MIX Series Blinds Actuator
JMG 4S, JME 4S

JMG 4S	491 0 250
JME 4S	491 0 251

Contents

1 Functional characteristics

The MiX series is a series of devices comprising basic modules
(e.g. RMG 4S, DMG 2, BMG 6, HMG 4, JMG 4S) and upgrade modules
(e.g. RME 4S, DME 2, BME 6, HME 4, JME 4S).
You can connect a maximum of any 2 upgrade modules in this series to any basic module in this series.

The basic module **JMG 4S** is a 4-channel blinds actuator which can be used as a drive control for:

- Controlling awnings, blinds, shutters and various sun and visibility protection devices
- Controlling skylights and ventilation flaps (with limit switches)
- Shading for greenhouses, conservatories etc.

The **JME 4** upgrade module provides 4 additional channels.

3 safety objects can be used to drive sun and visibility protection devices to a defined position (e.g. during a storm or when it is raining).

1.1 Benefits

- Modular device concept with up to 12 drive channels
- **Copy function** for fast configuration
- On-site operation possible on the device (e.g. for installation testing), drives also possible without a bus voltage
- LED output status indicators Switch status, keypad lock, higher priority
- Easy to input the runtimes in the ETS
- Central UP/DOWN object
- 3 safety objects enable façade-based responses
- Flexible reaction to safety telegrams: individually adjustable for each drive for start and end of the safety status
- Adjustable response to bus failure and restoration of the bus / mains power
- Feedback of drive positions for building visualisation
- The JME 4S can be combined with any basic module, and the JMG 4S unit can be combined with a maximum of any 2 upgrade modules of the MiX series.

2 Technical data

2.1 Technical data

Power supply:	For JMG 4S: bus voltage. Mains voltage 230 V/ 50 Hz +/- 10 %
Permitted operating temperature:	-5 °C ... + 45 °C
Power draw from the mains:	Max 2.5 VA
Current draw from bus voltage:	Max 8 mA
Bus connection:	Bus terminal (basic module only)
Protection class:	II
Protection rating:	EN 60529: IP 20
Dimensions of device:	HxWxD 90 x 72 x 68 (mm) 4 TE, installation on DIN top hat rail
Dimensions of front panel:	HxW 45 x 72 (mm)
Output	
Contact	AgSnO, NO contact, potential-free
Quantity:	4 per module
Maximum load	3 A for cos φ = 1
Response in the event of bus failure	Adjustable

3 The application program "Switching,dimm.,inputs,heat.,blinds: MiX-Series 1.4"

3.1 Selection in the product database

Manufacturer	THEBEN AG
Product family	Drives
Product type	JMG 4S
Program name	Switching,dimm.,inputs,heat.,blinds:MiX-Series 1.4

The ETS database can be found on our homepage: http://www.theben.de

Table 1

Number of communication objects:	68
Number of group addresses:	104
Number of associations:	105

3.2 Communication objects

Table 2: Overview

No.	Function	Object name	Type	Response
0	Up / Down	GM JMG4 channel 1	1-bit EIS 1	Receive
1	Step / Stop	GM JMG4 channel 1	1-bit EIS 1	Receive
2	% Height	GM JMG4 channel 1	1-byte EIS 6	Receive (Send)*
3	% Slats	GM JMG4 channel 1	1-byte EIS 6	Receive (Send)*
4	Comfort / automatic	GM JMG4 channel 1	1-bit EIS 1	Receive
5- 59	…. for all channels and modules according to channel 1 of the basic module, see table 3.			
60	Switching ON/OFF	Central continuous ON	1-bit EIS 1	Receive
61	Switching ON/OFF	Central continuous OFF	1-bit EIS 1	Receive
62	Switching ON/OFF	Central switching	1-bit EIS 1	Receive
63	RMG(E)4S, DMG(E)2, JMG(E)4S	Call/save scene	1-byte KNX DPT 18.001	Receive
64	For JMG(E)4 S	Central safety 1	1-bit EIS 1	Receive
65	For JMG(E)4 S	Central safety 2	1-bit EIS 1	Receive
66	For JMG(E)4 S	Central safety 3	1-bit EIS 1	Receive
67	For JMG(E)4 S	Central up/down	1-bit EIS 1	Receive

*Position feedback is possible, refer to the Appendix: Feedback of the drive height and slat position

Note:
Objects 5 .. 59 behave in exactly the same way as objects 0 .. 4 and represent the drives 2 .. 12

Table 3: Comparison table for the individual objects (object numbers) of the channels

Function of the object	GM C1	GM C2	GM C3	GM C4	EM1 C1	EM1 C2	EM1 C3	EM1 C4	EM2 C1	EM2 C2	EM2 C3	EM2 C4
Up / down	0	5	10	15	20	25	30	35	40	45	50	55
Step / Stop	1	6	11	16	21	26	31	36	41	46	51	56
% Height	2	7	12	17	22	27	32	37	42	47	52	57
% Slats (blinds only)	3	8	13	18	23	28	33	38	43	48	53	58
Comfort / automatic	4	9	14	19	24	29	34	39	44	49	54	59

3.2.1 Description of the objects

- **Objects 0, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55 "Up/Down"**

Raise the shutter / blind with “0” and lower it with “1”.

- **Object 1, 6, 11, 16, 21, 26, 31, 36, 41, 46, 51, 56 "Step/stop"**

If the drive is moving it is stopped when a Step/Stop telegram is received.
If the drive is stationary at this point then a short slat turn (step) is performed on blinds.
With the other drive types the current position is adjusted up or down depending on the specified step direction.

The direction of the step is determined from whether a "0" or "1" is sent to the object.
If the configured number of steps for a complete turn has already been reached then no step is performed.

- **Objects 2, 7, 12, 17, 22, 27, 32, 37, 42, 47, 52, 57 „% Height“**

This raises/lowers the shutter/blind to a certain height.
The setpoint value is expressed in %.
0% ... 3% = upper end position
100% = lower end position
This function can be disabled by the comfort automatic object (see below).
If the target position is too close (i.e. within the turning time of the slats) then the command is suppressed.

- **Objects 3, 8, 13, 18, 23, 28, 33, 38, 43, 48, 53, 58 "% Slats"**

Specification of a particular slat turn in %.
This function can be disabled by the comfort automatic object (see below).

- **Object 4, 9, 14, 19, 24, 29, 34, 39, 44, 49, 54, 59 "Comfort/Automatic"**

A "1" on this object blocks the functions Drive 1 Height and Drive 1 Slat.
This function is used to prevent the blind from being adjusted due to external influences, and to thus maintain a preferred blind slat position.
The Up/Down function (object 0) remains active.

- **Object 60 "Central continuous ON", Object 61 "Central continuous OFF"**
  Object 62 "Central switching"

These 3 specific central objects are intended for RMG(E) 4, DMG(E) 4 and HMG(E) 4.

- **Object 63 "Call/save scene"**

This object can be used to save and call the current height and slat position of the channels configured for it.
See Appendix: The scenes

Scene number	Saving code		Calling code
	Hex	Dec	Dec. / Hex.
1	$80	128	0
2	$81	129	1
3	$82	130	2
4	$83	131	3
5	$84	132	4
6	$85	133	5
7	$86	134	6
8	$87	135	7

- **Object 64, 65, 66 "Central safety 1, 2, 3"**

The safety objects allow a specific response of the drives to particular situations with a high priority (see Appendix: Order of priority for the drive control

Example:
A safety object is linked to a wind sensor.
A drive to which a textile sun protection device is connected is configured to react to this safety object.
The operating status is normal as long as a “0” is present.
In the event of a storm, the wind sensor sends a "1" to the safety object, and the sun protection is immediately moved to the configured safety position.

Notes:

1 A safety object must only be actuated by one device, as otherwise conflicting commands could cancel each other out.

2 When interrogating the safety objects, e.g. via the ETS function "Read value":
If the status "Safety on" has resulted from the cyclic monitoring then the object value remains "0".

3 After download, the status of the safety objects must be updated.

- **Object 67 "Central Up/Down"**

This object can be used to control all drives which are configured for it.
For example, all of the shutters on one facade can be raised or lowered at the same time at the push of a button.
0 = raise
1 = lower

3.3 Parameters

3.3.1 Parameter pages

Table 4

Function	Description
General	Selection of the connected upgrade modules
GM JMG 4S general	Module-specific general settings for the basic module
EM1 JME 4S general	Module-specific general settings for upgrade module 1
EM2 JME 4S general	Module-specific general settings for upgrade module 2
GM JMG 4S C1 ..C4	Channel-specific drive settings for the basic module
EM1 JME 4S C1 .. C4	Channel-specific drive settings for upgrade module 1
EM2 JME 4S C1 .. C4	Channel-specific drive settings for upgrade module 2

3.3.2 Parameter description

3.3.2.1 The “general” parameter page

Designation	Values	Description
Type of basic module (GM)	GM is a JMG4 S	Fixed setting
Number of upgrade modules	No upgrade 1 upgrade module 2 upgrade modules	Configuration of the MiX systems
Type of 1st upgrade module EM 1	EM1 is a JME 4 S EM1 is an HME 4 EM1 is a BME 6 EM1 is an RME 4 S or RME 4 C-load EM1 is a DME 2	Selection of the 1st upgrade module
Type of 2nd upgrade module EM 2	EM2 is a JME 4 S EM2 is a HME 4 EM2 is a BME 6 EM2 is an RME 4 S or RME 4 C-load EM2 is a DME 2	Selection of the 2nd upgrade module
Time for cyclic sending of the feedback objects (if used)	2 minutes 3 minutes 5 minutes 10 minutes 15 minutes 20 minutes 30 minutes 45 minutes 60 minutes	Not used for JMG 4S and JME 4S

3.3.2.2 Parameter pages "GM JMG 4S general", "EM1 JME 4S general", "EM2 JME 4S general"

Table 5

Designation	Values	Description
Safety objects 1-3	Without cyclic monitoring With cyclic monitoring (10 min.) With cyclic monitoring (20 min.) With cyclic monitoring (60 min.)	The actuator monitors whether at least 1 safety telegram is received within the configured time period. If the relevant safety telegram fails it adopts the safety status. The monitoring time is set to twice the value of the send time of the safety telegrams. Example: If the safety telegrams are sent cyclically every 5 minutes then the monitoring time should be set to 10 minutes. The objects are monitored independently of each other. The monitoring time applies to all 3 objects.
Assignment of the 0% position to the slat objects [%]	0% corresponds to slat position on lowering 0% corresponds to slat position on ascending	Input of the starting position for the calculations of the slat turn.
Automatic execution of the slat object value [%] after the height object [%]	Disabled Enabled	Selection whether or not the slat position (according to the slat object [%]) is to be resumed after the height adjustment via the height object [%].
Key operation on device	Disabled Enabled	The keypad on the device is disabled, manual operation is not possible. Keypad not disabled
On receipt of a step/stop command	Process immediately (recommended) Wait for 0.3 s to see whether an Up/Down command follows. Wait for 0.4 s to see whether an Up/Down command follows. Wait for 0.5 s to see whether an Up/Down command follows.	Every received step command is carried out immediately. Step commands are only executed if no run command is received within the set time. These settings apply to buttons which, when pressed and held, first send a step command and then a run command.

Continued:

Designation	Values	Description
Pause time before reversal of direction	0.5s 1.25s	Pause introduced to protect the drive motor against conflicting commands (e.g. if a descend command is received while ascending). This setting depends on the information supplied by the manufacturer of the drive.

3.3.2.3 Parameter pages "GM JMG 4S C1 .. C4" , "EM1 JME 4S C1 .. C4", "EM2 JME 4S C1 .. C4"

Table 6

Designation		Values	Description
Type of curtain		All settings are the same as for Channel 1 of the module. Blinds Shutter / awning / general drive	Copy function for C2, 3 and 4. All of the settings for C1 are copied. See Appendix: Copy function The type of curtain which is to be actuated.
Complete runtime "Up" 5 ... 500 [x 1s]		Manual input 5 .. 500	Enter the measured runtime for ascending (in **seconds)**.
Blind only	Complete slat turn 40 ... 250 [x10ms]	Manual input 40 .. 250	Enter the measured turn time of the slats in increments of 10ms. 100 = 100 x 10ms = 1s
Blind only	No. of steps for a complete turn	3 steps 4 steps … 12 steps	This specifies the number of individual steps a complete slat turn is to be divided into (3 to 12).
Shutter/awning only	Step duration of Step/Stop object	No Steps, Stop only 1 s 2 s 3 s 4 s 5 s 6 s 7 s 10 s 15 s 20 s	This specifies whether or not it should be possible to adjust the drive in small steps, and it also specifies the duration of a single step.
Shutter/awning only	Approaching positions via the bottom position (shutter/awning)	Approach directly From 70%, travel via the bottom end position	Default setting The curtain, awning or shutter is always fully extended at values between 70% and 99% (i.e. to the bottom end position) and then moved back into the required position. Benefit: On an awning the cover is correctly tensioned with no slack. On a shutter it ensures that the vent slots remain open.

Continued:

Designation	Values	Description
Response to safety: Start / End	Safety ineffective Upper end position / unchanged Upper end position / current object value [%] Upper end position / same as before safety Lower end position / unchanged Lower end position / current object value [%] Lower end position / same as before safety Disabled / enabled	Behaviour of the curtain on activation and cancelling of the "Safety" status. In the application "Upper end position / unchanged" the drive moves to the upper end position if the "Safety" status is activated (e.g. during a storm) and remains unchanged in this position after this status has been cancelled. **Note:** It does not make any sense to use the setting "Current object value [%]" when using the object "Comfort Automatic".
Participation in central Up/Down object	Yes No	Should the drive respond to the central object?
Participation in scenes	No Yes: in the scenes 1-8 Yes: in the scenes 1-4 Yes: in the scenes 5-8 Yes: in the scenes 3-6 Yes: in the scenes 1-2 Yes: in the scenes 3-4 Yes: in the scenes 5-6 Yes: in the scenes 7-8 Yes: in the scenes 1,2,5,6 Yes: in the scenes 1,2,7,8 Yes: in the scenes 1-6 Yes: in the scenes 3-8	Which scenes should the channel participate in? See Appendix: The scenes
Response in the event of bus failure	Unchanged Top end position Bottom end position	After a bus failure (provided the mains supply is present) the drive can be driven to a preferred position (e.g. "Open shutter") .
Response to restoration of bus and mains	Unchanged Top end position Bottom end position Same as before failure	After restoration of the bus and mains the drive can be driven to a preferred position (e.g. "Open shutter") .

4 Operation

4.1 Operating and control elements

4.1.1 Keys

The keys can be used to switch the relays on and off.
An ETS parameter on the General page allows the keypad to be locked against unauthorised use.

4.1.2 LEDs

Functions:

- Status indication for the relays
- The "Manual" LED flashes whenever a directional button is pressed, the keypad is locked or when a priority is active (refer also to the Appendix: "Order of priority for the drive control").

4.1.3 Manual mode

Manual mode is selected by pressing the “Manual” button on the device.

All non-safety related bus telegrams are disabled, i.e. only the safety commands (objects 64...66) are still executed.

5 Appendix

5.1 Copy function

In order to speed up programming the settings made for C1 can be copied to the other channels of a module.

To do this, simply set the "Type of curtain" parameter on the parameter pages for C2, C3 and C4 to: "All settings the same as for Channel 1 of the module".

5.2 The scenes

5.2.1 Principle

The scene function is used to save the current position (height + slats) of one or more drives.
All possible shading situations can thus be easily and comfortably restored at any time by calling a scene.

- Up to 8 different scenes can be defined.
- Participation in one or more scenes can be individually selected for each channel.
- The scenes are permanently stored and remain intact even after the application has been downloaded again.

5.2.2 Saving scenes (teach in)

To teach in a scene, the associated scene code is sent to the scene object.

Saving codes for scenes

Scene number	Saving code	
	Hex	Dec
1	$80	128
2	$81	129
3	$82	130
4	$83	131
5	$84	132
6	$85	133
7	$86	134
8	$87	135

If a scene in which the channel is participating is taught in via the scene object, the current height and slat position of the drive are saved. It does not matter whether the position was reached via the buttons or via a bus telegram.

5.2.3 Calling scenes

Just as with teaching in, scenes are called by sending a code to the scene object.

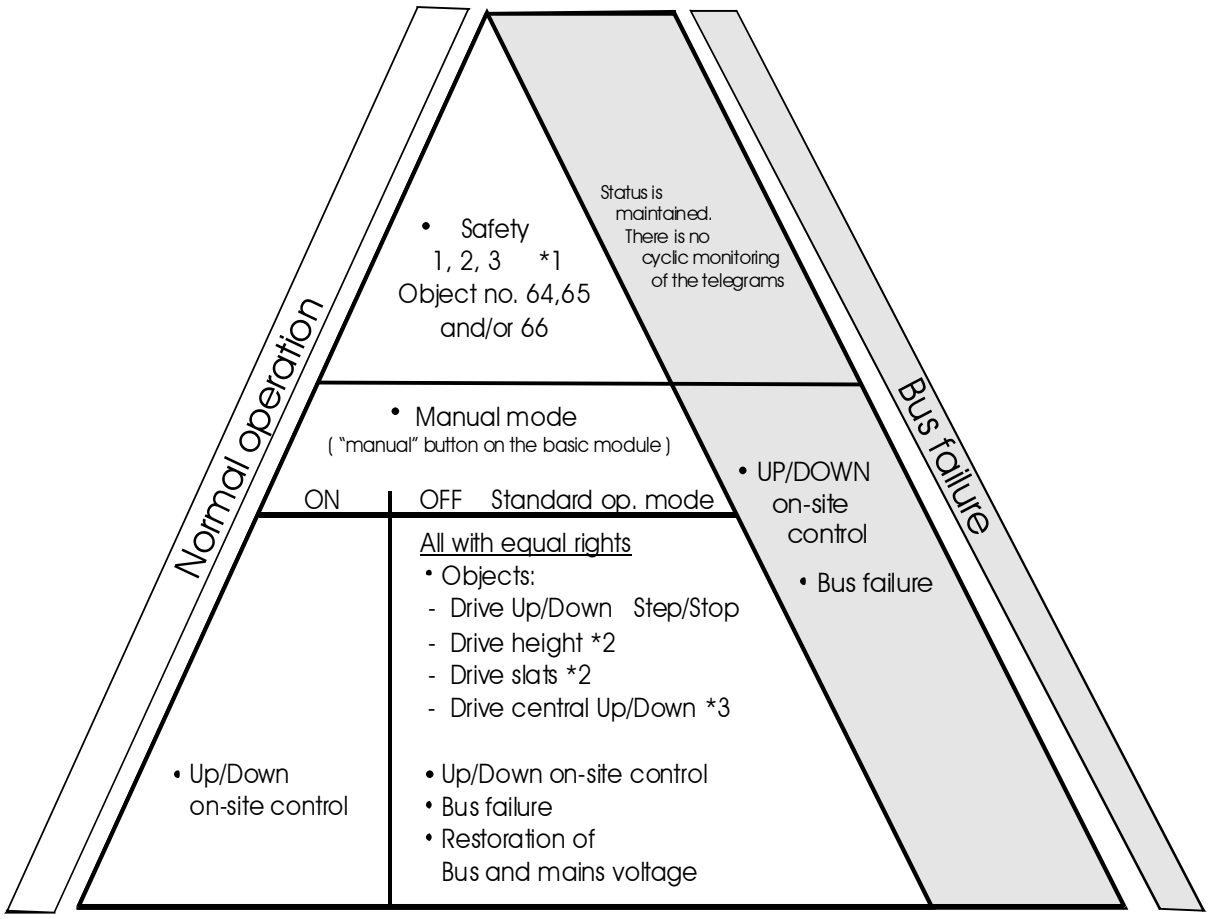
Calling codes for scenes:

Scene number	Calling code Dec. / Hex.
1	0
2	1
3	2
4	3
5	4
6	5
7	6
8	7

If a scene in which the channel is participating is called via the scene object, the drive will adopt the previously saved height and slat position.

Channels **not** participating in the scenes are not affected by this.

5.3 Order of priority for the drive control



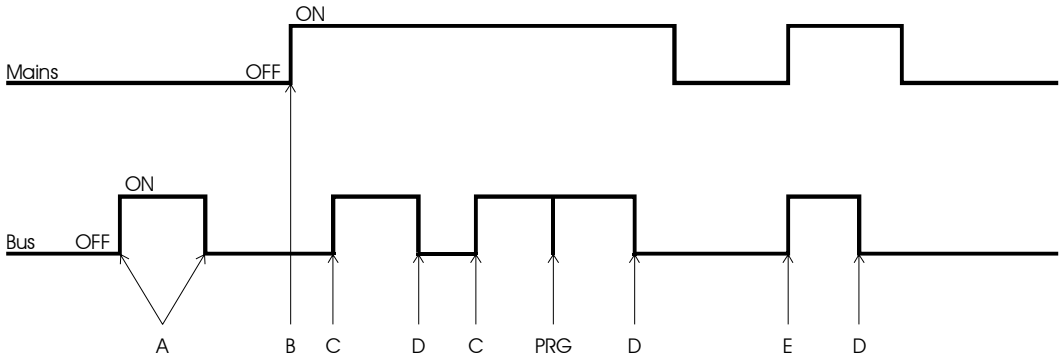
*1 provided the ETS parameter "Safety" has been selected accordingly.
*2 provided the associated object "Comfort Automatic" is 0 (0 = Comfort Automatic active).
*3 provided the ETS parameter for participation in the object "Central drive Up/Down" has been programmed with a "Yes".

5.4 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.

5.5 Definition of terms: Restoration of the mains supply and bus failure



Situation	Designation	Effective parameter
A	Bus restoration and failure without mains voltage	No reaction, relays are always off
B	Mains restoration without bus voltage	Response to restoration of bus and mains
C	Bus restoration	Response to restoration of bus and mains
D	Bus failure	Response on bus failure
PRG	Reprogramming via ETS: corresponds to bus failure + bus restoration	Response on bus failure Response to restoration of bus and mains
E	Simultaneous bus and mains restoration	Response to restoration of bus and mains

5.6 Feedback of the drive height and slat position

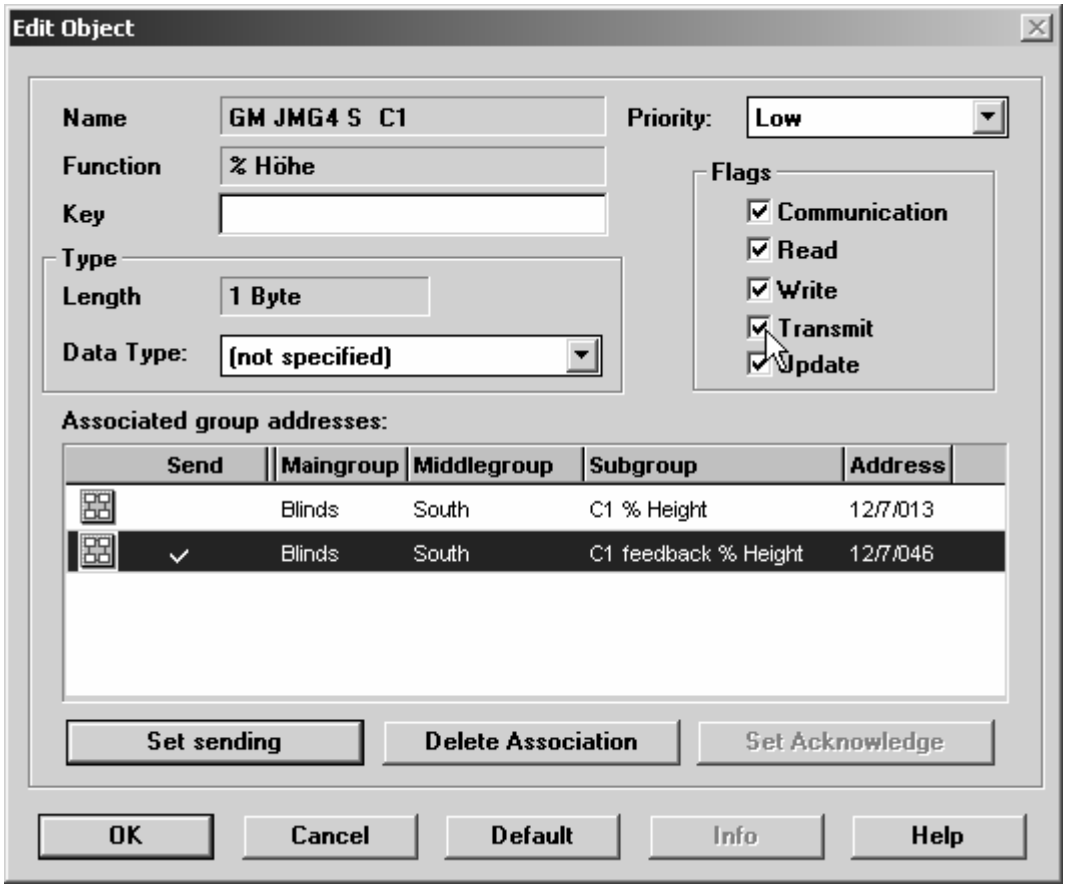
In the ETS the objects Height [%] and Slat [%] can also be configured as feedback objects. Once a new position has been approached, they are transmitted on the bus as percentage values.
The sent value (Height [%]) refers to the configured total runtime of the drive.

In order to activate the feedback function the *Transmit* flag needs to be set and the objects need to be linked with another Group address for the feedback.
This feedback address then needs to be set sending.

Procedure

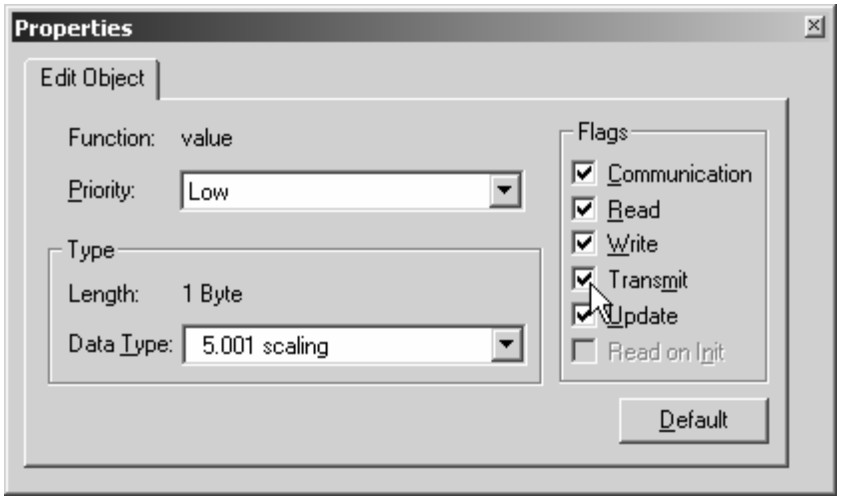
ETS2 (configuration):

- Select the object.
- Double-click on the object – the window *Edit object* is opened
- Select the required feedback group address.
- Click on *Set sending* and check the *Transmit* box.
- Click OK to confirm.



ETS 3

- Double-click on the object – the window *Properties* is opened.
- In the "*Flags*" field on the right, check the box *Transmit*.
- Close the Properties window (click on the top right).



- Click on the feedback group address with the right-hand mouse button and select *Set sending.*