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Aluminium systems

Schüco Sliding System ASS 77 PD

Main control unit

en

Installation and operating instructions

en

Installation and operating instructions

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1. Notes on this document

1.1 Target groups and qualifications

This document is intended for qualified personnel, such as trained fitters and electricians. Before installing and commissioning, read through this document thoroughly and adhere to the specified sequence of the instructions. Schüco International KG shall not be liable for any damage which arises from a failure to adhere to these instructions.

Qualified personnel are people who know how to assemble, install, commission, test and operate the product and who have the relevant qualifications, e.g. who have been trained and instructed in accordance with safety regulations on the maintenance and use of appropriate safety equipment and who have received training in first aid.

Experts are people whose training and experience means that they have sufficient knowledge of power-operated windows, doors and gates and the corresponding electrical installations. They are familiar with the relevant accident prevention regulations, government health & safety regulations, guidelines and generally recognised technical regulations so that they are qualified to judge the occupational safety of power-operated windows, doors and gates and the corresponding electrical installations.

1.2 Handover of the document

After commissioning, hand over all the documentation pertaining to this product to the end customer. Make them aware of the safety instructions, to which they must pay particular attention.

The documentation should be transferred to others using the product.

The documentation for Schüco products can also be downloaded from www.schueco.com.

1.3 Retention of the document

This document is a component of the product. Keep this document in an accessible place even after installation and commissioning, so that the information is always available.

2. Safety

2.1 About the safety instructions



KEY WORD

Type / source / consequence of the danger

Pictograms and key words advise of the type of danger and the level of danger:








General personal injury!



Personal injury from electrocution!



Damage to property!

DANGER		Imminent danger resulting in death or severe injuries!
WARNING		Potential imminent danger which may lead to death or severe injuries!
CAUTION		Potentially dangerous situation which may lead to minor injuries!
NOTE		Imminent danger of damage to property which may lead to damage to or destruction of the product or environment!
INFORMATION		Information Information, tips and advice

2.2 Laws, regulations and technical rules

During installation and operation, observe the international, national and local safety regulations, laws and guidelines.

This applies in particular to:

- EuroWindoor data sheet KB.01: Power-operated windows - July 2017
- DIN EN 60335-2-103: Household and similar electrical appliances - Safety: Particular requirements for drives for gates, doors and windows
- Machinery Directive 2006/42/EC
- VDE 100-600: Erection of low-voltage installations
- DIN EN 16005: Power operated pedestrian doorsets - Safety in use - Requirements and test methods

2.3 Proper use

The main control unit electronically opens and closes ASS 77 PD sliding systems. Usage is limited to the following framework data:

Vent weight	Maximum of 500 kg
Vent width	Maximum of 3200 mm
Vent height	Maximum of 3500 mm
Options	Double or triple track

Use the main control unit in protected areas or in dry interior rooms only.

Proper use also includes adhering to the installation and operating instructions. Any alternative use or a use beyond this remit is not in accordance with its purpose.

Incorrect use or unauthorised modification of the product may result in death or serious injury, or damage to the product and other material assets. Only original replacement parts may be used. The manufacturer / supplier shall not be liable for any damage resulting from infringement. The user alone bears the risk.

This device may be used by children aged 8 and over as well as by persons with reduced physical, sensory or mental capabilities or a lack of experience and knowledge provided that they are supervised or have been instructed in the safe use of the device and understand the resulting dangers. Children must not play with the device. Cleaning and user maintenance must not be carried out by children without supervision. Children should be supervised to ensure that they do not play with the device.

2.4 General safety instructions

Follow the safety instructions in this document so as not to endanger your own life or that of others and to ensure error-free operation.



DANGER

Imminent danger resulting in death or severe injuries!

- Before any work is carried out on the product, all power packs must be disconnected and protected against anyone inadvertently switching them back on!
- Following each installation or alteration to the electrical system, carry out a test run to test all functions!

When planning, ensure that a risk analysis is conducted. This determines whether the installation of optional components is required. The manufacturer is responsible for retaining the risk analysis for at least 10 years.

For reasons of simplicity, this documentation does not contain every detail of all product types. The diagrams only show the essential components to illustrate the functions described. They do not claim to be complete and therefore installation on site must be modified according to prevailing conditions.

3. Contents of delivery, transportation and storage

3.1 Contents of delivery

Open all the packing units. Check that no components are missing and familiarise yourself with the components.

Art.-Nr.	Description	
263 216/263 000	ASS 77 PD main control unit	<input type="checkbox"/>
262 487 (AW4) 262 488 (AW6)**	Power pack for power supply to the main control unit (only power packs in accordance with DIN 60 335-1)	<input type="checkbox"/>
248 988 oder 291 000	ASS 77 PD sliding drive S22 (SI.NI) ASS 77 PD sliding drive S23 (HI) 1 drive 1 set of fixings for glass fibre-reinforced plastic and aluminium	<input type="checkbox"/>
263 005 (10 m)	Connecting cable L1 for a sliding drive 1 cable to connect a drive to the main control unit	<input type="checkbox"/>
263 010 (3m)* 263 404 (9m)*	Extension for cable L1* (max. 2 per layer)	<input type="checkbox"/>
276 051 276 052 276 965 276 966 276 068	Locking device (opens from inside to right) (SI.NI) Locking device (opens from inside to left) (SI.NI) Locking device (opens from inside to right) (HI) Locking device (opens from inside to left) (HI) Double-vent locking device (SI.HI.NI)	<input type="checkbox"/>
263 009 (10 m)	Connecting cable L2 for a locking device 1 cable to connect a locking device to the main control unit	<input type="checkbox"/>
263 011 (3 m)* 263 405 (9 m)*	Extension for cable L2* (max. 2 per layer)	<input type="checkbox"/>
263 411*	Locking device bridge	<input type="checkbox"/>
263 291	Magnetic switch for a sliding element 1 magnetic switch with magnetic switch bracket	<input type="checkbox"/>
263 292*	Magnetic switch for monitoring of closing 1 VdS-approved magnetic switch	<input type="checkbox"/>
263 293*	Magnetic switch for monitoring of opening and closing 1 VdS-approved magnetic switch	<input type="checkbox"/>
263 303*	Contactless transformer	<input type="checkbox"/>
263 397*	12 V DC / 2.5 A power pack (for contactless transformer)	<input type="checkbox"/>
263 551	Safety sensor OA TÜV-approved with connecting cable 3 m	<input type="checkbox"/>
263 284*	Ceiling installation kit OA	<input type="checkbox"/>
262 935*	Security sensor, only SK2	<input type="checkbox"/>
263 351	Sensor junction box	<input type="checkbox"/>
263 054*	Commissioning kit for ASS 77 PD Button for the first operation of the sliding drives and the locking device	<input type="checkbox"/>
262 491*	Plug-in power pack 24 V DC For connection to the commissioning kit	<input type="checkbox"/>

* Optional components

** Alternative to standard items

Art.-Nr.	Description	
263 104*	Sensor strip SL2	<input type="checkbox"/>
263 230 (10 m)*	Accessories kit Z5 including connecting cable L5	<input type="checkbox"/>
263 125 (3 m)* 263 406 (9 m)*	SL extension L5 Extension for cable L2* (max. 2 per layer)	<input type="checkbox"/>
263 354*	Radio programming button	<input type="checkbox"/>
262 717*	Control cable J-Y(ST)Y 2 x 2 x 0.8 mm	<input type="checkbox"/>
262 854*	3 terminals	<input type="checkbox"/>
262 855*	5 terminals	<input type="checkbox"/>

* Optional components

3.2 Transportation and storage



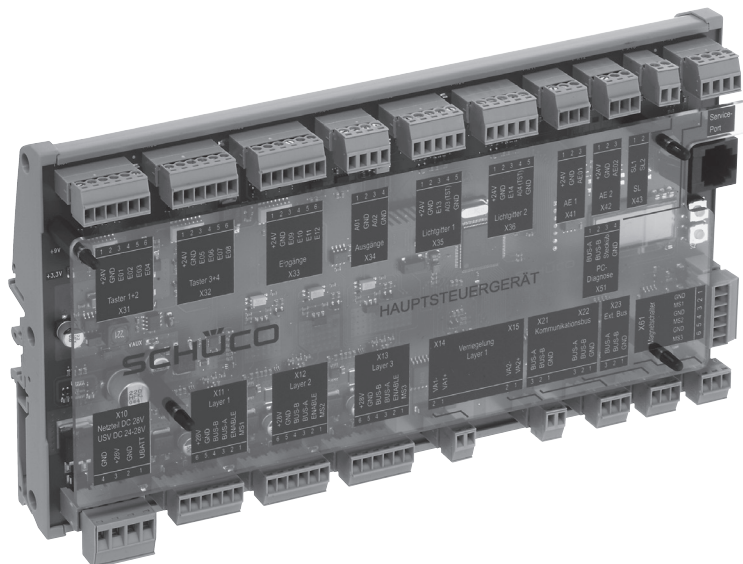
NOTE

Damage to property!

- ▶ Do not throw or drop!
- ▶ Protect against impact!
- ▶ Wind up any hanging cables and fix so that the cables cannot become tangled or detached!
- ▶ Store only in dry interior rooms!
- ▶ Protect against dirt and moisture (e.g. with protective film).
- ▶ Maintain the transport and storage temperatures!

4. Product description

4.1 The main control unit



The main control unit coordinates the control of the drives, safety covers and operating controls used in a system. It allows the wind and rain sensor to be assessed and coupling with the building management system. For some system types, a second main control unit which communicates with the first main control unit is required.

4.2 Technical data

Dimensions and weight	
H x W x D	26 x 226 x 130 mm
Weight	0,535 kg
Operating data	
Protection rating	IP20 (main control unit)
Operating temperature	-5 °C to +40 °C
Voltage	28 V DC (SELV) +10 %/-20 %
Rated current	5 A DC (main control unit)
Approvals	CE approved
Resistance class in accordance with EN ISO 13849-1:2008	
X11/X12-Connection to sliding drive	
Energy limit Positioning Finger-trap protection Load cut-off	Cat. 2 PL D
X35/X36-Connection to safety sensors	
Actuation Evaluation of external door sensors	Cat. 2 PL D
X43-Connection to sensor strip	
Evaluation of sensor strip, 8.2 kΩ	Cat. 2 PL D
Ambient conditions	
Transport/storage temperature	-40 °C to +85 °C
Relative humidity	5% to 93% (non-condensing)

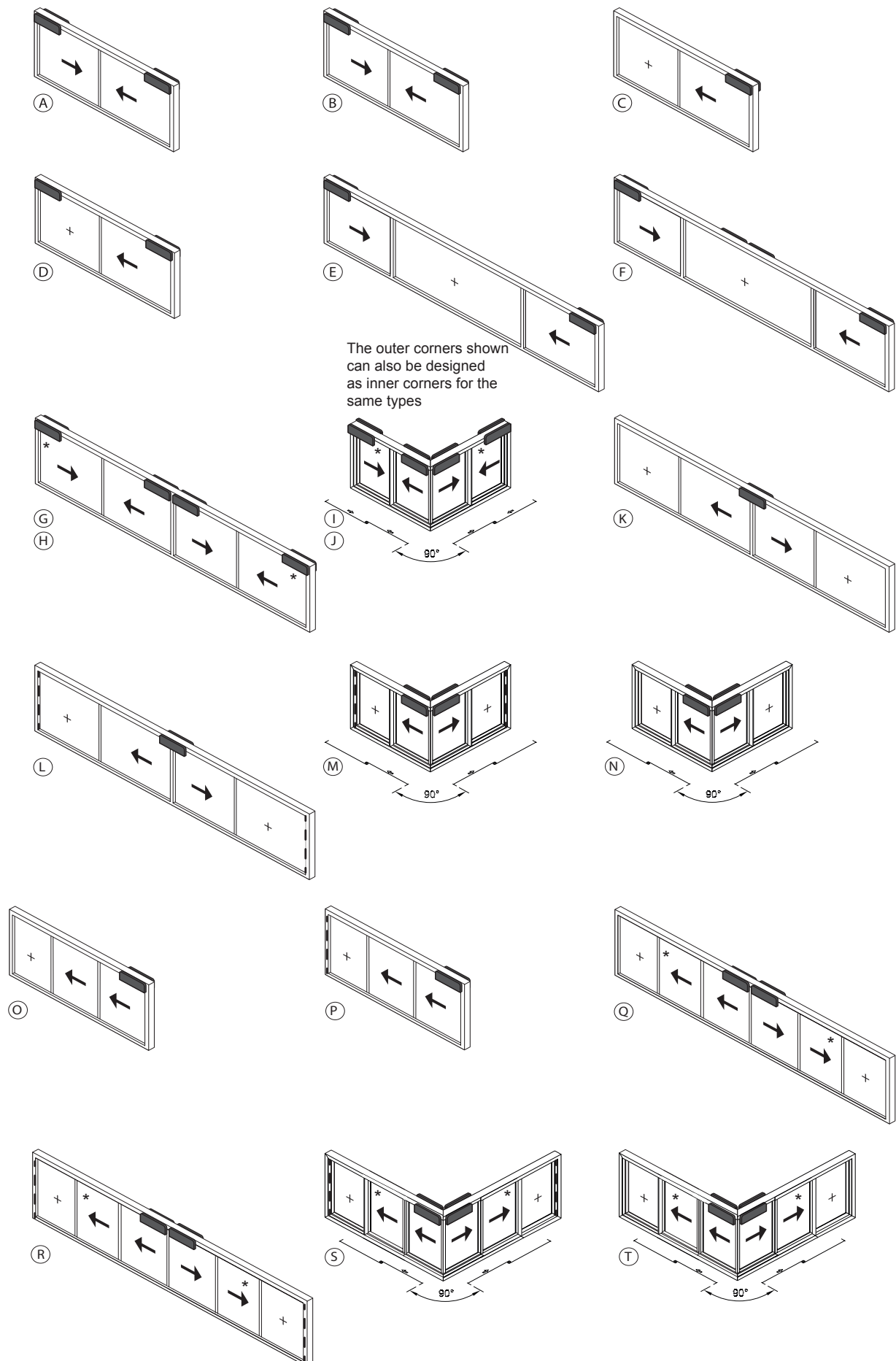


INFORMATION

- Only power packs which conform to DIN 60 335-1 must be used.
- These instructions apply to main control units from firmware version 38 or newer, which are only compatible with the S22 and S23 sliding drives, firmware version 25 or newer.
- Combined operation with an older firmware version can result in malfunctions.
- If the main control unit is built into a sliding system which includes a sliding drive with an older firmware version, this must be upgraded beforehand.
- In such a case, contact Building Automation Technical Support by calling +49 521 783 665.

4.3 System types

The main control unit coordinates all of the movement sequences within the system.
The possible system types are outline below.



	System type	Protection class	Main control units	System description
A	2A	2	1	2 movable sliding layers 4 safety sensors
B		4	1	2 movable sliding layers 4 safety sensors
C	2A/1	2	1	1 fixed light 1 movable sliding layer 2 safety sensors
D		4	1	1 fixed light 1 movable sliding layer 3 safety sensors
E	2B	2	2	1 fixed light 2 movable sliding layers 4 safety sensors
F		4	2	1 fixed light 2 movable sliding layers 6 safety sensors
G	2D*	2	2	4 movable sliding layers 8 safety sensors
H		4	2	4 movable sliding layers 8 safety sensors
I	2D-90*	2	2	4 movable sliding layers 8 safety sensors
J		4	2	4 movable sliding layers 8 safety sensors
K	2D/1	2	1	2 fixed lights 2 movable sliding layers 2 safety sensors
L		4	1	2 fixed lights 2 movable sliding layers 2 safety sensors 2 sensor strips
M	2D/1-90	2	1	2 fixed lights 2 movable sliding layers 4 safety sensors
N		4	1	2 fixed lights 2 movable sliding layers 4 safety sensors 2 sensor strips

	System type	Protection class	Main control units	System description
O	3E/1	2	1	1 fixed light 2 movable sliding layers 2 safety sensors
P		4	1	1 fixed light 2 movable sliding layers 2 safety sensors 1 sensor strip
Q	3F*	2	2	2 fixed lights 4 movable sliding layers 4 safety sensors
R		4	2	2 fixed lights 4 movable sliding layers 4 safety sensors 2 sensor strips
S	3F-90*	2	2	2 fixed lights 4 movable sliding layers 4 safety sensors
T		4	2	2 fixed lights 4 movable sliding layers 4 safety sensors 2 sensor strips

Where power-operated windows are used, a project-specific risk analysis, from which the safety class is determined, must always be carried out (see EuroWindoor information sheet KB.01: July 2017)



INFORMATION

* can also be installed as a special type with optionally 2 or 3 moveable sliding layers. To this end, type 2D-- or type 3F-- must be selected when programming (see 6.4).

Optional vents are marked with a * on page 11. They can be omitted.

If fewer vents are installed, you must set the corresponding locking bridge for the omitted vents (Page 19).

A magnet switch may not be connected for the omitted vent!

5. Assembly and installation



WARNING

Death or severe injury.

- ▶ All work on the product must only be carried out by qualified personnel!
- ▶ Following each installation or alteration to the electrical system, carry out a test run to test all functions!
- ▶ Before any work is carried out on the product, all power packs must be disconnected and protected against anyone inadvertently switching them back on!
- ▶ The mains connection and earth conductor must be checked in accordance with DIN VDE 100-610.
- ▶ Insulate all the individual wires that are not in use.



NOTE

Sachschaden!

- ▶ Do not pull cables over sharp edges.
- ▶ Do not crush the cables.

5.1 Prerequisites/preparation

Install the main control unit after you have constructed the ASS 77 PD sliding unit in accordance with the K drawings in the fabrication manual.

No.	Description
K1018113	Sliding fitting - safety sensors HI
K1012675	Sliding fitting - safety sensors NI/SI
K1020541	Sliding fitting - safety sensors NI/SI 262 935
K1020542	Sliding fitting - safety sensors HI 262 935
ASS 77 PD SI.NI with sliding drive S22	
K1009070	Sliding fitting - fittings overview of all types
K1009072	Sliding fitting - drive + deflection roller + switch
K1009074	Sliding fitting - drive + deflection roller + locking
K1009386	Sliding fitting - double-vent locking
K1009379	Sliding fitting - monitoring of opening and closing
K1018193	Sliding fitting - circuit diagrams for type 2A and 2A/1
K1018194	Sliding fitting - circuit diagrams for type 2B
K1018195	Sliding fitting - circuit diagrams for type 2D and 2D-90
K1018196	Sliding fitting - circuit diagrams for type 2D/1 and 2D/1-90
ASS 77 PD HI with sliding drive S23	

No.	Description
K1018120	Overview of fittings for type 2A
K1018121	Overview of fittings for type 2A/1
K1018122	Overview of fittings for type 2B
K1018123	Overview of fittings for type 2D and 2D-90
K1018124	Overview of fittings for type 2D/1 and 2D/1-90
K1018125	Overview of fittings for type 3E/1
K1018126	Overview of fittings for type 3F and 3F-90
K1018232	Installation of sensor strip fittings
K1017887	Installation of sensor strip drive and deflection roller fittings
K1017888	Installation of cable laying fittings
K1018215	Installation of double-vent and monitoring fittings
K1017890	Installation of double-vent and monitoring fittings
K1017896	Installation of locking fittings
K1018218	Installation of cable laying fittings
K1018177	Installation of glass breakage monitoring fittings
K1017897	Sliding fitting - circuit diagrams for type 2A and 2A/1
K1017898	Sliding fitting - circuit diagrams for type 2B
K1018189	Sliding fitting - circuit diagrams for type 2D and 2D-90
K1018190	Sliding fitting - circuit diagrams for type 2D/1 and 2D/1-90
K1018191	Sliding fitting - circuit diagrams for type 3E/1
K1018192	Sliding fitting - circuit diagrams for type 3F and 3F-90

5.2 Electrical connection

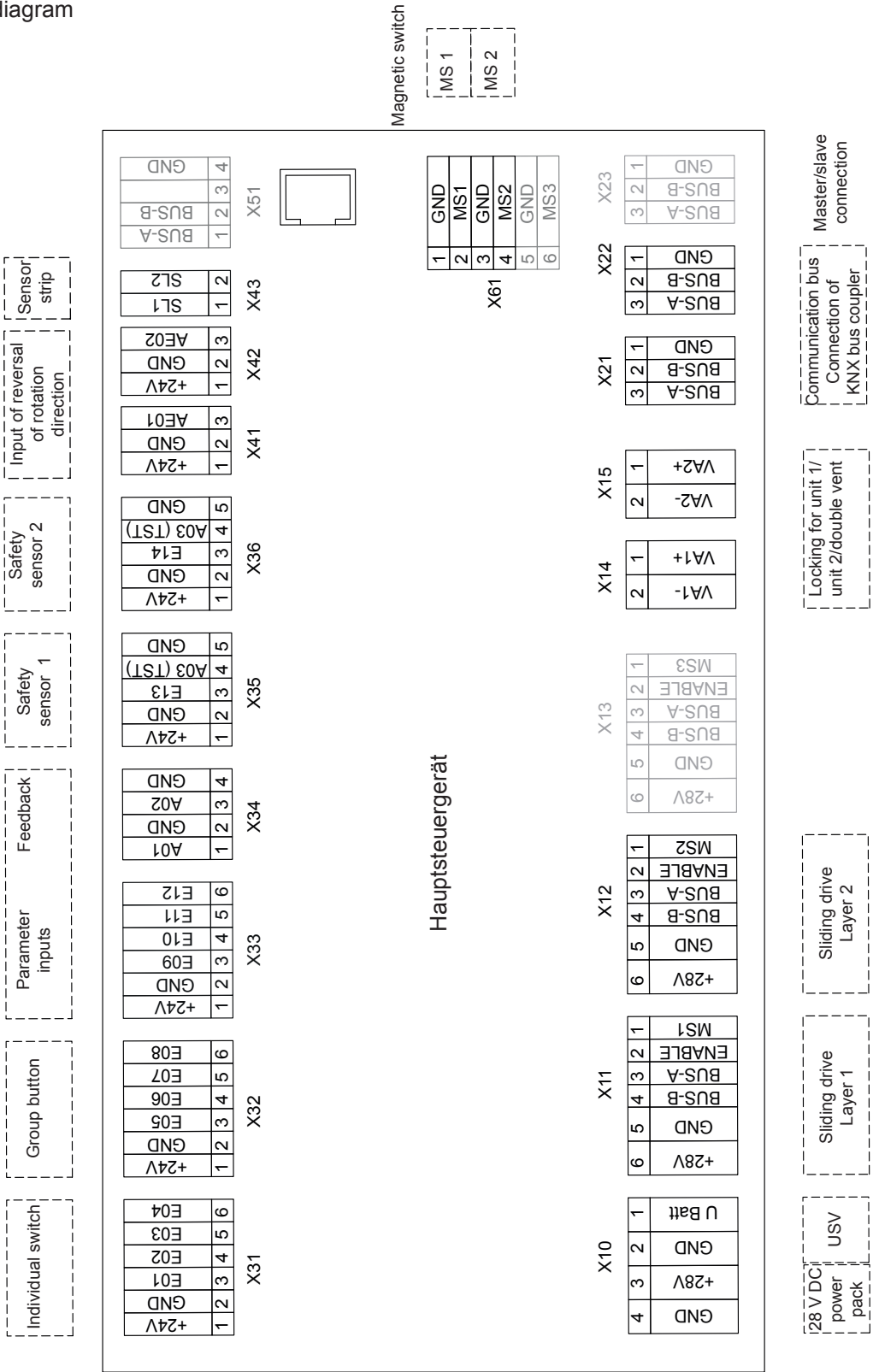
The descriptions of the wire colours are taken from the current international colour abbreviations in accordance with IEC 60757:

BK	Black
BN	Brown
BU	Blue
GD	Gold
GN	Green

GNYE	Green/yellow
GY	Grey
OG	Orange
RD	Red
SR	Silver

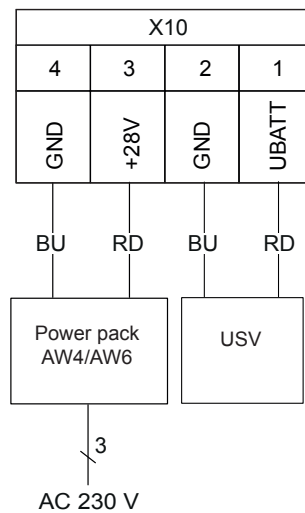
TQ	Turquoise
VT	Violet
WH	White
YE	Yellow
PK	Pink

Circuit diagram

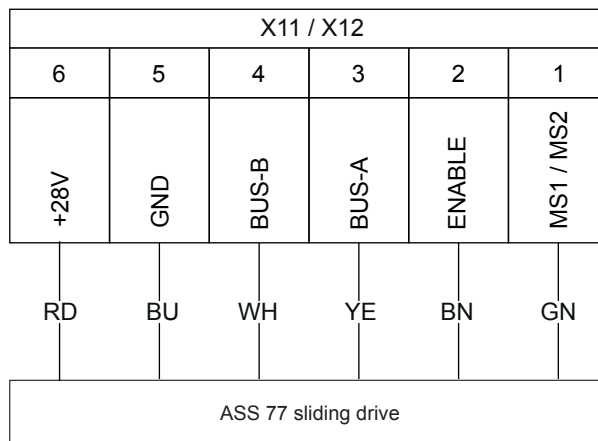


5.2.1 Connection of sliding drive, locking device and contacts

X10 - Connection to power supply



PIN	Configuration	Colour	Description
X10.1	UBATT	RD	Connection of UPS (uninterrupted power supply)
X10.2	GND	BU	
X10.3	+28 V	RD	Connection to power pack
X10.4	GND	BU	

X11 and X12 - Connection to sliding drive

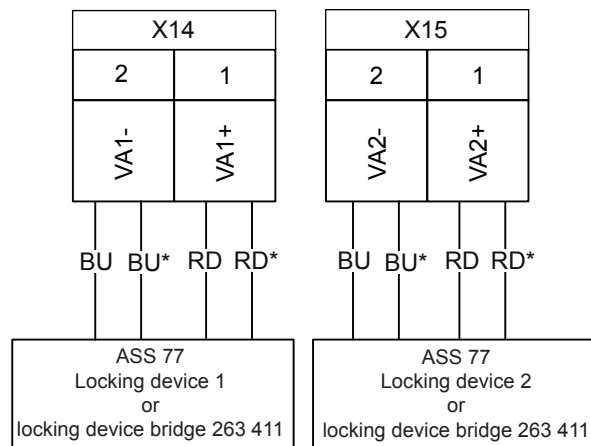
PIN	Configuration	Colour	Description
X11.1	MS1	GN	Connection of layer 1 sliding drive via connecting cable L1 and extension L1
X11.2	ENABLE	BN	
X11.3	BUS-A	YE	
X11.4	BUS-B	WH	
X11.5	GND	BU	
X11.6	+28 V	RD	

PIN	Configuration	Colour	Description
X12.1	MS2	GN	Connection of layer 2 sliding drive via connecting cable L1 and extension L1
X12.2	ENABLE	BN	
X12.3	BUS-A	YE	
X12.4	BUS-B	WH	
X12.5	GND	BU	
X12.6	+28 V	RD	

Where sliding drive S23 is used, the direction of rotation of some drives must be reversed for system types 2D, 2D-90, 2D/1, 2D/1-90, 3E/1, 3F and 3F-90. See the description of terminals X41 / X42 in these instructions.

**INFORMATION**

The assignment of sliding drive and connection can be found in the connection diagrams in the Appendix.

X14 and X15 - Connection to locking device

PIN	Configuration	Colour	Description
X14.1	VA1+	RD RD*	Connection of locking device via connecting cable L2 and extension L2 or direct connection of the locking device bridge**
X14.2	VA1-	BU BU*	

PIN	Belegung	Farbe	Beschreibung
X15.1	VA1+	RD RD*	Connection of locking device via connecting cable L2 and extension L2 or direct connection of the locking device bridge**
X15.2	VA1-	BU BU*	

Assignment of locking device layers

Type	Terminal			
	MCU 1 (master)		MCU 2 (slave)	
	X14	X15	X14	X15
2A/1	Layer 1	-		
2A	Layer 1	Layer2		
2B	Layer 1	-	Layer1	-
2D/1	Double vent	-		
2D/1-90	Double vent	-		

Type	Terminal			
	MCU 1 (master)		MCU 2 (slave)	
	X14	X15	X14	X15
2D	Layer1	Double vent	Layer1	-
2D-90	Layer1	Double vent	Layer1	-
3E/1	Bridge	Layer2		
3F	Bridge	Double vent		
3F-90	Bridge	Double vent	Bridge	-

Layer 1 - Locking device for layer 1

Layer 2 - Locking device for layer 2

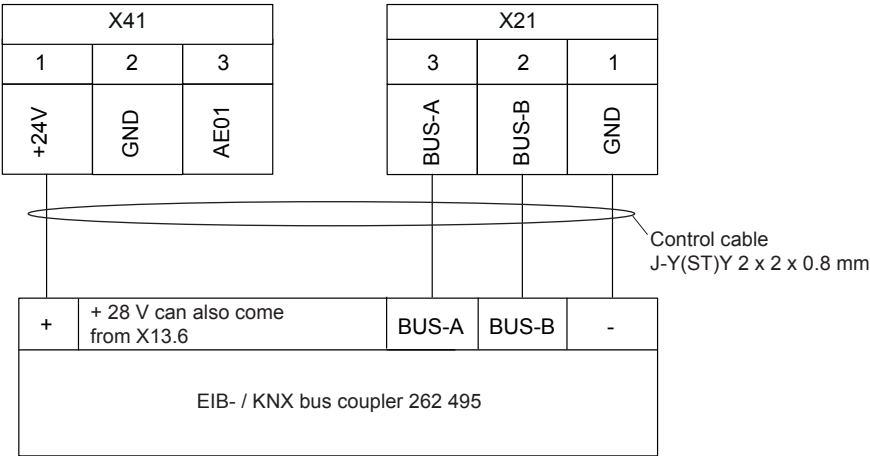
Double vent - Double-vent locking device

Bridge - locking device bridge

* The optional 2nd connecting cable is only required for an RC2 configuration / increased security.

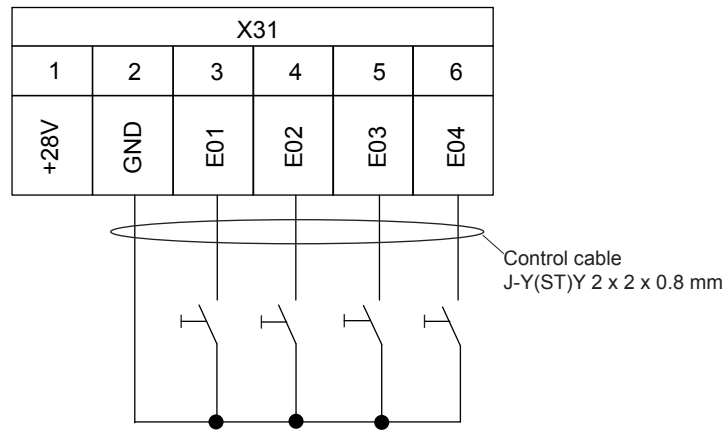
** The locking device bridge is only used on an X14 / X15 MCU terminal if no locking device is desired by the master control unit expects locking device.

X21 and X41 - connection to communication bus



PIN	Configuration	Colour	Description
X41.1	+24V	BN	Power supply

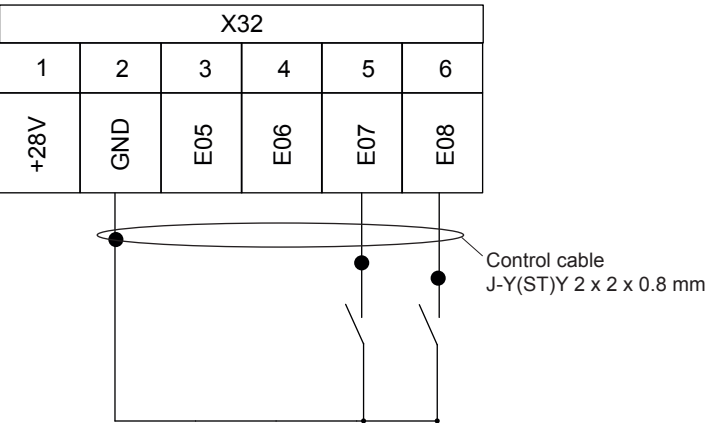
PIN	Configuration	Colour	Description
X21.1	GND	BU	Communication bus Connection of KNX bus coupler
X21.2	BUS-B	WH	
X21.3	BUS-A	YE	

X31- Anschluss Ansteuerung Einzel-Layer

PIN	Configuration	Colour	Description
X31.1	+28V	-	-
X31.2	GND	-	-
X31.3	E01	-	Open layer 1 Single button operation: Open and close L1
X31.4*	E02	-	Close layer 1*
X31.5	E03	-	Open layer 2 Single button operation: Open and close L2
X31.6*	E04	-	Close layer 2*

* Not used for single button operation

X32 - Connection to control unit group



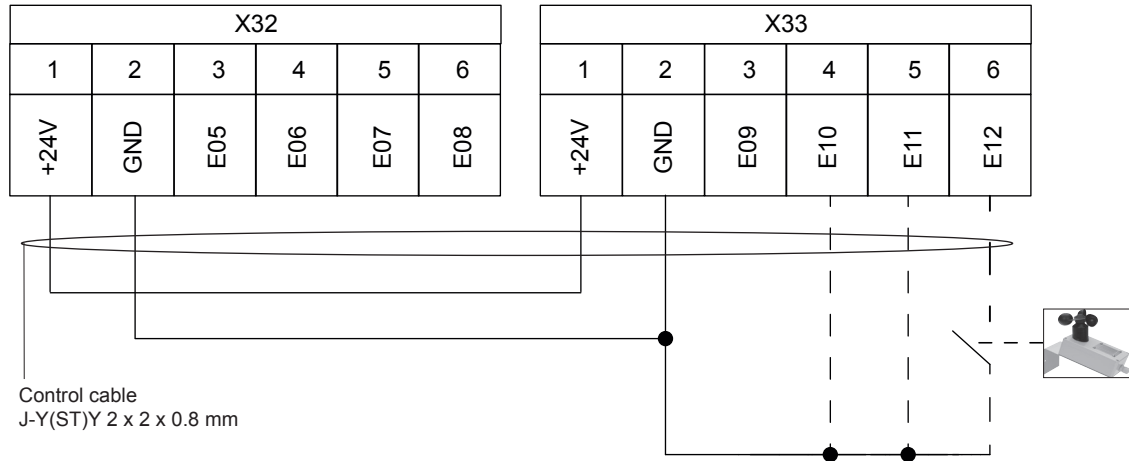
PIN	Configuration	Colour	Description
X32.1	+28V	-	
X32.2	GND	-	
X32.3	E05	-	
X32.4	E06	-	
X32.5	E07	-	Type-dependent control 2A+2A/1: Open layer 1 2B: Open layer 1 2D+2D-90: Open layer 2 2D/1+2D/1-90: Open layer 1 and layer 2 3E/1: Open layer 1 and layer 2 3F+3F-90: Open layer 1 and layer 2
X32.6*	E08	-	Type-dependent control 2A+2A/1: Close layer 1 2B: Close layer 1 2D+2D-90: Close layer 2 2D/1+2D/1-90: Close layer 1 and layer 2 3E/1: Close layer 1 and layer 2 3F+3F-90: Close layer 1 and layer 2

* Not used for single button operation



INFORMATION

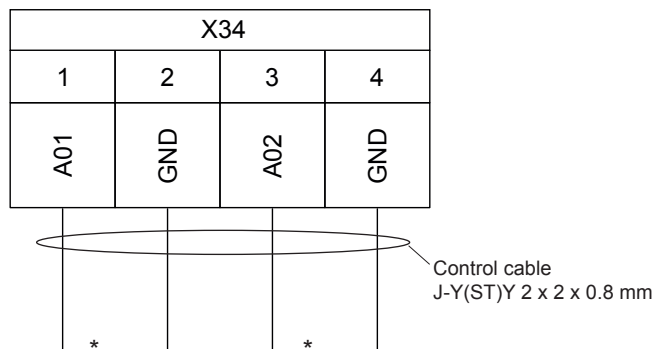
For system types with two MCUs (“master/slave”), see Section 5.2.4, “Connection of the 2nd MCU”... of these installation and operating instructions.

X33 - Parameters - inputs (optional)

PIN	Configuration	Colour	Description
X33.1	+24 V	-	Supply voltage via potential isolation (X32.1 and X32.2)
X33.2	GND	-	
X33.3	E09	-	-
X33.4	E10	-	“Activate” single button operation
X33.5	E11	-	“Activate” 90° cornerCorner double-vent mode
X33.6	E12	-	Connection to wind and rain sensor

**INFORMATION**

The inputs must be set before programming.

X34 - Outputs for layer feedback

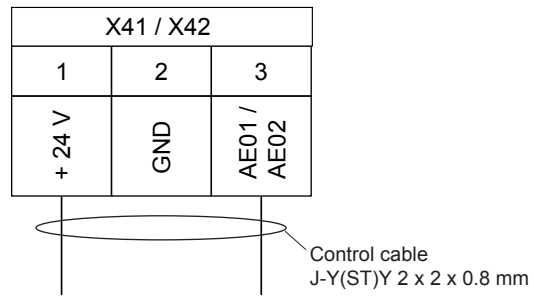
* 28V DC, I_{max} = 200 mA

PIN	Configuration	Colour	Description
X34.1	A01	-	Layer open** / type-dependent control: 2A + 2A/1: Layer 1 open 2B: All layers open 2D + 2D-90: Layer 2 (master and slave) open 2D/1 + 2D/1-90: All layers open 3E/1: All layers open 3F + 3F-90: All layers open
X34.2	GND	-	
X34.3	A02	-	All types: All layers closed
X34.4	GND	-	

** The “open notification” only appears if the relevant layer is completely open.

X41 and X42 - reversal of rotation direction of drive

Required when using sliding drive S23 (291 000).



PIN	Configuration	Colour	Description
X41.1 / X42.1	+ 24 V	—	
X41.2 / X42.2	GND	—	
X41.3 / X42.3	AE01 / AE02	—	Input of reversal of rotation direction

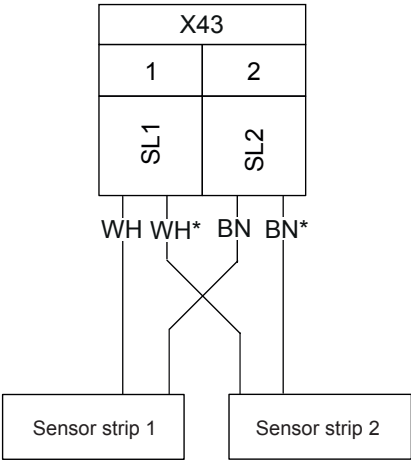
Wiring with 24 V for change in rotation direction of sliding drive S23

Type	Terminal			
	MCU 1 (master)		MCU 2 (slave)	
	X41.3	X42.3	X41.3	X42.3
2D 2D-90	—	x	—	x
2D/1 2D/1-90	x	x		
3E/1	x	—		
3F 3F-90	x	x	x	x

**INFORMATION**

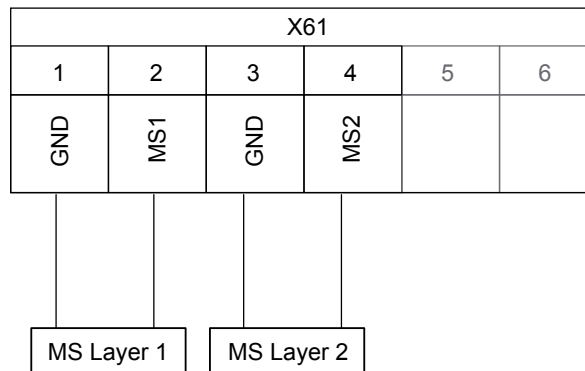
The inputs must be set before programming.

X43 - ASS 77 PD sensor strip



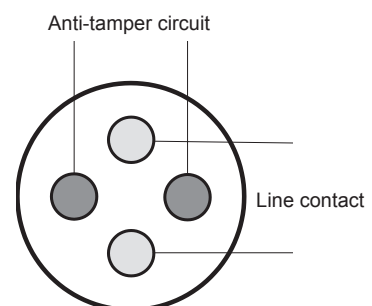
PIN	Configuration	Colour	Description
X43.1	SL1	WH WH*	Connection of sliding drive via connecting cable L5 and extension L5 for a sensor strip
X43.2	SL2	BN BN*	

* When using 2 sensor strips (type 2D/1 and 2D/1-90)

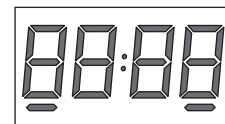
X61 - ASS 77 PD magnetic switch

PIN	Configuration	Colour	Description
X61.1	GND	-	Connection to magnetic switch for layer 1
X61.1 + X61.2	MS1	-	
X61.3	GND	-	Connection to magnetic switch for layer 2
X61.3 + X61.4	MS2	-	

Ensure that the wires of the line contact (30 mm stripped and 8 mm stripped) and not the wires of the anti-tamper circuit (10 mm stripped) are connected.



The display can be used to check this. It shows the triggering of magnetic switch MS1 with a line under the number on the far left and the triggering of magnetic switch MS2 with a line under the number on the far right.



Connection of security sensors to main control unit

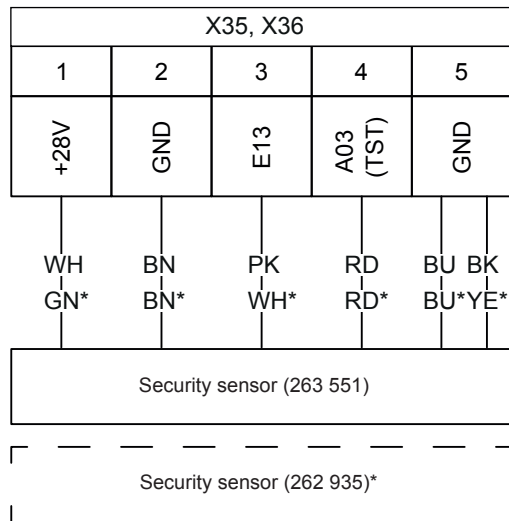
Assignment and connection of the safety sensors

Type	Terminal			
	MCU 1 (master)		MCU 2 (slave)	
	X35	X36	X35	X36
2A/1	Layer 1	+		
2A	Layer 1	Layer2		
2B	Layer 1	+	Layer1	+
2D/1	Double vent	-		
2D/1-90	Layer 1	Layer2		

Type	Terminal			
	MCU 1 (master)		MCU 2 (slave)	
	X35	X36	X35	X36
2D	Layer 1	Layer2	Layer 1	Layer2
2D-90	Layer 1	Layer2	Layer 1	Layer2
3E/1	Layer 2	-		
3F	Layer 2	-		
3F-90	Layer 2	-	Layer 2	-

- Layer 1 - Safety sensors for protection of main closing edge of layer 1
 Layer 2 - Safety sensors for protection of main closing edge of layer 2
 Double vent - Safety sensors for protection of main closing edge in the double-vent area
 + - Fixed light, safety sensor for protection of secondary closing edge of layer 1 in SK3 / 4

Connection of one safety sensor to terminal X35 or X36



PIN	Configuration	Colour	Description
X35.1 / X36.1	+28V	WH/GN*	Power supply
X35.2 / X36.2	GND	BN/BN*	
X35.3 / X36.3	E13 / E14	PK/WH*	Safety exit
X35.4 / X36.4	A03 (TST) / A04 (TST)	RD/RD*	Safety exit (testing)
X35.5 / X36.5	GND	BK/YE* BU/BU*	Earth (GND)

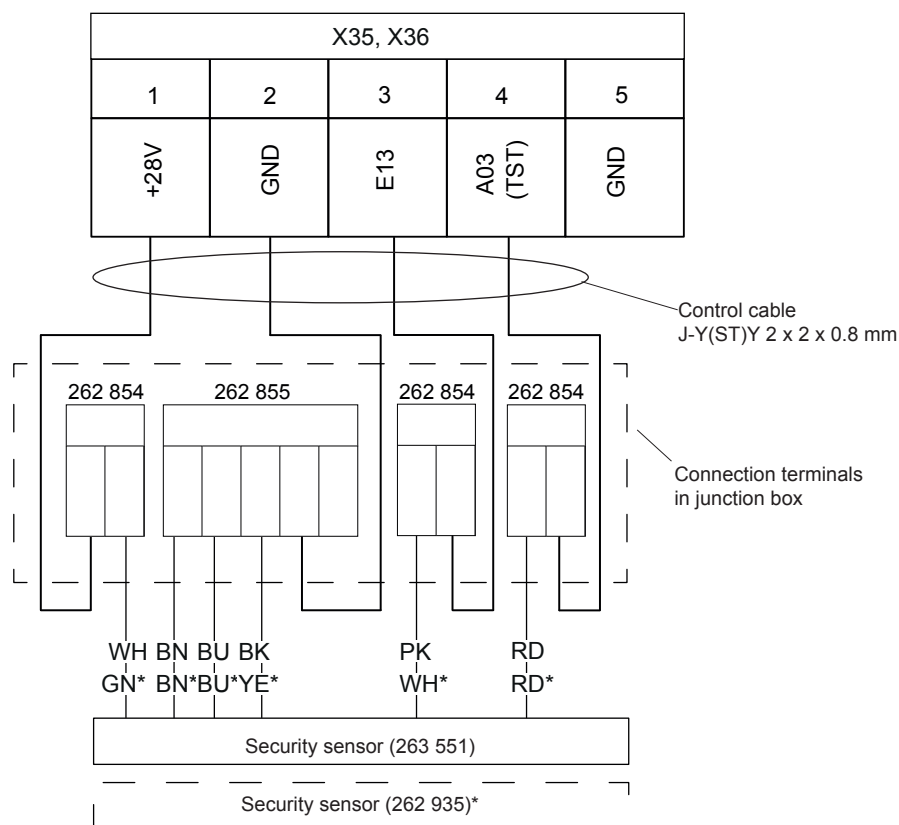
* alternative for sensor 262 935



INFORMATION

- For the setting of the DIP switch to the safety sensor, see Section 5.2.2, “Setting the sensor for commissioning”.
- The assignment of safety sensor and connection can be found in “Allocation and connection of the safety sensors” table in this section and in the connection diagrams in the Appendix.

Connection of one safety sensor to terminal X35 or C36, extended with a 4-core control cable



PIN	Configuration	Colour	Description
X35.1 / X36.1	+28V	WH/GN*	Power supply
X35.2 / X36.2	GND	BN/BN* BU/BU* BK/YE*	Earth (GND)
X35.3 / X36.3	E13 / E14	PK/WH*	Safety exit
X35.4 / X36.4	A03 (TST) / A04 (TST)	RD/RD*	Safety exit (testing)
X35.5 / X36.5	GND	-	-

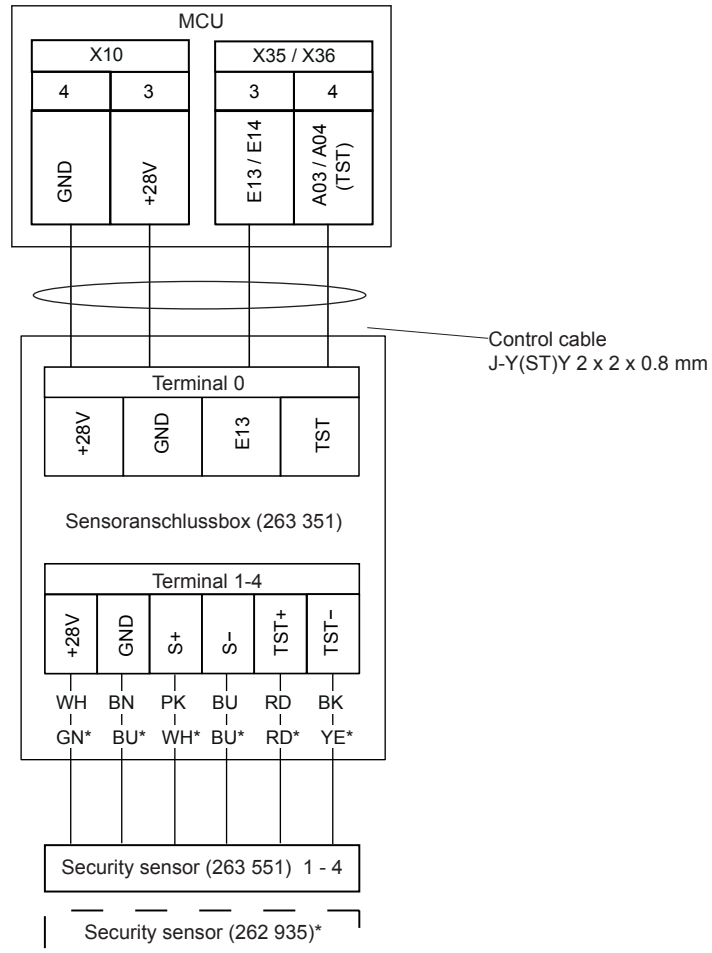
* alternative for sensor 262 935



INFORMATION

- For the setting of the DIP switch to the safety sensor, see Section 5.2.2, “Setting the sensor for commissioning”.
- The assignment of safety sensor and connection can be found in “Allocation and connection of the safety sensors” table in this section and in the connection diagrams in the Appendix.

Connection of two to four safety sensors to terminal X35 or X36 via sensor junction box



Sensor junction box configuration

Number of sensors	DIP switch		Terminal			
	1	2	1	2	3	4
2	ON	OFF	x	—	—	x
3	OFF	ON	x	x	—	x
4	OFF	OFF	x	x	x	x

“X” - Connect sensor

“—” - Do not connect sensor



INFORMATION

- For the setting of the DIP switch to the safety sensor, see Section 5.2.2, “Setting the sensor for commissioning”.
- The assignment of safety sensor and connection can be found in “Allocation and connection of the safety sensors” table in this section and in the connection diagrams in the Appendix.

Main control unit terminal assignment

PIN	Configuration	Colour	Description
X10.3	+28V	-	Connection of power pack and power supply for safety sensors
X10.4	GND	-	
X35.3 / X36.3	E13 / E14	-	Safety exit
X35.4 / X36.4	A03 (TST) / A04 (TST)	-	Safety exit (testing)

Sensor junction box terminal assignment

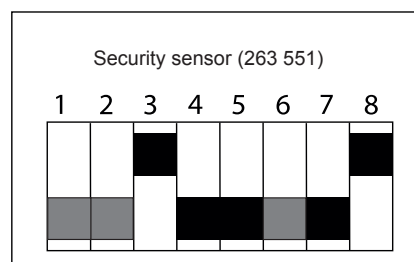
PIN	Configuration	Colour	Description
Terminal 0	+28V	-	Connection of power pack and power supply for safety sensors
	GND	-	
	E13	-	Safety exit
	TST	-	Safety exit (testing)
Terminal 1 - 4	+28V	WH/GN*	Power supply to security sensor 1 - 4
	GND	BN/BN*	
	S+	PK/WH*	Safety exit 1 - 4
	S-	BU/BU*	
	TST+	RD/RD*	Safety exit (testing) 1 - 4
	TST-	BK/YE*	

* alternative for sensor 262 935

Setting of safety sensor 263 551 during commissioning

After setting the DIP switch, confirm the desired values by pressing the programming or training button for >2 seconds.

DIP switch	Position
1	Sensor sensitivity – depends on the installation height (see enclosed sensor documentation)
2	
3	ON (top)
4	OFF (bottom)
5	OFF (bottom) *
6	OFF (bottom) *
7	OFF (bottom)
8	ON (top)

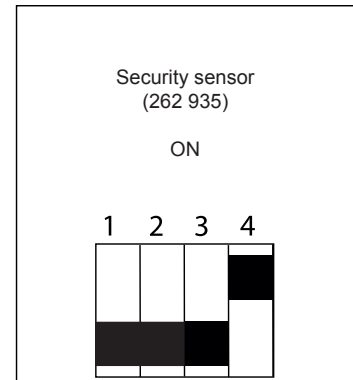


* If two or more sensors are installed closely adjacent to one another, you must set a different frequency for each sensor via these two DIP switches.

Alternative at SK2: Setting of safety sensor 263 935 during commissioning

After setting the DIP switch, confirm the desired values by pressing the programming or training button for >2 seconds.

DIP- Schalter	Position
1	OFF (bottom)
2	OFF (bottom)
3	OFF (bottom) *
4	ON (top)



* If two or more sensors are installed closely adjacent to one another, you must set a different frequency for each sensor via these two DIP switches.



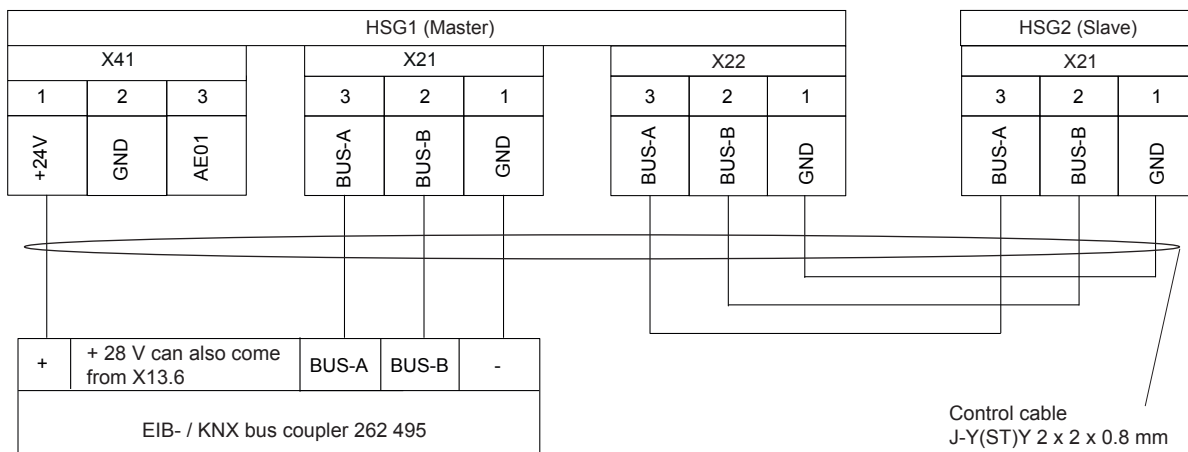
INFORMATION

For setting the detection area (width and angle) and other functions, observe the documentation enclosed with the sensor.

5.2.2 Connection of the second MCU required for type 2B, type 2D and type 3F

X22 MCU1 / X21 MCU2 - KNX bus

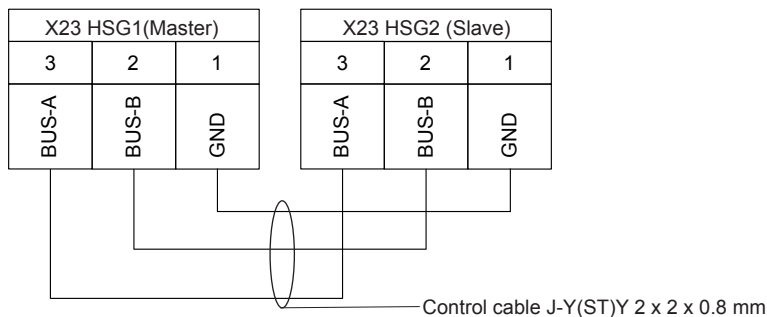
Connection of the communication bus is only required when using a superordinate building automation system (KNX / EIB)



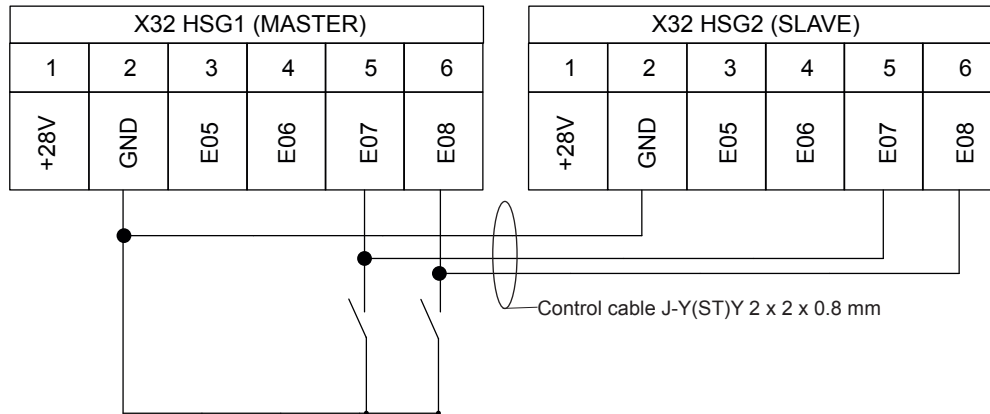
PIN	Configuration	Colour	Description
X41.1	+24V	BN	Power supply

PIN	Configuration	Colour	Description
X21.1 / X22.1	GND	-	Communication bus Connection of KNX bus coupler
X21.2 / X22.2	BUS-B	-	
X22.3 / X22.3	BUS-A	-	

X23 MCU1 / MCU2 - Master/slave communication link

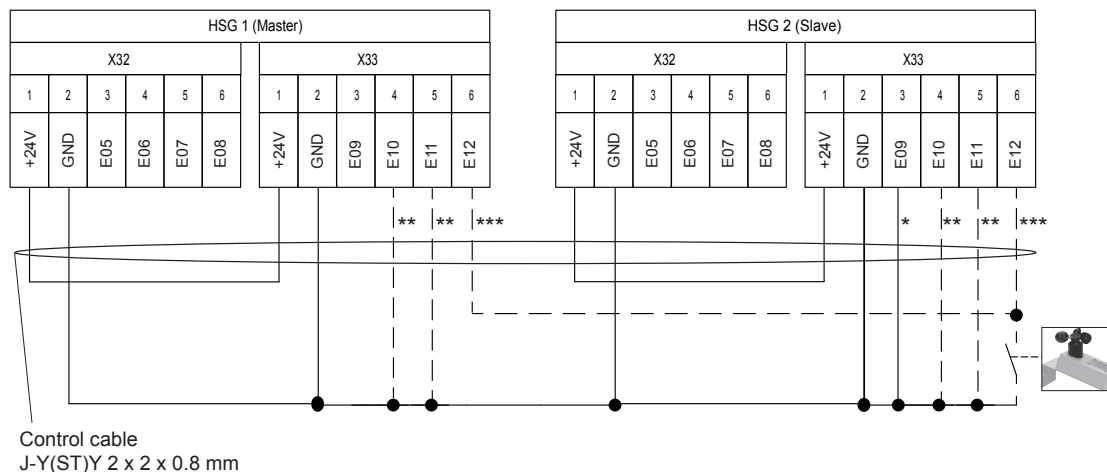


PIN	Configuration	Colour	Description
X23.1	GND	-	Connection for master/slave communication
X23.2	BUS-B	-	
X23.3	BUS-A	-	

X32 MCU1 / MCU2 - connection to control unit group

PIN	Configuration	Colour	Description
X32.1	+28V	-	
X32.2	GND	-	
X32.3	E05	-	
X32.4	E06	-	
X32.5	E07	-	Type-dependent control 2B: Open layer 1 (MCU 1) and layer 1 (MCU 2) 2D + 2D-90: Open layer 2 (MCU 1) and layer 2 (MCU 2) 3F + 3F-90: Open all layers
X32.6	E08	-	Type-dependent control 2B: Close layer 1 (MCU 1) and layer 1 (MCU 2) 2D + 2D-90: Close layer 2 (MCU 1) and layer 2 (MCU 2) 3F + 3F-90: Close all layers

X33 MCU1 / MCU2 – parameter -inputs



PIN	Configuration	Colour	Description
X33.1	+24 V	-	Supply voltage via potential isolation (X32.1 and X32.2)
X33.2	GND	-	
X33.3	E09	-	slave operation*
X33.4	E10	-	Single button operation**
X33.5	E11	-	“Activate” 90° cornerCorner double-vent mode**
X33.6	E12	-	Connection to wind and rain sensor***

* The slave function of the 2nd control unit is activated by means of the X33.3 terminal (MCU 2 - slave) It is essential to set this input.

** For systems with 2 MCUs (master/slave), this input must be set on both MCUs if required.

*** If a wind and rain sensor is built into the system, its output must be connected to both the 1st MCU (master) and the 2nd MCU (slave).



INFORMATION

The inputs must be set before programming.

6. Commissioning



CAUTION

Risk of crushing and possible damage to property.
In commissioning mode, the layers only travel slowly.
The position of the layers is not monitored.

- ▶ Take care when moving the layers.
- ▶ Ensure that the layers do not collide.



NOTE

Damage to property
Prolonged use can lead to excessive warming and destruction of the locking device.

- ▶ Never operate the locking device for more than 5 seconds.

6.1 Using the commissioning kit



INFORMATION

- Operating the sliding drive is only possible approx. 5 seconds after the connection of the power supply
- The commissioning kit is intended only for use of the functions listed below.
- For regular operation, the ASS 77 must be initialised using the commissioning procedure (see "Launching commissioning mode and selecting a system type" section)

You can operate the sliding drives and the locking devices without connection to the main control unit. Use the ASS 77 PD commissioning kit to do this. (263 054)

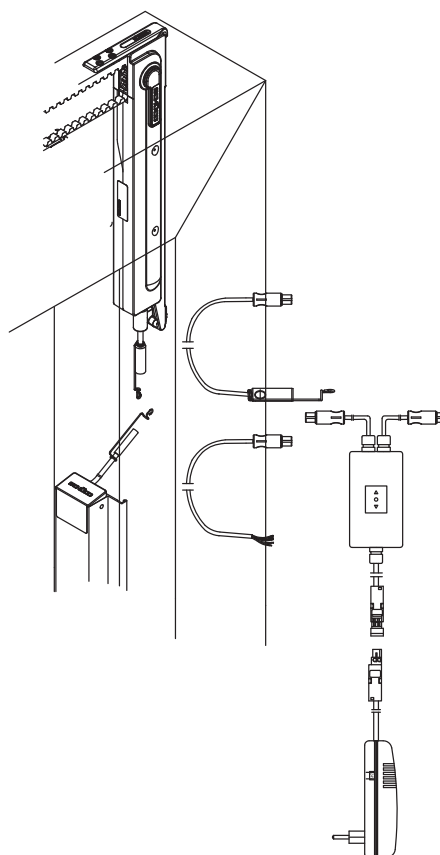
The plug for the sliding drive and the locking device are protected against inverse polarity.

By pressing the rocker switch, the respective drive can be operated.

Only one sliding drive or one locking device can be connected to the commissioning kit at a time - not both simultaneously.

Operation of the drives is necessary for the following tasks:

- Testing the function of the sliding drive
- Threading the drive belt
- Testing the magnetic switch and magnet position
- Testing the function of the locking device
- Checking the hole in the vent frame for the locking device



6.2 Prerequisites/preparation

Check that:

- The ASS 77 PD is fully mechanically adjusted and operates smoothly.
- The magnetic switch is activated for the individual sliding units in the closed position and connected to the main control unit (see information about magnetic switches on page 27).
- The electrical components (main control unit, sliding drives, locking device, etc.) are installed and connected correctly.
- The safety sensors are connected and set.

6.3 Display of operating statuses

Displays which refer to layers

On the display, an “x” represents the number of the layer.

For example, Lx:15 L1:15 The opening position of layer 1 is confirmed
=

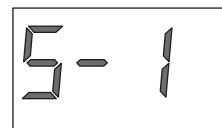
L2:15 The opening position of layer 2 is confirmed

Display	Description	Command input
0000	Normal mode	Not required
SL_	MCU is slave	Wait for master
---	MCU is master	Wait for slave
L :01	--	Not required
L :02	Calibration of the safety sensor is initiated	Not required
L :03	Programming the first safety sensor	See 6.5
L -03	Programming the second safety sensor	See 6.5
L :04/ L :05	Calibration of the sensor strip is initiated	See 6.5
L :06	Sensor strip was triggered	Not required
L :07	Locking device is opened	Not required
L :08	Addresses are being transmitted to the motor control unit	Not required
L :09	Readout of the firmware version of the motor control unit	Not required
L :10	Parameter exchange with motor control units	Not required
L :11	Waiting for layer selection	See 6.6
L :12	---	See 6.6
Lx:13	Layer closing	See 6.6
Lx:14	Recognised close position	siehe 6.6

Display	Description	Command input
Lx:15	Layer opening	See 6.6
Lx:16	Open position detected, wait for confirmation of final position	See 6.6
L :17	Query current position of the layer	Not required
L :18	Check that all layers have been programmed	Not required
L :19	Waiting for final closing run of commissioning	See 6.7
L :20	Close command detected → final closing run started	Not required
L :21	Wait until all layers are closed	Not required
L :22 - L :28	Calibrating the locking device and completing setup	Not required

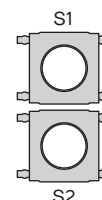
6.4 Launching commissioning mode and selecting a system type

Upon delivery, the system is already in commissioning mode. The commissioning mode is indicated on the display of the main control unit via the notification S -1.



In order to access the commissioning mode for commissioning at a later date, press the S1 button on the main control unit for approx. 10 seconds until the notification S -1 appears on the display.

The S1 and S2 buttons for programming the layers are located on the main control unit next to the display.

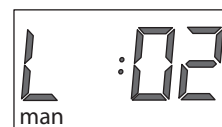
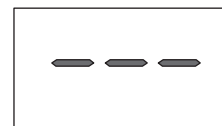


INFORMATION

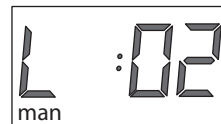
For the operation of 2 main control units, each main control unit requires programming.

1. Main control unit ("master")

1. Press the S1 button once again if you are in commissioning mode.
 - » You are now in the selection for the system type.
2. By pressing the S1 button several times, you can navigate through the system types on the display.
3. Navigate to the desired system type and confirm your selection by holding the S2 button down until the display goes blank (approx. 3 seconds). Now release the S2 button.
 - » If the system is a master/slave type, - - - appears on the display.
4. If 1 MCU is used, L :02 appears on the display and programming of the safety units can begin (6.5).



5. Repeat steps 1 - 3 from the first main control unit on the second main control unit (slave).
 - » Following selection of the system type for the second main control unit ("slave"), SL or L :02 appears on the display and programming of the safety units can begin (6.5).



6.5 Programming the safety sensors and sensor strip

Depending on the type, the system is equipped with varying numbers of safety units. Not every system has sensor strips.

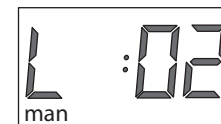


INFORMATION

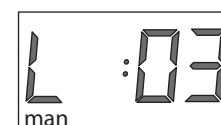
For the operation of 2 main control units, each main control unit requires programming.

Proceed as follows:

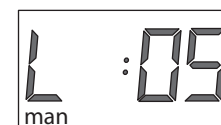
While the calibration of the safety sensors is initiated, L :02 appears on the display.



Now trigger each safety sensor once, one after the other. During the test run, L :03 or L -:03 appears on the display.



If a sensor strip is installed, the display changes to L :05. The calibration of the sensor strip is initiated. Now trigger every installed sensor strip once. (If no sensor strips are installed, the display changes to L :07)



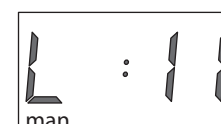
If the triggering of the sensor strip was recognised, the display changes to L :06.



Then the display changes to L :07 initially, while the locking devices are opened.



Finally, the display changes to L :11 (layer selection). Programming of the safety units is complete. Now you can program the layers.



6.6 Programming the layers



CAUTION

Risk of crushing and possible damage to property.
In commissioning mode, the layers only travel slowly.
The position of the layers is not monitored.

- ▶ Take care when moving the layers.
- ▶ Ensure that the layers do not collide.



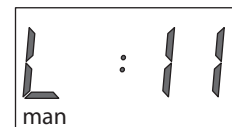
INFORMATION

- For initial commissioning, the layers must be open by at least 40 cm to enable calculation of the power needed when closing into the gasket.
- When operating a master/slave system, each main control unit requires programming.

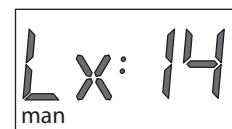
Programming the “Closed” position

On the display, an “x” represents the number of the layer.

Our starting point is L :11.

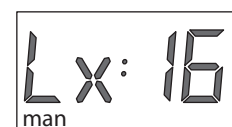
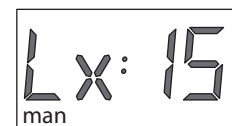


1. To select the layer, press the “Close” button once.
 - » Following the layer selection, Lx:13 appears on the display.
 - » At this point, ensure that the layer to be programmed can travel to its closed position without any collisions. In order to guarantee this, it is possible to move the layer which is not being programmed.
2. Press the “Close” button and hold it down until the main control unit has recognised the closed position.
 - » Lx:13 appears on the display during the closing run.
 - » Once the main control unit has recognised the closed position, the display changes to Lx:14.
3. Now release the “Close” button.
 - » The programming of the “Closed” position is complete.

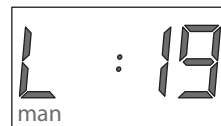
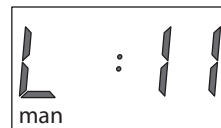


Programming the “Open” position

4. Press the “Open” button and hold it down until the layer has reached the desired opening width.
 - » Lx:15 appears on the display during the movement.
 - » In order to prevent a collision between the layers, you can move the layer which is not being programmed by means of button inputs.
 - » Once the main control unit has recognised the end position, the display changes to Lx:16.
 - » Alternatively, the end position can also be defined manually, by carrying out step 5 at the desired position.



5. Confirm the end position by briefly pressing the S2 button. Then wait for 2-3 seconds.
 - » If further layers must be programmed, the display changes to the starting point L :11 once more (layer selection). In order to bring the additional layer to be programmed to the required minimum opening width of 40 cm, you now have the possibility of moving the layer in the opening direction (only). Where appropriate, you must first move the layer which was previously programmed. Following this, proceed as with the programming of the first layer (point 1).
 - » If there are no further layers to be programmed, the display changes to L :19. Continue with the “Completing commissioning” section.



6.7 Completing commissioning



INFORMATION

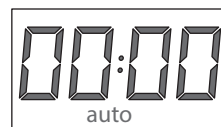
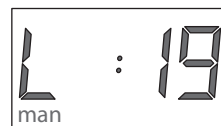
When operating a master/slave system, each main control unit requires programming.

Our starting point is L :19 (waiting for final closing run).

Press the “Close” button for all programmed layers and wait until the layers are closed and locked. (Press the “Close” button even if the layers are already in the closed position.)

L :20 to L :26 appear on the display in quick succession.
In so doing, all locking devices open and close.

All existing layers have now been programmed.
The system switches to operating mode (00:00)



6.8 Testing the functions

- After programming, test the correct functioning of the individual layers by fully opening and closing each layer three times.
- Also check the function of the safety sensors.

6.9 Perform factory reset

1. In order to carry out a factory reset, press the S1 button on the main control unit for approx. 10 seconds until the notification S -1 appears on the display.
2. Press the S1 button once more to access the system type selection. By pressing the S1 button several times, you can navigate through the system types on the display.
3. Navigate to the entry “r ES” and confirm this by holding the S2 button down for approx. 10 seconds until the system type previously programmed appears on the display.
 - » All previous settings will be lost. Set the correct system type once more. Now you can carry out commissioning afresh.

7. Operation

7.1 Operation by means of buttons or potential-free contacts

Movement command	Description
Press "Open layer"	Layer opens
Press "Close layer"	Layer closes
Press "Open layer" or "Close layer" while the unit is moving	Layer stops during travel
Press "Open layer" and "Close layer" simultaneously	Layer stops during travel

7.1.1 Type-dependent system properties - button control

- For type 2A, only one layer can be opened simultaneously
- For type 2D, only the inner or outer layers can be opened simultaneously
- For type 3E/1, layer 1 cannot be opened individually
- For type 3F, layer 1 master and layer 1 slave cannot be opened individually

7.2 Operation using the Schüco ASS 77 communication bus

The main control unit can be connected to its functions for the layer units by bus coupler (262 495) in a superordinate building automation system (KNX/EIB).



INFORMATION

Each system must be provided with its own bus coupler.

The following movement commands and notifications can be sent to the building automation system:

Function	Description	Address	Project name
Open/close	Layer opens/closes	1/1 - 1/30	Window 01 - 30 Open/close
Positioning	Layer opens to pre-set opening width in %	1/31 - 1 /60	Window 01 - 30 Position
Stop	Layer stops	Selection function	Window 01 - 30 Selection function
Report status	Layer is: locked, partly open, open, opening, closing	1/121 - 1/150	Window 01 - 30 Status
Report opening width	Opening width of the layer in %	1/151 - 1/180	Window 01 - 30 Position notification



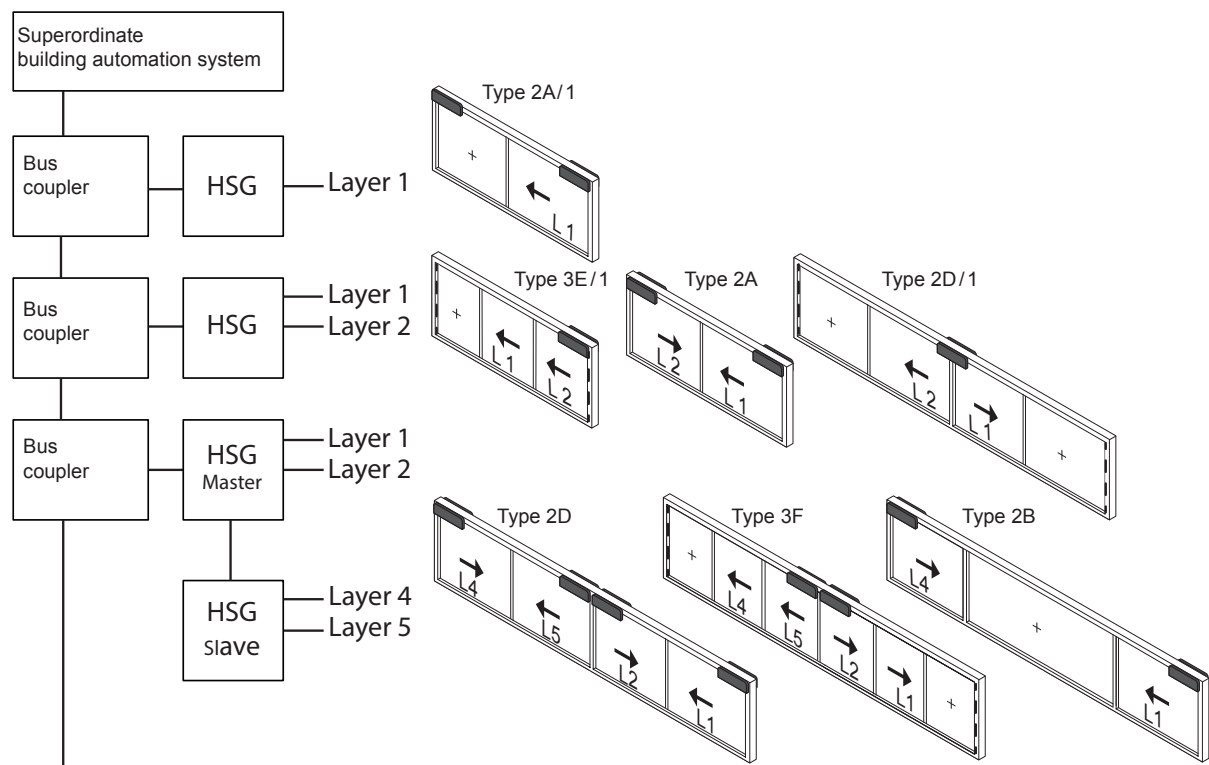
INFORMATION

The "TIP30-F communication objects" application required for the KNX gateway is available from:
Building Automation Technical Support: (0049) 0521 783 - 665
E-mail: Support_Automation@schueco.com

7.2.1 Type-dependent system properties - BUS control

In contrast to the type-dependent properties of button control, the following system properties apply to BUS control:

- Applies to all types: Group command is not supported. For complete opening of the system (e.g. type 2D/1) the open command for layer 1 and layer 2 must be sent promptly.
- For type 3E/1, an open or close command for layer 2 causes the system to open or close fully. Smaller opening widths can be started up by means of the position movement for layer 2.
- For type 3F, an open or close command for layer 2 + layer 4 causes the system to open or close fully. Smaller opening widths can be started up by means of the position movement for layer 2 + layer 4. If only half of the system is opened, command must only be sent to layer 2 or layer 4 of an MCU.



7.3 Safety devices

The ASS 77 PD has a number of safety devices:

- Finger-trap protection software: triggers if the layer comes into contact with an obstacle
 - Overload protection: triggers if the layer jams (e.g. due to snow, dirt, foliage, etc.)
 - Safety sensor: triggers if movement is detected in the detection range of the assigned layer
 - Sensor strip*: triggers if the sensor strip is triggered (pressed) when the assigned layer is opening.
- * Not installed on all types

After triggering a safety function, the layer reverses, i.e. the layer stops the movement, opens a few centimetres and is then stationary. A notification is displayed on the control unit (see Section 8). The layer is in normal mode and expects a movement command.

7.4 Procedure following power failure

If the system is closed and locked at the moment of reconnection to the main power supply, it takes around 10 seconds for the system to be ready for use.

However, if one or more layers are not locked, the notification -- 02 appears on the display of the control unit after the reconnection to the main power supply. In this case, press the "Close" button for the opened layer in order to close it at a slow speed (opening is not possible in this mode).

The system then locks and switches back to the normal operating mode.

8. Faults and troubleshooting

Displays which refer to layers

Error messages will remain on the display until you acknowledge them by pressing the S1 button. On the display, an “x” represents the number of the layer.

For example,
Ex:02

E1:02 Layer 1 encountered
an obstruction

E2:02 Layer 2 encountered
an obstruction

Notifi- cation	Possible cause	Solution
Ex 01	Drive overloaded	Allow motor to cool down
Ex 02	Layer x encountered an obstruction	Not necessary, layer x in normal operation (see “Safety devices” section)
Ex 3	Brief communication error between MCU and drive	Not necessary Layer x in normal operation
Ex 10	“Open” button has been pressed during system start-up	Do not operate during system start-up (see “Safety devices” section)
Ex 51	Communication error between control unit and layer 1	If the system is inoperable: Check the connection between the main control unit and layer x and restart the system
Ex 52	Communication error between control unit and layer 2	
Ex 57	Layer 1 has not received a stop confirmation	
Ex 58	Layer 2 has not received a stop confirmation	
Ex 81	Layer x has no or only intermittent bus communication	If the system is inoperable: Check the connection between the main control unit and layer x and restart the system
Ex 82	Fault in motor control unit	
Ex 83	EEPROM layer unit x is not working properly	
Ex 84	Layer x has reached the maximum travel time and is cooling down	After 4 minutes, layer x can be used as normal again
Ex 85	Magnetic switch is incorrectly connected and sends a constant signal	Ensure that the correct wires for connecting the magnetic switch have been used (see description of terminal X61 in the “Electrical connection” section)
	MCU enable signal has become inactive while the motor is running	If the system is inoperable: Check the connection between the main control unit and layer x and restart the system
Ex 86	Motor direction of rotation not valid	
Ex 87	Calculated motor speed too high	
Ex 88	Layer x has detected an incorrect speed control signal. Occurs regularly due to sluggishness (overloading) in slow speed area.	Layer x is in dead man operation mode. Move layer x to the closed position and press the “Close” button once more. If the error occurs more frequently, check that the mechanical operation up to the end positions is running smoothly. If the error continues to occur, replace the drive.

Notifi- cation	Possible cause	Solution
Ex 89 - Ex 96	Voltage too high or too low	If the system is inoperable: Check the connection between the main control unit and layer x and restart the system
Ex 97	Fault in end switch	Check position and connection of end switch
Ex 98	New command from the MCU not received on time	If the system is inoperable: Check the connection between the main control unit and layer x and restart the system
Ex 99	The drive for layer x has detected an excessive load or excessive current	Not necessary, layer x in normal operation (see "Safety devices" section)

System-specific displays:

Notifi- cation	Possible cause	Solution
-01	Voltage was interrupted - Problems with communication between the layers	Check whether all programmed layers are connected correctly
-02	Power cut - Reference cycle required	Move all layers to the closed position (see "Procedure following power failure" section)
-04	Opening the lock	Not necessary
-05	Wait until all layers of the other main control unit have finished the reference cycle	Move all layers to the closed position (see "Procedure following power failure" section)
--05	Layer in reference cycle, then lock the locking device	Not necessary
Er:01	EEPROM fault - initialisation of the system has failed	Restart the system
Er:04	Sensor strip disconnected	Check cabling / connection / terminal resistors of the sensor strip
Er:05	Sensor strip short circuit	Check the sensor strip for damage
Er:06	Sensor strip has triggered	Not necessary, layer x in normal operation (see "Safety devices" section)
Er:07	Safety sensor detection failed	Check cabling
Er:08	Fault in safety sensor	System functional: no solution System not functional: check cabling and safety sensor
Er:09	Safety sensor at terminal X35 has triggered	Not necessary, layer x in normal operation (see "Safety devices" section)
Er:10	Safety sensor at terminal X36 has triggered	
Er:11 - Er:12	Internal fault	Check button / open contact System functional: no action required System not functional: restart the system
Er:13	Locking device 1 blocked	Check locking device
Er:14	Locking device 2 blocked	

Notification	Possible cause	Solution
Er:31	Operation carried out although not currently permitted	Check button / open contact System functional: no action required System not functional: restart the system
Er:32	Power supply too low	If the system is inoperable: Check the power supply and restart the system
Er:33	Power supply too low	
Er:34	Battery voltage too low	
Er:35	Battery voltage too high	
Er:36 - Er:43	Internal fault	If the system is not functional: restart the system
Er:44	S1 button active for longer than 120 seconds	Check S1 button
Er:51	Communication error between control unit and layer 1	If the system is inoperable: Check the connection between the main control unit and layer x and restart the system
Er:52	Communication error between control unit and layer 2	
Er:54	Layer 1 encountered an obstruction	Not necessary, layer x in normal operation (see "Safety devices" section)
Er:55	Layer 2 encountered an obstruction	
Er:57	Layer 1 has not sent a stop confirmation	If the system is inoperable: Check the connection between the main control unit and layer x and restart the system
Er:58	Layer 2 has not sent a stop confirmation	
Er:60	Internal fault	If the system is not functional: restart the system
Er:61	Internal control bus: communication interrupted	Check cabling between the main control units
Er:79	Unknown bus command received	In configuration of the KNX / EIB bus coupler
Er:80 - Er:99	Internal fault	If the system is not functional: restart the system

9. Decommissioning and disposal



The materials used can be recycled. Observe the environmental requirements with regard to recycling, re-use and disposal of operating materials and components in accordance with the local, country-specific and international current technical regulations and official regulations. Make a contribution towards protecting our environment and dispose of the device at a collection point.

10. Service and support

You can reach your contact partners on the service phone numbers below:

Hotline – Metal systems

Please contact your local branch.

Technical Support – Smart Building

Monday – Thursday: 8.00 am – 4.30 pm
 Friday: 8.00 am – 3.00 pm
 Tel.: +49 (0) 521 - 783 665
 E-Mail: Support_Automation@schueco.com

11. Abbreviations index

ASS	Aluminium Sliding System
GFK	Glass fibre-reinforced plastic
MCU	Main control unit
NI	Non Insulation - Construction without thermal insulation
HI	High Insulation - Construction with a high level of thermal insulation
SI	Super Insulation - Construction with maximum thermal insulation
PD	Panorama Design
VDE	German association for electrical, electronic and information technologies
VFF	German Association of Window and Façade Manufacturers
WRM	Wind and rain sensor

12. Appendix - circuit diagrams

Notes on the drawings

All views are shown from the inside.

Lay cables up to exit point A with extension cables inside the outer frame. Lay cables from exit point A with connecting cables outside the outer frame.

If two or more of the same components are installed, the connections are given in the sequence: layer 1, layer 2. Example: sliding drive S22, connection X11, X12: connect drive from layer 1 to X11 and drive from layer 2 to X12.

- * Safety sensor mounted on the inside
- ** Safety sensor mounted on the outside

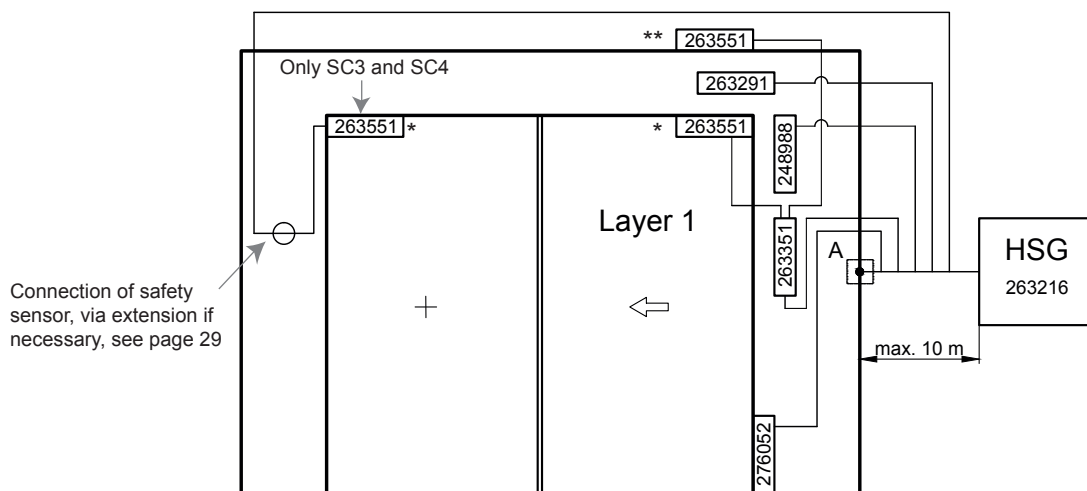
90 A System type designed as 90 degree outer corner, e.g. 2D-90 A

90 I System type designed as 90 degree inner corner, e.g. 2D-90 I

12.1 ASS 77 PD SI.NI with sliding drive S22

Taken from K1018193

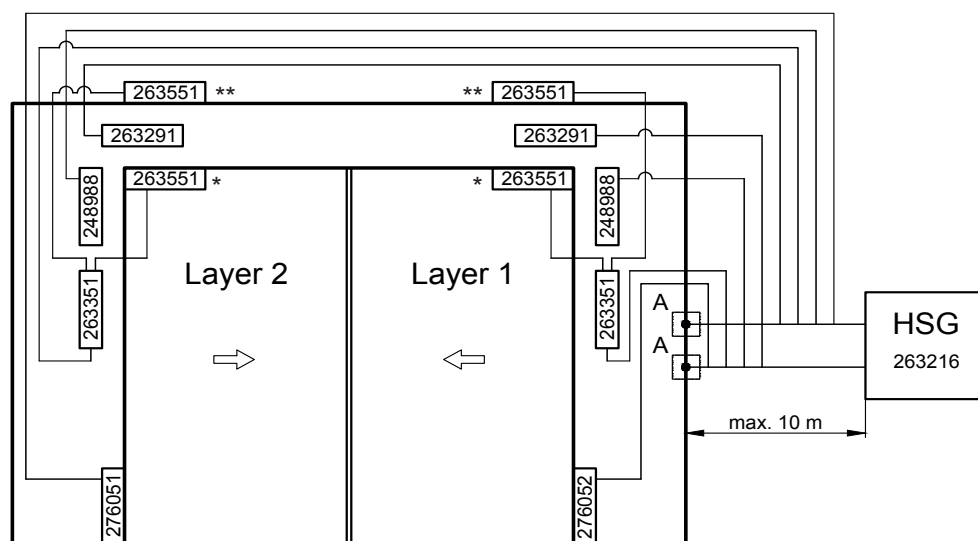
Typ 2A/1



Components	Sliding drive S22	Lock that closes to the right	Magnetic switch	Safety sensor connected directly	Sensor junction box
Art.-Nr.	248 988	276 052	263 291	263 551 262 935 ¹⁾	263 351
Extension cable max. 2 in series	263 010 (3m) 263 404 (9m)	263 011 (3 m) 263 405 (9 m)	–	–	–
Connecting cable	263 005 (10m)	263 009 (10m)	262 717	–	262 717
Connection of MCU	X11	X14	X61.1 + X61.2	X35	X35

¹⁾ alternative at SK2

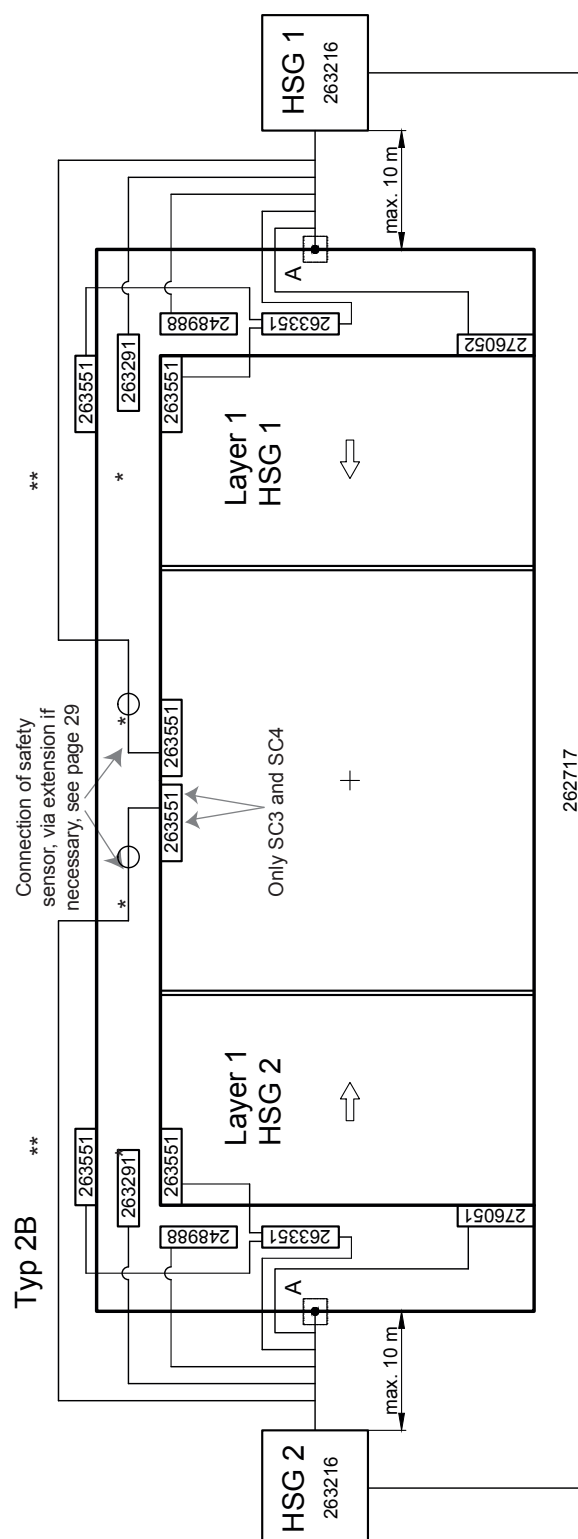
Typ 2A



Components	Sliding drive S22	Lock that closes to the right	Magnetic switch	Safety sensor connected directly	Sensor junction box
Art.-Nr.	248 988	276 052	263 291	263 551 262 935 ¹⁾	263 351
Extension cable max. 2 in series	263 010 (3m) 263 404 (9m)	263 011 (3 m) 263 405 (9 m)	–	–	–
Connecting cable	263 005 (10m)	263 009 (10m)	262 717	–	262 717
Connection of MCU	X11	X14	X61.1 + X61.2	X35 X36	X35

¹⁾ alternative at SK2

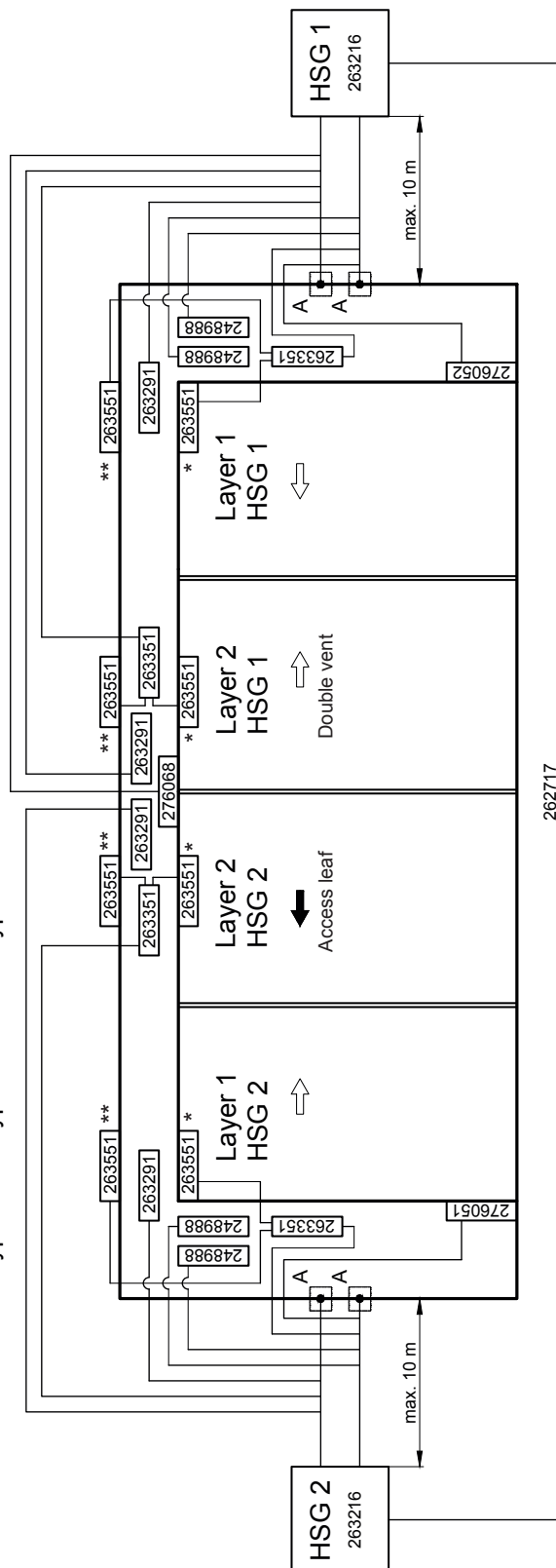
Typ 2B



Components	Sliding drive S22	Lock that closes to the left	Lock that closes to the right	Magnetic switch	Safety sensor connected directly	Sensor junction box
Art.-Nr.	248 988	276 051	276 052	263 291	263 551 262 935 ¹⁾	263 351
Extension cable max. 2 in series	263 010 (3m) 263 404 (9m)	263 011 (3m) 263 405 (9m)	263 011 (3m) 263 405 (9m)	–	–	–
Connecting cable	263 005 (10m)	263 009 (10m)	263 009 (10m)	262 717	–	262 717
Connection of MCU 1	X11	–	X14	X61.1 + X61.2	X35	X35
Connection of MCU 2	X11	X14	–	X61.1 + X61.2	X35	X35

1) alternative at SK2

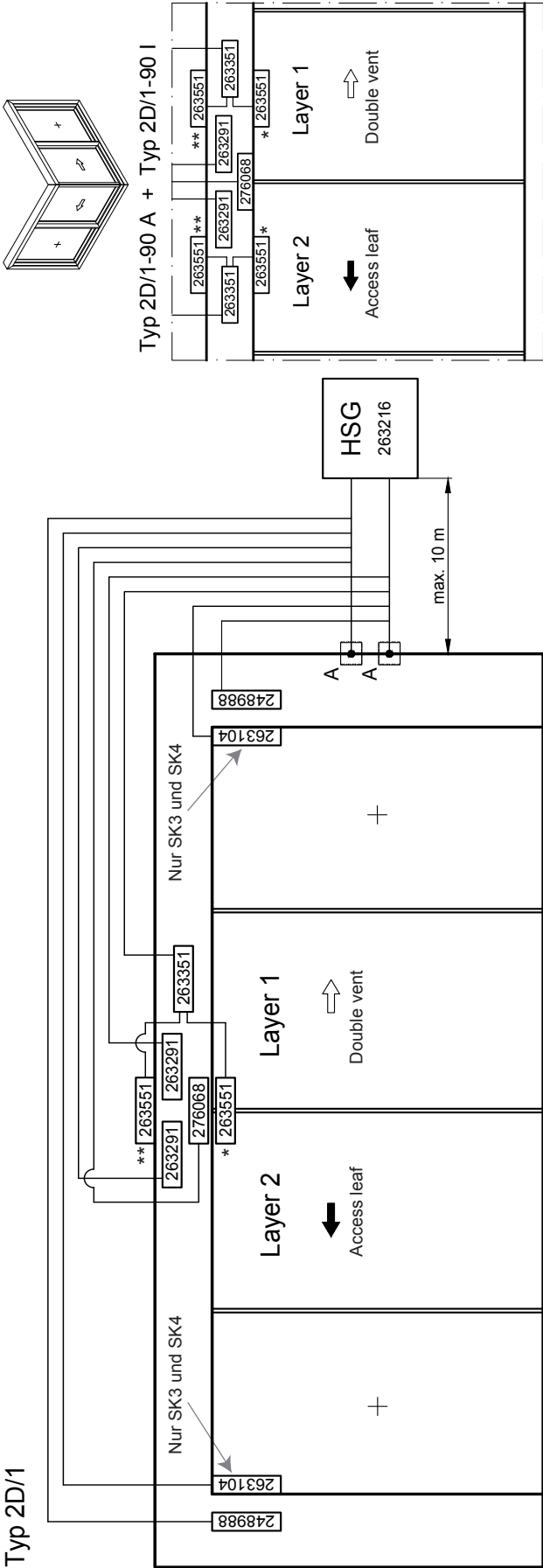
Typ 2D + Typ 2D-90 A + Typ 2D-90 I



Components	Sliding drive S22	Lock that closes to the left	Double-vent locking	Lock that closes to the right	Magnetic switch	Safety sensor connected directly	Sensor junction box
Art.-Nr.	248 988	276 051	276 068	276 052	263 291	263 551 262 935 ¹⁾	263 351
Extension cable max. 2 in series	263 010 (3m) 263 404 (9m)	263 011 (3m) 263 405 (9m)	263 011 (3m) 263 405 (9m)	263 011 (3m) 263 405 (9m)	–	–	–
Connecting cable	263 005 (10m)	263 009 (10m)	263 009 (10m)	263 009 (10m)	262 717	–	262 717
Connection of MCU 1	X11 X12	–	X15	X14	X61.1 + X61.2 X61.3 + X61.4	X35 X36	X35 X36
Connection of MCU 2	X11 X12	X14	–	–	X61.1 + X61.2 X61.3 + X61.4	X35 X36	X35 X36

1) alternative at SK2

Taken from K1018196

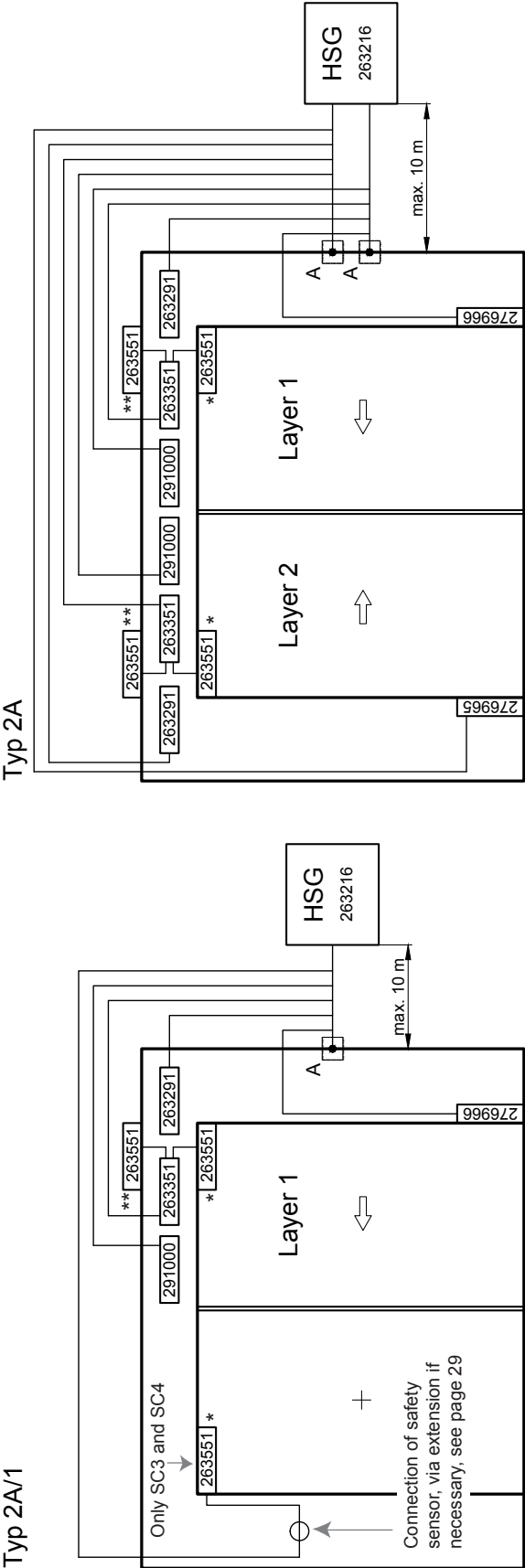


Components	Sliding drive S22	Double-vent locking	Magnetic switch	Sensor strip SL2	Typ 2D/1	Safety sensor connected directly	Safety sensor connected directly
Art.-Nr.	248 988	276 068	263 291	263 104	Sensor junction box	263 551 262 935 ¹⁾	263 551 262 935 ¹⁾
Extension cable max. 2 in series	263 010 (3m) 263 404 (9m)	263 011 (3m) 263 405 (9m)	–	263 125 (3 m) 263 406 (9 m)	–	–	–
Connecting cable	263 005 (10m)	263 009 (10m)	262 717	263 230 (10 m)	262 717	–	–
Connection of MCU	X11 X12	X14	X61.1 + X61.2 X61.3 + X61.4	X43	X35	X35 X36	X35 X36

¹⁾ alternative at SK2

12.2 ASS 77 PD HI with sliding drive S23

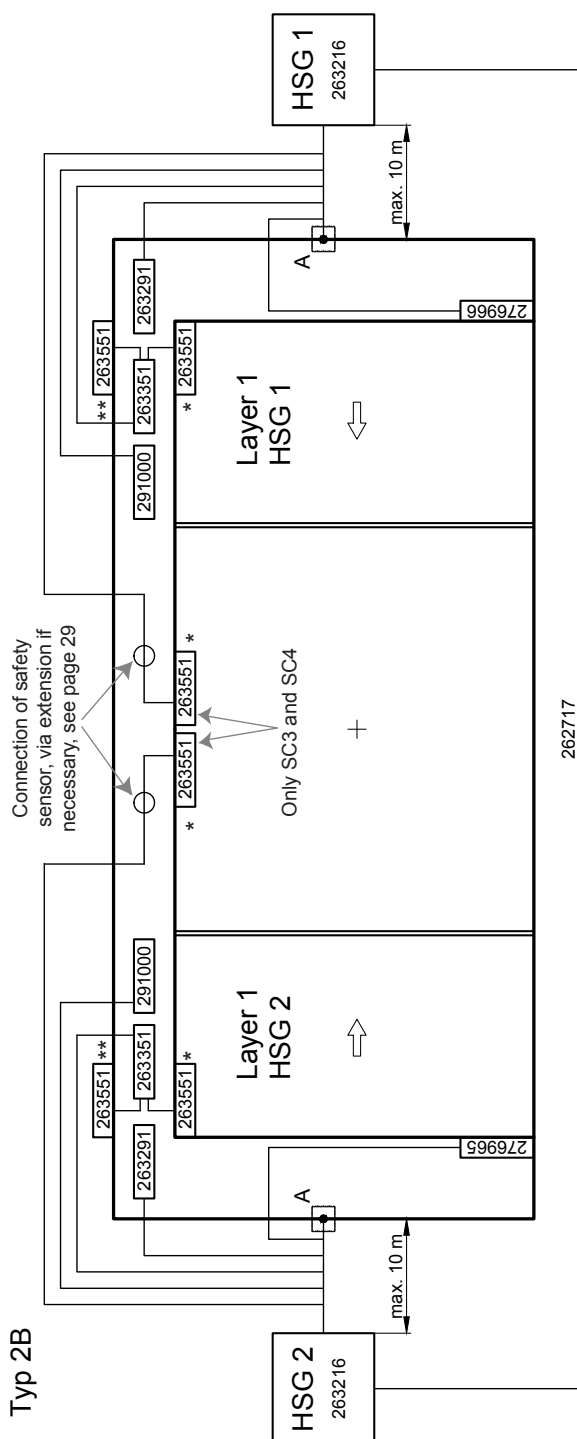
Taken from K1017897



	Typ 2A/1					Typ 2A					
Components	Sliding drive S23	Lock that closes to the right	Magnetic switch	Safety sensor connected directly	Sensor junction box	Sliding drive S23	Lock that closes to the left	Lock that closes to the right	Magnetic switch	Safety sensor connected directly	Sensor junction box
Art.-Nr.	291 000	276 966	263 291	263 551 262 935*	263 351	291 000	276 965	276 966	263 291	263 551 262 935*	263 351
Extension cable max. 2 in series	263 010 (3m) 263 404 (9m)	263 011 (3m) 263 405 (9m)	–	–	–	263 010 (3m) 263 404 (9m)	263 011 (3m) 263 405 (9m)	263 011 (3m) 263 405 (9m)	–	–	–
Connecting cable	263 005 (10m)	263 009 (10m)	262 717	–	262 717	263 005 (10m)	263 009 (10m)	263 009 (10m)	262 717	–	262 717
Connection of MCU	X11	X14	X61.1 + X61.2	X36	X35	X11 X12	X15	X14	X61.1 + X61.2 X61.3 + X61.4		X35 X36

¹⁾ alternative at SK2

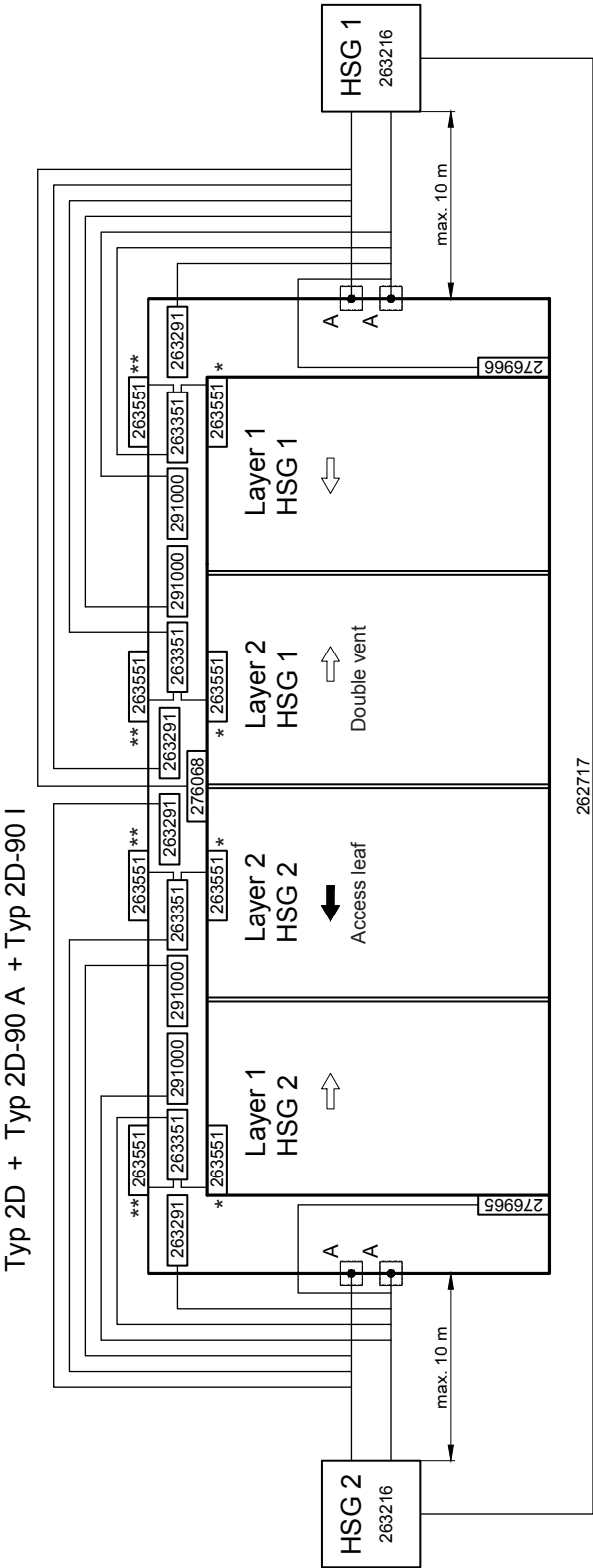
Typ 2B



Components	Sliding drive S23	Lock that closes to the left	Lock that closes to the right	Magnetic switch	Safety sensor connected directly	Sensor junction box
Art.-Nr.	291 000	276 965	276 966	263 291	263 551 262 935 ¹⁾	263 351
Extension cable max. 2 in series	263 010 (3m) 263 404 (9m)	263 011 (3m) 263 405 (9m)	263 011 (3m) 263 405 (9m)	–	–	–
Connecting cable	263 005 (10m)	263 009 (10m)	263 009 (10m)	262 717	–	262 717
Connection of MCU 1	X11	–	X14	X61.1 + X61.2	X35	X35
Connection of MCU 2	X11	X14	–	X61.1 + X61.2	X35	X35

1) alternative at SK2

Taken from K1018189



Components	Sliding drive S23	Lock that closes to the left	Double-vent locking	Lock that closes to the right	Magnetic switch	Safety sensor connected directly	Sensor junction box
Art.-Nr.	291 000	276 965	276 068	276 966	263 291	263 551 262 935 ¹⁾	263 351
Extension cable max. 2 in series	263 010 (3m) 263 404 (9m)	263 011 (3m) 263 405 (9m)	263 011 (3m) 263 405 (9m)	263 011 (3m) 263 405 (9m)	–	–	–
Connecting cable	263 005 (10m)	263 009 (10m)	263 009 (10m)	263 009 (10m)	262 717	–	262 717
Connection of MCU 1	X11 X12	–	X15	X14	X61.1 + X61.2 X61.3 + X61.4	X35 X36	X35 X36
Connection of MCU 2	X11 X12	X14	–	–	X61.1 + X61.2 X61.3 + X61.4	X35 X36	X35 X36

¹⁾ alternative at SK2

The technical drawing illustrates a window system configuration. At the top left, a perspective view shows a three-pane window unit. Below it, a detailed cross-section diagram shows the internal structure of the window system. The diagram is divided into three main sections: Layer 2, Layer 1, and Layer 0.

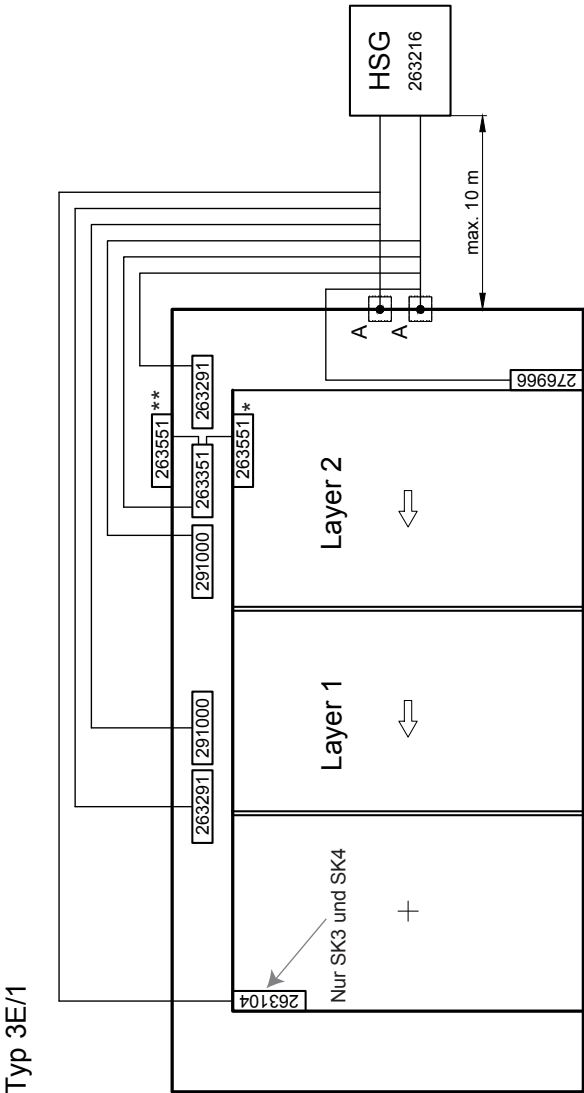
- Layer 2:** Features an "Access leaf" and a "Double vent". It includes a component labeled "Nur SK3 und SK4" with a reference number 263104.
- Layer 1:** Features a "Double vent" and a component labeled "Nur SK3 und SK4" with a reference number 263104.
- Layer 0:** Features a "Double vent" and a component labeled "Nur SK3 und SK4" with a reference number 263104.

The diagram also shows a connection to an "HSG 263216" unit via a cable or pipe, with a maximum distance of "max. 10 m". Various other components are labeled with reference numbers such as 291000, 263351, 276068, 263291, and 263551.

Components	Typ 2D/1				Typ 2D1-90 A + I	
	Sliding drive S23	Double-vent locking	Magnetic switch	Sensor strip SL2	Sensor junction box	Safety sensor connected directly
Art.-Nr.	291 000	276 068	263 291	263 104	263 351	263 551 262 935 ¹⁾
Extension cable max. 2 in series	263 010 (3m) 263 404 (9m)	263 011 (3m) 263 405 (9m)	–	263 125 (3 m) 263 406 (9 m)	–	–
Connecting cable	263 005 (10m)	263 009 (10m)	262 717	263 230 (10 m)	262 717	–
Connection of MCU	X11 X12	X14	X61.1 + X61.2 X61.3 + X61.4	X43	X35	X35 X36

¹¹⁾ alternative at SK2

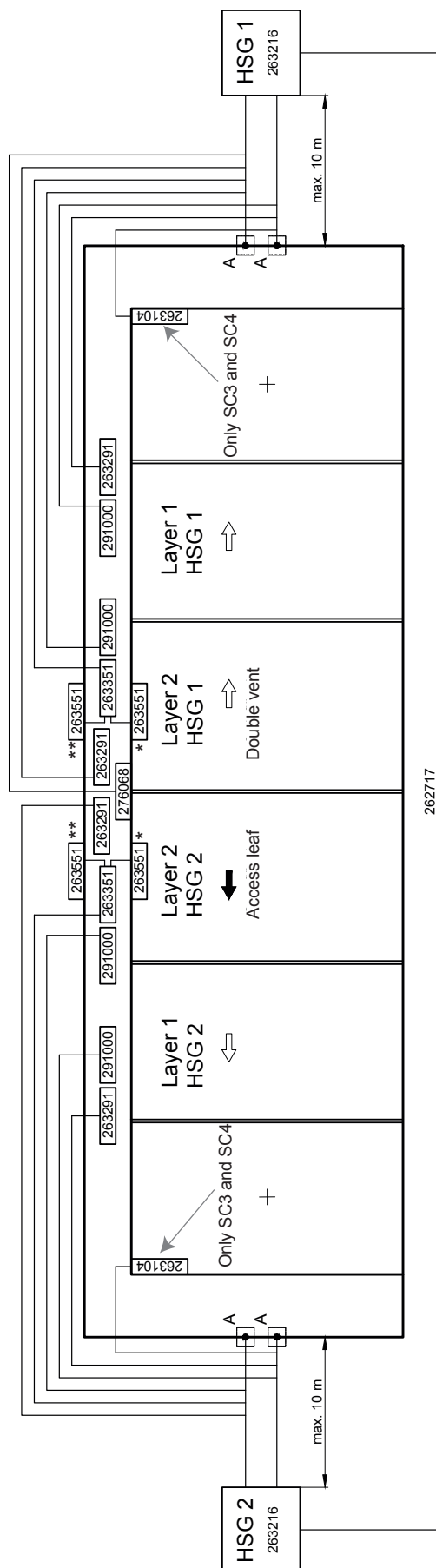
Taken from K1018191



Components	Sliding drive S23	Lock that closes to the right	Magnetic switch	Sensor strip SL2	Safety sensor connected directly	Sensor junction box
Art.-Nr.	291 000	276 966	263 291	263 104	263 551 262 935 ¹⁾	263 351
Extension cable max. 2 in series	263 010 (3m) 263 404 (9m)	263 011 (3m) 263 405 (9m)	-	263 125 (3 m) 263 406 (9 m)	-	-
Connecting cable	263 005 (10m)	263 009 (10m)	262 717	263 230 (10 m)	-	262 717
Connection of MCU	X11 X12	X15	X61.1 + X61.2 X61.3 + X61.4	X43	X35	X35

¹⁾ alternative at SK2

Typ 3F + Typ 3F-90 A + Typ 3F-90 I



Components	Sliding drive S23	Double-vent locking	Magnetic switch	Sensor strip SL2	Safety sensor connected directly	Sensor junction box
Art.-Nr.	291 000	276 068	263 291	263 104	263 551 262 935 ¹⁾	263 351
Extension cable max. 2 in series	263 010 (3m) 263 404 (9m)	263 011 (3m) 263 405 (9m)	–	263 125 (3 m) 263 406 (9 m)	–	–
Connecting cable	263 005 (10m)	263 009 (10m)	262 717	263 230 (10 m)	–	262 717
Connection of MCU 1	X11 X12	X15	X61.1 + X61.2 X61.3 + X61.4	X43	X35	X35
Connection of MCU 2	X11 X12	–	X61.1 + X61.2 X61.3 + X61.4	X43	X35	X35

¹¹⁾ alternative at SK2

en

Original instructions

The export, fabrication and assembling of Schüco products within the scope of building projects in the USA are subject to specific regulations (product testing/certification) which must be coordinated with Schüco USA LLLP prior to importing the products into the USA. If you have any questions on this matter, please contact Schüco USA LLLP, e-mail: alutechsupport@schuco-usa.com. Schüco International KG assumes no liability for damages which result from the use / fabrication / assembling of products which have not been approved by Schüco for the US market or which are fabricated and assembled there by contractors who are not sufficiently qualified to work with Schüco products.

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