Introduction

About this Online Help

This online help explains the structure and use of the "BMS KNX Actuators" application as well as providing associated product data and basic knowledge.
For validities, see appendix under "Versions".

Purpose of the Application

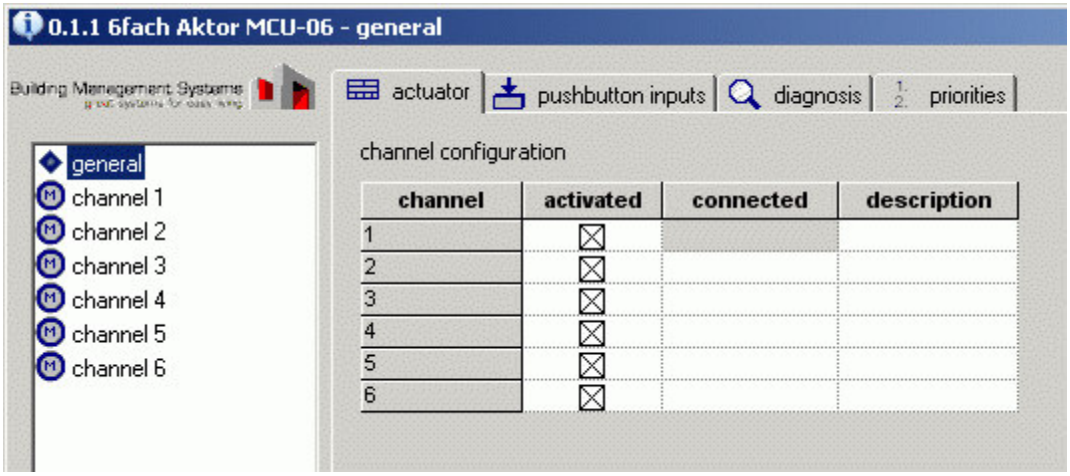
The "BMS KNX Actuators" application is a plug-in for ETS3 and is used for setting the parameters of these devices:

- MCU-02, actuator for 2 motors
- MCU-06, actuator for 6 motors
- MCU-09, actuator for 9 motors

You can find the most important characteristics of the devices in the appendix under "Actuators".

Structure of the Application

After starting, the application appears as follows:



The application provides two windows, each having a number of tabs. The windows are called:

- **General** for settings which apply for all channels and for diagnosis.
- **Channel x** for channel-related settings. Each channel can be parameterised individually.

Select the window you desire by clicking on the corresponding designation in the list box at the left.

Note: After starting the programme, the "General" window will open, as shown above.

Three Access Levels

The application offers three access levels **Standard**, **Full** and **Pro**.
At the first startup, **Standard** is active, as shown in the screenshot above for the MCU-06 actuator.
The number of tabs shown and thereby the options for making adjustments varies depending on which access level is active. Here you can see an overview:

Access	Adjustment Options
Standard	All the parameters for the respective actuator and the product selected are predefined. The product will run correctly with these default settings. **Recommendation**: Choose this display if you wish to achieve error-free parameterisation and begin safe operation with a minimum investment of time.
Full	Provides additional functions and fine adjustments: • Parameter settings for all aspects of the selected product, such as travel time, positions, motor overtravel, etc. for a certain venetian blind. • Allocation and behaviour of button inputs (binary inputs). • Feedback regarding position and status for visualisations or building control services

systems (BCSS).

Pro Provides further special functions for less-common application situations, such as:
- Logic table for room functions
- Creation of scenes
- Analysis tools

=> The further special functions are not available with the MCU-09 actuator.

Note
You can find a recommendation for setting parameters at the **Standard** access level under the topic "Operational Sequence"

Selecting Another Access Level

Proceed as follows:

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

2. Click on **Options...**:
   => The **Options** dialogue will appear:

3. Under **Access**, select the desired option: **Standard**, **Full** or **Pro**.

Height and Angle Specifications in % or 0...255

You can choose whether the values for the parameters "Height" and "Angle" are displayed as 0...100% or 0...255.
Proceed as follows:

1. Click on the Programme Symbol on the left in the title bar and then on **Options** in the drop-down list box:
   => The **Options** dialogue will appear, see the screenshot above.
2. Below **Display Height/Angle**, select the desired option.

General Operation of the Application

- The general operation corresponds to the familiar Microsoft standard for Windows programmes.
- Special procedures, such as the use of the calibration dialogue, will be explained at the appropriate point in this online help.

Values in the Parameter Descriptions

The default values (factory settings) in the "Selection" column are indicated in bold.

Printing out Topics

- Click on the **Print** symbol and select the desired option:
  Print Selected Topic for the respective topic alone
  or
  Print Selected Topic and all Subtopics for all the topics in a tagged folder.

- In order to print the tables of the parameter descriptions in grey scales, you may need to adapt the settings in Internet Explorer accordingly. In IE, Version 7, select:
  Menu **Extras** > **Internet Options**... > **Advanced**, Settings / **Printing**: ☑ Print background colours and images.

Reports from the ETS

If you create a report from the ETS in order to show the status of the actuators, then the report will show the internally saved value instead of the adjusted value.

Terminology

- The use of the terms "Central Command" and "Local Command":
  See the topic "Inputs: Definitions" in the appendix.
- Text passages with "Communication objects will be hidden or shown".
  This means:
  In the windows of ETS / the list of the communication objects among the devices shown there.

Operational Sequence

In the following, you will find our recommendation for the operational sequence for parameterising the "BMS KNX Actuators" at the Standard access level:

Configure First Channel

Step	Operation	Where
1	Set the access to Standard.	General window
2	Perform channel configuration / connect the desired channels.	Actuator tab
3	Tag the first channel to be configured, or the first connected channels.	Channel x window
4	Select the Sector from base and enter the sector address [1...512] in accordance with the allocation from the base.	Settings tab
5	Select the product in the Product drop-down menu. In the Limit Switch drop-down menu, select whether the motor has 2 or 3 limit switches: => The Shading Position will be set according to the selections.	Settings tab

Configuring Further Channels

Step	Operation	Where
6	Set further channels as in steps 3 to 5 or copy channels which have already been configured as described in the following.	Channel x window Settings tab
7	Tag the channel to be copied.	Channel x window
8	Click on the Copy To button and select the channel where the copy is to be applied in the drop-down list: => The settings for the channel will be copied to the target channel.	Channel x window
9	Tag the target channel. Change any settings which are different from the copied channel as needed.	Settings tab
10	Click on the OK button: => The settings will be applied definitely and the application will close.	Channel x window

Connecting Communication Objects and Performing Downloads

Step	Operation	Where
11	Connect the SCO object "Central Command" communication object with the BMS central unit FM-xx (allocation of the group address).	ETS3

	So, automatic functions such as rain alarm, shading function and time command are sent automatically from the SCO object.	
12	Connect the communication objects for push-button inputs and superior securities such as fire alarm (group addresses are created).	ETS3
13	Perform the download of the application programme.	ETS3

Perform Functional Test

Step	Operation	Where
14	Start the "BMS KNX Actuators" application.	ETS3
15	Carry out the functional test by:	General window
	• executing the Down1–Down2–Up–Down2 commands • performing local operation • entering commands from the BMS base	Diagnosis tab
	Always check to see if the values displayed in the table Diagnosis correspond to the reaction you expected after the commands given.	

Window "General" - Overview

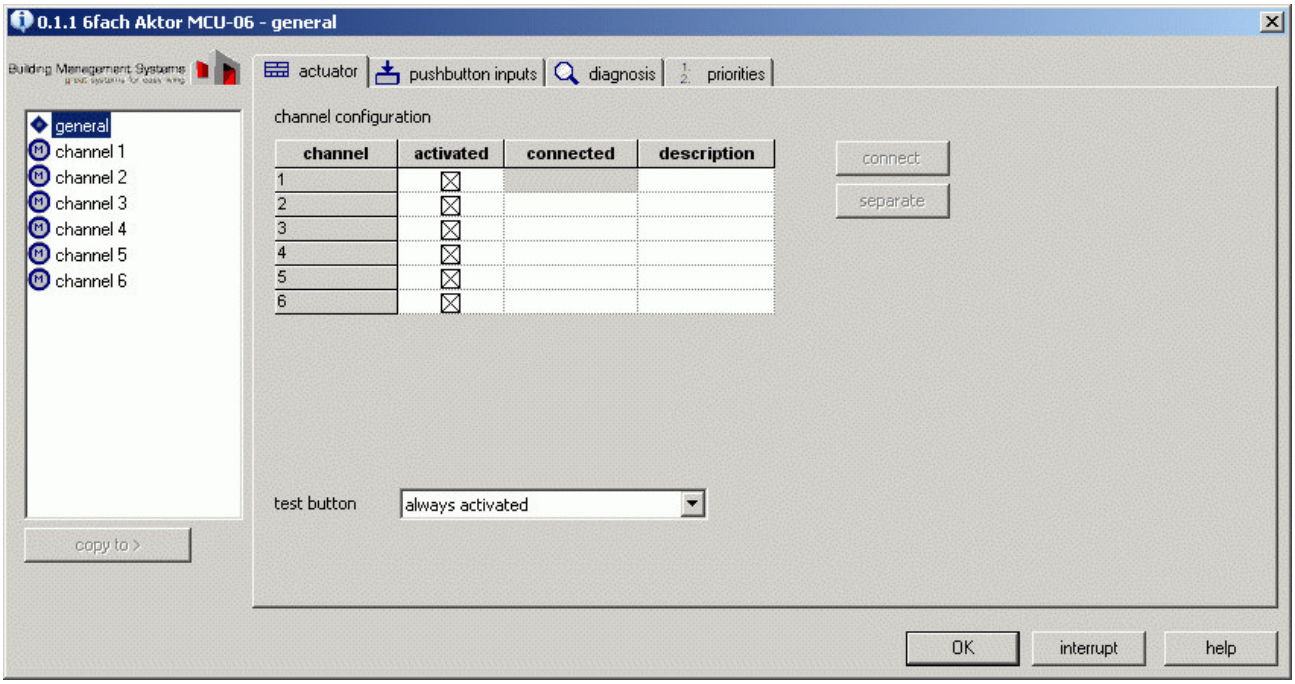
Purpose and Content

In the window "General", you can:

- set parameters for all channels
- perform a diagnosis

For this purpose, the window contains a number of tabs which are visible depending on actuator type and access level.

The following figure shows the window for MCU actuators at the Pro access level:



A Brief Description of the Items

Item	Purpose / Brief Description
Actuator tab	Configuration of the channels.
Button Inputs tab	Allocation of the button inputs connected directly to the motor channels.
Diagnosis tab	Readout of the current actuator states for checking the function.
Priorities tab	Specify the settings which are of relevance for priorities.
OK button	The changes made since the application was started will be saved definitely and the application will be closed.
Cancel button	The changes made since the application was started will be discarded and the application will be closed.
Help button	The help topic associated with the tab will be displayed.

Visible Tabs

As shown in the following, the selection of the access level determines which tabs are visible:

Access Level	Tab			
	Actuator	Button Inputs	Diagnosis	Priorities
Standard	x	x	x	
Full	x	x	x	
Pro	x	x	x	x

Note

The Pro access level is not available for the actuator MCU-09.

Tab "Actuator"

Purpose and Content

You can configure the channels of the actuator on the tab "Actuator", i.e.:

- activate channels
- connect channels with an identical function
- configure the test button(s) on the actuator

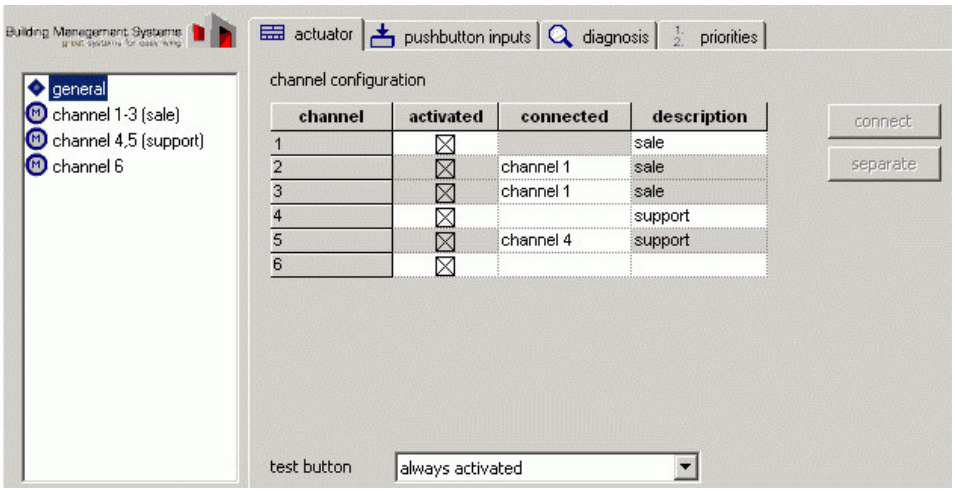
The settings are made in the Channel Configuration table and in the Test Button drop-down list box.

Configuring Channels

How to configure channels:

1. Enter the table Channel Configuration.
2. Select the checkbos Active for the channels needed:
   => The channels will be activated and will appear on the left side of the window (or deactivated and hidden if unselected).
3. For each channel which is to be connected with another one, click on the Connected drop-down list and select the respective channel:
   => The channels will be connected and displayed accordingly.
   Note: You can also connect and disconnect channels by tagging the respective channels under Channel and clicking on the Connect or Disconnect button.
4. Enter appropriate text in the free Designation fields, (e.g. locations).
5. Configure the test button.
   Note: This drop-down list box is only visible at the Full and Pro access levels.

Example



Description of the Settings and Parameters

Setting / Parameter	Selection	Description
Show/Hide Channel	• **Activated** • Deactivated	Activated: Channel will be shown and activated. Deactivated: Channel will be hidden and deactivated.
Connect Channels	• **Arbitrary**	Channels with an identical function can be connected. In this case, the communication objects of the respective channels will also be hidden or newly labelled accordingly. The connected channels will be parameterised identically. Application example: Two blinds in one room. Each has its own motor. The blinds are

		to be operated in parallel. *Note:* If Feedback is activated (on the tab "Feedback"), the feedback objects will still be per channel, even though the channels are connected.
Test Button	• **Always Active** • Active when no Bus Voltage • Active for 30 Min. after Reset	Refers to the test button on the actuator itself: 1 test button is provided for every 3 channels. Not to be confused with local operation! *Note:* The Test Button option is only visible at the Full and Pro access levels.

Tab "Button Inputs"

Purpose and Content

On this tab, you can:

- allocate buttons connected directly to the actuator to any motor channels of this actuator.

This can also be done if the motor channels are connected and are therefore controlled together from the central unit.It is also still possible to operate the motors individually via the push-buttons at the corresponding inputs.

Allocation is performed using a table with the following items:

Item	Description
Input	Button connected directly to the button input of the actuator (via a wire).
(Columns)	Default setting: Input 1 on channel 1, input 2 on channel 2, etc.
Motor	Channel to which the motor is connected.
(Rows)	A selected checkbox ☑ at an intersection point shows which button affects which channel.

Note

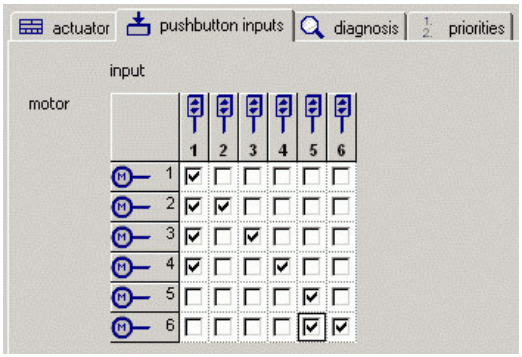
An intersection point is only effective if theoption Button Input on the tab "Inputs" below Inputs Connected to Actuator is selected.

Allocating Button Inputs

Proceed as follows:

1. Select the checkboxes ☑ at the desired intersection points.

Example



Note

You can restore the default settings by clicking on the Standard button.

Tab "Diagnosis"

Purpose and Content

On the tab "Diagnosis", you can perform a function test by querying the current states of the actuator.

The tab shows the states and values in a table with the following arrangement:

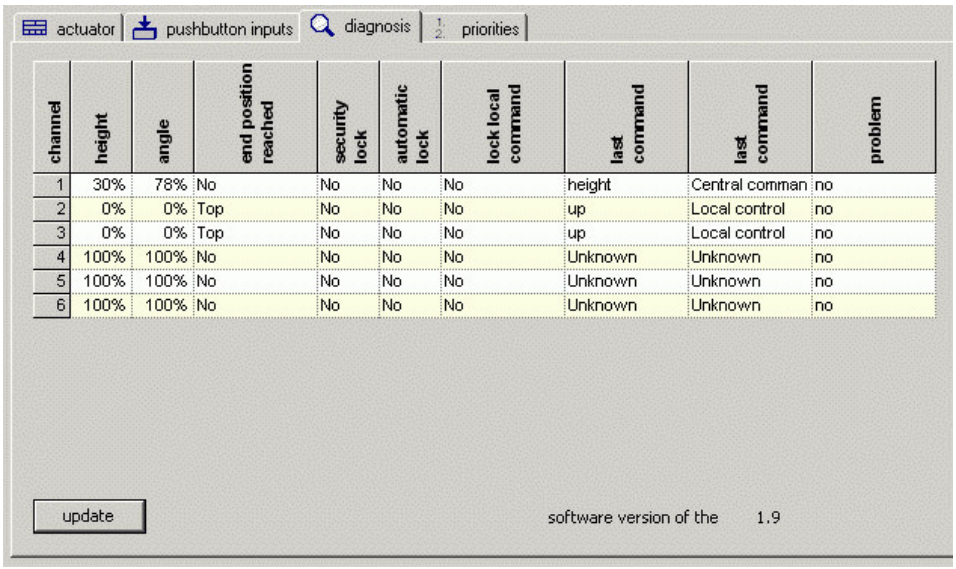
- Columns: Channel no. and parameters
- Rows: Current values for the respective channels

Performing a Diagnosis

Proceed as follows:

1. Be sure that the ETS is physically connected to the KNX BUS and is online.
2. In the application, click on the Refresh button to obtain the current values.
3. Check to see if the values displayed correspond to the expected states.

Example



Notes

- For the parameters "Height" and "Angle", you can switch the display of the value range from 0...255 to 0...100% and back again by clicking on the respective cells.
- The accuracy of the feedback depends on the parameter settings for "Run Time" and "Slat Turning Time" as well as on the drive strategy selected and it can vary.

Description of the Parameters

Parameters displayed in the table columns and possible display values:

Parameter Name	Display	Description
Channel	• 1...n	Channel to which the motor is connected.
Height	• 0...255 • 0...100%	Position of venetian blind: 0 = up, 255 = down 0% = up, 100% = down
Angle	• 0...255 • 0...100%	Definition of the slat angle: 0 = completely open, 255 = completely closed 0% = completely open, 100% = completely closed

		A display will only be shown if a slat product has been selected on the "Product" tab.
End Position Reached	• No • Up • Down • Shading	No: The venetian blind is located at an intermediate position. Shading: The venetian blind is located at the shading position (with 3-limit-switch motors at "DOWN1").
Safety Lock-out	• No • Yes	Yes: A safety lock-out is active (from EIB/KNX, from the BMS central unit or as defined on the "Logic" tab).
Automatic Lock-out	• No • Yes	Yes: An automatic lock-out is in effect. No commands from the BMS central unit or from "Central Command" communication objects will be executed (except for safety commands and the communication object "Up / Night").
Local-Command Lock-out	• No • Limited • Yes	Yes: An operational lock-out is in effect. The channel cannot be operated with a button. This applies for buttons connected directly to the actuator as well as for "Local Command" communication objects.
Last Command	• Up • Down • Height... • Angle... • P1 • P2 • P3 • P4 • Priority Command • Tilt Up • Tilt Down • Shading Pos. • ...	The last, effective drive command will be displayed.
Source of Last Command	• Unknown • Local Operation • Central Command • Local Command • Safety • SCO object • Internal Command	It will be displayed who sent the last drive command. Internal Command: Internal commands are generated by the reset function of the actuator or by the logic.
Problem	• None • Check the motor lead wire • Thermal Protection • Actuator Defective	**Check the power cable of the motor:** An interruption of the power supply can cause the feedback "Check the motor lead wire". A more detailed reason is unknown. There are several possibilities of the reason such as disconnection of the motor, defective limit switches or that a motor thermostatic switch triggers. Check connection, limit switches or motor thermostatic switch. Thermal Protection: The Thermal Protection problem can be triggered during motion or during a power interruption. Due to the current position, the end position is signalled unexpectedly by a power interruption and is detected as a thermal protection action. Check the connection, the limit switches and the motor thermostatic switch. Actuator Defective: Check the actuator.
Actuator Software Version	• Vx.y	The current actuator software version is shown in the display.

Tab "Priorities"

=> This tab is not available for the actuator MCU-09

Purpose and Content

You can make settings in accordance to priorities on the "Priorities" tab.

The following two lists are displayed:

- Variable Priorities
- Fixed Priorities

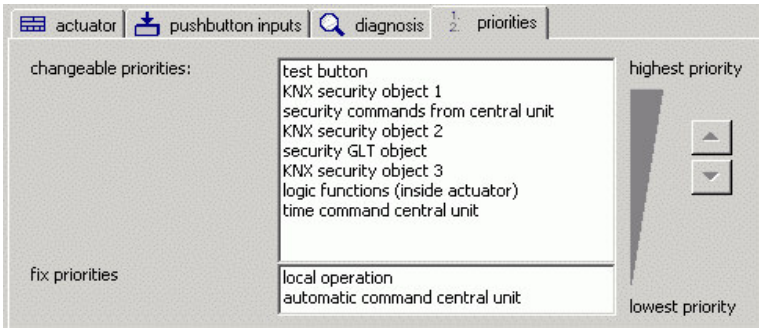
You can change the order of the items shown in the list of variable priorities.

Changing Priorities

Proceed as follows:

1. In the Variable Priorities list, tag the item which is to be moved.
2. Drag the tagged item to the desired position with the mouse button held down or click one or more times on the ▲ or ▼ arrow to move the item step by step.
3. Repeat steps 1 and 2 for any further items.

Example



Note

You can return the priorities to the default order by clicking on the Standard button.

Description of the Items

The table describes the individual items of the "Priorities" tab:

Item	Description
Test Button	Test button on the device.
EIB/KNX Safety Object 1	EIB/KNX safety object, e.g. for fire alarm, cleaning, etc. *Note:* Not from the BMS central unit.
Safety Commands from the Central Unit	All safety commands which are sent via the SCO object from the BMS central unit to the actuator. The priority level is specified in the central unit.
EIB/KNX Safety Object 2	EIB/KNX safety object, e.g. for fire alarm, cleaning, etc. *Note:* Not from the BMS central unit.
Safety BCSS Object	Safety via the "BCSS" communication object. Example: Priority command from an overriding control system.
EIB/KNX Safety Object 3	EIB/KNX safety object, e.g. for fire alarm, cleaning, etc. *Note:* Not from the BMS central unit.
Logic Function (within actuator)	Safety inside the actuator, only in connection with the logic function (defined on the "Logic Table" tab).
Central Unit Timer Command	Command from the BMS central unit (via the SCO object).
Local Operation	Local operation command via EIB/KNX ("Local Command" communication object) or via a directly connected button. The priority cannot be changed.
Central Unit Automatic Commands	Automatic commands from the BMS central unit (via the SCO object) or via EIB/KNX "Central Command" communication objects. The priority cannot be changed.

Example: Shading, temperature, etc.

Window "Channels" - Overview

Purpose and Content

In the window "Channels", you can:

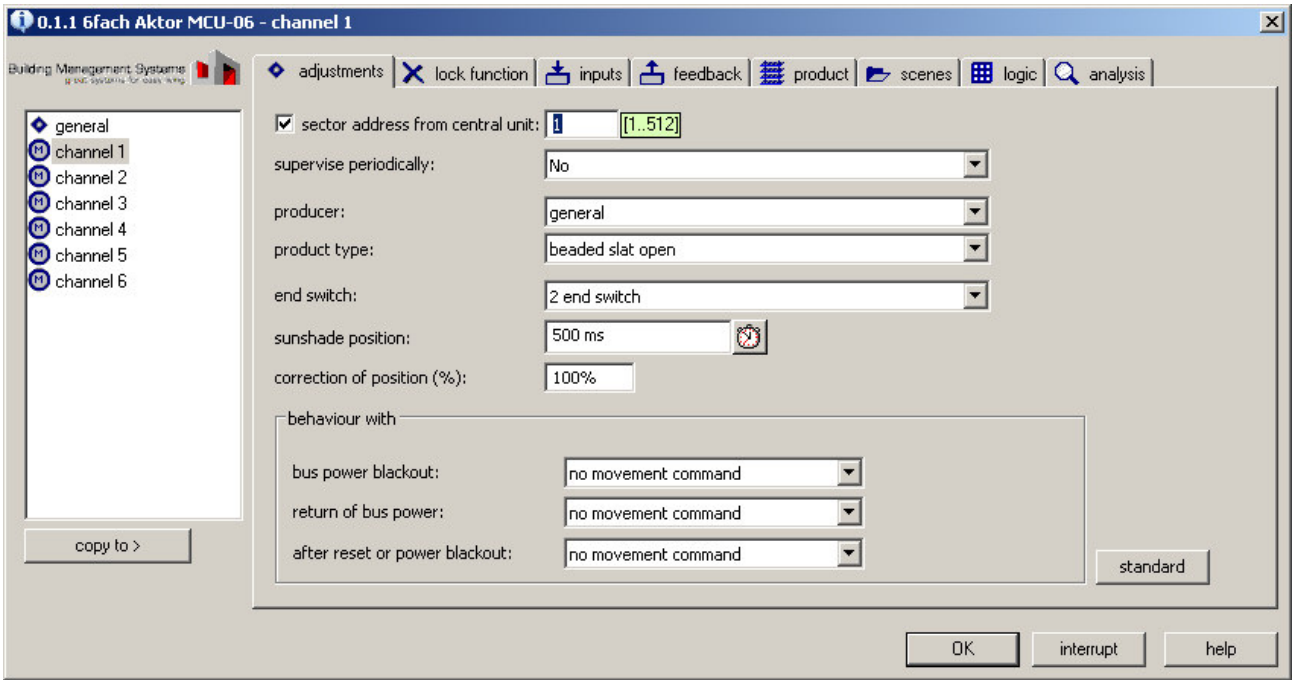
- set parameters in the actuator for individual channels
- perform an analysis

The "BMS KNX Actuators" application's structure is entirely channel-orientated in accordance with the actuators, i.e.:

You can make settings (parameters, communication objects) individually for every channel or every group of connected channels.

By clicking on the desired channel or the desired group of connected channels in the menu on the left hand side, the window containing the associated content and settings will be displayed.

The window contains a number of tabs which are visible depending on the actuator type and the access level. The following image shows the window for MCU actuators at the Pro access level:



A Brief Description of the Items

Item	Purpose / Brief Description
Settings tab	Basic settings for the channels or connected channels.
Lock-out Function tab	Definition of the conditions for the lock-out of a channel or connected channels.
Inputs tab	Configuration of the inputs of the channels or connected channels.
Feedback tab	Specification whether and how feedback regarding the position of the base product should be performed.
Product tab	Selection of the base product / adaptation of the parameterisation of the channels.
Scenes tab	Creation of up to 16 scenes per channel.
Logic tab	Definition of room functions based on EIB/KNX signals, such as presence.
Analysis tab	Several windows for the online display of important states and signals.
Copy To button	Copy previously parameterised channels to another channel or to all other channels.
Standard button	Restores default tab values (applies to tabs from "Settings" through "Product").
OK button	The changes made since the application was started will be saved definitely and the application will be closed.
Cancel button	The changes made since the application was started will be discarded and the application will be closed.

Help button	The help topic associated with the tab will be displayed.

Tabs Displayed

Which tabs are displayed depends on the selection of the access level as follows:

Access Level	Tab							
	Settings	Lock-out Func.	Inputs	Feedback	Product	Scenes	Logic	Analysis
Standard	x	x						
Full	x	x	x	x	x			
Pro	x	x	x	x	x	x	x	x

Note

The Pro access level is not available for the actuator MCU-09.

Tab "Settings"

Purpose and Content

You can specify the basic settings for the tagged channel or the tagged connected channels using the tab "Settings".

This deals primarily with:

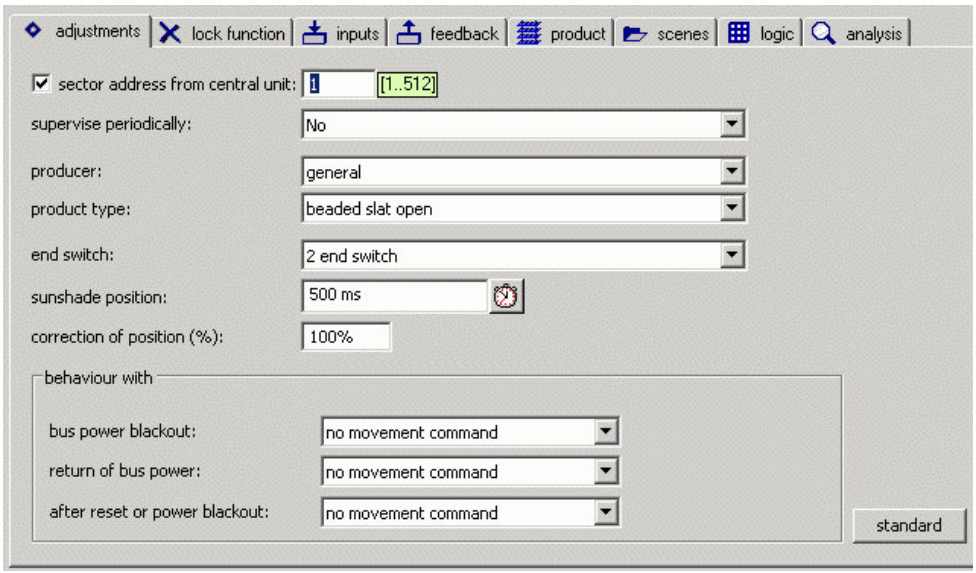
- The allocation of a sector address for communication with a BMS central unit
- The selection of the sun-protection product to be operated
- The behaviour in the event of an interruption of the bus voltage

Making Settings

Proceed as follows:

1. If the actuator is connected to a BMS central unit:
   Click on the Sector from Central Unit checkbox and enter the sector address to the right.
2. In the Cyclical Monitoring drop-down menu, click on Automatic by Central Unit, if this monitoring is required.
3. Select the Manufacturer and the Product Type in the drop-down menu.
   =>Caution: This step changes various parameter settings. Be certain to perform this step here!
4. Select 2 or 3 Limit Switches, if this list box is visible (only the case for MCU actuators; there it is automatic, product-dependent).
5. Leave the preset default settings for the Shading Position as they were (automatic, product-dependent).
   The Calibration Dialogue is required for optimisation only when putting the product into service. You get there by clicking on the  icon.
6. Select the settings for Behaviour in Case of in the drop-down menu, Bus Voltage Interruption, Bus Voltage Restoration and Network Restoration.
   Note: This group field is only visible at the Full and Pro access levels.

Example



Notes

- The selection offered in the Manufacturer and Product Type drop-down menus cannot be amended.
- You can return to the default settings for the tab by clicking on the Standard button.

Description of the Parameters

Parameter Name	Selection	Description
Sector Address from Central Unit	• **None** • 1...512	Sector address from the BMS central unit. The address must be entered on both sides manually (central unit and all actuators). This is important in connection with the SCO object.
Cyclical Monitoring	• **No** • Automatic by Central Unit	This option is visible if Sector Address from Central Unit has been selected and a sector address has been entered. Automatic by Central Unit: The actuator monitors whether at least 3 commands arrive from the BMS central unit via the SCO object within a certain time period. Failing that, the actuator moves to the safety position (upper end position). The monitoring time must be set in the central unit. It is communicated to the actuator automatically via the SCO object and also applies to the cyclical sending of priority commands.
Manufacturer	• **General**	General: Below Product Type, the "General Product Type" drop-down menu is displayed.
General Product Type	• **Beaded slats, open** • Beaded slats, closed • Roller shutters • Sliding-arm awning • Seating-area awning • Window • Vertical awning	The selection shows Standard Blind Products in broad terms, not manufacturer-specific. *Note:* If a parameter change is made for a Product Type on the tab "Product", then it will be shown here on the tab "Settings" for the respective Product Type with the additional text "(changed)".
Limit Switches	• **2 Limit Switches** • 3 Limit Switches	The menu will be displayed in dependence upon the Product Type. Number of limit switches for the motor of the corresponding product type.
Shading Position	• –327…327 s	Specifies the shading position as follows: - Slat products: Slats opened slightly. - Fabric products: Fabric taut. - Roller shutters: With ventilation slots.
	• **Time from Down1** • Time from Down2	This selection item is only displayed for 3 limit switches and the Pro access level.It is not available for the actuator MCU-

		09. Time from Down1: How much should the angle still be changed after the motor has reached this position? - Positive value: Effects opening by the adjusted time. - Negative value: Effects closing by the adjusted time (only intended for special products). Time from Down2: As for Down1, just referring to the end position (all the way down).
Position Correction Factor(%)	• 0...(100 %)...200 %	Individual correction for the respective channel: The actuator interprets all commands received with an angle value (Positions P1...P4) for the respective channel in accordance with the adjusted correction of the position. The commands can originate from the BMS central unit or from a user (via buttons or operator unit, etc.) or come from inside the actuator. Application example: For a façade completely equipped with venetian blinds, the slat angle of a single venetian blind deviates from that of the others. *Note:* Corrections for entire buildings or sectors are entered in the BMS central unit and are sent from it via the SCO object.
Behaviour in Case of Bus Voltage Interruption	• No Drive Command • Up • Down • Shading • P1 • P2 • P3 • P4 • Height • Angle • Height/Angle • Last Local Command • Last Central Command • Last local or central command	In the event of a bus-voltage interruption or the absence of cyclical signals (commands from the SCO object), the sun-protection product will be moved to the position and the operation will be locked out. No Drive Command: For this selection as well, operation will be locked out. The command will only be executed if the bus voltage is interrupted for more than 10 minutes. So, only short interruptions do not have any effect on the entire system. *Note:* The group field Behaviour in Case ofis only visible at the access levels Full and Pro.
Behaviour in Case of Bus Voltage Restoration	• **No Drive Command** • Up • Down • Shading • P1 • P2 • P3 • P4 • Height • Angle • Height/Angle • Last Local Command • Last Central Command • Last local or central command	When the bus voltage is restored, the sun-protection product will be moved to the selected position and the operation will be enabled. The command will only be executed if "Behaviour in Case of Bus Voltage Interruption" has been executed. *Note:* The group field Behaviour in Case of is only visible at the access levels Full and Pro.

Behaviour in Case of Network Restoration	• **No Drive Command** • Up • Down • Shading • P1 • P2 • P3 • P4 • Height • Angle • Position • Height/Angle • Last Local Command • Last Central Command • Last local or central command	When the network is restored, the sun-protection product will be moved to the selected position and the operation will be enabled. *Note:* The option Behaviour in Case of is only visible at the access levels Full and Pro.

Tab "Lock-out Functions"

Purpose and Content

On the tab "Lock-out Functions", you can specify, whether and under what conditions the channel or the connected channels should be locked out. This has to do with the answer to these questions:

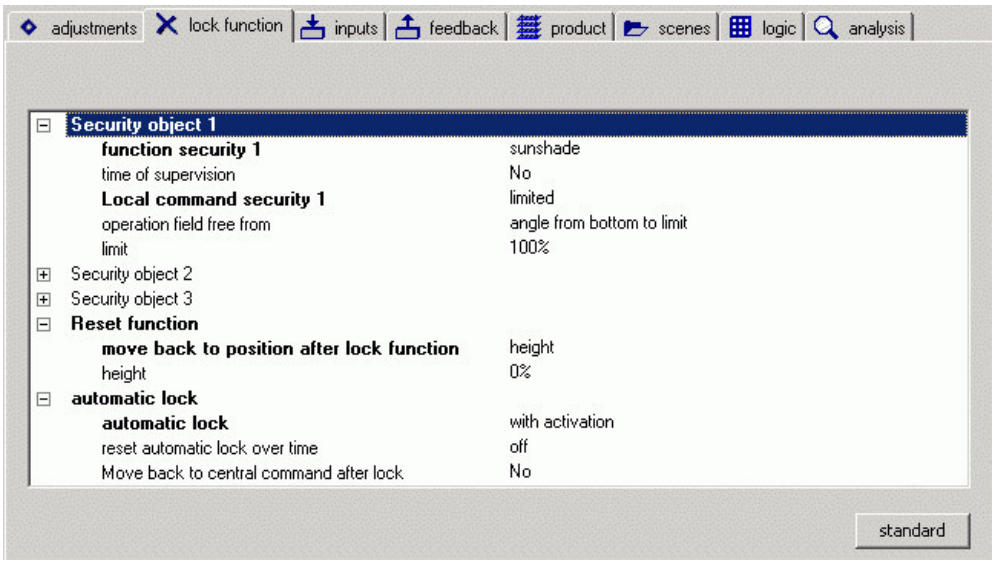
- Apart from the SCO object, should the actuator be locked out by one of the three safety objects (1, 2, 3)?
- Is there an automatic lock-out, and if yes, how should it work?

Setting Lock-out Functions

Proceed as follows:

1. Think about the required functions of the system and about the priority handling resulting from this.
2. Click on the respective parameters and make the selection in the drop-down menu.

Example



Notes

- Changed parameters will be displayed in bold.
- You can restore the default values for the parameters by clicking on the Standard button.

Description of the Parameters

The following tables describe the parameters listed on the tab, grouped according to the way they are displayed in the selection field.

Parameters "Safety Object 1"

Parameter Name	Selection	Description
Function Safety 1	• Not Active • No Drive Command • **Up** • Down • Shading • P1 • P2 • P3 • P4 • Height • Angle • Height/Angle	When a "1" is received by the "Safety 1" communication object, the sun-protection product is moved to the selected position. Not Active hides the "Safety 1" communication object.
Monitoring Time	• **No** • 1 min....48 h	If no command is received by the safety object during the set monitoring time, then the selection made under "Local Command for Safety 1" will be executed.
Local Command for Safety 1	• Locked out • Enabled • Limited	Locked out: No operation is possible. Enabled: Local operation is enabled. Limited: Local operation is possible within a limited range. The range is defined by using the parameter "Operating Range enabled from". *Note:* Central commands are always locked out; local commands are locked out in dependence on the selection made here.
Operating Range enabled from	• Angle from Top to Limit • **Angle from Bottom to Limit** • Height from Top to Limit • Height from Bottom to Limit	This parameter is only visible if Limited was selected for the parameter "Local Command for Safety 1". By making the appropriate selection here, the operating range for angle or height can be enabled up to a certain value (limit). With "Angle Limited", the height can be adjusted and vice versa. *Note:* "Limited Operation" is indicated by the LED on the actuator. When the locally connected button is pressed and motion into the restricted area is initiated, the LED will blink. When the button is released, the blinking will stop after 10 seconds.
Limit	• 0…100% or 0...255	Value of the limit for the operating range.

Parameters "Safety Object 2"

As for the parameters "Safety Object 1"

Parameters "Safety Object 3"

As for the parameters "Safety Object 1"

Parameters "Reset Function"

Parameter Name	Selection	Description
Move to new Position after Lock-out Function	• **No Drive Command** • Up • Down • Shading • P1 • P2 • P3 • P4 • Height	Once the lock-out is cancelled, the sun-protection product will be moved to the slected position. Last Local Command: The last position which was actually reached via local operation will be moved to once again after the lock-out is reset. Last Central Command: The last position which was intended to be reached via central commands will be moved to once again after the lock-out is reset.

	• Angle • Height/Angle • Last Local Command • Last Central Command • Last local or central command	Last Local or Central Command: A combination of the two settings above, i.e. the last event according to the descriptions above will be executed.
Height	• 0…100% or 0...255	This input field appears if previously "Height" or "Height/Angle" was selected.
Angle	• 0…100% or 0...255	This input field appears if previously "Height" or "Height/Angle" was selected.

Parameters "Automatic Lock-out"

Parameter Name	Selection	Description
Automatic Lock-out	• **None** • Object Only • When Operated • Button Combination • When Operated and with Button Combination	Every selection except for None activates the automatic lock-out. When it is activated, no commands from the BMS central unit or from the "Central Command" communication object will be executed, except for safety commands. The selection made also defines how the automatic lock-out is set and reset: Object Only: The automatic lock-out will only be switched on or off via the "Automatic Lock-out" communication object (not via the operating controls). When Operated: When a local operation is actuated ("Local Command" EIB/KNX object or directly at the actuator/channel), the automatic lock-out will be set. Button Combination: Press both buttons, Up/Down, simultaneously. Duration < 1 s = set. Duration > 1 s = reset. When Operated and with Button Combination: Combination of the two settings mentioned before. Advantage compared to When Operated alone: The user can perform a reset. *Notes*: For the selection None, the "Automatic Lock-out" communication object will be hidden. The parameter values Button Combination and When Operated and with Button Combination are only active if the Venetian Blind Button Input selection was made on the tab "Inputs" below "Inputs Connected to Buttons".
Reset Automatic Lock-out over Time	• **Off** • 30 min....24 h	After the selected time has elapsed, the automatic lock-out will reset itself independently, i.e., the "Automatic Lock-out" communication object will be given the value "0". The setting made here will apply for each of the selections made above for "Automatic Lock-out". *Note*: A reset also occurs in the event of: a Button Combination OR a command via the "Up/Night" communication object OR a timer command from the central unit (SCO object).
Move according to Central Command	• **No** • Yes	When the lock-out is lifted, the automatic position currently being sent from the central unit or the "Central Command" communication object will be moved to. This parameter is dependent on the parameter "Reset Function" > "Move to new Position after Lock-out Function": Only if that parameter does not provide a valid position, the parameter "Move according to Central Command" will take effect, if set to "Yes".

Tab "Inputs"

Purpose and Content

You can configure the inputs of the actuator per channel or per connected channels on the tab Inputs".

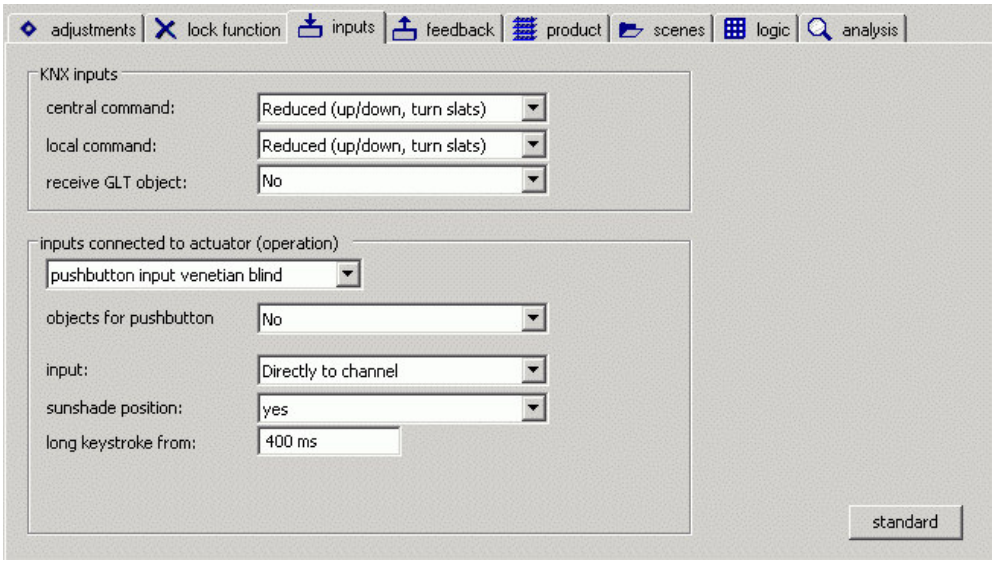
The inputs are divided into two groups:

- EIB/KNX Inputs (EIB/KNX communication objects):
  Here is set which commands from EIB/KNX are to be received is set here.
  The communication objects will be visible or hidden accordingly.
  See the topic Inputs: Definitions in the appendix.
- Inputs Connected to Actuator (Operation):
  These inputs function essentially like a binary input.
  The signals affect the bus, but can also be directed directly to the actuator.
  See the topic Inputs: Definitions in the appendix.

Procedure

1. Check to be sure what offers in the system:
   - Only EIB/KNX inputs
   - Only inputs on the actuator
2. Edit the parameters of the respective group.

Example



Note

You can restore the default settings for the tab by clicking on the button Standard.

Description of the "EIB/KNX Inputs"

By setting these parameters you can hide or display the EIB/KNX communication objects for central commands, local commands and the BCSS object.

Parameter Name	Selection	Description
Central Command	• Off(SCO object only) • Reduced (Up/Down, Tilt) • All On (all objects)	*Usage:* If no BMS central unit (and therefore no SCO object) is present and thus central commands must be created independently. Off: All "Central Command" communication objects are hidden (except for the SCO object). Reduced: The central command communication objects

		"Up/Down" and "Step/Stop" are displayed. All On: All "Central Command" communication objects are displayed.
Local Command	▪ Off (no objects) ▪ Reduced (Up/Down, Tilt) ▪ All On (all objects)	Off: All "Local Command" communication objects are hidden. Reduced: Only the "Up/Down" and "Step/Stop" local command communication objects are displayed. On: All "Local Command" communication objects are displayed.
Receive BCSS Object	• **No** • Yes	No: The BCSS object ("Control System Command") is hidden. Yes: The BCSS object ("Control System Command") is displayed. A description of the BCSS object is in the appendix under the topic, "BCSS Object"

Description of "Inputs Connected to Actuator (Operation)"

Conventional buttons or contacts can be connected directly to the actuator (e.g. window contacts). The inputs function essentially like a binary input. The signals affect the bus, but can also be directed directly to the actuator.

Input Selection

The selection defines how the input will be utilised.

Parameter Name	Selection	Description
Inputs Connected to Actuator (Operation)	○ None ○ Button Input, Venetian Blind ○ Button Input, Dimming ○ Button Input ○ Input for Logic	Button Input, Dimming: Two communication objects, "Dimmer Function On/Off" and "Dimmer Function Lighter/Darker" are displayed. Single-button operation is not supported. Input for Logic: - The input connected physically is only required on the "Logic Table" tab. - Not available for the actuator MCU-09.

Parameters for the Selection "Button Input, Venetian Blind"

Parameter Name	Selection	Description
Objects for Button LED	• **No** • Yes	Hides/displays the communication objects for the control of the LED on the button.
Input	• Only on EIB/KNX • EIB/KNX and directly on channel • **Directly on Channel**	Input from conventional button for roller shutters and venetian blinds. Directly on Channel: Affects only the channel directly, no EIB/KNX communication object present. Only on EIB/KNX: For controlling another actuator via EIB/KNX; has no effect on channel itself. EIB/KNX and Directly on Channel: Both effects described above.
Shading Position	• **Yes** • No	The philosophy of operation is determined by: Yes: Long + short button pressure = Shading No: Long + short button pressure = Stop *Note:*

		If EIB/KNX was selected previously and here Yes is selected here, then the communication object "Local Command, Shading" will be displayed.
Long Button Pressure	• 400 ms .... 1.2 s	As of the time set, button pressure will be interpreted as long.

Parameters for the Selection "Button Input, Dimming"

Parameter Name	Selection	Description
Objects for Button LED	• **No** • Yes	Hides/displays the communication objects for the control of the LED on the button.
Long Button Pressure	• 400 ms .... 1.2 s	As of the time set, button pressure will be interpreted as long.

Parameters for the Selection "Contact Input"

Parameter Name	Selection	Description
Objects for Button LED	• **No** • Yes	Hides/displays the communication objects for the control of the LED on the button.
Input 1 / Input 2	• **No Function** • Press Invert • Press On • Press Off • Release On • Release Off • Press On Release Off • Press Off Release On • Press Position • Press Scene	The two inputs are only connected on the EIB/KNX (communication object displayed) – no reaction to channel command. This makes it possible to trigger an arbitrarily selectable function on the EIB/KNX system, such as a contact for registering presence or a window contact, etc. Meaning of the terms in the selection: Press: Rising edge. Release: Falling edge. Invert: Send inverted value from communication object (toggle). On: Send the value 1. Off: Send the value 0. Position: Parameters for "Height" and "Angle" are displayed. Scene: Parameters for "Scene Settings" are displayed.
Cyclical Sending	• **No Cyclical Sending** • 0.3 s …. 16 h	The drop-down menu "Cyclical Sending" is displayed for any of the selections from Press Invert to Press On Release Offfor input 1 or input 2. If a time is set under "Cyclical Sending" in accordance with the selection made, then the commands from the respective contact input will be applied to the KNX BUS at this interval. "Cyclical Sending" is used for safety signals such as "Fire" and "Cleaning". *Note:* For "Cyclical Sending", the selection Invert will not toggle the value!
Height	• 0…100% or 0…255	The input field "Height" will be displayed with the selection of Press Position for input 1 or input 2. The value entered will be sent via the communication object "Height".
Angle	• 0…100% or 0…255	The input field "Angle" will be displayed with the selection of Press Position for input 1 or input 2. The value entered will be sent via the communication object "Angle".
Scene	• **Call Up** • Save • Call Up and Save	The drop-down menu "Scene" will be displayed with the selection of Press Scene for input 1 or input 2.

	Call Up: - Short Button Pressure (< 2 s): The value of the scene number set will be called up. - Long Button Pressure (> 2 s): No Function. Save: - Short Button Pressure (< 2 s): No Function. - Long Button Pressure (> 2 s): The current value will be saved under the scene number set. Call Up and Save (short / long): - Short Button Pressure (< 2 s): The value of the scene number set will be called up. - Long Button Pressure (> 2 s): The current value will be saved under the scene number set. *Note:* The reactions are always triggered by a falling edge.
1...16	Number of the scene, the value for which is to be called up and/or saved.

Tab "Feedback"

Purpose and Content

On the tab "Feedback", you can specify whether and how feedback about the position of the sun-protection product is to be made. This has to do with the answer to these three questions:

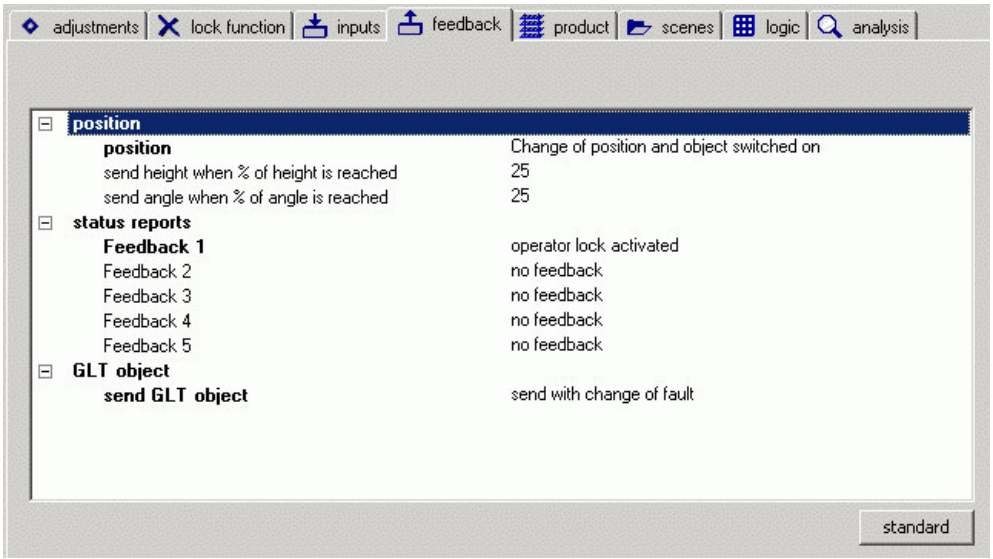
- Should feedback about the actual position of the base product (Height/Angle) be given?
- Which of the available status messages of the channel should be given as feedback, and for which state should it be given?
- Should the BCSS object "Control System Feedback" be sent to the operating station of a building control system and, if yes, for which state?
  Note: The feedback of a BCSS object contains information about position and status messages.

Parameterising Feedback

Proceed as follows:

1. Think through the functions required of the system based on the questions above.
2. Click on the respective parameters and make the selection in the drop-down menu.

Example



Notes

- Parameterisation is always to be done per channel – even for connected channels.
- Changed parameters will be displayed in bold.
- You can restore the default values for the parameters by clicking on the Standard button.

Description of the Parameters

Parameter "Position"

Parameter Name	Selection	Description
Position	• **No Feedback** • Reaching Position • Reaching Position and Object Switched On • Position Change and Object Switched On	The parameter "Position" is only sent when the position is known (run time has been calibrated and end position only moved to once). The accuracy of the feedback depends on the parameter settings for "Run Time" and "Slat Turning Time" as well as on the drive strategy selected and it can vary. Via the communication object "Activate Feedback" it can be controlled whether feedback should be sent and, if yes, under what conditions. No Feedback: The communication objects "Height Feedback" and "Slat Angle Feedback" are hidden. Reaching Position: The communication objects "Height Feedback" and "Slat Angle Feedback" are displayed. Every time the prescribed position is reached, the actuator sends the current position (height and angle). Reaching Position and Object Switched On: In addition to the communication objects "Height Feedback" and "Slat Angle Feedback", the communication object "Activate Feedback" will also be displayed. However, the actuator sends the current position only if the value for the "Activate Feedback" communication object is "1". This makes sense, for example, for visualisations: It will only be transmitted if the image with the venetian blind is selected (minimise bus load). Position Change and Object Switched On: The three communication objects mentioned before as well as the following parameters "Send Height if .." and "Sent Angle if .." will be displayed. These parameters specify for which intermediate positions (changes in height and angle) feedback should be given via the respective communication objects. *Height Position Criteria:*

		The following criteria must be met for a valid feedback of the height position: - For activated detection of the end-position: The facade product must have been calibrated (one full motion from the bottom to the top without interruption). The feature "limited operation" (limits) can prevent calibration. - For deactivated detection of the end-position: The upper or lower end position must have been moved to at least once. *Note for angle position:* For a valid angle position, the slat angle must have been moved to an end position once (fully closed or fully opened).
Send Height when % of Height is Reached	• 10 / 20 / 25 / 50	In addition to the feedback at the end positions, the communication object "Height Feedback" also sends the values for the height when the prescribed intermediate positions are reached. This produces the following number of feedback messages, depending on the selection: - 50 (50 %): 3 feedback messages (bottom, middle, top) - 25 (25 %): 5 feedback messages - 20 (20 %): 6 feedback messages - 10 (10 %): 10 feedback messages *Note:* The % values relate to the full run time from "Up" to "Down".
Send Angle when % of Angle is Reached	• 10 / 20 / 25 / 50	In addition to the feedback at the end positions, the communication object "Angle Feedback" also sends the values for the angle when the prescribed intermediate positions are reached. This produces the following number of feedback messages, depending on the selection: - 50 (50 %): 3 feedback messages (fully closed, middle, fully open) - 25 (25 %): 5 feedback messages - 20 (20 %): 6 feedback messages - 10 (10 %): 10 feedback messages *Note:* The % values relate to the full run time from "Fully closed" to "Fully open".

Notes regarding "Height" and "Angle":

The feedback messages for "Height" and "Angle" are sent to the EIB/KNX as follows:

- If the target position is prescribed via separate Height/Angle objects (e.g. via the EIB/KNX objects), the height and angle object will be sent to the KNX BUS for every intermediate stop of the positioning of the blind.
- If the target position is assigned via a combined Height/Angle object (e.g. SCO object, Scene, BCSS Object), the height and angle objects will be sent to the KNX BUS only when the end position has been reached.

Parameters "Status Messages"

=> Note: Parameter not available for the actuator MCU-09

Parameter Name	Selection	Description
Feedback 1	• No Feedback • Top End Position • Bottom End Position	No Feedback: The communication object "Feedback 1" will be hidden.

	• Shading Area • Target Position Reached • Position Unknown • Not Possible to Move to Height (Limited) • Not Possible to Move to Angle (Limited) • Safety Lock-out Active • Automatic Lock-out Active • Operational Lock-out Active • Limited Operation Active • Check the Motor Lead Wire / Thermal Protection • Actuator Defective	Remaining Selection: The selected status message (Top End Position, Bottom End Position, etc.) will be transmitted to the KNX BUS when applicable. Shading Area: Slats are positioned at the lower end position and in a shading position. Check the motor lead wire: A power supply interruption can cause the problem "Check the motor lead wire". The more precise reason is unknown. Possibilities are disconnection of a motor, defective limit switches, or a motor thermostatic switch that triggered. Check the connection, the limit switches or the motor thermostatic switch. Thermal Protection: The problem Thermal Protection can occur during motion caused by power interruption. Due to the current position, the end position is signalled unexpectedly caused by power interruption and it is detected as thermal protection. Check connection, limit switches and motor thermostatic switch. Actuator Defective: Check the actuator.
Feedback 2	As For Feedback 1	As For Feedback 1
Feedback 3	As For Feedback 1	As For Feedback 1
Feedback 4	As For Feedback 1	As For Feedback 1
Feedback 5	As For Feedback 1	As For Feedback 1

"BCSS Object" Parameters

Parameter Name	Selection	Description
Send BCSS Object	• Off • Readout Only • Send for Malfunction Change • For Change	Off: The "Control System Feedback" communication object will be hidden. Readout Only: The actuator never sends actively, the control system must make a request instead. The entire communication object will be sent. Send for Malfunction Change (incoming and outgoing): When applicable, the actuator sends the status message "Check the Motor Lead Wire" or "Device Defective". For Change: The actuator sends for every change of a value in this communication object.

Tab "Product"

Purpose and Content

Per channel or per connected channel, on the tab "Product", you can:

- select the base product to be actuated
- adapt the predefined default actuator parameters upon initial start-up, if necessary.

Two drop-down menus are used to select the base product. They are "General" Products and BMS Products.

The parameters with their predefined settings are listed in the field below this, grouped according to "Positioning", "Motor Settings" and "Base Product".

Parameters Product Selection / Setting Channel

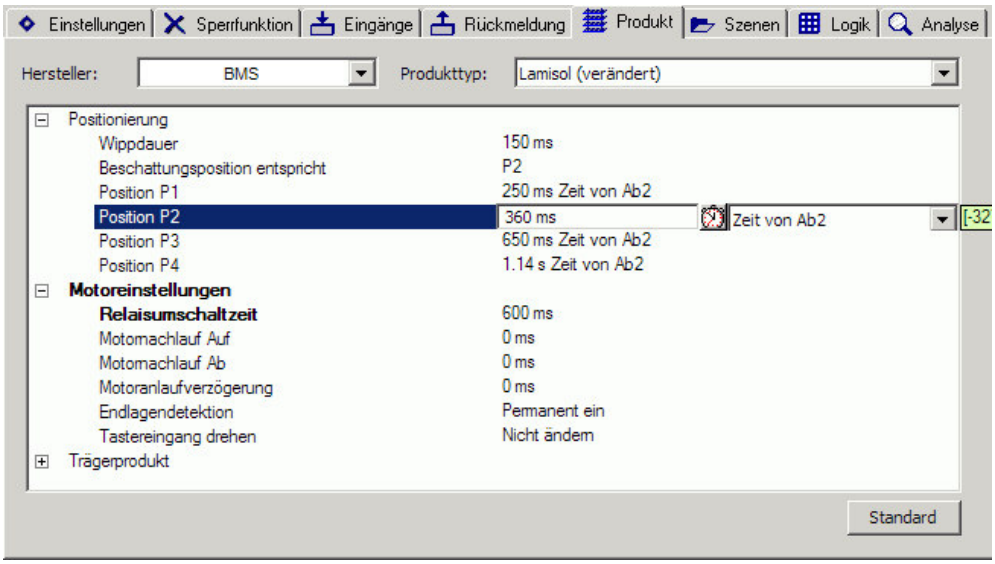
Proceed as follows:

1. Select the manufacturer in the drop-down menu Manufacturer.
2. Select the product type in the drop-down menu Product Type:
   => Depending on the product type selected, certain parameters and their predefined settings will be hidden or displayed.
3. For the time being, leave these settings as they are.

If you discover certain deviations during the subsequent initial start-up, then you can adapt the respective parameter values as follows:

1. Enter the new values in the text fields or select the suitable settings in the drop-down menu.
2. Make calibration measurements for the times as needed. The Calibration Dialogue can be opened by clicking on the icon .

Example



Notes

- The selection offered in the drop-down menus Manufacturer and Product Type cannot be amended.
- Changed parameters will be displayed in bold.
- After a change of the parameters, the Product Type will be marked by the addition "(changed)".
- You can restore the predefined values for the parameters by clicking on the Standard button.

Parameters Description of the "Positioning"

Note: The default values for these parameters are set based on the product selection made.

Parameter Name	Selection	Description
Tilt Duration	• 0...5 s	The setting specifies how long the motor should run once an impulse (e.g. short button pressure) is received for changing the angle or height.
Shading Position Corresponds To	• Position P1 • **Position P2** • Position P3 • Position P4	The corresponding position (P1...P4) with its adjusted time will be transferred (see the following). *Note:* The selection made will be applied on the tab "Settings" under "Shading Position".
Position P1	• –327…327 s	Shading position (angle) at the end position, i.e. blinds all the way down / closed. - "Time for Down2" or "Time for Down1" for motors with 3 limit switches. This information will only be displayed at the access level

		Pro. - "Time from Down1": How much should the angle still be changed after the motor has reached this position? Positive value: Causes opening by the time set. - "Time from Down2": As for Down1, however at the end position (all the way down). *Note for parameters P1...P4:* The time set must not be greater than the time in the parameter "Max. Slat Turning Time with Blind Raised" (see the following under "Base Product"). An incorrect setting leads to unnecessary movements.
Position P2	• –327…327 s	Position (angle) more open than the shading position, P1, but closed more than P3.
Position P3	• –327…327 s	Position (angle) more open than P2, but closed more than P4.
Position P4	• –327…327 s	The slats are horizontal.

Parameters Description of the "Motor Settings"

Note: The default values for these parameters are set based on the product selection made.

Parameter Name	Selection	Description
Relay Switching Time	• 500 ms...5 s	Direct switching from the downward direction to the upward direction is executed with a pause (protection of the motor). Interval: 50 ms
Motor Overtravel, Up	• 0...5 s	The time set compensates for the overtravel of the motor after the relay switches off. Interval: 20 ms
Motor Overtravel, Down	• 0...5 s	The time set compensates for the overtravel of the motor after the relay switches off. Interval: 20 ms
Motor Start-up Delay	• 0...5 s	The time set compensates for the start-up delay of the motor after the relay switches on. Interval: 20 ms
End Position Detection	• Off • On Permanently • Measure Once	Permanently On: The run time between the mechanical limit switches in the motor is automatically measured continuously. Advantage: Short period of darkness. Run time doesn't need to be measured manually. Changes due to aging and thermally-caused differences are recognised automatically. Measure Once: The run time is measured once automatically after the download of the ETS application. This is done as soon as the actuator has moved from all the way up to all the way down and back one time. Afterwards, this time which is saved is always used for calculations.
Run Time, Up	• 0...(3 min)...10 min	Full run time from the bottom to the top end position. Only visible when "End Position Detection" set to Off. Input based on manual measurement. Interval: 100 ms.
Run Time, Down	• 0...(3 min)...10 min	Full run time from the top to the bottom end position. Only visible when "End Position Detection" set to Off.

		Input based on manual measurement. Interval: 100 ms.
Reverse Button Input	• **Do Not Change** • Reverse Contacts	To reverse the direction of rotation – after an incorrect connection by the electrician. *Notes:* - In the background, all the associated functions will also be corrected. - Ideally the contacts should be rewired.
Reverse Motor Input	• **Do Not Change** • Reverse Direction of Motor Rotation	As for "Reverse Button Input", however, only for 2-limit-switch configuration.

Parameters Description of the "Base Product"

Note: The default values for these parameters are set based on the product selection made and are displayed/hidden accordingly.

Parameter Name	Selection	Description
Drive Strategy	• Approach from Above • Approach from Below • Approach from both Sides	Only visible if the selection 2 Limit Switches was made on the register "Settings". Designation for the mathematical model for the respective drive strategy, i.e.: The sequence of movements which ensures that the base product finally reaches the correct, reproducible position as prescribed (target value). For details, see the topic "Drive Strategies" in the appendix.
Tension Fabric	• No • Yes	Yes: Prevents the awning fabric from sagging in the lower end position.
Max. Slat Turning Time	• 0...10 min	The time from "closed completely" to "fully open" of the slats. Use the calibration dialogue if needed. The parameter is only displayed for products with slats.
Max. Slat Turning Time with Blind Raised	• 0...10 min	The time from "closed completely" to the full opening of the blind in the raised state. Use the calibration dialogue if needed. The parameter is only displayed for products with slats.
Reversal Play	• 0...5 s	Compensation for the mechanical reversal play after a change in direction.
Travel Time, Up	• 0...5 s	For the driving strategies "from above" (2 LS and 3 LS): Time which defines how much more the blind must be moved upward in order to reach the shading position.
Travel Time, Down	• 0...5 s	For the driving strategies "from above" and "from both sides": Time which defines how far the blind must be moved downward in order to reach the shading position.

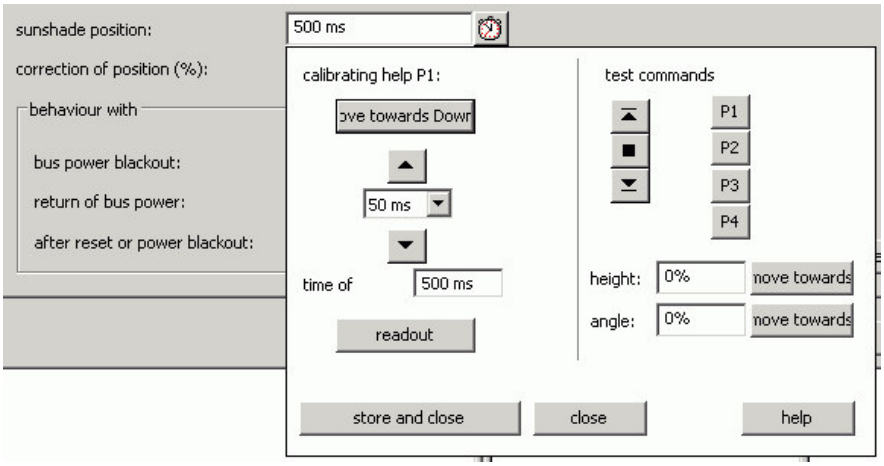
Calibration Dialogue

Purpose and Content

The calibration dialogue helps you to optimise various product-related parameters for a channel upon initial start-up.

The window is divided into two areas for this purpose:

- Calibration aid P2 (left) for determining the shading position
- Test commands (right) for entering drive commands on the respective channel



Notes

- Before the calibration dialogue can be used, the physical address of the respective actuator must be stored.
- Commands entered in the calibration dialogue have priority over all other commands – even over safety commands!
- The factor of the correction of position should be set to 100% so that the test commands can be evaluated correctly.

Items Calibration Aid P2

Item	Function
Move to Down2 button	Movement to the shading position shown in the menu above, according to the selected product.
Drop-down menu 100 ms	Selection of the tilt step size.
Buttons and	Move to the desired angle.
Text field Travel Time P2	Display of the determined travel time. *Note:* The mechanical characteristics of the product as recorded in the database are also included in the determined time. For this reason, the determined time does not correspond exactly to the value entered in the menu "Shading Position" above.
Save button:	The determined time is read from the actuator and entered in the Travel Time P2 text field.
Save and Close button	The determined value will be applied. The calibration dialogue will be closed.
Close button	The determined value will not be applied. The calibration dialogue will be closed.

Note

Leaving the calibration dialogue triggers a reset for the actuator.

Test Command Items

Item	Function
button	Move to upper end position.
button	Stop
button	Move to lower end position
Buttons P1…P4	Shading reference + move to corresponding angle. *Note:* The command can be executed from any position.
Move to: Height button	The height entered in the text field will be moved to.
Move to:Angle button	The angle entered in the text field will be moved to.

Determining a Shading Position

Proceed as follows:

1. Click on the Move to Down2 button (or Move to Down1 for motors with 3 limit switches):
   => The starting point for the shading position will be moved to (in the list box above, the displayed value / calibrated parameter).

2. In the 100 ms drop-down menu, select the tilt step size.
3. Move the blind to the desired angle using the and buttons.
   Alternatively: Move the blind to the desired angle via the EIB/KNX button (local operation).
4. Click on the Save button:
   => the determined value will be read from the actuator and entered in the Travel Time P2 field.
5. Click on the Save and Close button if you wish to apply the determined value.

Tab "Scenes"

=> This tab is not available for the actuator MCU-09

Purpose and Content

You can define up to 16 scenes per channel on the tab "Scenes". The following are available:

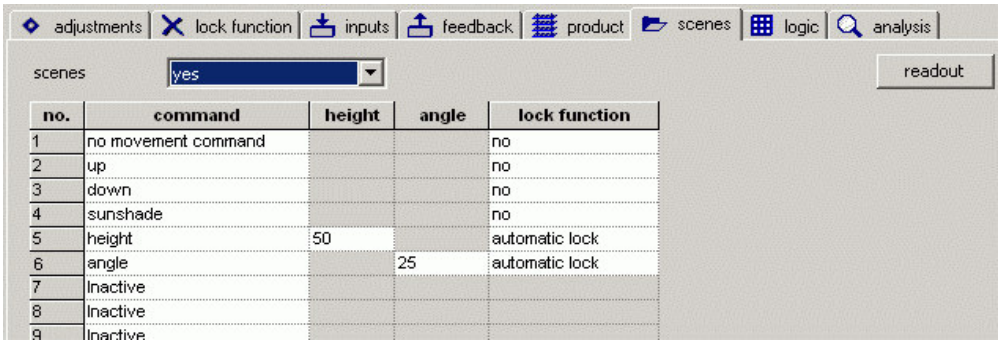
- A table with 16 rows for creating and changing scenes.
- The Read In button for uploading scenes stored in the actuator:
  => With the respective number scenes which already exist in the table will be overwritten.

Procedure

How to create scenes:

1. Select Yes in the drop-down menu Scenes Active:
   => The table will be displayed.
2. Create the desired scene by making an appropriate selection of the respective parameters described below.

Example



no.	command	height	angle	lock function
1	no movement command			no
2	up			no
3	down			no
4	sunshade			no
5	height	50		automatic lock
6	angle		25	automatic lock
7	Inactive			
8	Inactive			
9	Inactive			

Making Changes to Scenes:

1. Upload the scenes stored in the actuator using the Read In button.
2. Change the scenes as needed.

Description of the Parameters

Parameter Name	Selection	Description
Scenes Active	• **No** • Yes	No: Table will be hidden. Scenes are not active. Yes: Table will be displayed. Scenes are active.
Command	• Not Active • No Drive Command • Up • Down • Shading • P1 • P2 • P3 • P4 • Height	Select the desired command.

	• Angle • Height/Angle	
Height	• 0…100% or 0…255	The input field "Height" will be displayed with the selection of Command / Height at the respective scene number. The value entered will be sent via the communication object "Height".
Angle	• 0…100% or 0…255	The input field "Angle" will be displayed with the selection of Command / Angle at the respective scene number. The value entered will be sent via the communication object "Angle".
Lock-out Function	• **None** • Automatic Lock-out	None: The automatic lock-out is inactive (off). Automatic Lock-out: The automatic lock-out is active (on). *Note:* The command set will be executed regardless of the setting "Lock-out Function".

Note:

If, for example, only a height is specified in a scene and after the motion is completed, the scene is resaved via EIB/KNX, then the current angle value will also be saved (the setting will be overwritten).

Tab "Logic"

=> This tab is not available for the actuator MCU-09

Purpose and Content

On the "Logic" tab, you can implement room functions, such as presence, heating & cooling, etc. based on EIB/KNX signals.

For this purpose, two logic tables are available:

- Logic table for a 2-bit input
- Logic table including allocation table for four 1-bit inputs

About the Designations "Input" and "Output":

- Here, a signal from the KNX BUS (communication object) is designated as an input (binary input, 2-bit or 1-bit).
- The output, or the function to be executed, goes to the channel (motor), not to the bus.

Your first decision on this tab:

Do I want to create a logic with a 2-bit input or with a maximum of four 1-bit inputs?

A note in this regard:

The 2-bit input is used for buttons which support the 2-bit communication object "Channel n, Logic".

A typical application is the "Cleaning Lock-out".

Selecting a Logic Table

In accordance with your decision, select the logic table in the drop-down menu on the top left hand corner:

Parameter Name	Selection	Description
Logic Table	• Off • 1 x 2-bit Input	Off: The function tables are hidden.

- 4 x 1-bit Input

1 x 2-bit Input:

A function table with 2 input variables (bit 0 and bit 1) will be displayed.

4 x 1-bit Input:

A function table with 4 input variables (each bit 0) will be displayed.

- The variables 1...3 allow all settings.

- The variable 4 only allows the function table to be switched on and off.

Structure and Principle of Operation of the Logic Tables:

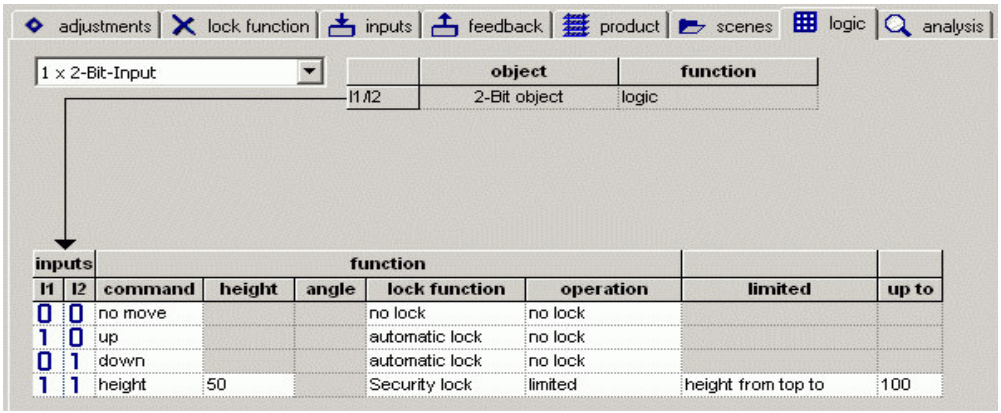
- In the column at the far left, the values for the input variables are displayed as a bit pattern. These allocations are permanent.
- In the columns below Function, the various setting options are available as menus.
- In the individual rows, select the Function, which you wish to allocate to a certain value of the input variable(s).
- When the respective input signal with the corresponding bit value arrives, then the allocated functions will be executed – applied to the output/channel.

Defining Room Functions for the 2-Bit Input

Proceed as follows:

1. Select the option 1 x2-bit Input in the drop-down menu on the top left hand corner:
   => The logic table will be displayed.
2. Edit the rows:
   Allocate the desired functions to the bit values.

Example



Description of the Parameters in the Logic Table

Parameter Name	Selection	Description
Command	• **No Drive Command** • Up • Down • Shading • P1 • P2 • P3 • P4 • Height • Angle • Height/Angle	When one of the drive commands Height, Angleor Height/Angle is selected, then the columns "Height" and "Angle" will be displayed.
Lock-out Function	• No Lock-out • Automatic Lock-out • Safety Lock-out	No lock-out, or the selected lock-out is active. Safety Lock-out: Sets the lock-out (internal) to the level set on the "Priorities" tab. The safety lock-out locks out the central commands (SCO object, communication object "Central Command")
Operation	• No Lock-out	When Limited is selected, then the cells in the columns

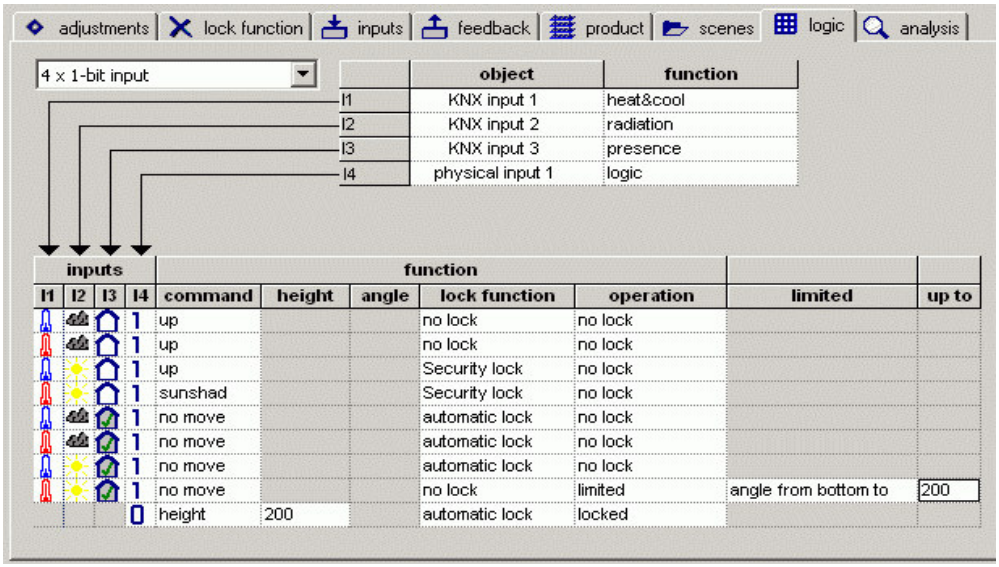
	• Limited • Locked out	"Limited" and "To" will be activated for the selection or input in the respective rows.
Limited	• Angle from Top to • **Angle from Bottom to** • Height from Top to • Height from Bottom to	The field in the respective row will become active when Operation > Limited is selected.
To	• 0…100% or 0...255	The field in the respective row will become active when Operation > Limited is selected. Enter the desired limit: 0...x

Defining Room Functions for the 1-Bit Inputs

Proceed as follows:

1. Select the option 4 x1-bit Input in the drop-down menu on the top left hand corner:
   => The logic table and the allocation table for the inputs will be displayed.
2. In the allocation table, rows E1...E4, select the required Objects and their Function:
   => the logic table can be adapted accordingly under Inputs.
3. Edit the rows: Allocate the desired functions to the bit values.

Example



Notes regarding behaviour after a reset (initial behaviour)

EIB/KNX inputs must receive a value (0/1). Only when all EIB/KNX inputs have been defined, the function (row) will be executed.

Inputs directly connected to the actuator will be directly imported.

Description of the Parameters in the Allocation Table

Parameter Name	Selection	Description
4 Inputs (arbitrary)	• **None** • EIB/KNX Input 1 • EIB/KNX Input 2 • EIB/KNX Input 3 • EIB/KNX Input 4 • EIB/KNX Input 5 • EIB/KNX Input 6 • EIB/KNX Input 7 • EIB/KNX Input 8 • Physical Input 1 • Physical Input 2	Both the EIB/KNX objects as well as the physical inputs can be used for every input E1...E4. The number of columns for the input variables of the logic table will be adapted for the selection None. Physical Input 1: Physical input from actuator for Down ▼ (e.g. channel 1, terminal 12 for MCU-06) Physical Input 2:

		Physical input for Up ▲ (e.g. channel 1, terminal 13 for MCU-06) *Note:* Although the selections Physical Input 1 and Physical Input 2 are always available, they are only active if the selection Input for Logic has been made on the tab "Inputs" below "Inputs Connected to Actuator (Operation)".
Function of the Input	• Presence • Heating&Cooling • Radiation • Time • Logic	Depending on the function selected, the associated icon will be displayed in the function table or labelling of the communication object "Input....

Description of the Parameters in the Logic Table

Parameter Name	Selection	Description
Command	• **No Drive Command** • Up • Down • Shading • P1 • P2 • P3 • P4 • Height • Angle • Height/Angle	When one of the drive commands Height, Angle or Height/Angle is selected, then the columns "Height" and "Angle" will be displayed.
Lock-out Function	• No Lock-out • Automatic Lock-out • Safety Lock-out	No lock-out, or the selected lock-out is active. Safety Lock-out: Sets the lock-out (internal) to the level set on the "Priorities" tab. The safety lock-out locks out the central commands (SCO object, communication object "Central Command").
Operation	• No Lock-out • Limited • Locked out	When Limited is selected, then the cells in the columns "Limited" and "To" will be activated for the selection or input in the respective rows.
Limited	• Angle from Top to • **Angle from Bottom to** • Height from Top to • Height from Bottom to	The field in the respective row will become active when Operation > Limited is selected.
To	• 0…100% or 0...255	The field in the respective row will become active when Operation > Limited is selected. Enter the desired limit: 0...x

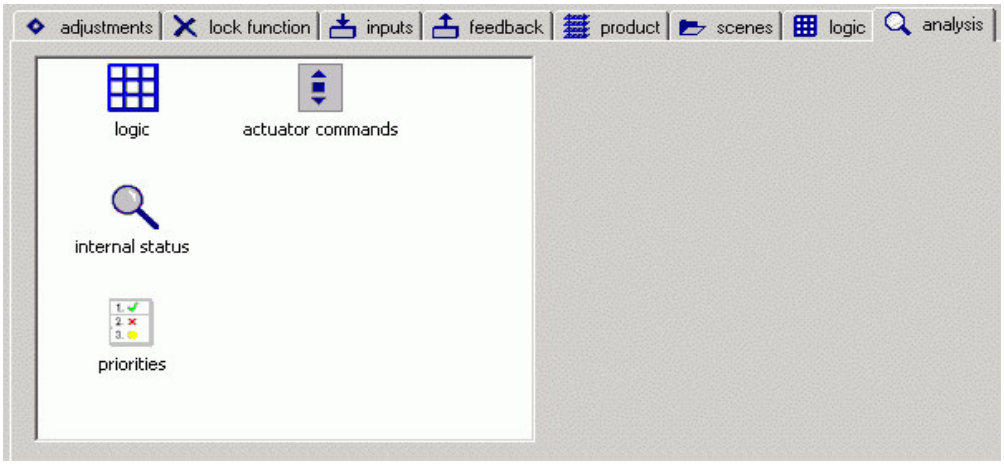
Tab "Analysis" – Overview

=> This tab is not available for the actuator MCU-09

Purpose

The tab "Analysis" helps you in the following ways during initial start-up and fault analysis:

- To check the internal states of the actuator in general
- To analyse a certain configuration



Contents

The tab contains the icons for opening four different analysis windows.

The windows can be opened by double clicking on the corresponding icon. They offer the following information and functions:

Icon	Window	Information / Functions
	Logic	Shows the functions which are defined on the "Logic" tab. The current state is tagged. Inputs can be simulated.
	Internal States	Shows the current states of the most important internal actuator parameters.
	Priorities	Shows the priority list with the commands which are specific to the channel for each priority level.
	Actuator Commands	Is used to send commands to the actuator.

Note

All the channel diagnosis windows can be open simultaneously so that interrelationships can be observed.

Prerequisites for Channel Diagnosis

For the functional efficiency of the four windows, please mind that:

- The application/ETS3 must be online, i.e. connected to the KNX BUS.
- The actuator must be loaded and configured.

Tab "Analysis" – Logic

Purpose and Content

The window "Logic" is used for:

- Listing of the functions that have been defined on the tab "Logic", along with the display of the current state
- Simulation of the inputs

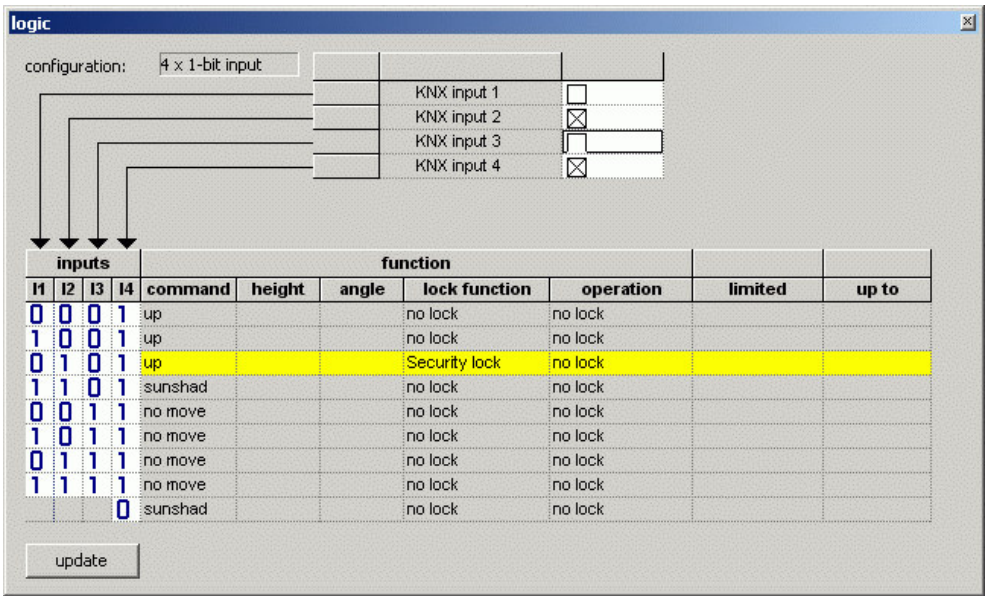
Operation

How to operate the window "Logic":

1. Double click on the icon on the tab "Analysis":
   => The window "Logic" will open and the logic table will be displayed.
   => The current state is tagged with a yellow bar.
2. Simulate the desired input by selecting the respective checkbox in the upper area of the allocation table:
   => The respective function will be executed / the motor runs.

=> The respective row will be tagged in yellow.

Display Example



Note

By clicking on the Refresh button, you can pull up the current values at any time.

Tab "Analysis" – Internal States

Purpose and Content

The window "Internal States" is used for:

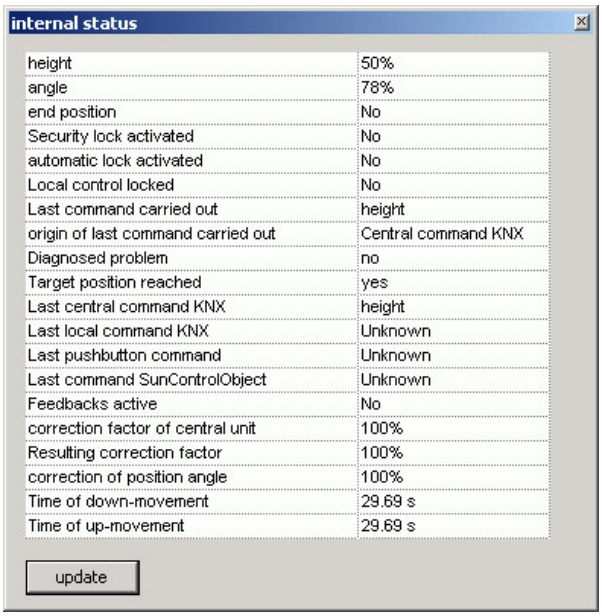
- Display of the current states of the most important internal actuator parameters alone
- Display of this window in combination with the window "Actuator Command"

Operation

How to operate the window "Internal States":

1. Double click on the icon on the tab "Analysis":
   => The window "Internal States" will open.
   => The most important parameters and their current states will be displayed.

Display Example



Notes

- A display of 180 s for "Run Time Up" or Run Time Down" means that now measurement of the run time has been performed (or that, with end-position detection switched off, the end position has not yet been moved to).
- By clicking on the button Refresh, you can pull up the current values at any time.
  For example, this is necessary if you have made a change in the window "Actuator Command" and you wish to check the result of the change here.

Tab "Analysis" – Priorities

Purpose and Content

The window "Priorities" is used for:

- Showing the priority list with the commands specific to the channel for each priority level
- Determination of the object responsible for the safety lock-out

Operation

How to operate the window "Priorities":

1. Double click on the icon on the tab "Analysis":
   => The windows "Priorities" will open.
   => The priority list with the current states will be displayed.

Display Example

Explanations regarding the Display

Current State:

The three possible lock-outs and their current states (none, limited, active) are displayed.

Safety Lock-out:

The possible safety lock-outs are listed in the priority sequence as defined on the tab "Priorities".

There is an indication of whether "locked-out" or "released" for each safety lock-out.

This makes it possible to determine which object is responsible for the current state,

Note

By clicking on the Refresh button, you can pull up the current values at any time.

Tab "Analysis" – Actuator Commands

Purpose and Content

The window "Actuator Commands" serves to:

- Check whether a command entered is executed correctly as a local command or as a central command
  or
- Whether the command has not been executed (because, for example, a lock-out is in effect for central commands).

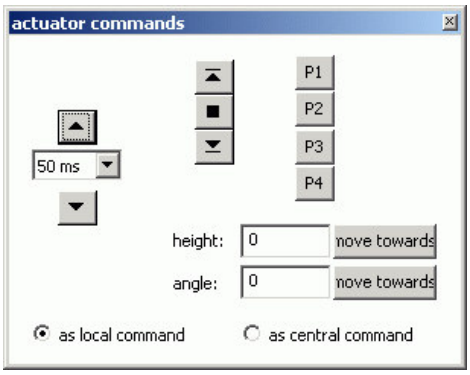
The use of this window is especially beneficial in connection with the window "Priorities".

Operation

How to operate the window "Actuator Commands":

1. Double click on the icon on the tab "Analysis":
   => The window "Actuator Commands" will open.
2. Enter the desired commands using the buttons and fields.

Display Example



Items in the Window

Item	Function
Drop-down menu 50 ms	Selection of the tilt step size.
Buttons ▲ and ▼	Move to the desired angle.
▲ button	Move to the upper end position.
■ button	Stop
▼ button	Move to the lower end position.
Buttons P1…P4	Lower end position + move to the corresponding angle.
	Note: The command can be executed from any position.
Move to: Height button	The height entered in the text field will be moved to.
Move to: Angle button	The angle entered in the text field will be moved to.
As Local Command option button	The entry will be transmitted as a local command.
As Central Command option button	The entry will be transmitted as a central command.

Communication Objects – Local Commands

EIB/KNX Inputs

Local commands affect the motor connected to the channel. They are responsible for Operations in the Room (Local Operation, Room Buttons, etc.).

If the setting for the parameter "Automatic Lock-out" on the tab "Lock-out Functions" are made accordingly, the automatic lock-out will be set when a telegram is received by the communication object.

The communication objects for local commands are described in the following tables.

It is also indicated, which parameters hide or display the communication objects.

Abbreviations used:

CO	Communication Object
Type	Data type (bit length of the CO)
DPT	Data Point Type according to the Konnex Association

Function	Name	Description	Type (DPT)
Up / Down	Channel n, Local Command, End Position	1 = Move to the lower end position 0 = Move to the upper end position The CO is hidden/displayed by the parameter Local Command on the tab "Inputs".	1 bit (1.008)
Up / Shading	Channel n, Local Command, Shading	1 = Move to the shading position 0 = Move to the upper end position The CO is hidden/displayed by the parameter Local Command on the tab "Inputs".	1 bit (non)
Step / Stop	Channel n, Local Command, Tilt	1 = Tilt after Down, or when movement stops 0 = Tilt after Up, or when movement stops The CO is hidden/displayed by the parameter Local Command on the tab "Inputs".	1 bit (1.010)
Automatic	Channel n, Local	1 = Set lock-out of automatic	1 bit

Lock-out	Command, Automatic Lock-out	0 = Cancel lock-out of automatic When the transmit flag for status is set, a feedback message for the current status of the automatic lock-out will be sent. The CO is hidden/displayed by the parameter Automatic Lock-out on the tab "Lock-out Function".	(non)

=> The following communication objects are not available with the actuator MCU-09.

Height 0… 255	Channel n, Local Command, Blind Height	Movement to blind height. 0 = all the way up, top end position 255 = all the way down, lower end position The CO is hidden/displayed by the parameter Local Command on the tab "Inputs".	1 byte (5.001)
Angle 0… 255	Channel n, Local Command, Slat Angle	Movement to slat angle. 0 = fully open 255 = fully closed The CO is hidden/displayed by the parameter Local Command on the tab "Inputs".	1 byte (5.001)

Communication Objects – Central Commands

Central commands are commands from a weather central unit to the actuator of the venetian blinds.

When a BMS Central Unit (e.g. Quadra) is used, only the SCO object will be displayed.

Commands from the SCO object and from the communication objects "Central Command" can also be mixed.

The priority handling must be set on the tab "Priorities" (does not apply for actuator MCU-09 of the venetian blinds).

The communication objects for central commands are described in the following table.

It is also indicated, which parameters hide or display the communication objects.

Abbreviations used:

CO	Communication Object
Type	Data type (bit length of the CO)
DPT	Data Point Type according to the Konnex

Association

Inputs

Function	Name	Description	Type (DPT)
All Functions	SCO object, Central Command	One object for the connection to the BMS central unit. All commands are sent from the central unit to all actuators. Per building, only 1 address is needed, which contains all information for all sectors. The CO is always displayed.	6 byte (non)
Up / Down	Channel n, Central Command, End Position	1 = Movement to the lower end position, possible cancelling of limited operation due to automatic. 0 = Movement to the upper end position, possible cancelling of limited operation due to automatic. The CO is hidden/displayed by the parameter Central Command on the tab "Inputs".	1 bit (1.008)
Up / Shading	Channel n, Central Command, Shading	1 = Movement to the shading position (either mech. end position or by tilting up/moving to), possible cancelling of limited operation due to automatic. 0 = Movement to the upper end position, possible cancelling of limited operation due to automatic. The CO is hidden/displayed by the parameter Central Command on the tab "Inputs".	1 bit (non)
Height 0...255	Channel n, Central Command, Blind Height	Movement to the blind height, possible cancelling of limited operation due to automatic. The CO is hidden/displayed by the paramter Central Commandon the tab "Inputs".	1 byte (5.001)
Angle 0...255	Channel n, Central Command, Slat Angle	Movement to the slat angle, possible cancelling of limited operation due to automatic. The CO is hidden/displayed by the paramter Central Commandon the tab "Inputs".	1 byte (5.001)

Step / Stop	Channel n, Central Command, Tilt	1 = Tilt after Down, or when movement stops, possible cancelling of limited operation due to automatic. 0 = Tilt after Up, or when movement stops, possible cancelling of limited operation due to automatic. The CO is hidden/displayed by the parameter Central Command on the tab "Inputs".	1 bit (1.010)
Up / Night	Channel n, Central Command, Night Position	The "Up / Night" function cancels the lock-out of the automatic. Movement depending on product setting. All slat products: 0 = Movement upward 1 = Movement downward All fabric products: 0 = Movement upward 1 = Movement upward Window: 0 = No function 1 = Close The CO is hidden/displayed by the paramter Central Commandon the tab "Inputs".	1 bit (1.008)
Safety1	Channel n, Central Command Safety 1	Input for safety lock-out function. Behaviour is set under parameter. The CO is hidden/displayed by the parameter Safety Function on the tab "Lock-out Functions".	1 bit (1.001)
Safety2	Channel n, Central Command Safety 2	Input for safety lock-out function. Behaviour is set under parameter. The CO is hidden/displayed by the parameter Safety Function on the tab "Lock-out Functions".	1 bit (1.001)
Safety3	Channel n, Central	Input for safety lock-out function.	1 bit

	Command Safety 3	Behaviour is set under parameter. The CO is hidden/displayed by the parameter Safety Function on the tab "Lock-out Functions".	(1.001)
BCSS Object	Channel n, Control System Command	Command from a control station. The CO is hidden/displayed by the parameter Receive BCSS Object on the tab "Inputs".	4 byte (12.000)

Communication Objects – Inputs (Binary Input)

The communication objects for inputs (binary input) are described in the following tables.

It is also indicated, which parameters hide or display the communication objects.

Abbreviations used:

CO	Communication Object
Type	Data type (bit length of the CO)
DPT	Data Point Type according to the Konnex Association

Button Input Venetian Blind

The contact connected to the input is used as a button input for venetian blinds.

The direction of rotation can be adapted using the parameter "Reverse Button Input" on the tab Products below Motor Settings.

Function	**Name**	**Description**	**Type** **(DPT)**
Up / Down	Input n, End Position Operation	Up button = 0 Down button = 1 The CO is hidden/displayed by the parameter Input on the tab "Inputs" if Venetian Blind Button Input is selected.	1 bit (1.008)
Up / Shading	Input n, Long+Short Operation	Long + short button pressure on the local button (no matter whether pressed on the button Up or Down). The CO is hidden/displayed by the parameter Input on the tab "Inputs" if Venetian Blind Button Input is selected.	1 bit (non)
Step / Stop	Input n, Tilt Operation	Button pressure for slat adjustment.	1 bit

		The CO is hidden/displayed by the parameter Input on the tab "Inputs" if Venetian Blind Button Input is selected.	(1.010)
Automatic Lock-out	Input n, Button Combination Operation	Button Combination (Press Up button + Down button simultaneously). The CO is hidden/displayed by the parameter Input on the tab "Inputs" if Venetian Blind Button Input is selected.	1 bit (non)

Button Input, Dimming

The local button is configured as a dimmer.

Function	Name	Description	Type (DPT)
On / Off	Input n, Dimmer Function	Short button pressure on "Up" sends "1", short button pressure on "Down" sends "0". The CO is hidden/displayed by the parameter Button Input, Dimming on the tab "Inputs".	1 bit (1.001)
Lighter / Darker	Input n, Dimmer Function	Long button pressure on "Up" sends "Lighten dimming by 100%". When released, a stop occurs. Long button pressure on "Down" sends "Darken dimming by 100%". When released, a stop occurs. The CO is hidden/displayed by the parameter Button Input, Dimming on the tab "Inputs".	4 bit (3.007)

Contact Input

The connection for a local button is used as a binary input.

Function	Name	Description	Type (DPT)
On / Off	Input n, Contact 1	Input "Up" on the input corresponds to contact 1. The CO is hidden/displayed by the parameter Contact Input on the tab "Inputs" with the selection of a function for Input 1.	1 bit (1.001)
On / Off	Input n, Contact 2	Input "Down" on the input corresponds	1 bit

		to contact 2. The CO is hidden/displayed by the parameter Contact Input on the tab "Inputs" with the selection of a function for Input 1.	(1.001)
Pos. 1 (Height)	Input n, Contact 1, Height	Input "Up" on the input corresponds to contact 1. The CO is hidden/displayed by the parameter Contact Input on the tab "Inputs" with the selection of a function for Input 1.	1 byte (5.001)
Pos. 1 (Angle)	Input n, Contact 1, Angle	Input "Up" on the input corresponds to contact 1. The CO is hidden/displayed by the parameter Contact Input on the tab "Inputs" with the selection of a function for Input 1.	1 byte (5.001)
Pos. 2 (Height)	Input n, Contact 2, Height	Input "Down" on the input corresponds to contact 2. The CO is hidden/displayed by the Contact Input parameter on the tab "Inputs" with the selection of Press Position for Input 2.	1 byte (5.001)
Pos. 2 (Angle)	Input n, Contact 2, Angle	Input "Down" on the input corresponds to contact 2. The CO is hidden/displayed by the parameter Contact Input on the tab "Inputs" with the selection of Press Position for Input 2.	1 byte (5.001)
Scene Output 1	Input n, Contact 1	Input "Down" on the input corresponds to contact 1. The CO is hidden/displayed by the parameter Contact Input on the tab "Inputs" with the selection of Press Scene for Input 1.	1 byte (non)
Scene Output 2	Input n, Contact 2	Input "Down" on the input corresponds to contact 2. The CO is hidden/displayed by the parameter Contact Input on the tab "Inputs" with the selection of Press Scene for Input 2.	1 byte (non)

Objects for Button LED

Function	Name	Description	Type

			(DPT)
LED On/Off	Input n, Indicate Automatic Lock-out	The LED connected to the local button can be controlled (e.g. to indicate the lock-out of the automatic feature). The CO is hidden/displayed by the parameter Objects f. Button LED on the tab "Inputs".	1 bit (1.001)
Blinking LED On/Off	Input n, Indicate Safety1	The LED connected to the local button can be controlled (Indicate Safety 1). The CO is hidden/displayed by the parameter Objects f. Button LED on the tab "Inputs".	1 bit (non)
Blinking LED On/Off	Input n, Indicate Safety2	The LED connected to the local button can be controlled (Indicate Safety 2). The CO is hidden/displayed by the parameter Objects f. Button LED on the tab "Inputs".	1 bit (non)

Communication Objects – Feedback

In the following table, the communication objects for the feedback are described.

It is also indicated, which parameters hide or display the communication objects.

Abbreviations used:

CO	Communication Object
Type	Data type (bit length of the CO)
DPT	Data Point Type according to the Konnex Association

Feedback

Function	Name	Description	Type (DPT)
Height 0...255	Channel n, Feedback, Height	Feedback Blind height. The CO is hidden/displayed by the parameter Position on the tab "Feedback".	1 byte (5.001)
Angle 0...255	Channel n, Feedback, Slat Angle	Slat angle feedback. The CO is hidden/displayed by the parameter Position on the tab	1 byte (5.001)

		"Feedback".	
On / Off	Channel n, Activate Feedback	For "1", the current position will always be communicated and the feedback of Height / Angle is activated. The CO is hidden/displayed by the parameter Position on the tab "Feedback".	1 bit (1.001)
BCSS Object	Name	Feedback to the building control services system via a single, 4-byte object. A feedback message contains the current position (height/angle) as well as status information. The CO is hidden/displayed by the BCSS Object parameter on the "Feedback" tab.	4 byte (12.000)
=> The following communication objects are not available with the MCU-09 actuator.			
[Text from parameter]	Channel n, Feedback 1	Feedback of state, position, etc. (see parameter). The CO is hidden/displayed by the parameter Feedback 1 on the tab "Feedback".	1 bit (1.002)
[Text from parameter]	Channel n, Feedback 2	Feedback of state, position, etc. (see parameter). The CO is hidden/displayed by the parameter Feedback 2 on the tab "Feedback".	1 bit (1.002)
[Text from parameter]	Channel n, Feedback 3	Feedback of state, position, etc. (see parameter). The CO is hidden/displayed by the parameter Feedback 3 on the tab "Feedback".	1 bit (1.002)
[Text from parameter]	Channel n, Feedback 4	Feedback of state, position, etc. (see parameter). The CO is hidden/displayed by the parameter Feedback 4 on the tab "Feedback".	1 bit (1.002)
[Text from parameter]	Channel n, Feedback 5	Feedback of state, position, etc. (see parameter). The CO is hidden/displayed by the parameter Feedback 5 on the tab "Feedback".	1 bit (1.002)

Communication Objects – Logic and Scenes

=> These communication objects are not available with the actuator MCU-09.

The communication objects for logic and scenes are described in the following tables.

It is also indicated, which parameters hide or display the communication objects.

Abbreviations used:

CO	Communication Object
Type	Data type (bit length of the CO)
DPT	Data Point Type according to the Konnex Association

Logic

Function	Name	Description	Type (DPT)
2-Bit Logic Function	Channel n, Logic	Input for the logic table (truth table). The function of the logic table is the reaction of the motor (output). The CO is hidden/displayed by the parameter 1 x 2-Bit Input on the tab "Logic".	2 bit (none)
On / Off	Logic Input 1	Input for the logic table (truth table). The function of the logic table is the reaction of the motor. The CO is hidden/displayed by the parameter 4 x 1-Bit Input on the tab "Logic".	1 bit (none)
On / Off	Logic Input 2	Input for the logic table (truth table). The function of the logic table is the reaction of the motor. The CO is hidden/displayed by the parameter 4 x 1-Bit Input on the tab "Logic".	1 bit (none)
On / Off	Logic Input 3	Input for the logic table (truth table). The function of the logic table is the reaction of the motor. The CO is hidden/displayed by the 4 x 1-Bit Input parameter on the "Logic" tab.	1 bit (none)
On / Off	Logic Input 4	Input for the logic table (truth table). The function of the logic table is the reaction of the motor.	1 bit (none)

		The CO is hidden/displayed by the parameter 4 x 1-Bit Input on the tab "Logic".	
On / Off	Logic Input 5	Input for the logic table (truth table).	1 bit
		The function of the logic table is the reaction of the motor.	(none)
		The CO is hidden/displayed by the parameter 4 x 1-Bit Input on the tab "Logic".	
On / Off	Logic Input 6	Input for the logic table (truth table).	1 bit
		The function of the logic table is the reaction of the motor.	(none)
		The CO is hidden/displayed by the parameter 4 x 1-Bit Input on the tab "Logic".	
On / Off	Logic Input 7	Input for the logic table (truth table).	1 bit
		The function of the logic table is the reaction of the motor.	(none)
		The CO is hidden/displayed by the parameter 4 x 1-Bit Input on the tab "Logic".	
On / Off	Logic Input 8	Input for the logic table (truth table).	1 bit
		The function of the logic table is the reaction of the motor.	(none)
		The CO is hidden/displayed by the parameter 4 x 1-Bit Input on the tab "Logic".	

Scenes

Function	Name	Description	Type (DPT)
Scene Input	Channel n, Scene	Call up scenes in actuator or save.	1 byte
		Telegram: MxxxNNNN	(18.001)
		Where:	
		M = "0": Call up scene	
		M = "1": Save scene	
		xxx must be 0	
		NNNN = scene index (0…15):	

Scene numbers from 1 to 16 are entered in the setting in the plug-in. However, in the telegram from Konnex, a scene index of 0 to 15 is used.
Scene index = number set in plug-in minus 1.

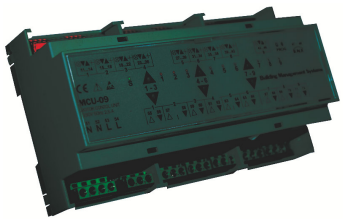
The CO is hidden/displayed by the parameter Scene Active on the tab "Scenes".

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	Also called venetian blinds or jalousies. The slats are open during downward motion. The angle is determined mechanically and cannot be changed by a controller. Advantage of beaded-slat blinds, open during motion: - 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 Notes: - 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	Also called Venetian blinds or canvas blinds. The slats are closed during downward motion. Advantage of beaded-slat blinds, closed during motion: - 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.

- Not suitable for sun protection at the workplace.

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:

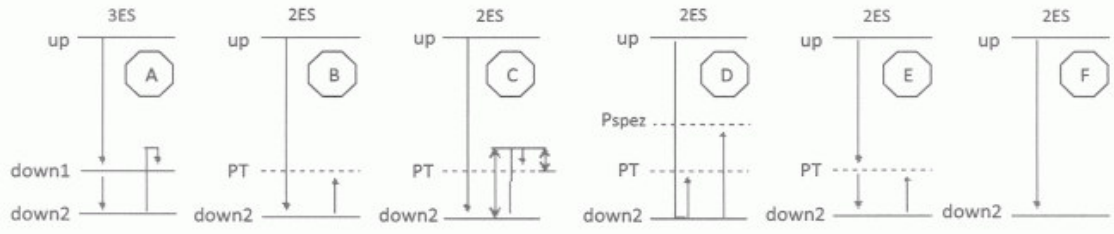
- Tubular motors can be installed to the right or left, therefore Up / Down is not always the same connection lead.

- 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:

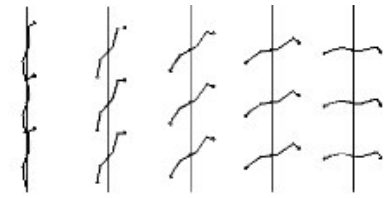
Pos.	Designation	Explanation / Note
A	Slat product with 3-limit-switch motor	Shading position is always approached from above.
B	Slat product or roller shutter with 2-limit-switch motor	Shading position is approached from below.
C	Slat product with 2-limit-switch motor	Shading position is approached 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).

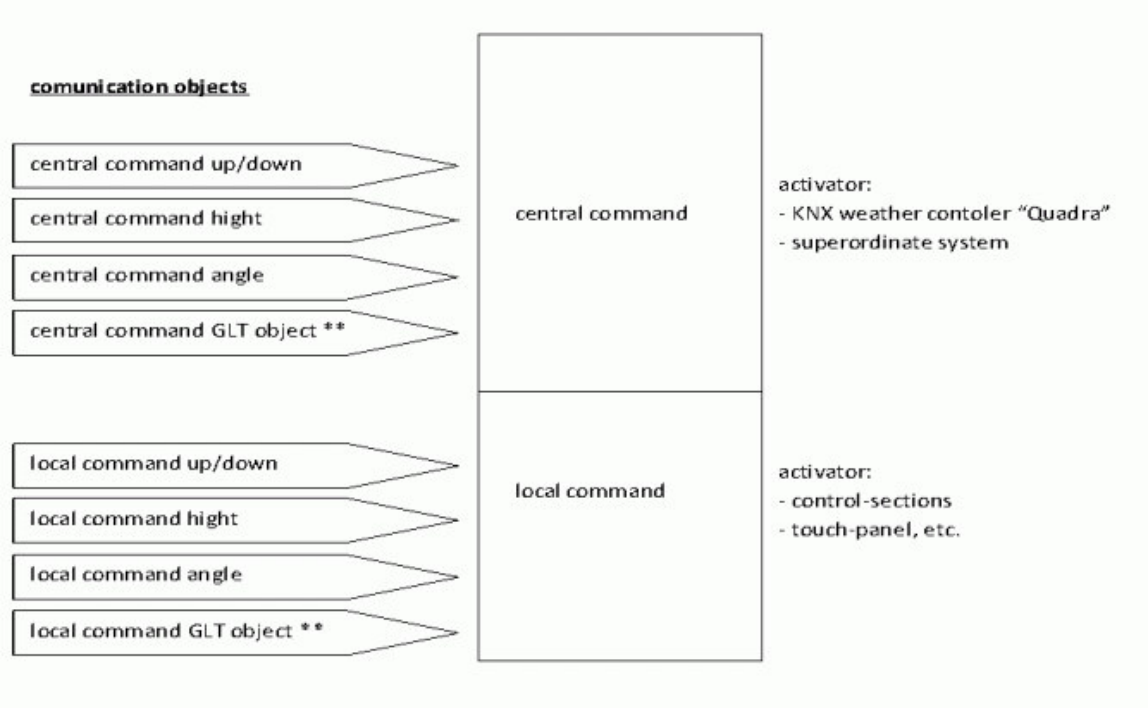
Inputs: Definitions

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.



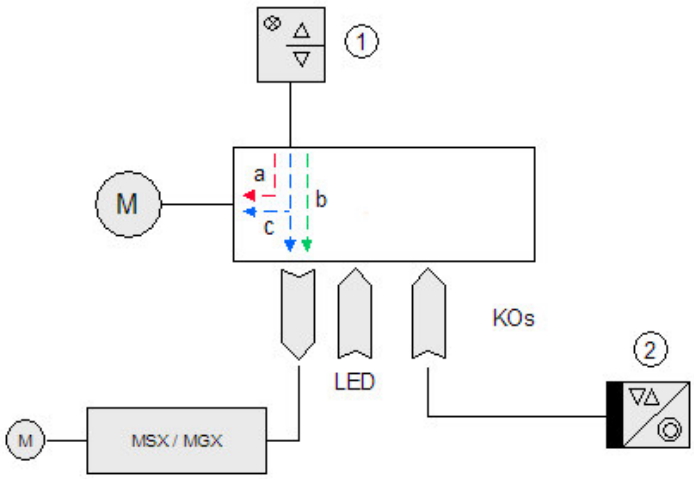
BCSS Object **:

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.

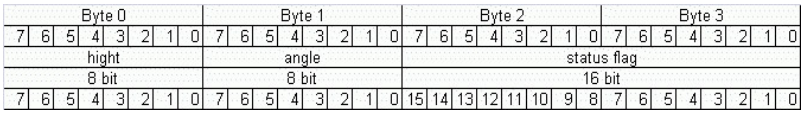
The Outgoing Telegram

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:



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: