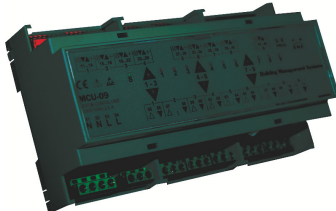


Actuators

In the following, you will find the most important characteristics of the actuators divided into:

- Hardware Characteristics
- Software Characteristics

Hardware Characteristics

	Type		
	MCU-09	MCU-06	MCU-02
			
Feature			
Motor Supply Voltage	AC 230 V		
Channels (motors)	9	6	2
For Motors with	2 Limit Switches	2 or 3 Limit Switches	
End Position Detection	Yes, fully automatic		
Design, Housing	Modular device (REG)	Installation / Surface Mounted	
Binary Input / Local Operation	18 / 9	12 / 6	4 / 2
Test Button	Yes		
LED Indicator per Channel	Yes		

Software Characteristics

Feature	Type		
	MCU-09	MCU-06	MCU-02
Drive Strategies	For venetian blinds, Vertical awnings, Drop-arm awnings, Seating-area awnings, Roller shutters, Roller slats, Windows		
Limited Operation (Restriction of range of motion)	Yes		
Visualisation via ETS Application for Analysis	Reduced	Yes	


Feedback	Height, angle per channel	Height, angle, 5 freely-definable feedback messages per channel
Logic Function	No	Arbitrary functionality with up to 4 input variables, incl. lock-out option
Scenes	No	Up to 16 scenes per channel
Connection to Building Control Services System		BCSS object for read/write per channel
Priority Handling	Predefined	Arbitrarily definable
Safety Objects		Via SCO object, up to 14 priority levels.
		3 safety objects per channel.
Behaviour upon Bus Failure and Network Restoration		Yes
Differentiation between Local and Central Commands per Channel		Yes
Group Address Associations	226	219
		153

Further information can be found on the technical data sheets.

Façade Products

Below you will find a description of the general façade products listed on the tab "Product".

General Products

Name	Application / Characteristic	Picture
Beaded-Slat Blinds, Open	<p>Also called venetian blinds or jalousies.</p> <p>The slats are open during downward motion. The angle is determined mechanically and cannot be changed by a controller.</p> <p>Advantage of beaded-slat blinds, open during motion:</p> <ul style="list-style-type: none"> - Defined shading position for downward-motion position provides a uniform façade appearance - Minimal dark period - Ideal for protection from sun, glare, heat and ideal for screen <p>Notes:</p> <ul style="list-style-type: none"> - Motors with 3 limit switches are possible (please mind!). - Automatic beaded-slat blinds must be protected from wind and possible frost. 	
Beaded-Slat Blinds, closed	<p>Also called Venetian blinds or canvas blinds.</p> <p>The slats are closed during downward motion.</p> <p>Advantage of beaded-slat blinds, closed during motion:</p> <ul style="list-style-type: none"> - The slats can be closed in any position. - Ideal for sun, glare, heat and visual protection. 	

Notes:

- Motors with 3 limit switches are not possible.
- Automatic beaded-slat blinds must be protected from wind and possible frost.



Roller Shutters

The roller shutter curtain is rolled up around the motor in the roller shutter box.

Advantages of Roller Shutters:

- Ideal for protection from burglary and weather
- Good darkening of a room

Notes:

- Tubular motors can be installed to the right or left, therefore Up / Down is not always the same connection lead.



Vertical Awning

The vertical awning fabric is rolled up around the motor.

Advantage of Vertical Awnings:

- Decorative façade element

Notes:

- Tubular motors can be installed to the right or left, therefore Up / Down is not always the same connection lead.
- Automatic awnings must be protected from wind and possible rain and possible frost.



Sliding-Arm Awning

A sliding-arm awning first moves downward vertically and then extends the arm after having reached a certain height .

Advantage of Sliding-Arm Awnings:

- Better view and sun protection than with vertical awnings.

Notes:

- Tubular motors can be installed to the right or left, therefore Up / Down is not always the same connection lead.
- Automatic awnings must be protected from wind and possible rain and possible frost.



Drop-Arm Awning

In contrast to the sliding-arm awning, the drop-arm awning extends immediately upon downward motion.

Advantage of Drop-Arm Awnings:

- Better view and sun protection than with vertical awnings.

Notes:

- Tubular motors can be installed to the right or left, therefore Up / Down is not always the same connection lead.
- Automatic awnings must be protected from wind and possible rain and possible frost.



Folding-Arm Awning

Also called seating-area awnings or joint-arm awnings. The fabric of a seating-area awning is rolled up around the roller tube.

Advantage of Folding-Arm Awnings:

- Large areas can be shaded

Notes:

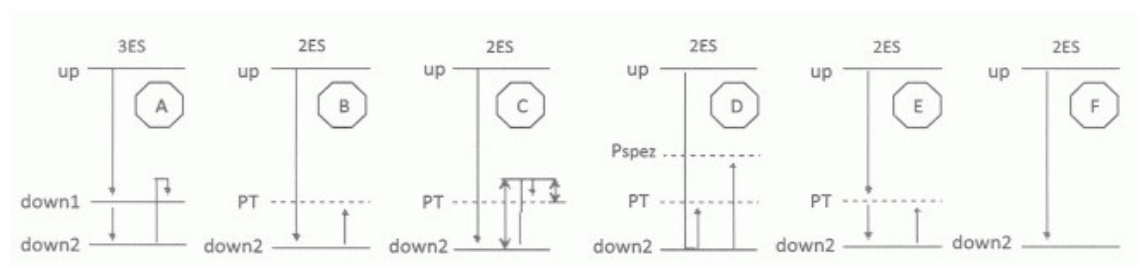
- Tubular motors can be installed to the right or left, therefore Up / Down is not always the same connection lead.
- Automatic awnings must be protected from wind and possible rain and possible frost.



Driving Strategies

Driving Strategies and Product Types

A suitable driving strategy along with the associated parameters is saved in the application for every product type. The following figures show the various strategies:



Explanations for the figure:

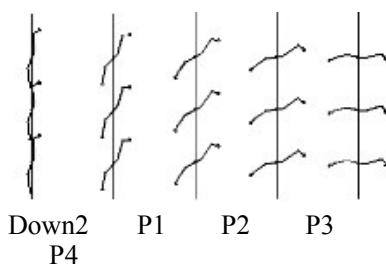
Pos.	Designation	Explanation / Note
A	Slat product with 3-limit-switch motor	Shading position is always approached from above.
B	Slat product or roller shutter with 2-limit-switch motor	Shading position is approached from below.
C	Slat product with 2-limit-switch motor	Shading position is approached from above.
D	Roller slats. Special product which is rolled up in the roller shutter box. No mechanical play.	Special strategy in which t2 without fixed time. Product example: Solomatic R.
E	Sliding-arm awning	Shading position is approached from above and from below (from both sides).
F	Roller shutters or windows with no shading position	
Up	Upper end position (top limit switch)	Blinds are open
Down1	Shading position (working position)	Only for motors with 3 limit switches.

Down2	Lower end position (bottom limit switch)	Blinds are closed
PT	Calculated shading position	For motors with 2 limit switches (top and bottom limit switches).
Pspec	Special position	
t1	"Tilt Time" parameter	Tilt time: Time from closed position to shading position.
t2	"Travel Time, Up" Parameter	Maximum slat turning time plus a fixed time.
		Maximum slat turning time:
		Slat turning time from completely closed to completely open.
t3	"Travel Time, Down" Parameter	Maximum slat turning time minus tilt time.

Positions P1 to P4

Angle Settings at the Lower End Position

The positions P1 to P4 designate defined angle settings for the blinds at the lower end position Down2 as follows:



Position	Description
Down2	Lower End Position
P1	Visual Protection
P2	Shading, Down
P3	Shading, Up
P4	See-Through

Note

In practice, the products should be moved either via "Angle" or P1...P4.

Mixing the commands is basically possible, but it can lead to an additional referencing motion (moving to the shading position once again).

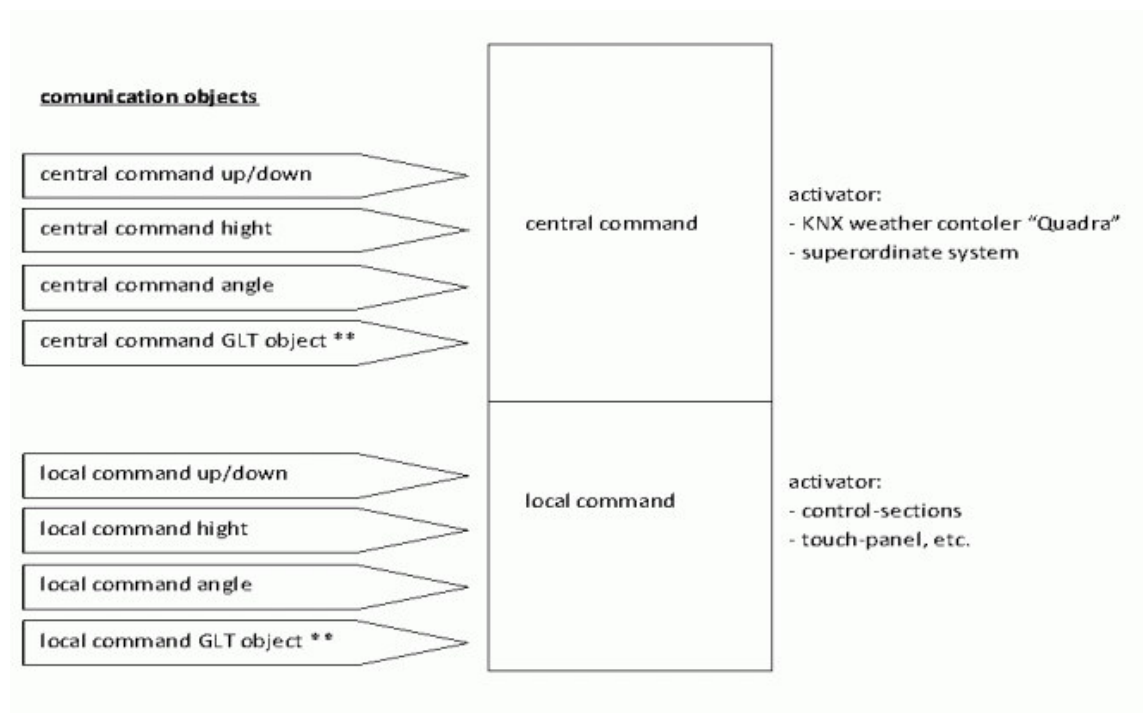
Inputs: Definitions

EIB/KNX Inputs (EIB/KNX Communication Objects)

The Terms "Central Command" / "Local Command"

The figure below gives an overview of the basic usage of the terms "Central Command" and "Local Command" in the application. It shows the communication objects involved and it lists possible triggers for central commands and

local commands.



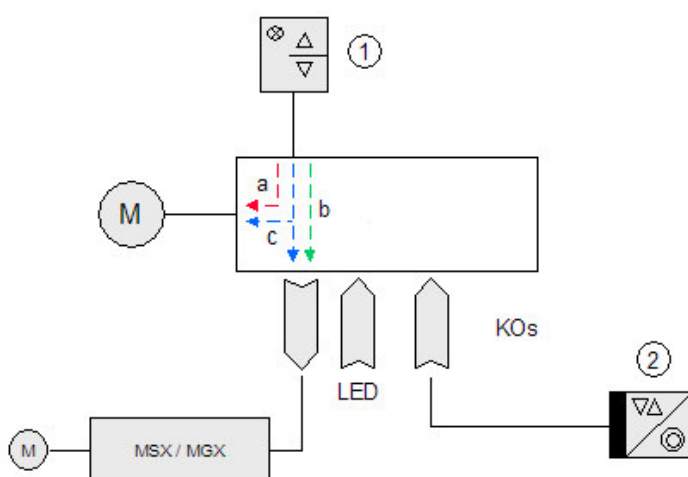
BCSS Object **:

Either BCSS object as a central command or as a local command.

Button Inputs

The following image gives an overview of the meaning of the settings under:

Tab "Inputs" > Button Input "Venetian Blind" > Parameter "Input".



Pos.	Designation	Description
------	-------------	-------------

1	Conventional button with LED (option)	Connected directly to actuator MCU
a	Selection "Directly on channel"	The button only affects the channel/motor which is directly connected.
b	Selection "Only on EIB/KNX"	The button only affects the KNX BUS for control of another actuator via the corresponding communication object (CO).
c	Selection "EIB/KNX and directly on channel"	The button directly affects both, the connected channel and the bus.
2	EIB/KNX button with LED	Connected to the KNX BUS, communicates exclusively via communication objects (COs).

BCSS Object

The Incoming Telegram

Purpose

The incoming telegram can be used to transmit drive commands to the actuator as local commands or central commands.

In addition, a lock-out at the priority level "BCSS Object" can be set or cancelled.

Structure

The incoming telegram comprises the following 4 bytes:

Byte 0								Byte 1								Byte 2								Byte 3							
7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0
control flag								command								argument 1								argument 2							
8 bit								8 bit								8 bit								8 bit							
7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0

Control Flags

Bit	Value	Meaning
0	0	Execute command as a local command
	1	Execute command as a central command
1	0	
	1	
2	0	
	1	
3	0	
	1	
4	0	
	1	
5	0	
	1	
6	0	
	1	
7	0	Cancel BCSS lock-out
	1	Set BCSS lock-out

Commands and Arguments

Command		Meaning	Argument 1	Argument 2
decimal	hexadecimal			
0	0x00	No command		
1	0x01	Up		
2	0x02	Down		
3	0x03	Shading		
4	0x04	P1		
5	0x05	P2		
6	0x06	P3		
7	0x07	P4		
8	0x08	One step up	Step size: n x 50 ms	
			0: Parameter is used in the actuator as the step size.	
9	0x09	One step down	Step size: n x 50 ms	
			0: Parameter is used in the actuator as the step size.	
10	0x0A	Height	0...255 corresponding to 0...100% of the blind height.	
11	0x0B	Angle	0...255 corresponding to 0...100% of the blind angle.	
12	0x0C	Position	0...255 corresponding to 0...100% of the blind height.	0...255 corresponding to 0...100% of the blind angle.
13	0x0D	Night position		
14	0x0E			
15	0x0F			
16	0x10			
17	0x11			
18	0x12			
19	0x13			
20	0x14			

Notes

- "100%" corresponds to the height/angle with the blind closed.
- Night position corresponds to the upper end position.

The Outgoing Telegram

Purpose

The outgoing telegram delivers feedback about the state of the actuator and the current position of the blind.

Structure

The outgoing telegram comprises the following 4 bytes:

Byte 0								Byte 1								Byte 2								Byte 3							
7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0
height								angle								status flag															
8 bit								8 bit								16 bit															
7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

Height and Angle

For the fields "Height" and "Angle", the values 0...255 are used, corresponding to 1...100% of the blind height / blind angle.

"100%" corresponds to the height/angle with the blind closed.

Status Flags

Bit	Value	Meaning
0	0	-
	1	Upper end position
1	0	-
	1	Lower end position
2	0	Position outside the shading area
	1	Position inside the shading area
3	0	Target position not reached / in motion
	1	Target Position Reached
4	0	Position known
	1	Position unknown
5	0	-
	1	Not Possible to Move to Height (Limited)
6	0	-
	1	Not Possible to Move to Angle (Limited)
7	0	No safety lock-out active
	1	At least one safety lock-out active
8	0	Automatic lock-out inactive
	1	Automatic lock-out active
9	0	Operational lock-out active
	1	Operational lock-out active
10	0	No limited operation
	1	Limited operational range
11	0	-
	1	Check the motor and lead wire:
		- No motor connected
		- Lead wire interruption
		- Thermal Protection
12	0	-
	1	Device defective
13	0	
	1	
14	0	
	1	

15 0

1

Versions

Help File

Version: 1.5

Device

This documentation is valid for devices as of:

Version	MCU-09	MCU-06	MCU-02
Hardware	1.0	1.0	1.0
Software	1.3	1.3	1.3

Checking Software Versions

Actuator

See "Parameters, General" under "[Diagnosis](#)".

Plug-in

Proceed as follows:

1. Click on the Programme Symbol on the left in the title bar:
=> The system menu will appear:



2. Click on About:
=> The dialogue About will show the current plug-in version:

