for event transmission |
| Event mask 2 | 0...16383 | - | 3 | R/W(P) | Event mask 2 for event transmission |
| Event mask 3 | 0...16383 | - | 3 | R/W(P) | Event mask 3 for event transmission |
| Event mask 4 | 0...16383 | - | 3 | R/W(P) | Event mask 4 for event transmission |

Protected unit

The parameters are accessible through the relay setting tool or the front panel of the relay.

Menu path: Configuration\Protected unit

| Parameter | Values | Unit | Default | Data Direction | Explanation |
|----------------------------|---------------|------|---------|----------------|-----------------------------------|
| IL1: scaling | 0.500...3.000 | - | 1 | R/W(P) | Scaling factor for protected unit |
| IL2: scaling | 0.500...3.000 | - | 1 | R/W(P) | Scaling factor for protected unit |
| IL3: scaling | 0.500...3.000 | - | 1 | R/W(P) | Scaling factor for protected unit |
| Io: scaling | 0.500...3.000 | - | 1 | R/W(P) | Scaling factor for protected unit |
| Iob: scaling ¹ | 0.500...3.000 | - | 1 | R/W(P) | Scaling factor for protected unit |
| Uo: scaling ¹ | 0.500...3.000 | - | 1 | R/W(P) | Scaling factor for protected unit |
| U1: scaling ¹ | 0.500...3.000 | - | 1 | R/W(P) | Scaling factor for protected unit |
| U2: scaling ¹ | 0.500...3.000 | - | 1 | R/W(P) | Scaling factor for protected unit |
| U3: scaling ¹ | 0.500...3.000 | - | 1 | R/W(P) | Scaling factor for protected unit |
| U12: scaling ¹ | 0.500...3.000 | - | 1 | R/W(P) | Scaling factor for protected unit |
| U23: scaling ¹ | 0.500...3.000 | - | 1 | R/W(P) | Scaling factor for protected unit |
| U31: scaling ¹ | 0.500...3.000 | - | 1 | R/W(P) | Scaling factor for protected unit |
| U12b: scaling ¹ | 0.500...3.000 | - | 1 | R/W(P) | Scaling factor for protected unit |

¹ Standard configuration specific

TESU, Testing and self-supervision

The parameters are accessible through the relay setting tool or the front panel of the relay.

Menu path: Configuration\Self-supervision\...

| Parameter | Values | Unit | Default | Data Direction | Explanation |
|----------------|------------------------|------|---------|----------------|--------------------------------------|
| Software reset | 0..1 [0 = 0; 1=Reset:] | - | 0 | W | Software reset for relay |
| IRF code | 0...255 | - | 0 | R | Fault code of selfsupervision system |
| Event mask 1 | 0...3 | - | 0 | R/W(P) | Event mask for TESU |
| Event mask 2 | 0...3 | - | 0 | R/W(P) | Event mask for TESU |
| Event mask 3 | 0...3 | - | 0 | R/W(P) | Event mask for TESU |
| Event mask 4 | 0...3 | - | 0 | R/W(P) | Event mask for TESU |

TMA, Time management

The parameters are accessible through the relay setting tool or the front panel of the relay.

Menu path: Configuration\Time\...

| Parameter | Values | Unit | Default | Data Direction | Explanation |
|------------------|--|------|---------|----------------|--|
| Date | Date only | - | - | R/W | Date only |
| Time | Time only | - | - | R/W | Time only |
| Sync. source | 0..1 [0 = Net message; 1 = X3.1.2 input] | - | 0 | R/W(P) | Select input for pulse synchronization |
| Sync. rounding | 0..1 [0 = Full seconds;1 = Full minutes] | - | 0 | R/W(P) | Rounding for pulse synchronization of the internal clock |
| Sync.trigg.slope | 0..1 [0 = Positive; 1 = Negative] | - | 0 | R/W(P) | Select active slope for pulse synchronization |
| Event mask 1 | 0...3 | - | 0 | R/W(P) | Event mask for TMA block |
| Event mask 2 | 0...3 | - | 0 | R/W(P) | Event mask for TMA block |
| Event mask 3 | 0...3 | - | 0 | R/W(P) | Event mask for TMA block |
| Event mask 4 | 0...3 | - | 0 | R/W(P) | Event mask for TMA block |

TEST, Testing inputs and outputs

The parameters are accessible through the front panel of the relay.

Menu path: Tests\...

| Parameter | Values | Unit | Default | Data Direction | Explanation |
|---------------|-------------------------------------|------|---------|----------------|---------------------------------------|
| Test mode | 0..1 [0=No test; 1=Testing] | - | - | R/W(P) | Test mode for inputs and outputs |
| Activate IRF | 0..1 [0 = Deactivate; 1 = Activate] | - | 1 | R/W(P) | Activation of selfsupervision output |
| Input states | 0 ... 511 | - | 0 | R/W(P) | Digital input states in packed format |
| Output states | 0...255 | - | 0 | R/W(P) | Output relay states in packed format |

CTRL, General parameters for control commands

The parameters are accessible through the relay setting tool or the front panel of the relay.

Menu path: Control\General\...

| Parameter | Values | Unit | Default | Data Direction | Explanation |
|------------------|---|------|---------|----------------|--|
| Command timeout | 50...65535 | ms | 300 | R/W(P) | Timeout for open/close request |
| Select timeout | 10...600 | s | 30 | R/W(P) | Control: Object selection timeout for local and remote selection |
| Interl bypass | 0..1 [0=Normal mode; 1=Bypass mode] | - | 0 | R/W(P) | Control: Interlocking bypass mode for all control objects (Enables all) |
| CB close delay | 0..30 | s | 0 | R/W(P) | Delay between CB 'Close select' and 'Execute' commands for local control |
| Control position | 0..2 [0=0=Control off; 1=Local; 2=Remote] | - | 0 | R | Control: Recent control position |
| Event mask 1 | 0...55 | - | 55 | R/W(P) | Event mask |
| Event mask 2 | 0...55 | - | 55 | R/W(P) | Event mask |
| Event mask 3 | 0...55 | - | 55 | R/W(P) | Event mask |
| Event mask 4 | 0...55 | - | 55 | R/W(P) | Event mask |

Manual control

The parameters are accessible through the front panel of the relay.

Menu path: Control\Manual control\...

| Parameter | Values | Unit | Default | Data Direction | Explanation |
|--------------|---|------|---------|----------------|-----------------------------------|
| Local/Remote | 0..3 [0=Control off; 1=Local; 2=Remote; 3=External input] | - | 0 | R/W(P) | Control: Control position setting |
| Control CB | - | - | - | R/W(P) | Control: Control of the CB |

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Version 1.0 done from para.lst generated 12.06.01 (revision 1.8)

Version 1.1 done from para.lst generated 28.06.02 (revision 1.12)

Version 1.2 done from para.lst generated 27.11.03 (revision 1.18)

Version 1.3 done from para.lst generated 04.05.04 (revision 1.22)

Version 1.4 done from para.lst generated 16.01.06 (revision 1.26)