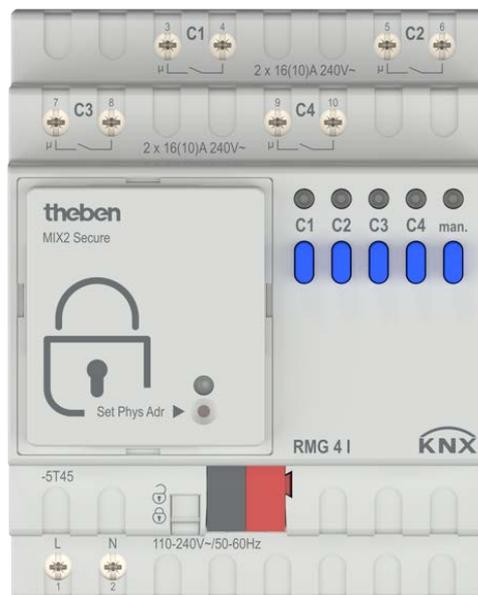


MIX2 secure series actuators RMG 4 I / RME 4 I and



| | |
|---------|---------|
| RMG 4 I | 4930210 |
| RME 4 I | 4930215 |

Contents

| | | |
|------------|---|-----------|
| 1 | <i>Functional characteristics</i> | 4 |
| 2 | <i>MIX2 secure</i> | 5 |
| 2.1 | BCU and application programmes | 5 |
| 3 | <i>MIX and MIX2 devices</i> | 6 |
| 3.1 | Operation | 7 |
| 4 | <i>Technical data</i> | 8 |
| 5 | <i>General information about KNX Secure</i> | 9 |
| 5.1 | Start-up with "KNX Data Secure" | 9 |
| 5.2 | Start-up without "KNX Data Secure" | 10 |
| 6 | <i>MIX2 secure application program</i> | 11 |
| 6.1 | Selection in the product database | 11 |
| 6.2 | Communication objects | 12 |
| 6.2.1 | Channel-related objects:..... | 12 |
| 6.2.2 | Common objects:..... | 14 |
| 6.2.3 | Description of objects..... | 15 |
| 6.3 | Parameters | 22 |
| 6.3.1 | Parameter pages..... | 22 |
| 6.3.2 | Parameter description..... | 23 |
| 6.3.2.1 | The "General" parameter page..... | 23 |
| 6.3.2.2 | The "RMG 4 I basic device parameter page" | 25 |
| 6.3.2.3 | The "RMG 4 I channel CI: function selection" parameter page..... | 26 |
| 6.3.2.4 | The "Contact characteristics" parameter page | 28 |
| 6.3.2.5 | The "On/Off delay" parameter page | 29 |
| 6.3.2.6 | The "Pulse function" parameter page..... | 29 |
| 6.3.2.7 | The "Staircase light with warning function .." parameter page | 30 |
| 6.3.2.8 | The "Flashing" parameter page..... | 31 |
| 6.3.2.9 | The "Threshold value" parameter page | 32 |
| 6.3.2.10 | The "Lock function" parameter page | 34 |
| 6.3.2.11 | The "Scenes" parameter page | 35 |
| 6.3.2.12 | The "Feedback" parameter page | 38 |
| 6.3.2.13 | The "Operating hours counter and service parameter page" | 39 |
| 6.3.2.14 | The "Current measurement" parameter page | 40 |
| 6.3.2.15 | The "Link" parameter page..... | 43 |
| 7 | <i>Typical applications:</i> | 44 |
| 7.1 | 2x switching with push button interface | 44 |
| 7.1.1 | Devices:..... | 44 |
| 7.1.2 | Overview | 44 |
| 7.1.3 | Objects and links | 44 |
| 7.1.4 | Important parameter settings..... | 45 |
| 7.2 | Operate light with service counter and display | 46 |

- 7.2.1 Devices 46
- 7.2.2 Overview 46
- 7.2.3 Objects and links 47
- 7.2.4 Important parameter settings 48
- 7.3 Simple warning function with flashing light..... 49**
 - 7.3.1 Devices: 49
 - 7.3.2 Overview 49
 - 7.3.3 Objects and links 49
 - 7.3.4 Important parameter settings 50
- 7.4 Display and monitor current value..... 51**
 - 7.4.1 Devices: 51
 - 7.4.2 Overview 51
 - 7.4.3 Objects and links 52
 - 7.4.4 Important parameter settings 52
- 8 Appendix 54**
 - 8.1 The scenes..... 54**
 - 8.1.1 Principle 54
 - 8.1.2 Select and save settings: 55
 - 8.1.3 Teach-in scenes without telegrams (MIX2 ONLY) 57
 - 8.2 Conversion of percentages to hexadecimal and decimal values..... 57**

1 Functional characteristics

- 4-way C load switch actuator upgrade module MIX2
- With current metering
- For higher lamp loads
- For upgrading to maximum of 12 channels
- Up to 2 MIX or MIX2 upgrade modules can be connected to a basic module.
- Device and KNX bus module can be swapped independently of each other
- Removable KNX bus module enables devices to be changed without reprogramming
- Manual set-up and use of switch actuators is possible without KNX bus module
- LED switching status indicator for each channel
- Manual operation on device (even without bus connection)
- Adjustable characteristics: e.g. switching, delayed switching, pulse function
- Links, type of contact (NC contact/NO contact) and participation in central commands such as permanent On, permanent Off, central switching and save/call up scene
- Switching functions: e.g. On/Off, pulse, On/Off delay, staircase light with warning
- Logical links: e.g. lock, AND, release, OR
- Activation of the channel function via 1-bit telegram or 8-bit threshold value.



This manual can only be used for devices with MIX2 secure BCU.

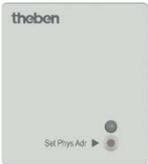
2 MIX2 secure

i Each MIX2 basic module can be used with both a standard and a secure BCU.

i The extension units (MIX and MIX2) are always compatible.

2.1 BCU and application programmes

i For the MIX2 secure BCU, the application programme MIX2 secure V2.x is required.

| | Standard | Secure |
|-----------------------------------|---|--|
| BCU |  |  <i>FDSK on the back</i> |
| MIX2 basic module with BCU |  |  |
| Application programme | MIX2 V1.x | MIX2 secure V2.x |

3 MIX and MIX2 devices

The MIX2 series consists of the basic modules RMG 8 S, RMG 8 T, RMG 4 I, RMG 4 U, DMG 2 T, JMG 4 T, JMG 4 T 24V, HMG 6 T, BMG 6 T + extensions RME 8 S, RME 8 T, RME 4 I, RME 4 U, DME 2 T, JME 4 T, JME 4 T 24V, HMG 6 T, BME 6 T (2021).

Any MiX and MIX2 upgrade devices can be connected to a MIX2 basic device.

Table 1

| Device type | Order no. | Designation | Can be used with basic device | |
|--------------------|-----------|---|-------------------------------|--------------------|
| | | | of the MIX series | of the MIX2 series |
| MIX2 basic devices | 493... | RMG 8 S, RMG 8 T, RMG 4 I, RMG 4 U, DMG 2 T, JMG 4 T, JMG 4 T 24V, HMG 6 T, BMG 6 T | - | - |
| MIX2 upgrades | 493... | RME 8 S, RME 8 T, RME 4 I, RME 4 U, DME 2 T, JME 4 T, JME 4 T 24V, HME 6 T, BME 6 T | No | Yes |
| MIX basic devices | 491... | BMG 6, DMG 2 S, HMG 4, JMG 4 S, RMG 4 S, RMG 4 C-load, SMG 2 S | - | - |
| MIX upgrades | 491... | BME 6, DME 2 S, HME 4, JME 4 S, RME 4 S, RME 4 C-load, SME 2 S | Yes | Yes* |

* Adjusted parameter display and objects numbering.

3.1 Operation

Each channel can be switched on and off independently of all parameters using the buttons on the device. A status LED displays the current switching status.

All bus telegrams are ignored with manual operation switched on (manual button) and the channels are exclusively operated via the buttons.

Mains voltage is required for the functioning of the buttons and LEDs, bus voltage or bus module are not required.

4 Technical data

Operating voltage KNX

5 General information about KNX Secure

ETS Version 5.7 and higher support secure communication in KNX systems. A distinction is made between secure communication via the IP medium using KNX IP Secure and secure communication via the TP and RF media using KNX Data Secure. The following information refers to KNX Data Secure.



In the ETS catalogue, KNX products supporting "KNX Secure" are clearly identified:

As soon as a "KNX-Secure" device is included in the project, the ETS requests a project password. If no password is entered, the device is included with Secure Mode deactivated. However, the password can also be entered or changed later in the project overview.

5.1 Start-up with "KNX Data Secure"

For secure communication, the FDSK (Factory Device Setup Key) is required. If a KNX product supporting "KNX Data Secure" is included in a line, the ETS requires the input of the FDSK. This device-specific key is printed on the device label and can either be entered by keyboard or read by using a code scanner or notebook camera.

Example of FDSK on device label:



After entering the FDSK, the ETS generates a device-specific tool key. The ETS sends the tool key to the device to be configured via the bus. The transmission is encrypted and authenticated with the original and previously entered FDSK key. Neither the tool key nor the FDSK key are sent in plain text via the bus.

After the previous action, the device only accepts the tool key for further communication with the ETS.

The FDSK key is no longer used for further communication, unless the device is reset to the factory setting: In this case, all set safety-related data will be deleted.

The ETS generates as many runtime keys as needed for the group communication you want to protect. The ETS sends the runtime keys to the device to be configured via the bus. Transmission takes place by encrypting and authenticating them via the tool key. The runtime keys are never sent in plain text via the bus.

The FDSK is saved in the project and can be viewed in the project overview. All keys for this project can also be exported (backup).

During project planning, it can be defined subsequently which functions / objects are to communicate securely. All objects with encrypted communication are identified by the "Secure" icon in the ETS:



5.2 Start-up without "KNX Data Secure"

Alternatively, the device can also be put into operation without KNX Data Secure. In this case, the device is unsecured and behaves like any other KNX device without KNX Data Secure function. To start up the device without KNX Data Secure, select the device in the 'Topology' or 'Devices' section and set the 'Secure start up' option in the 'Properties' area of the 'Settings' tab to 'Disabled'.

6 MIX2 secure application program

6.1 Selection in the product database

| | |
|-----------------------|---------------------------|
| Manufacturer | THEBEN AG |
| Product family | Output |
| Product type | RMG 4 I |
| Program name | MIX2 secure |

The ETS database can be found on our downloads page: www.theben.de/downloads.

Table 2

| | |
|----------------------------------|-----|
| Number of communication objects: | 254 |
| Number of group addresses: | 254 |
| Number of associations: | 255 |

6.2 Communication objects

The objects are divided into channel-related and common objects

6.2.1 Channel-related objects:

Table 3: Object RMG 4 I

| No. | Object name | Function | Type DPT |
|-----|---------------------------|--|------------------|
| 1 | <i>RMG 4 I channel C1</i> | <i>Switching object</i> | 1 bit 1.001 |
| | | <i>Threshold value as percent</i> | 1 byte 5.001 |
| | | <i>Threshold value 0..255</i> | 1 byte 5.010 |
| | | <i>Threshold value EIS 5 (DPT 9.xxx)</i> | 2 byte 9.xxx |
| | | <i>Threshold value 0.0.65535</i> | 2 byte 7.001 |
| 2 | <i>RMG 4 I channel C1</i> | <i>Logic input in AND gate</i> | 1 bit 1.001 |
| | | <i>Logic input in OR gate</i> | 1 bit 1.001 |
| | | <i>Logic input in XOR gate</i> | 1 bit 1.001 |
| 3 | <i>RMG 4 I channel C1</i> | <i>Lock</i> | 1 bit 1.003 |
| 4 | <i>RMG 4 I channel C1</i> | <i>Call up/save scenes</i> | 1 byte 18.001 |
| 5 | <i>RMG 4 I channel C1</i> | <i>Lock scenes = 1</i> | 1 bit |
| | | <i>Enable scenes = 1</i> | 1.003 |
| 6 | <i>RMG 4 I channel C1</i> | <i>Feedback On/Off</i> | 1 bit 1.001 |
| 7 | <i>RMG 4 I channel C1</i> | <i>Time to next service</i> | 2 byte 7.001 |
| | | <i>Operating hours feedback</i> | 2 byte 7.001 |
| 8 | <i>RMG 4 I channel C1</i> | <i>Service required</i> | 1 bit 1.001 |
| 9 | <i>RMG 4 I channel C1</i> | <i>Switching with priority</i> | 2 bit 2.001 |
| | | <i>Reset service</i> | 1 bit 1.001 |
| | | <i>Reset operating hours</i> | 1 bit 1.001 |
| 10 | <i>RMG 4 I channel C1</i> | <i>Current value</i> | 2 byte 9.021 |

| No. | Object name | Function | Type DPT |
|-----|---------------------------|-------------------------------|-----------------|
| | | <i>Theoretical output</i> | 2 byte 9.xxx |
| 11 | <i>RMG 4 I channel C1</i> | <i>Overload</i> | 1 bit 1.001 |
| 12 | <i>RMG 4 I channel C1</i> | <i>Underrun</i> | 1 bit 1.001 |
| 13 | <i>RMG 4 I channel C1</i> | <i>Contact error</i> | 1 bit 1.001 |
| 14 | <i>RMG 4 I channel C1</i> | <i>Logic input in OR gate</i> | 1 bit 1.001 |
| 15 | <i>RMG 4 I channel C1</i> | <i>Logic input in OR gate</i> | 1 bit 1.001 |

6.2.2 Common objects:

These objects are partly used by the basic device and the two upgrade devices.

Table 4:

| No. | Object name | Function | Type DPT |
|-----|---|---------------------------------------|-------------------|
| 79 | <i>RMG 4 I</i> | <i>Manual</i> | 1 bit 1.001 |
| 159 | <i>EM1 RME 4 I</i> | | |
| 239 | <i>EM2 RME 4 I</i> | | |
| 241 | <i>Central permanent ON</i> | <i>For RMG 8S, DME 2 S, SME 2 S</i> | 1 bit 1.001 |
| 242 | <i>Central permanent OFF</i> | <i>For RMG 8S, DME 2S, SME 2S</i> | 1 bit 1.001 |
| 243 | <i>Central switching</i> | <i>For RMG8S, DME 2S, SME 2S</i> | 1 bit 1.001 |
| 244 | <i>Call up/save central scenes</i> | <i>RMG8S, DME2S, JME4S, SME2S</i> | 1 byte 18.001 |
| 245 | <i>Central safety 1</i> | <i>For JME 4 S</i> | 1 bit 1.001 |
| 246 | <i>Central safety 2</i> | <i>For JME 4 S</i> | 1 bit 1.001 |
| 247 | <i>Central safety 3</i> | <i>For JME 4 S</i> | 1 bit 1.001 |
| 248 | <i>Central up/down</i> | <i>For JME 4 S</i> | 1 bit 1.008 |
| 249 | <i>Not used</i> | | |
| 250 | <i>Not used</i> | | |
| 251 | <i>Version of bus coupling unit</i> | <i>Send</i> | 14 byte 16.001 |
| 252 | <i>Version of basic device</i> | <i>Send</i> | 14 byte 16.001 |
| 253 | <i>Version of first upgrade device</i> | <i>Send</i> | 14 byte 16.001 |
| 254 | <i>Version of second upgrade device</i> | <i>Send</i> | 14 byte 16.001 |

6.2.3 Description of objects

- **Object 1** "Switching object, threshold value as per cent, threshold value 0..255, threshold value (DPT 9.xxx), threshold value 0..65535 "

This object activates the set channel function (see parameter: [Channel function](#)).

The set channel function can either be activated via 1-bit telegram or by exceeding a threshold (8- or 16-bit telegram).

Table 5:

| Parameters | | Activation of channel function via |
|-------------------------------|--|------------------------------------|
| Activation of function via | Type of threshold value object | |
| Switching object | | 1-bit telegram |
| Exceeding the threshold value | Object type: Per cent (DPT5.001) | Exceeding per cent value |
| | Object type: Counter value 0..255 (DPT 5.010) | Any value in given numerical range |
| | Object type: Counter value 0..65535 (DPT 7.001) | |
| | Object type: EIS5 e.g. CO2, brightness (DPT 9.xxx) | 2 byte floating-point number |

- **Object 2** "Logic input in AND gate, in OR gate, in XOR gate"

Only available if *Link* is activated (*Function selection* parameter page).

Forms a logical link together with object 1 to activate the channel function.

- **Objekt 3** "Lock"

Locks the channel function.

Responses to setting and cancelling the lock can be configured if the lock function has been activated (*Function selection* parameter page).

- **Object 4 "Call up/save scene"**

Only available if the scene function has been activated ([Function selection](#) parameter page).

This object can be used to save and subsequently call up scenes.

Saving stores the channel status.

It does not matter how this status is produced (whether via switching commands, central objects or the buttons on the device).

The saved status is re-established when it is called up.

All scene numbers from 1 to 64 are supported.

Each channel can participate in up to 8 scenes.

See appendix: [The scenes](#)

- **Object 5 "Lock scenes = 1, Enable scenes = 1"**

Locks the scene function with a 1 or a 0 depending on the configuration.

As long as it is locked, scenes cannot be saved or called up.

- **Object 6 "On/Off feedback"**

Reports the current channel status.

The status can also be inverted depending on configuration.

- **Object 7 "Time to next service, operating hours feedback "**

Only available if the operating hours counter function has been activated ([Function selection](#) parameter page).

Reports, depending on selected *Type of operating hours counter* ([Operating hours counter and service](#) parameter page), either the remaining period to the next service or the current status of the operating hours counter.

- **Object 8 "Service required"**

Only available if the operating hours counter function has been activated ([Function selection](#) parameter page) and *Type of operating hours counter* = *Counter for time to next service*.

Reports if the next service is due.

0 = not due

1 = service is due.

- **Object 9** "*Switching with priority, reset service, reset operating hours*"

The function of the object depends on whether or not the operating hours counter function has been activated ([Function selection](#) parameter page).

| <i>Activate operating hours counter</i> | Function | Use | | | | | | | | | |
|---|--------------------------------|---|--------------------|----------------|---|--------------------|---|---|-----|---|----|
| <i>Yes</i> | <i>Reset service*</i> | Reset service interval counter. | | | | | | | | | |
| | <i>Reset operating hours*</i> | Reset operating hours counter | | | | | | | | | |
| <i>No</i> | <i>Switching with priority</i> | Priority control: | | | | | | | | | |
| | | <table border="1"> <thead> <tr> <th>Status of object 9</th> <th>Channel status</th> </tr> </thead> <tbody> <tr> <td>0</td> <td rowspan="2">as set by object 1</td> </tr> <tr> <td>1</td> </tr> <tr> <td>2</td> <td>OFF</td> </tr> <tr> <td>3</td> <td>ON</td> </tr> </tbody> </table> | Status of object 9 | Channel status | 0 | as set by object 1 | 1 | 2 | OFF | 3 | ON |
| | | Status of object 9 | Channel status | | | | | | | | |
| | | 0 | as set by object 1 | | | | | | | | |
| | | 1 | | | | | | | | | |
| 2 | OFF | | | | | | | | | | |
| 3 | ON | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

* Depending on configuration.

- **Object 10** "*Current value, theoretical output*"

Only available if current measurement has been activated ([Function selection](#) parameter page).

According to configuration, transmits either the measured current value of the channel (in mA) or the achieved theoretical output.

- **Object 11** "*Overload*"

Only available if current measurement ([Function selection](#) parameter page) and *Monitoring of overload* ([Current measurement](#) parameter page) are activated.

0 = No overload

1 = Underrun.

- **Object 12** "*Underrun*"

Only available if current measurement ([Function selection](#) parameter page) and *Monitoring of underrun* ([Current measurement](#) parameter page) are activated.

0 = No underrun.

1 = Underrun.

- **Object 13 "Contact error"**

Error message if current continues to flow when channel is switched off.

0 = No error

1 = Error

- **Objects 14, 15 "Logic input in OR gate"**

Only available if *Link* is activated ([Function selection](#) parameter page) and the OR function has been selected ([Link](#) parameter page).

In combination with objects 1 and 2 forms a logical link for triggering the channel function.

- **Objects 79, 159, 239 "Manual"**

Only available for devices in the MIX2 series (order number 493...).

Puts the relevant module in manual mode or sends the status of the manual operation.

| Telegram | Application | Explanation |
|----------|-------------|---|
| 0 | Auto | All channels can be operated via the bus as well as via the buttons. |
| 1 | Manual | The channels can only be operated via the buttons on the device. Bus telegrams will not work. |

The duration of the manual mode, i.e. the *Function of the manual button* is set on the [General](#) parameter page.

- **Object 241 "Central permanent ON"**

Central switch-on function.

Enables simultaneous switch-on of all channels (basic and upgrade modules) with a single telegram.

0 = No function

1 = Permanent ON

Participation in this object can be set individually for each channel ([Function selection](#) parameter page).

IMPORTANT:

This object takes top priority.

As long as it is set, the other switching commands will not work on the participating channels.

Works on the following devices:

RMG 8 S / RME 8 S, RMG 4 I / RME 4 I, RMG 8 T / RME 8 T, RME 4 S / C-Last, DMG 2 T, DME 2 S/T, SME 2 S.

- **Object 242** "*Central permanent OFF*"

Central switch-off function.

Enables simultaneous switch-off of all channels (basic and upgrade modules) with a single telegram.

0 = No function

1 = Permanent OFF

Participation in this object can be set individually for each channel

([Function selection](#) parameter page).

IMPORTANT: This object has the second highest priority after *Central permanent ON*. As long as it is set, the other switching commands will not work on the participating channels.

Works on the following devices:

RMG 8 S / RME 8 S, RMG 4 I / RME 4 I, RMG 8 T / RME 8 T, RME 4 S / C-Last, DMG 2 T, DME 2 S/T, SME 2 S.

- **Object 243** "*Central switching*"

Central switching function.

Enables simultaneous switch-on or off of all channels (basic and upgrade modules) with a single telegram.

0 = OFF

1 = ON

Participation in this object can be set individually for each channel

([Function selection](#) parameter page).

With this object, every participating channel responds exactly as if its first object (i.e. obj.1, 11, 21 etc) were receiving a switching command.

Works on the following devices:

RMG 8 S / RME 8 S, RMG 4 I / RME 4 I, RMG 8 T / RME 8 T, RME 4 S / C-Last, DMG 2 T, DME 2 S/T, SME 2 S.

- **Object 244** "*Call up/save central scenes*"

Central object for using scenes.

This object can be used to save and subsequently call "scenes".

Works on the following devices:

RMG 4 I / RME 4 I, RMG 8 S / RME 8 S, RMG 8 T / RME 8 T, DMG 2 T / DME 2 T, JMG 4 T / JME 4 T, RME 4 S / C-Last, DME 2 S, SME 2 S, JME 4 S

See appendix: [The scenes](#)

- **Objects 245, 246, 247** "*Central safety 1, 2, 3*"

Not used.

- **Object 248, 249, 250**

Not used.

- **Object 251** "*Version of bus coupling unit*"

For diagnostic purposes only.

Sends the bus coupling unit software version after reset or download.

Can also be read out via the ETS.

Format: **Axx Hyy Vzzz**

| Code | Meaning |
|------|---|
| xx | 00 .. FF = Version of application without dividing point (14 = V1.4, 15 = V1.5 etc.). |
| yy | Hardware version 00..99 |
| zzz | Firmware version 000..999 |

EXAMPLE: A15 H03 V014

- ETS Application Version 1.5

- Hardware version \$03

- Firmware version \$14

- **Object 252** "*Version of basic module*"

For diagnostic purposes only.

Only for basic modules in the MIX2 series (order number 493...).

Sends the software version (firmware) of the basic module after reset or download.

Can also be read out via the ETS.

The version is issued as an ASCII character string.

Format: **Mxx Hyy Vzzz**

| Code | Meaning |
|------|---------------------------------------|
| xx | 01 .. FF = Module code (hexadecimal). |
| yy | Hardware version 00..99 |
| zzz | Firmware version 000..999 |

EXAMPLE: M11 H25 V025

- Module \$11 = RMG 8 S

- Hardware version V25

- Firmware version V25

Possible module codes

| Module | Code |
|--|------|
| Module or mains voltage are unavailable. | \$00 |
| RMG 8 S | \$11 |
| RMG 4 I | \$12 |
| DMG 2 T | \$13 |
| JMG 4 T/JMG 4 T 24V | \$14 |
| HMG 6 T | \$15 |
| RMG 8 T | \$17 |
| RMG 4 U | \$18 |
| BMG 6 T | \$92 |

EXAMPLE: M15 H25 V025

- Module \$15 = HMG 6 T
- Hardware version V25
- Firmware version V25

- **Object 253** "*Version of first extension module*"

Telegram format: See above, object 252

Possible module codes

| Module | Code |
|--|------|
| Module or mains voltage are unavailable. | \$00 |
| RME 8 S | \$11 |
| RME 4 I | \$12 |
| DME 2 T | \$13 |
| JME 4 T/JME 4 T 24V | \$14 |
| HME 6 T | \$15 |
| RME 8 T | \$17 |
| RME 4 U | \$18 |
| BME 6 T | \$92 |

- **Object 254** "*Version of second extension module*"

See above, object 253

6.3 Parameters

6.3.1 Parameter pages

Table 6

| Function | Description |
|--|--|
| General | Selection of module and central parameters. |
| BASIC DEVICE: RMG 4 I | General parameters for the basic device: Collective feedback and switching delay of relay. |
| RMG 4 I channel Cx Function selection | Characteristics of channel and activation of additional functions (scenes, links etc.). |
| Contact characteristics | Type of contact and status after download, bus failure etc. |
| Threshold value | Settings for triggering channel function through exceeding threshold value. |
| Locking function | Type of lock telegram and response to locking. |
| Scenes | Selection of scene numbers relevant to the channel. |
| Feedback | Status of feedback object etc. |
| Operating hours counter and service | Type of operating hours counter and, if required, service interval etc. |
| Current measurement | Parameter settings for current monitoring |
| Link | Selection of logical link. |

6.3.2 Parameter description

Settings that lead to the display of other pages or functions are identified by ...

Example: *Pulse function*.

6.3.2.1 The "General" parameter page

| Designation | Values | Description |
|---|--|--|
| <i>Type of basic module</i> | Select device. RMG 8 S.. RMG 8 T.. RMG 4 I.. DMG 2 T.. JMG 4 T/JMG 4 T 24V.. HMG 6 T.. | Selection of available basic device (MIX2 series only) |
| <i>Type of first upgrade module</i> | not available/inactive RME 8 S.. RME 8 T.. RME 4 I.. DME 2 T.. JME 4 T/JME 4 T 24V.. HME 6 T.. RME 4 S / RME 4 C-Last.. DME 2 / SME 2.. BME 6.. JME 4 S.. HME 4.. | Selection of first upgrade device, if available. (MIX or MIX2 series) |
| <i>Type of second upgrade module</i> | not available/inactive RME 8 S.. RME 8 T.. RME 4 I.. DME 2 T.. JME 4 T/JME 4 T 24V.. HME 6 T.. RME 4 S / RME 4 C-Last.. DME 2 / SME 2.. BME 6.. JME 4 S.. HME 4.. | Selection of second upgrade device, if available. (MIX or MIX2 series) |
| <i>Time for cyclical sending of feedback object (MIX series, order no.491...)</i> | 2 minutes, 3 minutes, 5 minutes, 10 minutes, 15 minutes , 20 minutes, 30 minutes, 45 minutes, 60 minutes | This parameter is used exclusively for MIX series upgrade devices. (DME 2 S, SME 2, JME 4 S, BME 6 RME 4 S / C-load, and HME 4) |
| <i>Function of manual button (MIX2 series, order no. 493...)</i> | <i>applies for 24 hours or until reset via object locked</i> <i>applies until reset via object</i> <i>applies for 30 minutes or until reset via object</i> <i>applies for 1 hour or until reset via object</i> <i>applies for 2 hours or until reset via object</i> | Determines how long the device works manually and how this is ended. In manual mode, the channels can only be switched on and off via the buttons on the device. See: Object 79 This parameter is used exclusively for MIX2 series devices. |

| Designation | Values | Description |
|---|---|---|
| | <i>applies for 4 hours or until reset via object</i> <i>applies for 8 hours or until reset via object</i> <i>applies for 12 hours or until reset via object</i> | |
| <i>Manual operation of channels (MIX2 series, order no. 493...)</i> | Enabled <i>locked</i> | The channels can be operated via the buttons on the device. No manual operation, the buttons on the device are locked. |

6.3.2.2 The "RMG 4 I basic device parameter page"

| Designation | Values | Description |
|------------------------------|--|---|
| <i>Relay switching delay</i> | <p><i>None</i></p> <p><i>60 ms</i></p> <p><i>100 ms</i></p> <p><i>200 ms</i></p> | <p>This parameter sets the minimum delay between switching on two relays if several are activated at the same time. The shortest delay is achieved by using the central switching object (object 243).</p> <p>When switching on via individual telegrams (1 telegram per channel), the bus running time and the sequential processing of commands causes an additional delay.</p> <p>This can help avoid high current peaks when devices are switched on simultaneously (e.g. with a number of lighting strips).</p> <p>There is no added delay.</p> <p>When a relay switches on, the next one can only switch on after the set delay is completed.</p> <p>The switch-on delay between the first and last relay is calculated according to the following formula: $(\text{number of channels} - 1) \times \text{delay}$</p> <p>Example: RMG 4 I and 60 ms: $= (4 \text{ channels} - 1) * 60 \text{ mins}$ $= 180 \text{ mins}$ Channel C4 of the second RME 4 I switches on 180 mins after C1 on the basic device.</p> |

6.3.2.3 The "RMG 4 I channel C1: function selection" parameter page

Table 7

| Designation | Values | Description |
|---|---|---|
| <i>Channel function</i> | <p>Switching On/Off.. <i>On/Off delay..</i> <i>Pulse function..</i> <i>Staircase light time switch with warning function..</i> <i>Flashing..</i></p> | Determines the basic functionality of the channel. |
| <i>Activation of function via</i> | <p>Switching object</p> <p><i>Exceeding the threshold value</i></p> | <p>The channel is operated via a 1-bit object.</p> <p>The channel is operated through exceeding a 1 or 2-byte threshold value. See below: The "threshold value" parameter page</p> |
| <i>Adjust lock function</i> | <p><i>Yes..</i></p> <p><i>No</i></p> | <p>The locking function can be individually adjusted. The relevant parameter page is shown.</p> <p>The locking function works with the standard parameters: - <i>Lock with ON telegram</i> - <i>When setting the lock: Unchanged</i> - <i>When cancelling: Update.</i></p> |
| <i>Activate scenes</i> | <p><i>Yes / no</i></p> | Should scenes be supported? |
| <i>Participation in central objects</i> | <p><i>No</i></p> <p><i>at Central switching, Permanent On, Permanent OFF only in central permanent ON only in central permanent OFF only in central switching only in central switching and permanent ON only in central switching and permanent OFF only in central permanent on and permanent OFF</i></p> | <p>Central objects are not taken into account.</p> <p>Which central objects are to be taken into account?</p> <p>Central objects enable the simultaneous switching on and off of several channels with one single object.</p> |
| <i>Adjust feedback</i> | <p><i>Yes..</i></p> <p><i>No</i></p> | <p>The feedback function can be individually adjusted. The relevant parameter page is shown.</p> <p>The <i>Feedback</i> function works with the standard parameters: - <i>not inverted</i> - <i>do not send cyclically</i></p> |
| <i>Activate operating hours counter</i> | <p><i>Yes / no</i></p> | Is the <i>operating hours counter/ service interval</i> function to be used? |

| Designation | Values | Description |
|-------------------------------------|---------------------------|---|
| <i>Activate link</i> | <i>Yes</i> <i>/ no</i> | Are logical links to be used with the channel object? |
| <i>Activate current measurement</i> | <i>No</i> | Load current is not monitored. |
| | <i>Yes</i> | The load current is monitored and deviations can be reported. The current measurement parameter page is displayed. |

6.3.2.4 The "Contact characteristics" parameter page

Table 8

| Designation | Values | Description |
|---|--|---|
| <i>Type of contact</i> | NO contact NC contact | Standard: The relay contact is closed when a switch-on command is issued. Inverted: The relay contact is opened when a switch-on command is issued. |
| <i>Status with download and bus failure</i> | OFF ON Unchanged | After download or with loss of bus voltage... ..the relay remains switched off. ..the relay switches on. ...the relay remains in the same state as before. |
| <i>Status after restoration of the mains supply or bus supply</i> | OFF ON Same as before failure | After return of mains or bus supply... ..the relay remains switched off. ..the relay switches on. ...the relay remains in the same state as before. |

6.3.2.5 The "On/Off delay" parameter page

This parameter page appears if *On/Off delay* is chosen as the *Channel function* .

Table 9

| Designation | Values | Description |
|-------------------------|---------------|---|
| <i>Switch-on delay</i> | | |
| <i>hours (0..3)</i> | 0..3 | Input of desired switch-on delay in hours. |
| <i>minutes (0..60)</i> | 0..60 | Input of desired switch-on delay in minutes. |
| <i>seconds (0.2255)</i> | 0..255 | Input of desired switch-on delay in seconds. |
| <i>Switch-off delay</i> | | |
| <i>hours (0..3)</i> | 0..3 | Input of desired switch-off delay in hours. |
| <i>minutes (0..60)</i> | 0..60 | Input of desired switch-off delay in minutes. |
| <i>seconds (0.2255)</i> | 0..255 | Input of desired switch-off delay in seconds. |

6.3.2.6 The "Pulse function" parameter page

This parameter page appears if *Pulse function* is chosen as the *Channel function* .

Table 10

| Designation | Values | Description |
|--|---------------|---|
| <i>hours (0..3)</i> | 0..3 | Input of desired pulse duration in hours. |
| <i>minutes (0..60)</i> | 0..60 | Input of desired pulse duration in minutes. |
| <i>seconds (0.2255)</i> | 0..255 | Input of desired pulse duration in seconds. |
| <i>Pulse can be retriggered (with 1 on switching object)</i> | Yes | The pulse can be extended as often as possible via a 1-telegram |
| | No | The pulse cannot be extended. |
| <i>Pulse can be reset (with 1 on switching object)</i> | Yes | The pulse can be ended early at anytime via a 0-telegram |
| | No | The pulse cannot be ended early. |

6.3.2.7 The "Staircase light with warning function .." parameter page

This parameter page appears if *Staircase light with warning function* is chosen as the *Channel function* .

The user can, at anytime, press a push button again to extend the staircase light time.

Table 11

| Designation | Values | Description |
|--|-----------------------------|---|
| Staircase light time (min. 1 s) | | |
| <i>hours (0..3)</i> | 0..3 | Input of desired staircase light time in hours. |
| <i>minutes (0..60)</i> | 0..60 | Input of desired staircase light time in minutes. |
| <i>seconds (0.2255)</i> | 0..255 Default value = 1 | Input of desired staircase light time in seconds. |
| <i>The maximum sum of pulses 1..40</i> | 1..40 | determines how often the staircase light can be extended (restarted) by pressing the button again. |
| <i>Duration of first warninhg in s (0..60)</i> | 0 | The light switches off immediately once the staircase light time is completed. |
| | 1..60 Default value = 10 | Once the staircase light time is completed, the light should briefly flash and then stay on for the duration of the warning |
| <i>Duration of second warning in s (0..60)</i> | 0 | No second warning. The light switches off at the end of the first warning. |
| | 1..60 Default value = 10 | Second warning: Once the first warning is completed, the light should flash briefly and then stay on for the duration of the second warning The light switches off when this time is completed. |

Example of warning function:

| | | | | | |
|----------------------|----------|------------|----------|------------|-----|
| Staircase light time | Flashing | 1. warning | Flashing | 2. warning | OFF |
| | Flashing | 1. warning | Flashing | 2. warning | OFF |

6.3.2.8 The "Flashing" parameter page

This parameter page appears if *Flashing* is chosen as the *Channel function* .

Table 12

| Designation | Values | Description |
|----------------------------------|------------------------------|--|
| <i>ON phase of flash pulse.</i> | | |
| <i>hours (0..3)</i> | 0..3 | Input of desired pulse time (t _i) in hours. |
| <i>minutes (0..60)</i> | 0..60 | Input of desired pulse time in minutes. |
| <i>seconds (0.2255)</i> | 0..255 | Input of desired pulse time in seconds. |
| <i>OFF phase of flash pulse.</i> | | |
| <i>hours (0..3)</i> | 0..3 | Input of desired length of break (t _p) in hours. |
| <i>minutes (0..60)</i> | 0..60 | Input of desired length of break in minutes. |
| <i>seconds (0.2255)</i> | 0..255 | Input of desired length of break in seconds. |
| <i>How often should it flash</i> | <i>Until it switches off</i> | The channel flashes until a switch-off telegram is received. |
| | <i>1 x</i> | The channel flashes as often as set here. |
| | <i>2 x</i> | |
| | 3 x | |
| | <i>4 x</i> | |
| | <i>5 x</i> | |
| | <i>7 x</i> | |
| | <i>10 x</i> | |
| | <i>15 x</i> | |
| | <i>20 x</i> | |
| | <i>30 x</i> | |
| | <i>50 x</i> | |

6.3.2.9 The "Threshold value" parameter page

This side is shown if the *Activation of the function by* parameter is set to *Exceeding threshold value*.

Table 13

| Designation | Values | Description |
|--|---|--|
| <i>Type of threshold value object</i> | <p>Object type: Per cent (DPT5.001)</p> <p><i>Object type: Counter value 0..255 (DPT 5.010)</i></p> <p><i>Object type: Counter value 0..65535 (DPT 7.001)</i></p> <p><i>Object type: EIS5 e.g. CO2, brightness etc (DPT 9.xxx)</i></p> | Value type for threshold. |
| <i>Response on exceeding the threshold</i> | <p><i>As switching object = 0</i></p> <p><i>As switching object = 1</i></p> | <p>Should the channel switch on or off on exceeding the threshold? The set <i>type of contact</i> must be taken into account here.</p> <p><i>NO contact:</i> the relay switches off if threshold is exceeded. <i>NC contact:</i> The relay switches on if threshold is exceeded.</p> <p><i>NO contact:</i> The relay switches on if threshold is exceeded. <i>NC contact:</i> The relay switches off if threshold is exceeded.</p> |
| Parameter for Percent threshold object | | |
| <i>Threshold value</i> | <p>1..99 %</p> <p>Default value = 50 %</p> | <p>Desired threshold value.</p> <p>Example of <i>NO contact</i> with response <i>as switching object = 1</i> :</p> <p>Switches on when: Object value > threshold value</p> <p>Switches off when: Object value < threshold value - hysteresis</p> |
| <i>Hysteresis (as %)</i> | <p>1..99 %</p> <p>Default value = 10 %</p> | The hysteresis prevents frequent switching after small fluctuations in readings. |
| Parameter for threshold value object Counter value 0..255 | | |
| <i>Lower threshold value</i> | <p>1..254</p> <p>Default value = 127</p> | <p>Desired threshold value.</p> <p>Example of <i>NO contact</i> with response <i>as switching object = 1</i> :</p> <p>Switches on when: Object value > threshold value</p> <p>Switches off when: Object value < threshold value - hysteresis</p> |

| Designation | Values | Description |
|---|---|---|
| <i>Hysteresis</i> | <i>1..254</i> <i>Default value = 5</i> | The hysteresis prevents frequent switching after small fluctuations in readings. |
| Parameter for threshold value object Counter value 0.0.65535 | | |
| <i>Lower threshold value</i> | <i>1..65534</i> <i>Default value = 1000</i> | Desired threshold value. Example of <i>NO contact</i> with response as <i>switching object = 1</i> : Switches on when: Object value > threshold value Switches off when: Object value < threshold value - hysteresis |
| <i>Hysteresis</i> | <i>1..65534</i> <i>Default value = 5</i> | |
| Parameter for threshold value object EIS5 (e.g. CO₂, brightness...) | | |
| <i>Lower threshold value</i> <i>Format (-)0.00..99999</i> | <i>0,00..99999</i> <i>Default value = 20</i> | Desired threshold value. Example of <i>NO contact</i> with response as <i>switching object = 1</i> : Switches on when: Object value > threshold value Switches off when: Object value < threshold value - hysteresis |
| <i>Hysteresis</i> <i>0,00..9999</i> | <i>0,00..9999</i> <i>Default value = 1</i> | The hysteresis prevents frequent switching after small fluctuations in readings. |

6.3.2.10 The "*Lock function*" parameter page

This page appears when *Adjust lock function* is selected on the *Function selection* parameter page.

Table 14

| Designation | Values | Description |
|---|--------------------------------------|---|
| <i>Lock telegram</i> | <i>Lock with ON telegram</i> | 0 = Enable 1 = lock |
| | <i>Lock with OFF telegram</i> | 0 = lock 1 = Enable Caution: The lock is always deactivated after reset. |
| <i>Behaviour when setting the lock</i> | <i>OFF</i> | Switch off |
| | <i>ON</i> | Switch on |
| | <i>Unchanged</i> | No response |
| <i>Behaviour when cancelling the lock</i> | <i>OFF</i> | Switch off |
| | <i>ON</i> | Switch on |
| | <i>Unchanged</i> | No response |
| | <i>update</i> | Restore normal operation and switch relay accordingly. |

6.3.2.11 The "Scenes" parameter page

This page appears when the *Scenes* are activated on the *Function selection* parameter page. Each channel can participate in up to 8 scenes.

Table 15

| Designation | Values | Description |
|--|---|--|
| <i>Lock telegram for scenes</i> | Lock with ON telegram | 0 = Enable 1 = lock |
| | Lock with OFF telegram | 0 = lock 1 = Enable Caution: With this setting the scenes are always locked immediately after reset or download. |
| <i>All channel scene statuses</i> | Overwrite on download | A download deletes all scene memories in a channel, i.e. all previously taught scenes. When a scene number is called, the channel assumes the configured <i>Status after download</i> (see below). See appendix: Teach-in scenes without telegrams |
| | Unchanged after download | All previously taught-in scenes are saved. However, the scene numbers the channel can react to can be changed (see below: <i>Channel reacts to</i>). |
| <i>Participation in central scene object</i> | No Yes | Should the device react to the central scene object? |
| <i>Channel reacts to</i> | No scene number Scene number 1 Scene number 63 | First of the 8 possible scene numbers the channel is to react to. |
| <i>Status after download</i> | Off On | New switching status that the selected scene number is to be allocated to. Only possible if the scene statuses are to be overwritten after download. |
| <i>Permit teach-in</i> | No Yes | Scenes can only be called up. The user can both call up and teach-in or amend scenes. |
| <i>Channel reacts to</i> | No scene number Scene number 1 Scene number 2 ... Scene number 63 | Second of the 8 possible scene numbers |
| <i>Status after download</i> | Off | See above. |

| Designation | Values | Description |
|------------------------------|---|---|
| | <i>On</i> | |
| <i>Permit teach-in</i> | <i>No</i> <i>Yes</i> | See above. |
| <i>Channel reacts to</i> | <i>No scene number</i> <i>Scene number 1</i> ... <i>Scene number 3</i> ... <i>Scene number 63</i> | Third of the 8 possible scene numbers |
| <i>Status after download</i> | <i>Off</i> <i>On</i> | See above. |
| <i>Permit teach-in</i> | <i>No</i> <i>Yes</i> | See above. |
| <i>Channel reacts to</i> | <i>No scene number</i> <i>Scene number 1</i> ... <i>Scene number 4</i> ... <i>Scene number 63</i> | Fourth of the 8 possible scene numbers |
| <i>Status after download</i> | <i>Off</i> <i>On</i> | See above. |
| <i>Permit teach-in</i> | <i>No</i> <i>Yes</i> | See above. |
| <i>Channel reacts to</i> | <i>No scene number</i> <i>Scene number 1</i> ... <i>Scene number 5</i> ... <i>Scene number 63</i> | Fifth of the 8 possible scene numbers |
| <i>Status after download</i> | <i>Off</i> <i>On</i> | See above. |
| <i>Permit teach-in</i> | <i>No</i> <i>Yes</i> | See above. |
| <i>Channel reacts to</i> | <i>No scene number</i> <i>Scene number 1</i> ... <i>Scene number 6</i> ... <i>Scene number 63</i> | Sixth of the 8 possible scene numbers |
| <i>Status after download</i> | <i>Off</i> <i>On</i> | See above. |
| <i>Permit teach-in</i> | <i>No</i> <i>Yes</i> | See above. |
| <i>Channel reacts to</i> | <i>No scene number</i> <i>Scene number 1</i> ... <i>Scene number 7</i> ... | Seventh of the 8 possible scene numbers |

| Designation | Values | Description |
|------------------------------|--|--------------------------------------|
| | <i>Scene number 63</i> | |
| <i>Status after download</i> | Off On | See above. |
| <i>Permit teach-in</i> | No Yes | See above. |
| <i>Channel reacts to</i> | <i>No scene number</i> <i>Scene number 1</i> ... Scene number 8 ... <i>Scene number 63</i> | Last of the 8 possible scene numbers |
| <i>Status after download</i> | Off On | See above. |
| <i>Permit teach-in</i> | No Yes | See above. |

6.3.2.12 The "*Feedback*" parameter page

This page appears when *Adjust feedback* is selected on the *Function selection* parameter page.

Table 16

| Designation | Values | Description |
|---|--|--|
| <i>Reported status</i> | <i>Not inverted</i> | Channel switched on: Feedback object sends a 1 |
| | <i>inverted</i> | Channel switched on: Feedback object sends a 0 |
| <i>Send feedback cyclically</i> | <i>No</i> <i>Yes</i> | Send at regular intervals? |
| <i>Time for cyclical transmission of feedback</i> | <i>2 minutes, 3 minutes, 5 minutes, 10 minutes, 15 minutes, 20 minutes, 30 minutes, 45 minutes, 60 minutes</i> | At what interval? |

6.3.2.13 The "Operating hours counter and service parameter page"

This page appears when *Activate operating hours counter* is selected on the [Function selection](#) parameter page.

Table 17

| Designation | Values | Description |
|--|--|---|
| <i>Type of operating hours counter</i> | Operating hours counter | Forward counter for channel power-on time. |
| | <i>Counter for time period before next service</i> | Backward counter for channel power-on time. |
| Operating hours counter | | |
| <i>Reporting of changes to operating hours (0..100 h, 0 = no report)</i> | 0..100 Default value = 10 | At what interval is the current counter status to be sent? Example: 10 = Send each time the counter status increases by another 10 hours. |
| <i>Report operating hours cyclically</i> | No yes | Send at regular intervals? |
| <i>Time for cyclical transmission</i> | 2 minutes, 3 minutes, 5 minutes, 10 minutes, 15 minutes, 20 minutes, 30 minutes, 45 minutes 60 minutes | At what interval? |
| Counter for time period before next service | | |
| <i>Service interval (0..2000, x10 h)</i> | 0..2000 Default value = 100 | Desired timescale between two services. Example: 10 = 10 x 10 h = 100 hours |
| <i>Reporting of changes to time to service (0..100 h, 0 = no report)</i> | 0..100 Default value = 10 | At what interval is the current counter status to be sent? Example: 10 = Send each time the counter status decreases by another 10 hours. |
| <i>Report time to service cyclically</i> | No Yes | Send remaining time to next service at regular intervals? Object <i>Time to next service</i> . |
| <i>Report service cyclically</i> | No Yes | Send expiry of time to next service at regular intervals? Object <i>Service required</i> ". |
| <i>Tine for cyclical transmission (time to service and service</i> | 2 minutes, 3 minutes, 5 minutes, 10 minutes, 15 minutes, 20 minutes, 30 minutes, 45 minutes 60 minutes | At what interval? |

6.3.2.14 The "Current measurement" parameter page

This page appears when *Activate operating hours counter* is selected on the *Function selection* parameter page.

Table 18

| Designation | Values | Description |
|--|--|---|
| <i>Send current value in the event of change</i> | <i>No</i> <i>by 100 mA</i> <i>by 200 mA, 500 mA</i> <i>by 1 A, by 2 A, by 5 A</i> | The current value can only be sent cyclically if required (see below). The current value is sent each time the measured value changes by the set amount. |
| <i>Send current value cyclically</i> | <i>No</i> <i>Yes</i> | Is the current value to be sent at regular intervals? |
| <i>Conversion of current in theoretical output</i> | <i>No</i> <i>Yes</i> | The measured current is sent in mA. The measured current is multiplied by the set conversion factor (see below). This enables the theoretical output (VA or W) to be determined given constant power supply. |
| <i>Conversion:</i> <i>Output</i> <i>= current x factor</i> <i>(Factor</i> <i>= voltage x</i> | 1..255 | Factor for the calculation of the theoretical output. Setting: With direct or alternative current with predominantly resistive load (heating resistors, incandescent lamps etc.): $P = U \times I$: Factor = U With alternating current with capacitive or inductive load (motor, transformer, electronic series device etc.) $P = U \times I \times \cos \phi$: Factor = U x cos U = Voltage of connected load I = measured current. Examples: First motor Mains connection U = 230 V AC Factor = 230 x 0.8 = 184 Second heat resistor Mains connection U = 100 V Factor = 100 |
| <i>Send contact error cyclically (current via open contact)</i> | <i>No</i> <i>Yes</i> | Should a telegram be sent if current flows through the connected load despite open contact? |

| Designation | Values | Description |
|---|--|--|
| <i>Delay in measurement after switching contact (0..60 s)</i> | 0 | Current value is measured during the switch-on procedure and records possible current peaks. |
| | 1..60 | The current is not measured initially during switch-on. Interfering current peaks are thereby hidden. Measurement only starts after set delay is completed. |
| <i>Monitoring of overload</i> | No | No maximum load current specified. |
| | Yes | A telegram is sent when the set threshold value has been exceeded. This function enables the identification and reporting of an error caused by overload. |
| <i>Threshold value for overload (1..200) x 100 mA</i> | 1..200 | From what current value is an overload to be identified? |
| <i>Hysteresis for overload (10..100 %)</i> | 10..100 | The hysteresis prevents frequent switching (exceeded/not exceeded) after small fluctuations in readings. |
| <i>Minimum time for overload</i> | 0 sec., 1 sec., 2 sec., 4 sec. 6 sec., 8 sec., 12 sec., 15 sec. 24 sec., 30 sec., 45 sec., 1 min. 3 min., 5 min., 10 min., 20 min. 30 min., 45 min., 1 h, 2 h, 3 h, 6 h, 12 h, 24 h | Overload is only reported if this lasts longer than the set time. This makes it possible to selectively ignore short overloads. |
| <i>Telegram in the event of overload</i> | OFF telegram ON telegram No telegram | Telegram in the event of excessive load, i.e. error |
| <i>Telegram if load is not exceeded</i> | OFF telegram ON telegram No telegram | Telegram if the load is not exceeded, i.e. no error.. |
| <i>Send overload cyclically</i> | No Yes | Send status of overload at regular intervals? |
| <i>Monitoring of underrun</i> | No | No minimum load current specified. |
| | Yes | A telegram is sent when the set threshold value has been underrun. This function enables the prompt identification and reporting of loss of load. |
| <i>Threshold value for underrun (1..200) x 100 mA</i> | 1..200 | Below what current value is an underrun to be identified? |
| <i>Hysteresis for underrun (10..100 %)</i> | 10..100 | The hysteresis prevents frequent switching (exceeded/not exceeded) after small fluctuations in readings. |

| Designation | Values | Description |
|---|--|--|
| <i>Minimum time for underrun</i> | <i>0 sec., 1 sec., 2 sec., 4 sec. 6 sec., 8 sec., 12 sec., 15 sec. 24 sec., 30 sec., 45 sec., 1 min. 3 min., 5 min., 10 min., 20 min. 30 min., 45 min., 1 h, 2 h, 3 h, 6 h, 12 h, 24 h</i> | Underrun is only reported if this lasts longer than the set time. This makes it possible to selectively ignore short underruns. |
| <i>Telegram in the event of underrun</i> | <i>OFF telegram ON telegram No telegram</i> | Telegram in the event of insufficient load, i.e. error |
| <i>Telegram if load is not underrun</i> | <i>OFF telegram ON telegram No telegram</i> | Telegram if the load is not underrun, i.e. no error.. |
| <i>Send underrun cyclically</i> | <i>No Yes</i> | Send status of underrun at regular intervals? |
| <i>Time for cyclical transmission (current value, contact error, overload.)</i> | <i>2 minutes 3 minutes 5 minutes 10 minutes 15 minutes 20 minutes 30 minutes 45 minutes 60 minutes</i> | Time interval for cyclical transmission |

6.3.2.15 The "Link" parameter page

This page appears when *Activate link* is selected on the *Function selection* parameter page.

An additional object appears, which form a logical link in combination with the channel's switching/threshold object.

The channel only switches if the link requirement has been met.

Table 19

| Designation | Values | Description |
|---|---------------------------|--|
| <i>Activate link</i> | <i>AND link</i> | The <i>Logic input in AND gate</i> object appears (e.g. object 2). |
| | <i>OR link (override)</i> | The <i>Logic input in OR gate</i> object appears (e.g. object 2). |
| | <i>XOR link</i> | The <i>Logic input in XOR gate</i> object appears (e.g. object 2). |
| <i>Disable object affects link object</i> | <i>No</i> | The disable object only affects the channel object (e.g. object 1). If required, the link object can activate the channel function despite lock (with OR and XOR link). |
| | <i>Yes</i> | The disable object affects the channel and link objects. The channel function is completely blocked if the lock is active. |

7 Typical applications:

These examples of use are designed to aid planning and are not to be considered as an exhaustive list.

It can be extended and updated as required.

7.1 2x switching with push button interface

2 push buttons are connected to a TA 2 push button interface and they control 2 channels on the RMG 4 I.

7.1.1 Devices:

- RMG 4 I (4930210)
- TA 2 S (4969222)

7.1.2 Overview

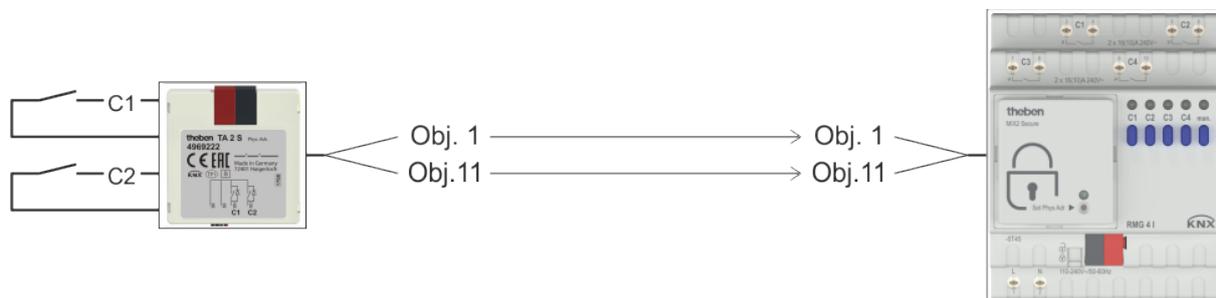


Figure 1

7.1.3 Objects and links

Table 20

| No. | TA 2 S | No. | RMG 4 I | Comments |
|-----|----------------------------|-----|--|----------|
| | Object name | | Object name | |
| 1 | <i>Channel 1 switching</i> | 1 | <i>RMG 4 I channel C1 Switching object</i> | - |
| 11 | <i>Channel 2 switching</i> | 11 | <i>RMG 4 I channel C2 switching object</i> | - |

7.1.4 Important parameter settings

Standard or customer-defined parameter settings apply for unlisted parameters.

Table 21: TA 2 S

| Parameter page | Parameters | Setting |
|--|-------------------------|--------------------|
| <i>Channel 1 / Configuration options</i> | <i>Channel function</i> | <i>Push button</i> |
| <i>Channel 2 / Configuration options</i> | <i>Channel function</i> | <i>Push button</i> |

Table 22: RMG 4 I

| Parameter page | Parameters | Setting |
|---|-----------------------------------|-------------------------|
| <i>RMG 4 I channel C1: Function selection</i> | <i>Channel function</i> | <i>Switching ON/OFF</i> |
| | <i>Activation of function via</i> | <i>Switching object</i> |
| <i>Contact characteristics</i> | <i>Type of contact</i> | <i>NO contact</i> |
| <i>RMG 4 I channel C2</i> | <i>See channel C1</i> | |

7.2 Operate light with service counter and display

A fluorescent light strip in a hall is controlled by channel C1.
The lights have to be replaced after 20,000 hours (= service).
The time period to the service and the service status are shown on the VARIA 826 display.

7.2.1 Devices

- RMG 4 I (4930210)
- VARIA 826 S (8269210/8269211)

7.2.2 Overview

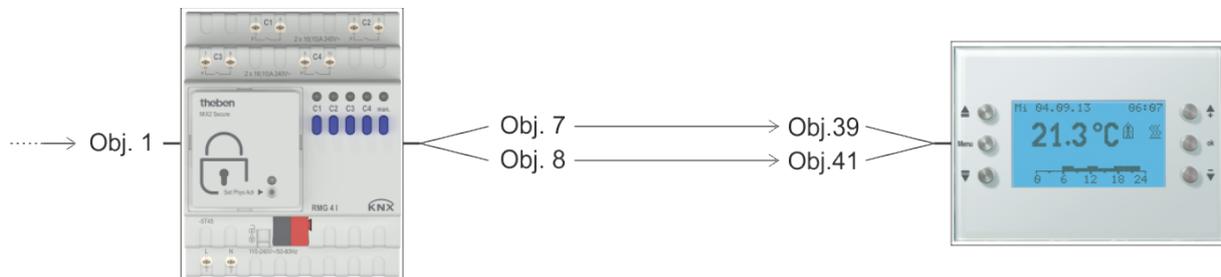


Figure 2

7.2.3 Objects and links

Table 23

| No. | KNX sensor | No. | RMG 4 I | Comments |
|-----|---------------------------|-----|-------------------------|---|
| | Object name | | Object name | |
| - | <i>(Switching object)</i> | 1 | <i>Switching object</i> | Any KNX sensor: Push button, timer, twilight switch etc sends the switch command to RMG 4 I |

Table 24:

| No. | RMG 4 I | No. | VARIA | Comments |
|-----|-----------------------------|-----|--------------------------------|----------------------|
| | Object name | | Object name | |
| 7 | <i>Time to next service</i> | 39 | <i>Counter value 0 ..65535</i> | Time in hours |
| 8 | <i>Service required</i> | 41 | <i>Switching ON/OFF</i> | 1 = Time has elapsed |

7.2.4 Important parameter settings

Standard or customer-defined parameter settings apply for unlisted parameters.

Table 25: RMG 4 I

| Parameter page | Parameters | Setting |
|--|--|--|
| <i>General</i> | <i>Type of basic module</i> | <i>RMG 4 I</i> |
| <i>RMG 4 I channel C1 function selection</i> | <i>Channel function</i> | <i>Switching ON/OFF</i> |
| | <i>Activate operating hours counter</i> | <i>Yes..</i> |
| <i>Contact characteristics</i> | <i>Type of contact</i> | <i>NO contact</i> |
| <i>Operating hours counter and service</i> | <i>Type of operating hours counter</i> | <i>Counter for time period before next service</i> |
| | <i>Service interval (0..2000 x 10 h)</i> | <i>200</i> |
| | <i>Reporting of changes to time to service (0..100 h, 0 = no report)</i> | <i>100</i> |
| | <i>Report service cyclically</i> | <i>Yes</i> |

Table 26: VARIA 826 S

| Parameter page | Parameters | Setting |
|-------------------------------|---|---|
| <i>Select screens</i> | <i>Show page 1 for display objects</i> | <i>Yes</i> |
| <i>Display objects page 1</i> | <i>Fade in operating instructions on page 1</i> | <i>No</i> |
| | <i>Page heading</i> | <i>Lamp maintenance*</i> |
| <i>Page 1, line 1</i> | <i>Line format</i> | <i>16 bit counted measurement object type</i> |
| | <i>Text for line 1</i> | <i>Service in*</i> |
| | <i>Unit for display object</i> | <i>h</i> |
| | <i>Value range</i> | <i>Negative and positive numbers</i> |
| | <i>Display before receipt of value</i> | <i>Read from object via bus</i> |
| <i>Page 1, line 2</i> | <i>Line format</i> | <i>Switch on object type</i> |
| | <i>Text for line 1</i> | <i>Lamp status*</i> |
| | <i>Text for object value = 0</i> | <i>OK*</i> |
| | <i>Text for object value = 1</i> | <i>Service*</i> |
| | <i>Display before receipt of value</i> | <i>Read from object via bus</i> |

*Suggested text

7.3 Simple warning function with flashing light

A monitoring device, e.g. flood alarm is connected to a TA 2 S push button interface, and it controls a channel of the RMG 4 I.

A lamp shall flash in the event of an error (channel 1 relay output).

7.3.1 Devices:

- RMG 4 I (4930210)
- TA 2 S (4969222)

7.3.2 Overview

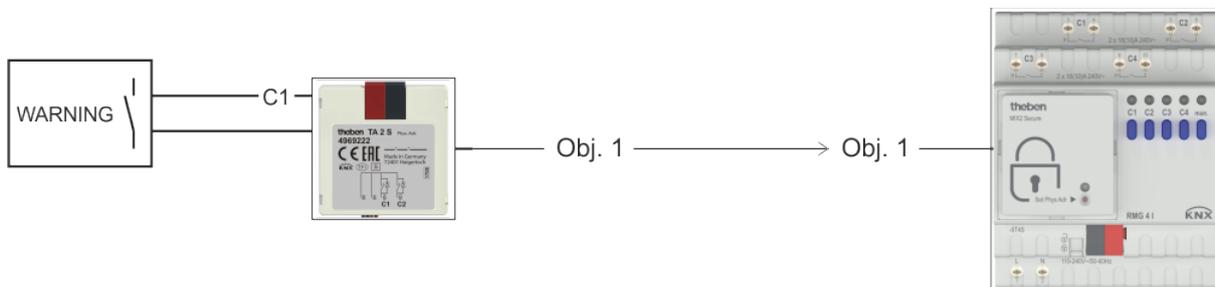


Figure 3

7.3.3 Objects and links

Table 27

| No. | TA 2 S | No. | RMG 4 I | Comment |
|-----|---------------------|-----|-------------------------------------|---------|
| | Object name | | Object name | |
| 1 | Channel 1 switching | 1 | RMG 4 I channel C1 Switch object | - |

7.3.4 Important parameter settings

Standard or customer-defined parameter settings apply for unlisted parameters.

Table 28: TA 2 S

| Parameter page | Parameter | Setting |
|--|-------------------------|---------------|
| <i>Channel 1 / Configuration options</i> | <i>Channel function</i> | <i>Switch</i> |

Table 29: RMG 4 I

| Parameter page | Parameter | Setting |
|--|-----------------------------------|------------------------------|
| <i>General</i> | <i>Type of basic module</i> | <i>RMG 4 I</i> |
| <i>RMG 4 I channel C1: Configuration options</i> | <i>Channel function</i> | <i>Flashing</i> |
| | <i>Activation of function via</i> | <i>Switch object</i> |
| <i>Contact characteristics</i> | <i>Type of contact</i> | <i>NO contact</i> |
| <i>Flashing</i> | <i>ON phase:</i> | |
| | <i>Hours</i> | <i>0</i> |
| | <i>Minutes</i> | <i>0</i> |
| | <i>Seconds</i> | <i>1</i> |
| | <i>OFF phase:</i> | |
| | <i>Hours</i> | <i>0</i> |
| | <i>Minutes</i> | <i>0</i> |
| | <i>Seconds</i> | <i>1</i> |
| | <i>How often should it flash</i> | <i>Until it switches off</i> |

7.4 Display and monitor current value

The actual current value is to be sent to the bus via channel C1 and shown on a VARIA display. A message is to be issued in the event of overload ($I > 1 \text{ A}$). Control of channel C1 (obj. 1 or obj. 2) is not relevant for this example and is not described in detail.

7.4.1 Devices:

- RMG 4 I (4930210)
- VARIA 826 S (8269210/8269211)

7.4.2 Overview



Figure 4

7.4.3 Objects and links

Table 30

| No. | RMG 4 I | No. | VARIA 824/826 | Comments |
|-----|---|-----|-----------------------------------|-----------------|
| | Object name | | Object name | |
| 10 | <i>RMG 4 I channel C1 current value</i> | 39 | <i>Display page 1, line 1</i> | Current value |
| 11 | <i>RMG 4 I channel C1 Overload</i> | 41 | <i>Display page 1, line 2</i> | Overload status |

7.4.4 Important parameter settings

Standard or customer-defined parameter settings apply for unlisted parameters.

Table 31: RMG 4 I

| Parameter page | Parameters | Setting |
|---|---|---------------------|
| <i>RMG 4 I channel C1: Function selection</i> | <i>Activate current measurement</i> | <i>Yes</i> |
| <i>Current measurement</i> | <i>Send current value in the event of change</i> | <i>by 100 mA</i> |
| | <i>Send current value cyclically</i> | <i>Yes</i> |
| | <i>Conversion of current in theoretical output</i> | <i>No</i> |
| | <i>Monitoring of overload</i> | <i>Yes</i> |
| | <i>Threshold value for overload (1..200) x 100 mA</i> | <i>10</i> |
| | <i>Hysteresis for overload (10..100 %)</i> | <i>10</i> |
| | <i>Telegram in the event of overload</i> | <i>ON telegram</i> |
| | <i>Telegram if load is not exceeded</i> | <i>OFF telegram</i> |

Table 32: VARIA 826 S

| Parameter page | Parameters | Setting |
|-------------------------------|---|---------------------------------|
| <i>Select screens</i> | <i>Show page 1 for display objects</i> | <i>Yes</i> |
| <i>Display objects page 1</i> | <i>Fade in operating instructions on page 1</i> | <i>No</i> |
| | <i>Page heading</i> | <i>Current display*</i> |
| <i>Page 1, line 1</i> | <i>Line format</i> | <i>Object type: DPT9.001</i> |
| | <i>Text for line 1</i> | <i>Current value*</i> |
| | <i>Unit for display object</i> | <i>mA</i> |
| | <i>Authorise amendment of object value?</i> | <i>No</i> |
| | <i>Display before receipt of value</i> | <i>---</i> |
| <i>Page 1, line 2</i> | <i>Line format</i> | <i>Object type: Switching</i> |
| | <i>Text for line 1</i> | <i>Overload *</i> |
| | <i>Unit for display object</i> | <i>mA</i> |
| | <i>Text at object value = 0</i> | <i>No*</i> |
| | <i>Text at object value = 1</i> | <i>YES*</i> |
| | <i>Authorise amendment of object value?</i> | <i>No</i> |
| | <i>Display before receipt of value</i> | <i>Read from object via bus</i> |

* Or any customer-specific text

8 Appendix

8.1 The scenes

8.1.1 Principle

The current status of a channel, or a complete MIX system can be stored and retrieved as required at a later point via the scene function.

That applies to switching, blinds and dimming channels.
Each channel can participate simultaneously in up to 8 scenes.

This requires permission to access scenes for the relevant channel via parameter.
See [Activate scenes](#) parameter and [Scenes](#) parameter page.

The current status is allocated to the appropriate scene number when a scene is saved.
The previously saved status is restored when a scene number is called up.

This allows a MIX system to be easily associated with each chosen user scene.

Table 33: Permitted scene numbers

| Series | Device | Supported scene numbers |
|--------------------------|---------------|-------------------------|
| MIX (order no. 4910xxx) | DME 2 S | 1 .. 8 |
| | JME 4 S | |
| MIX2 (order no. 4930xxx) | RMG / RME 8 S | 1 .. 64 |
| | RMG / RME 4 I | |

The scenes are permanently stored and remain intact even after the application has been downloaded again.

See All channel scene statuses parameter on the [Scenes](#) parameter page.

8.1.2 Select and save settings:

The relevant code is sent to the scene object (object 244) to select and save a scene.

Table 34

| Scene | Select | | Save | |
|-------|--------|-----|------|-----|
| | Hex | Dec | Hex | Dec |
| 1 | \$00 | 0 | \$80 | 128 |
| 2 | \$01 | 1 | \$81 | 129 |
| 3 | \$02 | 2 | \$82 | 130 |
| 4 | \$03 | 3 | \$83 | 131 |
| 5 | \$04 | 4 | \$84 | 132 |
| 6 | \$05 | 5 | \$85 | 133 |
| 7 | \$06 | 6 | \$86 | 134 |
| 8 | \$07 | 7 | \$87 | 135 |
| 9 | \$08 | 8 | \$88 | 136 |
| 10 | \$09 | 9 | \$89 | 137 |
| 11 | \$0A | 10 | \$8A | 138 |
| 12 | \$0B | 11 | \$8B | 139 |
| 13 | \$0C | 12 | \$8C | 140 |
| 14 | \$0D | 13 | \$8D | 141 |
| 15 | \$0E | 14 | \$8E | 142 |
| 16 | \$0F | 15 | \$8F | 143 |
| 17 | \$10 | 16 | \$90 | 144 |
| 18 | \$11 | 17 | \$91 | 145 |
| 19 | \$12 | 18 | \$92 | 146 |
| 20 | \$13 | 19 | \$93 | 147 |
| 21 | \$14 | 20 | \$94 | 148 |
| 22 | \$15 | 21 | \$95 | 149 |
| 23 | \$16 | 22 | \$96 | 150 |
| 24 | \$17 | 23 | \$97 | 151 |
| 25 | \$18 | 24 | \$98 | 152 |
| 26 | \$19 | 25 | \$99 | 153 |
| 27 | \$1A | 26 | \$9A | 154 |
| 28 | \$1B | 27 | \$9B | 155 |
| 29 | \$1C | 28 | \$9C | 156 |
| 30 | \$1D | 29 | \$9D | 157 |
| 31 | \$1E | 30 | \$9E | 158 |
| 32 | \$1F | 31 | \$9F | 159 |
| 33 | \$20 | 32 | \$A0 | 160 |
| 34 | \$21 | 33 | \$A1 | 161 |
| 35 | \$22 | 34 | \$A2 | 162 |
| 36 | \$23 | 35 | \$A3 | 163 |
| 37 | \$24 | 36 | \$A4 | 164 |
| 38 | \$25 | 37 | \$A5 | 165 |
| 39 | \$26 | 38 | \$A6 | 166 |
| 40 | \$27 | 39 | \$A7 | 167 |
| 41 | \$28 | 40 | \$A8 | 168 |
| 42 | \$29 | 41 | \$A9 | 169 |
| 43 | \$2A | 42 | \$AA | 170 |
| 44 | \$2B | 43 | \$AB | 171 |

| Scene | Select | | Save | |
|-------|--------|-----|------|-----|
| | Hex | Dec | Hex | Dec |
| 45 | \$2C | 44 | \$AC | 172 |
| 46 | \$2D | 45 | \$AD | 173 |
| 47 | \$2E | 46 | \$AE | 174 |
| 48 | \$2F | 47 | \$AF | 175 |
| 49 | \$30 | 48 | \$B0 | 176 |
| 50 | \$31 | 49 | \$B1 | 177 |
| 51 | \$32 | 50 | \$B2 | 178 |
| 52 | \$33 | 51 | \$B3 | 179 |
| 53 | \$34 | 52 | \$B4 | 180 |
| 54 | \$35 | 53 | \$B5 | 181 |
| 55 | \$36 | 54 | \$B6 | 182 |
| 56 | \$37 | 55 | \$B7 | 183 |
| 57 | \$38 | 56 | \$B8 | 184 |
| 58 | \$39 | 57 | \$B9 | 185 |
| 59 | \$3A | 58 | \$BA | 186 |
| 60 | \$3B | 59 | \$BB | 187 |
| 61 | \$3C | 60 | \$BC | 188 |
| 62 | \$3D | 61 | \$BD | 189 |
| 63 | \$3E | 62 | \$BE | 190 |
| 64 | \$3F | 63 | \$BF | 191 |

Examples (central or channel-related):

Select status of scene 5:

Save current status with scene 5:
 vant scene object.

8.1.3 Teach-in scenes without telegrams (MIX2 ONLY)

Instead of defining scenes individually by telegram, this can be done in advance in the ETS. This merely requires the setting of the *All channel scene statuses* parameter (*Scenes*) parameter page to *overwrite at download*.

Accordingly, the required status can be selected for each of the 8 possible scene numbers in a channel (= *Status after download*parameter).

The scenes are programmed into the device after the download has been completed.

Later changes via teach-in telegrams are possible if required and they can be permitted or blocked via a parameter.

8.2 Conversion of percentages to hexadecimal and decimal values

| Percentage value | 0% | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% |
|------------------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| Hexadecimal | 00 | 1A | 33 | 4D | 66 | 80 | 99 | B3 | CC | E6 | FF |
| Decimal | 00 | 26 | 51 | 77 | 102 | 128 | 153 | 179 | 204 | 230 | 255 |

All values from 00 to FF hex. (0 to 255 dec.) are valid.