SpaceLogic KNX

Switch/Blind Master
Switch/Blind Extension
Universal Dimming Master
Universal Dimming Extension

Product Information

This document is based on the installation instructions and gives you further product information about the SpaceLogic KNX Master and SpaceLogic KNX Extension. This description contains information about the interaction between master and extension, the commissioning and the behaviour of the LEDs, etc..

MTN6705-0008 | MTN6805-0008 | MTN6710-0102 | MTN6810-0102

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Warnings

Read these instructions carefully and look at the equipment to become familiar with the device before trying to install, operate, service, or maintain it. The following special messages may appear throughout this manual or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.

The addition of either symbol to a "Danger" or "Warning" safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that accompany this symbol to avoid possible injury or death.

DANGER

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury

NOTICE

NOTICE is used to address practices not related to physical injury.

Additonal notes

The specified information must be followed, otherwise a program or data error may occur

Your will find additional information here to make your work easier.

Table of contents

About this document

All information on safe installation and safe connection can only be found in the installation instructions.

This document gives you further product information about the SpaceLogic KNX Master and the SpaceLogic KNX Extension. For example, details about the interaction between master and extension, commissioning and the behaviour of the LEDs, etc.

For your safety

⚠ **DANGER**

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH.

Safe electrical installation must be carried out only by skilled professionals. Skilled professionals must prove profound knowledge in the following areas:

- Connecting to installation networks
- Connecting several electrical devices
- Laying electric cables
- Connecting and establishing KNX networks
- Safety standards, local wiring rules and regulations

Failure to follow these instructions will result in death or serious injury.

ⓘ The devices and the associated ETS application must not be used to control safety-relevant applications.

1 Getting to know the Switch/Blind Master

The SpaceLogic KNX Switch/Blind Master is a KNX actuator that switches a maximum of 8 loads (such as lamps) or controls a maximum of 4 blind motors with end switches. The assignment of the functions to the channels is freely selectable and depends on your requirements.

If you need more channels for your project, you can connect so-called SpaceLogic KNX Switch/Blind Extensions. Just like the master, the channels can be divided into switch or blind channels. As a master can control a maximum of 2 extensions, a maximum of 24 loads can be switched or a maximum of 12 blind motors controlled.

All connected loads can be operated manually using the master's buttons, but this function can also be deactivated via the ETS. Manual operation: Manual control of channels --> 25

The status of the device, e.g. status of the channels, operating readiness or activated manual operation, is indicated by several LEDs. More about the behavior can be found here: Switch/Blind devices --> 18

1.1 The extended tasks of a Master

The Master has control

With a connected Extension, the tasks of the master also become wider. The Master completely controls the extensions, their power supply and also the communication to the bus. You can even program an extension in the existing ETS application of the Master. And since an Extension has neither a bus coupling nor its own individual address, conventional KNX commissioning is not required for an extension.

Changes in a project, such as the removal, addition or replacement of an extension, can be carried out quickly and easily. Commissioning of Master and Extension --> 14

All connected loads, including those of the Extensions, can be controlled manually at the Master, whereby this function can also be deactivated via the ETS. Manual operation: Manual control of channels --> 25

You can connect a maximum of 2 Extensions to each Master. Which extensions are available for this purpose can be found here: Who can be combined with whom --> 13.

An example of how the Extension appears in the ETS can be found here: Insight into the ETS application --> 33

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1.2 ETS functions of the Master

Which functions you can set in the ETS as well as a detailed description of the parameters and values can be found in the ETS application description of the Master.
-> ETS Application Description

ETS functions overview

General and Extended functions
- Central function
- Extension types setting
- Scenes and feedback setting
- Energy saving
- Safety of the equipment
- Health of the equipment
- Manual operation
- PIN code for updating the firmware

Switching actuator functions
- Operation as normally closed/ normally open contact
- Programmable behaviour for the download
- Delay functions for each channel
- Stairwell lighting function with/without manual OFF function
- Switch-off pre-warning for staircase lighting function
- Scenes
- Central function
- Lock function
- Logic operation or priority control
- Status feedback function for each channel

Blind actuator functions
- Duration
- Idle time
- Step Interval
- Lock function
- Limits of the range of motion
- Weather alert
- 8-bit positioning for height and slats
- Scenes
- Status and feedback function

2   Getting to know the Universal Dimming Master

The SpaceLogic KNX Universal Dimming Master is a KNX actuator that switches and dims a maximum of 2 loads, such as:

• Incandescent and halogen lamps (resistive load)
• LV halogen lamps with dimmable, wound transformers (inductive load)
• LV halogen lamps with dimmable, electronic transformers (capacitive load)
• Combination of resistive and inductive loads
• Combination of resistive and capacitive loads
• Dimmable ESL/CFL
• Dimmable LED lamps

Combinations of inductive and capacitive loads must not be connected to one output.

Dimmer tool

Schneider Electric has tested numerous dimmable LED and energy saving lamps. The dimmer tool provides information on dimmable lamps and the minimum and maximum number of individual lamp models.

When switching on, the actuator automatically detects the connected load. The following dimming operation modes can be set:

Dimming operation mode		Activated by	Set up
RC	Trailing edge phase	Automatic load detection	ETS (default) or on the device
RL	Leading edge phase	Automatic load detection	ETS (default) or on the device
RL-LED	Leading edge phase	* Manual	ETS or on the device

*For LEDs/CFLs the RC mode is automatically set. In some cases, however, LEDs/CFLs may need to be operated in RL-LED mode. Please refer to the instructions of the lamp manufacturers.

Even during operation, the load is checked for inductive behaviour and, if necessary, switched to RL mode. Please note that a load may only be exchanged when the mains voltage is switched off.

To increase the number of channels, you can connect a maximum of 2 extensions to the master. Depending on the required function, the SpaceLogic KNX Universal Dimmer Extension and the SpaceLogic KNX Switch/Blind Extension can be used.

All connected loads can be operated manually using the master's buttons, but this function can also be deactivated via the ETS. Manual operation: Manual control of channels --> 25

The status of the device, e.g. status of the channels, operating readiness or activated manual operation, is indicated by several LEDs. More about the behavior can be found here: Universal Dimming devices --> 21

2.1   The extended tasks of a Master

The Master has control

With a connected Extension, the tasks of the master also become wider. The Master completely controls the extensions, their power supply and also the communication to the bus. You can even program an extension in the existing ETS application of the Master. And since an Extension has neither a bus coupling nor its own individual address, conventional KNX commissioning is not required for an extension.

Changes in a project, such as the removal, addition or replacement of an extension, can be carried out quickly and easily. Commissioning of Master and Extension --> 14

All connected loads, including those of the Extensions, can be controlled manually at the Master, whereby this function can also be deactivated via the ETS. Manual operation: Manual control of channels --> 25

You can connect a maximum of 2 Extensions to each Master. Which extensions are available for this purpose can be found here: Who can be combined with whom --> 13.

An example of how the Extension appears in the ETS can be found here: Insight into the ETS application --> 33

2.2 ETS functions of the Master

Which functions you can set in the ETS as well as a detailed description of the parameters and values can be found in the ETS application description of the Master. -> ETS Application Description

ETS functions overview

General and extended functions
- Central function
- Extension types setting
- Scenes and feedback setting
- Energy saving
- Safety of the equipment
- Health of the equipment
- Manual operation
- PIN code for updating the firmware

Dimming functions
- Basic functions: Switching (1 bit), relative dimming (4 bit), absolute dimming/value dimming (1 byte)
- Switch-on behaviour (via switch object)
- Execution of the selected switch-on behaviour
- Behaviour of switch object
- Dimming curve
- Minimum/maximum brightness
- Always start at 50% brightness (ESL/CFL)
- Dimming operation mode
- Dimming object/value object switches channel
- Scenes
- Status feedback, switching/value
- Dimming times: Times for switching, dimming, values, priority, scenes
- Time setting: Staircase time, On/Off delay time
- Priority function, Locking function
- Safety and alarm settings: Safety function, alarm function, failure and download behaviour

Switching/Blind actuator functions
To ensure the operation of a switch/blind extension, all functions of the switch/blind master are available. ETS functions of the Master --> 7

3   Getting to know the Switch/ Blind Extension

The SpaceLogic KNX Switch/Blind Extension is an actuator that extends the channels of a SpaceLogic KNX Switch/Blind Master and the channels of a SpaceLogic KNX Universal Dimming Master. The extension can switch a maximum of 8 loads (such as lamps) or control a maximum of 4 blind motors with end switches. The distribution of the functions to the channels is freely selectable and depends on your requirements.

All connected loads can be operated manually using the master's buttons, but this function can also be deactivated via the ETS. Manual operation: Manual control of channels --> 25

The status of the device, e.g. status of the channels, operating readiness or activated manual operation, is indicated by several LEDs of the master device. More about the behavior can be found here. Switch/Blind devices --> 18

The Master takes over the control

The Master completely controls the extensions, their power supply and also the communication to the bus. You can even program an extension in the existing ETS application of the master. And since an extension has neither a bus coupling nor its own individual address, conventional KNX commissioning is not required for an extension.

Changes in a project, such as the removal, addition or replacement of an extension, can be carried out quickly and easily. Commissioning of Master and Extension --> 14

An example of how the Extension appears in the ETS can be found here: Insight into the ETS application --> 33

4 Getting to know the Universal Dimming Extension

The SpaceLogic KNX Universal Dimming Extension is an actuator that extends the channels of a SpaceLogic KNX Universal Dimming Master. The extension can switch and dim a maximum of 2 loads, such as:

- Incandescent and halogen lamps (resistive load)
- LV halogen lamps with dimmable, wound transformers (inductive load)
- LV halogen lamps with dimmable, electronic transformers (capacitive load)
- Combination of resistive and inductive loads
- Combination of resistive and capacitive loads
- Dimmable ESL/CFL
- Dimmable LED lamps

Combinations of inductive and capacitive loads must not be connected to one output.

ⓘ **Dimmer tool**

Schneider Electric has tested numerous dimmable LED and energy saving lamps. The dimmer tool provides information on dimmable lamps and the minimum and maximum number of individual lamp models.

When switching on, the actuator automatically detects the connected load. The following dimming operation modes can be set:

Dimming operation mode		Activated by	Set up
RC	Trailing edge phase	Automatic load detection	ETS (default) or on the device
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RL-LED	Leading edge phase	* Manual	ETS or on the device

✎ *For LEDs/CFLs the RC mode is automatically set. In some cases, however, LEDs/CFLs may need to be operated in RL-LED mode. Please refer to the instructions of the lamp manufacturers.

✎ Even during operation, the load is checked for inductive behaviour and, if necessary, switched to RL mode. Please note that a load may only be exchanged when the mains voltage is switched off.

All connected loads can be operated manually using the master's buttons, but this function can also be deactivated via the ETS.

The status of the device, e.g. status of the channels, operating readiness or activated manual operation, is indicated by several LEDs of the master device. More about the behavior can be found here.

The Master takes over the control

The Master completely controls the extensions, their power supply and also the communication to the bus. You can even program an extension in the existing ETS application of the master. And since an extension has neither a bus coupling nor its own individual address, conventional KNX commissioning is not required for an extension.

Changes in a project, such as the removal, addition or replacement of an extension, can be carried out quickly and easily.

An example of how the Extension appears in the ETS can be found here:

5 Connecting Master and Extension

5.1 How do I connect master and extensions?

Master and extensions are connected to each other via the so-called link interface. The link interface is used for communication between the devices and to supply power to the extensions. There are three different connection options, which you use depending on the distance between the devices in the cabinet

|		Comercial reference	Maximum distance
SpaceLogic KNX Module Link		MTN6940-0000 (supplied with the extension)	-
SpaceLogic KNX Cable Link S		MTN6941-0001	30 cm
SpaceLogic KNX Cable Link L		MTN6941-0002	150 cm

① Remove link interface cap
② Plug in the SpaceLogic KNX Module Link or Cable Link
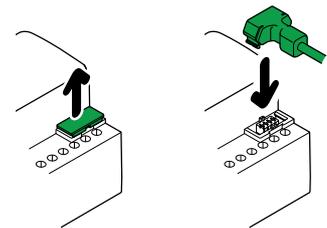
Use cases

What kind of connection do I use in which situation?

If the devices are placed alongside each other, use the SpaceLogic KNX Module Link.
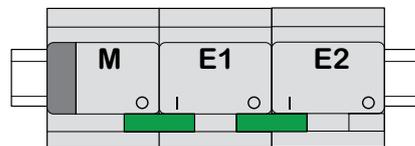
M = Master
E1/E2 = Extension 1 / Extension 2
O = Output
I = Input

If the devices are placed at a distance from each other, use the SpaceLogic KNX Cable Link.
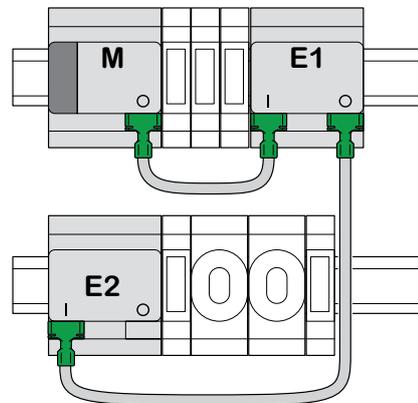
✎ Pay attention to the plugging from output to input. If the connecting Cable Link is accidentally plugged in incorrectly, you cannot put the devices into operation. In this case, the corresponding extension LED (E1 or E2) on the master flashes.

Example in a cabinet

5.2   Who can be combined with whom

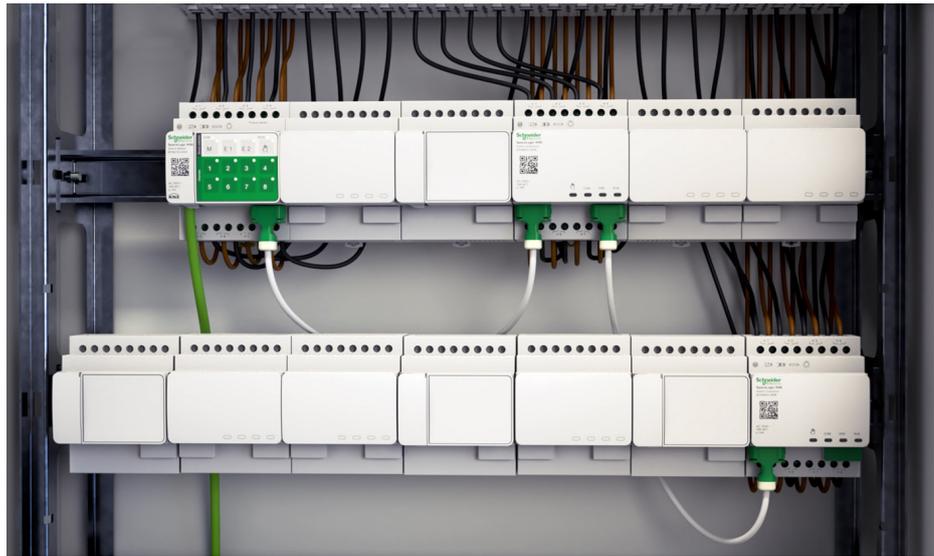You can connect a maximum of 2 extensions to one master. The following table shows who can be combined with whom.

SpaceLogic KNX	Switch/Blind Extension	Universal Dimming Extension
Switch/Blind Master	x	
Universal Dimming Master	x	x

5.3   Overview of the devices

Depending on the functions, you can use different devices:

SpaceLogic KNX	Article no.	Functions
Switch/Blind Master	MTN6705-0008	8 switching channels and/or 4 blinds/roller shutters · the combination is freely selectable
Switch/Blind Extension	MTN6805-0008	8 switching channels and/or 4 blinds/roller shutters · the combination is freely selectable
Universal Dimming Master	MTN6710-0102	2 dimming channels
Universal Dimming Extension	MTN6810-0102	2 dimming channels

6 Commissioning of Master and Extension

The KNX commissioning of a master is similar to any other KNX device. It does not matter whether you just want to commission a master or also the extensions connected to it. When the master is commissioned, the connected extensions are also commissioned automatically.

i If the extensions are connected but not parameterised in the ETS, the corresponding extension LED (E1 or E2) on the master flashes.

There are 2 commissioning procedures that you carry out depending on the case:

- Full commissioning
- Partial commissioning

You carry out full commissioning when you

- load the ETS application/individual address into the master
- replace a master
- permanently remove or add an extension
- replace an extension with another extension type (dimmer/switch)
- want to change the order of the extensions

the partial commissioning is carried out when you:

- replace an extension with the same extension type

6.1 Perform full commissioning

You carry out full commissioning when you:

- load the ETS application and physical address into the master for the first time
- replace a master
- permanently remove or add an extension
- replace an extension with another extension type (dimmer/switch)
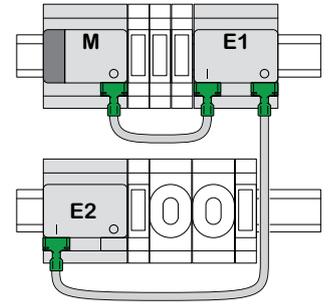- want to change the order of the extensions

During full commissioning, the master receives the ETS application (and the individual address, if applicable) and configuration data is loaded into the connected extensions.

During the process, the order of the extensions is always configured: the extension connected to the master is assigned the address "1", the following extension is assigned the address "2".

NOTICE

Check before commissioning: The load connections and the order of the devices (Master -> Extension 1 -> Extension 2) must correspond to your ETS programming

- Connect blind motors to the blind channels specified in the ETS.
- Connect loads to the switching channels (or dimming channels) specified in the ETS.
- If the extension is planned as extension 1 (E1), connect it directly to the master.
- If the extension is planned as extension 2 (E2), then connect it to extension 1.

An extension cannot be put into operation if the order of the devices does not correspond to your ETS configuration.

After you have completed the ETS programming:

① Connect your PC/notebook to the KNX bus.
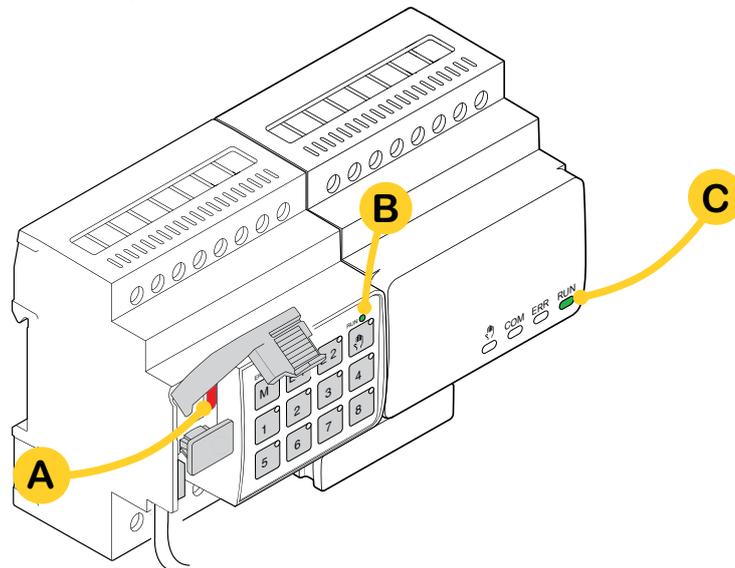
② Press programming button **A**

On the Master	On the Extension
⇒ The programming LED **A** lights up.	-

③ Load ETS application and individual address into the device.

On the Master	On the Extension
⇒ The programming LED **A** goes out. ⇒ The RUN LED **B** lights up.	⇒ The RUN LED **C** lights up

i During the following initialization phase of 12 s maximum, the device is out of function.

6.2 Perform partial commissioning

The partial commissioning is carried out when you:

• replace an extension with the same extension type

During partial commissioning, configuration data is only loaded into the new extensions. An existing extension only receives configuration data if the data is inconsistent

In addition:

• The firmware version is checked.
• The order of the extensions is checked.

The partial commissioning is done during normal operation

NOTICE

Check before commissioning: The load connections and the order of the devices (Master -> Extension 1 -> Extension 2) must correspond to your ETS programming.

• Connect blind motors to the blind channels specified in the ETS.
• Connect loads to the switching channels (or dimming channels) specified in the ETS.
• If the extension is planned as extension 1 (E1), connect it directly to the master.
• If the extension is planned as extension 2 (E2), then connect it to extension 1.

An extension cannot be put into operation if the order of the devices does not correspond to your programming in the ETS.

After you have replaced the extension:

① Press and hold master push button **A** for 7 seconds.

On the Master	On the Extension
⇒ The Master LED **A** goes out after 7 seconds	
⇒ The RUN LED **B** flashes	⇒ The COM-LED **D** goes out
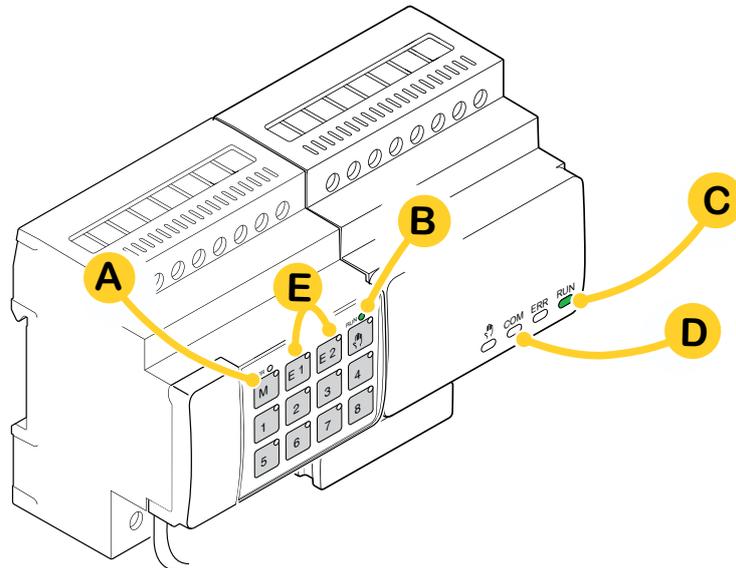
The configuration data is loaded.

On the Master	On the Extension
	⇒ The COM LED **D** flashes

During the following initialization phase of 12 s maximum, the device is out of function. The configuration data have been successfully loaded when all RUN LEDs are switched on again.

ⓘ If the new extension has a non-compatible firmware version, the extension LED **(E)** flashes and you must perform a firmware update. Extension firmware update --> 31

7   Operating and display elements

7.1   Switch/Blind devices

Push buttons of the Master

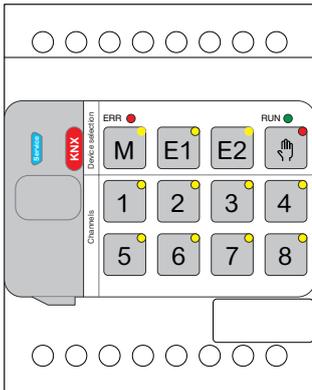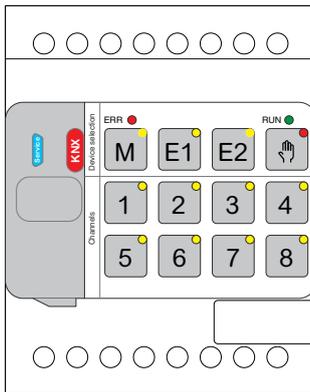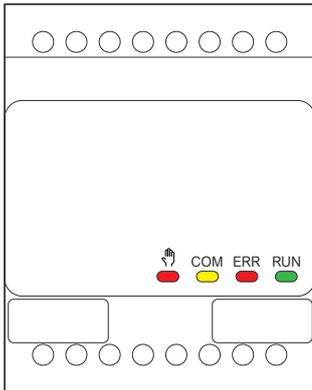|		
M	**Master push button**	
	Short press:	Selection of the master. The status LEDs indicate the current status of the master.
	Long press:	Partial commissioning --> 16
E1	**Extension 1 push button**	
	Short press:	Selection of the extension 1. The status LEDs indicate the current state of extension 1.
	Long press:	Firmware Update after Replacing an Extension --> 31
E2	**Extension 2 push button**	
	Short press:	Selection of the extension 2. The status LEDs indicate the current state of extension 2.
	Long press:	Firmware Update after Replacing an Extension --> 31
✋	**Manual push button**	
	Switching to manual operation	
	Short press:	Manual operation with low priority --> 25
	Long press:	Manual operation with high priority --> 27
1 ... 8	**Channel push button**	
	As soon as the manual operation is activated, you can control the channels activated in the ETS.	
	ETS application loaded:	Switch and control channels.
	ETS application not loaded:	Manual operation with low priority: 2 channels can be controlled at a time: push button 1/2 or 3/4 or 5/6 or 7/8
		For wiring test purposes.
		Manual operation with high priority (long press): all channels can be controlled.
KNX	**KNX programming button with integrated LED**	
	Short press	KNX commissioning --> 14
	Press and hold	Triggers the master reset --> 28
Service	**Service Port**	
	Firmware update and diagnostics --> 29	

LEDs of the Master

RUN LED

Shows the current operating status of the device.

On	ETS application loaded, device in operation
Flashes slowly	Firmware update of the master
Flashes fast	Extension commissioning (full/partial commissioning, initial testing)
Off	ETS application not active. Only wiring test possible

Error LED

Displays an internal error, e.g. relay powered not sufficient due to missing power supply. For error details, please refer to the diagnostic tool.

On	Internal error master (power supply, device error, ...) or error master during the firmware update
Flashes	External error master

Master / Extension 1 / Extension 2 LED

Indicates that either Master, Extension 1, or Extension 2 has been selected.

M, E1 or E2 On	The device was selected. You can identify the channel states of the device by means of the status LEDs.
E1 flashes	Error Extension 1
E2 flashes	Error Extension 2
M, E1 or E2 On	The extensions receive the firmware update from the master

Manual LED

Indicates that the unit has been switched to manual operation.

On	Manual operation with low priority active
Flashes	Manual operation with high priority active

Status LED

Shows the physically current status of the channels (independent of the ETS configuration)

On	Relay contact closed
Off	Relay contact opened

KNX programming button with integrated LED

Shows the status during KNX commissioning. Device is in programming mode.

Flashes	KNX commissioning

LEDs of the Extension

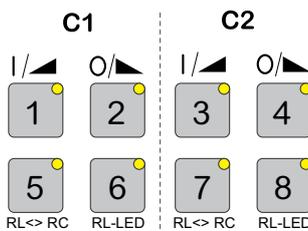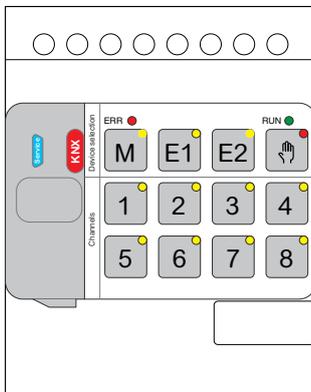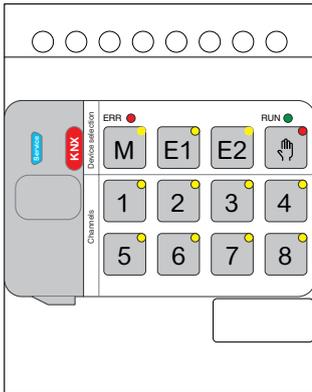|	RUN	**RUN LED**	
		Shows the current operating status of the device.	
		Off	Wiring test or device does not work (firmware version or extension type not compatible). In this case, the corresponding extension LED E1/E2 flashes on the master.
		On	ETS application loaded, device in operation
		Flashes slowly	Firmware update of the master
		Flashes fast	Extension commissioning (full/partial commissioning, initial testing)
		The RUN LED flashes during commissioning.	
	ERR	**Error LED:**	
		On	Internal error extension (e.g. self test). For error details, please refer to the diagnostic tool.
		Flashes	External error extension
	COM	**COM LED**	
		Flashes	Indicates that the master and the extension are communicating.
		On	Firmware update
	✋	**Manual LED**	
		On	Indicates that manual operation has been activated for the device. The channels of the extension can now be controlled using the channel push buttons of the master.
			This function can also be used to identify the extension in the cabinet. --> 35

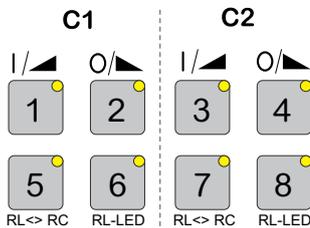## 7.2 Universal Dimming devices

Push buttons of the Master

M	**Master push button**		
	Short press:	Selection of the master. The status LEDs indicate the current status of the master.	
	Long press:	Partial commissioning --> 16	
E1	**Extension 1 push button**		
	Short press:	Selection of the extension 1. The status LEDs indicate the current state of extension 1.	
	Long press:	Firmware Update after Replacing an Extension --> 31	
E2	**Extension 2 push button**		
	Short press:	Selection of the extension 2. The status LEDs indicate the current state of extension 2.	
	Long press:	Firmware Update after Replacing an Extension --> 31	
🖐	**Manual push button**		
	Switching to manual operation		
	Short press:	Manual operation with low priority --> 25	
	Long press:	Manual operation with high priority --> 27	
	Channel push buttons		
	As soon as the manual operation is activated, you can control the channels activated in the ETS.		
	ETS application loaded:	Switch and dim channels.	
	ETS application not loaded:	Both channels can be controlled at the same time. The dimming function is deactivated, only On/Off switching is possible.	
		For wiring test purposes.	
1 **3**	Short/long press:	Lamp is switched on/dimmed brighter	
2 **4**	Short/long press:	Lamp is switched off/dimmed darker	
	Function buttons		
	As soon as the manaul operation is activated, you can set the dimming operation modes for example.		
5 **7**	Short press	Channel 1/2: Automatic load detection is activated (LED lights up)	
6 **8**	Short press:	Channel 1/2: RL-LED Operating mode is activated	
5 + 6	Long press on both buttons:	Channel 1: Counter reset	
		The dimmer can collect the following information: number of switching operations and number of light hours.	
7 + 8	Long press on both buttons:	Channel 2: Counter reset	
		The dimmer can collect the following information: number of switching operations and number of light hours	
KNX	**KNX programming button with integrated LED**		
	Short press	KNX commissioning --> 14	
	Press and hold	Triggers the master reset --> 28	
Service	**Service Port**		
	Firmware update and diagnostics --> 29		

C1   **C2**

I/◢   O/▶   I/◢   O/▶

1   **2**   **3**   **4**

5   **6**   **7**   **8**

RL<> RC   RL-LED   RL<> RC   RL-LED

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LEDs of the Master

RUN ● **RUN-LED**

Shows the current operating status of the device.

On	ETS application loaded, device in operation
Flashes slowly	Firmware update of the master
Flashes fast	Extension commissioning (full/partial commissioning, initial testing)
Off	ETS application not active. Only wiring test possible

ERR ● **Error LED**

Shows an internal/external error.

On	Internal Error (e.g. device is only powered during firmware update by USB)
Flashes	External error (e.g. shortcut, frequency out of range, overload, loose wire, load is not detected)

M ○ **Master / Extension 1 / Extension 2 LED**

Indicates that either Master, Extension 1, or Extension 2 has been selected.

E1 ○

E2 ○

M, E1 or E2	On	The device was selected. You can identify the channel states of the device by means of the status LEDs.
E1 flashes		Error Extension 1 (e.g.: the ETS configuration does not correspond to the installation or a different extension type is used.)
E2 flashes		Error Extension 2 (e.g.: the ETS configuration does not correspond to the installation or a different extension type is used.)
M, E1 or E2	On	The extensions receive the firmware update from the master

🖐 ● **Manual LED**

Indicates that the unit has been switched to manual operation.

On	Manual operation with low priority active
Flashes	Manual operation with high priority active

Status-LED of channels

Shows the physically current status of channel 1 and 2 (C1/C2).

1 3 ○

On	Channel is On (1 % - 100 %)
Off	Channel is Off

2 4 ○

Off	Channel 1/2 is powered
Flashes fast	External error of channel 1/2 (e.g. shortcut, frequency out of range) Mains voltage reset is needed
Flashes slow	External error of channel 1/2 (e.g. overload, loose wire, no load) The application or the user has to stop it.
On	Channel 1/2 is offline

Status-LED of functions

Shows the status of the dimming operation modes of channel 1 and 2 (C1/C2)

5 7 ○

On	Automatic load detection is active (RL or RC mode is active)
Off	Automatic load detection is not active

6 8 ○

On	RL-LED mode is active
Off	RL-LED mode is not active

5 + 6 ○

Flashes	Channel 1: Counter reset is ongoing

7 + 8 ○

Flashes	Channel 2: Counter reset is ongoing

C1

I/◢ O/▶

1	2
5	6

RL<> RC   RL-LED

C2

I/◢ O/▶

3	4
7	8

RL<> RC   RL-LED
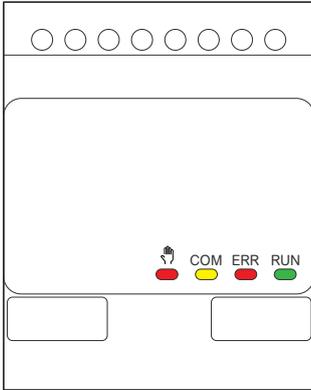
KNX programming button with integrated LED

Shows the status during KNX commissioning. Device is in programming mode.

Flashes	KNX commissioning

LEDs of the Extension

RUN **RUN LED**

Shows the current operating status of the device.

Off	Wiring test or device does not work (firmware version or extension type not compatible). In this case, the corresponding extension LED E1/E2 flashes on the master.
On	ETS application loaded, device in operation
Flashes slowly	Firmware update of the master
Flashes fast	Extension commissioning (full/partial commissioning, initial testing)

The RUN LED flashes during commissioning.

ERR **Error LED**

On	Internal error extension (e.g. self test). For error details, please refer to the diagnostic tool.
Flashes	External error extension (overload, no load, ...)

COM **COM LED**

Flashes	Indicates that the master and the extension are communicating.
On	Firmware update

Manual LED

On	Indicates that manual operation has been activated for the device. The channels of the extension can now be controlled using the channel push buttons of the master.
	This function can also be used to identify the extension in the cabinet. --> 35

7.3 LED behaviour of the Masters

Commissioning	KNX	RUN	✋	M	E1	E2	ERR	Push-button function
Wiring test	-	-	On	-	-	-	-	released
Commissioning, switching on the voltage	-	On for 1 s	On for 1 s	On for 1 s	On for 1 s	On for 1 s	On for 1 s	locked
KNX commissioning	Flashes	-	-	-	-	-	-	locked

Normal operation	RUN	✋	M	E1	E2	ERR	Push-button function
Device ready for operation	On	-	-	-	-	-	released
ETS application not active	-	-	-	-	-	-	released
Manual operation with low priority active	On	On	On	-	-	-	released
Manual operation with high priority active	On	Flashes	On	-	-	-	released
Master selected	On	-	On	-	-	-	released
Extension 1 selected	On	-	-	On	-	-	released
Extension 2 selected	On	-	-	-	On	-	released
Internal error	-	-	-	-	-	On	released
External error Master	On	-	-	(On)	(On)	Flashes	released
Error Extension	On	-	-	Flashes	Flashes	-	released
Error of Master/Extension/Extension configuration**	On	-	-	(On)	(On)	-	released

Device Firmware Update	RUN	✋	M	E1	E2	ERR	Push-button function
Firmware update of the master	Flashes	-	-	-	-	-	locked
Firmware update of the master*	Flashes	-	-	-	-	On	locked
Firmware update of the extensions	-	-	On	On	On	-	locked
Firmware update of the extensions*	-	-	On	On	On	On	locked

Error indication	RUN	✋	M	E1	E2	ERR	Push-button function
Internal error	-	-	-	-	-	On	released
External error master (concern extensions)**	On	-	-	(On)	(On)	Flashes	released
Error extension 1 (e.g. O/l swapped by CableLink)	On	-	-	Flashes	-	-	released
Error extension 2 (e.g. O/l swapped by CableLink)	On	-	-	-	Flashes	-	released

* The firmware update is stopped and the device is put into error mode. The partial commissioning or the firmware update can be initiated via the keypad.
If the KNX bus is not connected and the device is only powered via micro USB, all Error LEDs will light up (master and extensions). If power is supplied via the KNX bus, all Error LEDs are off.

** LEDs E1/E2 indicate incompatible firmware or a connected extension that does not match the ETS programming.

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8 Manual operation: Manual control of channels

With the manual operation you can control the channels directly from the master device. This function is used if, for example, you want to set a certain constellation for maintenance/cleaning work or for testing.

There are two different types of manual operation:

- Manual operation with low priority   --> 25
  Select this manual operation if you want to test a channel or check its status.
- Manual operation with high priority   --> 27
  You select this manual operation if maintenance or cleaning work is to be carried out on the loads.

8.1 Manual operation with low priority

During manual operation, the bus function is also still active (RUN LED lights up). The channel push buttons have the same priority as group objects with low priority. This means that a high-priority function - such as a weather alarm - can overwrite the required position.

You can either activate manual operation directly on the master device or via a KNX object.

Manual operation can be deactivated manually on the device or after an adjustable time (ETS).

⚠️ **CAUTION**

Risk of injury due to sudden change of status or position of the electrical loads.
High-priority functions can change the status of the relay contacts at any time. Blinds could move to another position, e.g. due to a wind alarm or time control.
- During manual operation, make sure that no persons are near the loads.
- To carry out maintenance or cleaning work, always activate the high-priority manual operation
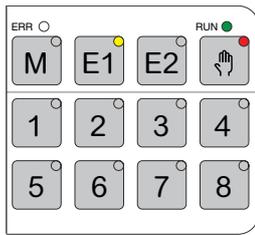
Failure to follow these instructions could result in minor injury.
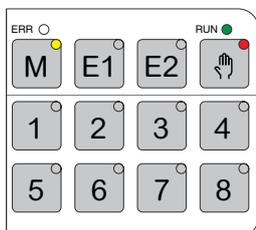
Activate manual operation with low priority

① Short press on the manual push button
  ⇒ The Manual LED lights up.
  ⇒ The RUN LED is on; the bus function remains activated.
  ⇒ The Master LED lights up (as the Master is always preselected)

The status LEDs show the status of the master channels activated in the ETS. You can switch the loads using the channel push buttons.

If you want to operate an extension manually:

② Press extension push button E1 or E2.

⇒ The LEDs E1 or E2 light up, the master LED goes out.

⇒ At the extension: The manual LED lights up.

The status LEDs show the status of the extension channels activated in the ETS. You can switch the loads using the channel push buttons.

Deactivate manual operation with low priority

③ Short press on the manual push button

⇒ The manual LED goes out, the manual operation is deactivated.

Manual operation can be deactivated via the ETS after an adjustable time. This time is always restarted as soon as an action is registered on a channel push button.

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8.2   Manual operation with high priority

During manual operation, the bus function is also still active (RUN LED lights up).

KNX telegrams (also high-priority ones) are blocked and buffered for the period of manual operation and executed after the end of manual operation. During manual operation channels are controlled solely via the channel push-buttons.

You can only activate manual operation directly on the master device, not via a KNX object.

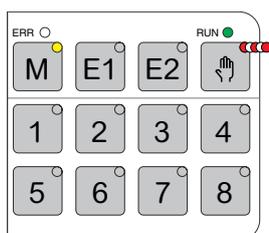Manual operation is only deactivated manually on the device.

⚠️ **CAUTION**

Risk of injury due to sudden change of status or position of the electrical loads.

KNX telegrams are buffered during manual operation. After deactivating manual operation, the device will execute the commands of the buffered telegrams. The relay contacts could change their state unexpectedly.

- Only deactivate manual operation when all maintenance work has been finished.

Failure to follow these instructions could result in minor injury.

Activate manual operation with high priority

① Long press (> 2s) on the manual button
   - ⇒ The Manual LED flashes.
   - ⇒ The RUN LED is on; the bus function remains activated, KNX telegrams are buffered, but not executed.
   - ⇒ The Master LED lights up (as the Master is always preselected)

The status LEDs show the status of the master channels activated in the ETS. You can switch the loads using the channel push buttons.
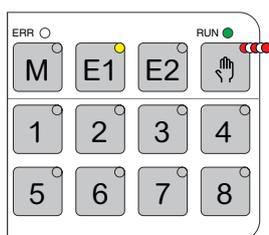
If you want to operate an extension manually:

② Press extension push button "E1" or "E2".
   - ⇒ The LEDs E1 or E2 light up, the master LED goes out.
   - ⇒ At the extension: The manual LED lights up.

The status LEDs show the status of the extension channels activated in the ETS. You can switch the loads using the channel push buttons.

Deactivate manual operation with high priority

① Short press on the manual button
   - ⇒ The hand LED goes out. The bus function is activated and the RUN LED lights up.

9   Reset to factory settings (master reset)

With the master reset the master and its extensions are set to the delivery state.

State of the master after the reset:

- Without ETS application
- The relay contacts are open
- Manual operation is possible, only one relay per device can be switched one by one. See wiring test in the installation instructions or here: How and when I can test the wiring of the connections? --> 35
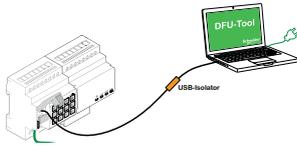
Perform master reset

① Disconnect the device from the KNX bus
② Press and **hold** the KNX programming button
③ Connect the device with the KNX bus again

The master reset is carried out when the KNX programming button is released.

⇒ All RUN-LEDs are off, the ETS application was removed.

10 Execute the firmware up-date

Firmware updates are intended for security and functional updates to ensure that the devices are always up to date. With the Device Firmware Update Tool (hereafter referred to as **DFU Tool**) you can easily provide all master and extension devices with the new firmware.

There are 2 different types of firmware updates:

- Master/Extension firmware update
  - Executed by the DFU tool
- Extension firmware update
  - Executed after replacing an extension

10.1 Master/Extension firmware update

The firmware update for a master and an extension is always initiated at the master device. First the master receives the latest firmware and then automatically the connected extensions.

Conditions

- Download the DFU Tool on your PC. It's available on the Schneider homepage. -> www.se.com.
- Valid PIN code to authorize the firmware update. You can set the PIN code via the ETS application.
- USB connection with Micro USB B connector and a full speed USB isolator.

Preparations

During normal operation, the service port of a master is protected against unautho-rized access. To get access, you must authorize a firmware update in the ETS. To do this, you must first set up a PIN code in ETS that differs from the standard one.

① Enter a valid 4-digit PIN code in the extended settings. Weak PIN codes, such as 1234, 0000, 1111, ... should not be used.
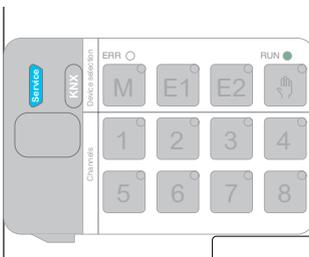
PIN Code for Firmware Update

Please enter PIN Code for Firmware Update (4 digits, 0...9)	1234

<div align="right">OK</div>

❌ No valid PIN Code for Firmware Update!
Please enter a valid PIN code before you download your configuration

ℹ During the firmware update you will be asked to enter this PIN code for validation.

② Install the DFU Tool on your PC

dfu_tool_install.exe
20.12.20 08:56
8,77 MB

③ Micro USB B connection from PC/notebook to the master

NOTICE

Equipment may be damaged

KNX device and PCs may have different ground potentials.

- Depending on the power supply connections of the devices, you must use an USB isolator. -> see table „Required USB connection"

The USB isolator galvanically separates the connected devices and thus protects against compensating currents due to potential differences.

Failure to follow this instruction can damage the equipment.

Tab. 1 Required USB connection

PC/Notebook	Master	Connection
	without KNX power	USB cable with micro USB B plug
without main power / only battery powered	with KNX power	USB cable with micro USB B plug
with main power	with KNX power	USB cable with Micro USB B plug **and USB isolator**

Connection by using an USB cable with Micro USB B plug and an USB isolator:
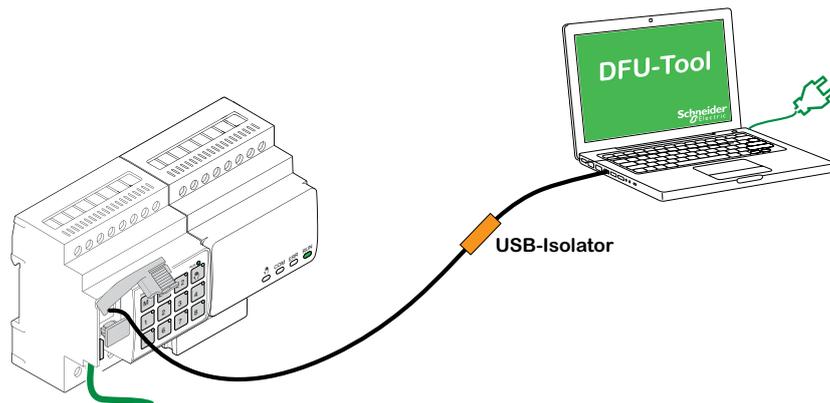
⇒ The Master detects the USB port, the PC recognizes a new COM port.

④ Start the *Device Firmware Update Tool*

⑤ Follow the instruction in the DFU Tool.

A detailed description can be found here:

-> Documentation DFU Tool

10.2 Extension firmware update

You perform this firmware update after you replaced an extension. This update will ensure that the new extension has a version that is compatible with the master.

i During a partial commissioning it is checked whether the firmware version of the extension is compatible with the master. If the version is not compatible, the extension LED flashes and you must perform this update.

Start the update

① Press and hold an extension push button for 7 seconds.
   ⇒ The firmware update starts. It is automatically applied to all extensions whose version is not compatible with the master.
   ⇒ During the process, the master LED and the extension LEDs light up.
   The RUN LEDs of the extensions flash for a few seconds.
② Start the partial commissioning.

10.3 The DFU tool with diagnostics function

If error LED at the master and extension devices shows that an error has occurred, you can use the diagnostic process to identify the type of error.
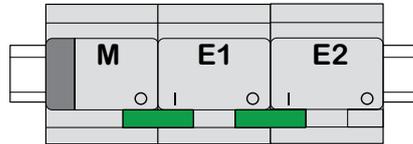
A detailed description can be found here:

-> Documentation DFU Tool

11 Accessories

11.1 SpaceLogic KNX Module Link

The Module Link connects devices with link interfaces, which are placed directly alongside each other.
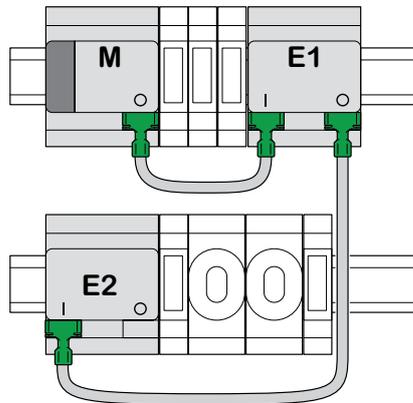
M = Master
E1/E2 = Extension 1 / Extension 2

		Comercial reference	Maximum distance
SpaceLogic KNX Module Link		MTN6940-0000 (supplied with the extension)	-

11.2 SpaceLogic KNX Cable Link

The Cable Link connects devices with link interfaces, which are placed at a distance from each other.

M = Master
E1/E2 = Extension 1 / Extension 2

		Comercial reference	Maximum distance
SpaceLogic KNX Cable Link S		MTN6941-0001	30 cm
SpaceLogic KNX Cable Link L		MTN6941-0002	150 cm

12 Insight into the ETS application

The programming of an extension is always executed in the corresponding ETS application of the master.

Open the ETS application of the master and specify in the general settings how many and which extensions you want to use.

Thereupon the ETS application automatically extends itself by the parameters and group objects of the extensions and you can now configure the extensions.

ETS application of the switch/blind master

	General Settings
1: Master - Central Switch	
...	Extended Settings
26: Master Output 1 - Switch object	+ Master Output ...
28: Master Output 1 - Lock object	+ Ext. 1 Output ...
31: Master Output 1 - Scene Object	+ Ext. 2 Output ...

Extension selection

| Type of Extension 1 | ○ Disabled ⦿ 8 switching output |
| Type of Extension 2 | ○ Disabled ⦿ 8 switching output |

Channel function for master

Output 1
Output 2 ...

switch
⦿ Switch ○ Disabled

Channel function for Extension 1

Output 1
Output 2 ...

shutter
Occupied

Channel function for Extension 2

Output 1
Output 2
...

switch
⦿ Switch ○ Disabled

Group objects (list):
- 32: Master Output 1 - Feedback object
- ...
- 106: Ext. 1 Output 1+2 - Movement object
- 97: Ext. 1 Output 1+2 - Stop/step object
- 98: Ext. 1 Output 1+2 - Height position
- 119: Ext. 1 Output 1+2 - Status feedback
- ...
- 166: Ext. 2 Output 1 - Switch object
- 192: Ext. 2 Output 1 - Feedback object
- ...

Excerpt from ETS

After configuration, start the KNX commissioning of the master by loading the ETS application and the individual address into the master.

13 FAQs

What do I have to consider when planning in the cabinet?

As usual, you plan the functions in the project and the resulting number of channels. For space in the cabinet, always plan a device width of 72 mm (4 TE) for each master or extension.

Master and extension do not necessarily have to be placed next to each other. Connection cables with a length of 30 cm and 150 cm provide the necessary flexibility.

SpaceLogic KNX	Article no.	Functions
Switch/Blind Master	MTN6705-0008	8 switching channels and/or 4 blinds/roller shutters · the combination is freely selectable
Switch/Blind Extension	MTN6805-0008	8 switching channels and/or 4 blinds/roller shutters · the combination is freely selectable
Universal Dimming Master	MTN6710-0102	2 dimming channels
Universal Dimming Extension	MTN6810-0102	2 dimming channels

The project is expanding, I need more channels. Is that possible?

You can connect a maximum of 2 extensions to one master. Which combination possibilities you have, you can find here: Who can be combined with whom --> 13

Example switch/blind master:
You can connect a maximum of 2 extensions to one master. In the case of switching channels, this would give you a maximum of 24 channels. If you need more switching channels, start again with a master to which extensions can be connected.

Do I need a special KNX power supply?

No, regarding the KNX power supply, the general KNX rules apply. For details about the electrical connection, please refer to the installation instructions of the devices.

What should I do if I have made changes in ETS?

Carry out a full commissioning [--> 14], in which a download of the application into the master and thus also into the extension follows as usual.

### What do I do if I replace an extension with an extension of the same type?

You can use a new extension or one that has already been used in another project. After installation, carry out the partial commissioning. [--> 16]

What do I do if I replace an extension with an extension of another type?

For example, you want to replace a dimmer extension with a switch/blind extension: Reconfigure the ETS application and perform full commissioning after installation.   [--> 14]

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How to identify an extension in the cabinet?

In a cabinet it can get unclear at times. Even without removing the cover, you can identify the extensions of a master.
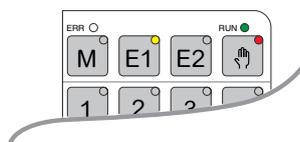
Activate the manual operation on the master.

① Short press on the manual push button

② Now select the extension you want to identify by pressing the extension key E1 or E2.

   ⇒ The manual LED of the corresponding extension lights up red. You can identify the extension by this LED.

Do not forget to deactivate the manual operation again. To do this, press the manual push button again.

What do I do if I add or remove an extension permanently?

Reconfigure the ETS and perform full commissioning after installation or removal. [--> 14]

I must replace the master. What do I have to consider?

Carry out full commissioning after installation. [--> 14]

What do I have to do if I have to change the order of the extensions?

After you have exchanged all connections, carry out the full commissioning. [--> 14]

How and when I can test the wiring of the connections?

A wiring test allows you to check the wiring of the loads before the ETS application is loaded.

For Universal Dimming: Both channels can be controlled at the same time. The dimming function is deactivated, only On/Off switching is possible.

For Switch/Blind: In the operating mode *manual operation with low priority*, you can control two channels at the same time. Push button 1/2 or 3/4 or 5/6 or 7/8.

In the operating mode *manual operation with high priority*, you can control all channels at the same time.

① Activate manual operating

   – Short press to activate *manual operation with low priority*

   – Long press to activate *manual operation with high priority*
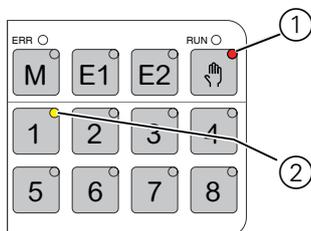
② Select channel with connected load

The LED of the selected channel button lights up. The connected load is switched on.

Dimmer: What should I do if the ERR LED, LED 2/LED4 flash and the load can no longer be controlled?

The dimmer has detected a short circuit or a frequency problem in the mains voltage. The short circuit can be caused by an incorrect load. Please change the load and briefly disrupt the power supply of the channel (not KNX).

Who can I contact if an error occurs?

Please contact your Customer Care Center in your country.

se.com/contact