



ABL SURSUM  
LOMO 852

CE

100-240V  
47-63Hz  
0.22A (40A)

ON  
INFO

TTY

I2C

I2C

13 14  
A1

23 24  
A2

33 34  
A3

43 44  
A4

53 54  
A5

E1 E2 E3

E4 E5 E6 E7 E8 EN

L L

N N

M L+ M V1 M V2

100-240V  
47-63Hz  
0.22A (40A)

ON  
INFO

TTY

I2C

I2C

E1 E2 E3

E4 E5 E6 E7 E8 EN

L L

N N

M L+ M V1 M V2

# PROTECTION

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# DIN-RAIL PANEL PRODUCTS

## Switches

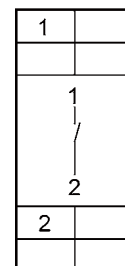


ON/OFF SWITCH 1-POLE  
16 A 250 V~

1 M

	ARTICLE NO.	WEIGHT g/ EACH	PACKING UNIT
1NO	AS161	55	12

AS161

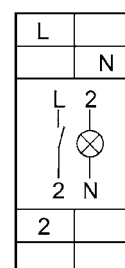


ON/OFF SWITCH 1-POLE  
WITH LIGHT SIGNAL  
16 A 250 V~

1 M

	ARTICLE NO.	WEIGHT g/ EACH	PACKING UNIT
1NO	ASL161	55	12

ASL161

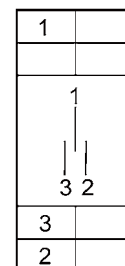


GROUP SWITCH 1-POLE  
16 A 250 V~  
Autom.-Off-Manual

1 M

	ARTICLE NO.	WEIGHT g/ EACH	PACKING UNIT
1CO	GS161	55	12

GS161

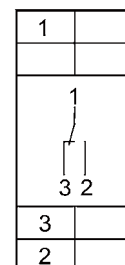


CO SWITCH 1-POLE  
16 A 250 V~

1 M

	ARTICLE NO.	WEIGHT g/ EACH	PACKING UNIT
1CO	WS161	55	12

WS161



# DIN-RAIL PANEL PRODUCTS

Button, light signals and SCHUKO socket outlet



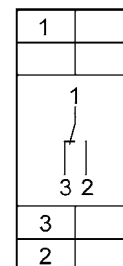
MOMENTARY-CONTACT SWITCH  
16 A 250 V~

1 M

	ARTICLE NO.	WEIGHT g / EACH	PACKING UNIT
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1CO	WT161	55	12
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WT161



LIGHT SIGNAL 230 V UC

1 M

	ARTICLE NO.	WEIGHT g / EACH	PACKING UNIT
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Clear	RST230	73	12
Red	RSR230	73	12
Blue	RSB230	73	12
Green	RSG230	73	12
Yellow	RSY230	73	12



ON/OFF SWITCH 3-POLE 415 V~

Incoming circuit breaker for circuit distribution board, lockable in the "ON" or "OFF" position, maximum connection cross section 25 mm<sup>2</sup>

3 M

RATED CURRENT	ARTICLE NO.	WEIGHT g / EACH	PACKING UNIT
---------------	-------------	-----------------	--------------

63 A	AS63	200	4
100 A	AS100	200	4



SCHUKO SOCKET OUTLET   
10/16 A 250 V~

2.5 M

	ARTICLE NO.	WEIGHT g / EACH	PACKING UNIT
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	SD230	110	4
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# DIN-RAIL PANEL PRODUCTS

Installation relays / storage relays mechanical



## INSTALLATION RELAY

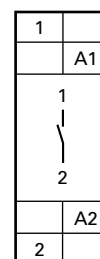
16 A 250 V~  
1-pole 1NO

1 M

	ARTICLE NO.	WEIGHT g/EACH	PACKING UNIT
12 V~	IR01210	99	12
230 V~	IR23010	99	12

12 V~	IR01210	99	12
230 V~	IR23010	99	12

IR...10



## INSTALLATION RELAY

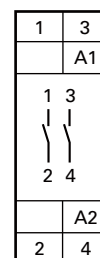
16 A 250 V~  
2-pole 2NO

1 M

	ARTICLE NO.	WEIGHT g/EACH	PACKING UNIT
230 V~	IR23020	104	12

230 V~	IR23020	104	12
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IR...20



## INSTALLATION RELAY

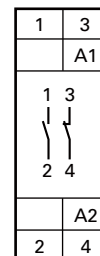
16 A 250 V~  
2-pole 1NO + 1NC

1 M

	ARTICLE NO.	WEIGHT g/EACH	PACKING UNIT
230 V~	IR23011	106	12

230 V~	IR23011	106	12
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IR...11



## STORAGE RELAY

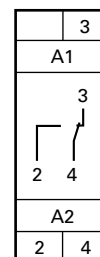
sealable  
16 A 250 V~  
1 CO contact

1 M

	ARTICLE NO.	WEIGHT g/EACH	PACKING UNIT
230 V~	SP2301W	85	12

230 V~	SP2301W	85	12
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SP2301W



# DIN-RAIL PANEL PRODUCTS

Installation relays / storage relays mechanical

Installation relay / Storage relay mechanical		
Technical data / type	IR	SP2301W
Contact material	AgSnO <sub>2</sub>	
Contact interval	3 mm / 2 mm	
Interval control connections / contact	> 6 mm	
Test voltage contact / contact contact / magnet system	2000 V 4000 V	
Nominal switching capacity AC 250 V, 400 V	16 A, 10 A / 10 A, 6 A	16 A / 250 V 3520 VA
Incandescent lamps and halogen lamp load 230 V	10 A (2300 W)	
Fluorescent lamp load in DUO switching	16 A (3500 W) / 10 A (2000 W)	
Fluorescent lamp load inductive or capacitive	10 A (1300 W)	
Electronic ballasts	$I_{ON}$ 140 A 10 ms / 70 A 10 ms <sup>1)</sup>	
Fluorescent lamp load compensated in parallel	4 A (500 W)	
Inductive load $\cos \varphi = 0.6$ / 230 V AC	10 A (1300 W)	
High-pressure mercury lamp and metal halide lamp, uncompensated	500 W	
Contact load DC max.	100 W	
Mechanical endurance, change of position 10 <sup>3</sup> / h	>10 <sup>6</sup>	>10 x 10 <sup>8</sup>
Endurance with rated load, $\cos \varphi = 1$ and 10 <sup>3</sup> / h	>10 <sup>5</sup>	
Endurance with incandescent lamps 1000 W and 10 <sup>3</sup> / h	>10 <sup>5</sup>	
Endurance with rated load, $\cos \varphi = 0.6$ und 10 <sup>3</sup> / h	>4 x 10 <sup>4</sup>	
Switching frequency max.	10 <sup>3</sup> / h	10 <sup>4</sup> / h
Closing delay	10 - 20 ms	10 ms
Opening delay	5 - 15 ms	5 ms
Switch position display	per contact	Light emitting diode
Manual operation	yes	no
Switch-on duration	100% <sup>2)</sup>	100%
Temperature at the installation location max. / min.	+50° / -5 °C	+40 °C
Control voltage range	0.9 to 1.1 x U <sub>n</sub>	0.95 to 1.06 x U <sub>n</sub>
Coil power loss AC + DC ± 20 %	1- and 2-pole 2 W	1.9 W
Total power loss when continually excited	1-pole 4 W	1.9 W
Rated voltage and rated contact load	2-pole 6 W	
Max. parallel capacitance (length) of the control line	0.06 µF (200 m)	
Max. induction voltage at the control inputs	0.2 x U <sub>n</sub>	

1) For electronic ballasts, a switch-on current 40 times more powerful is to be expected.

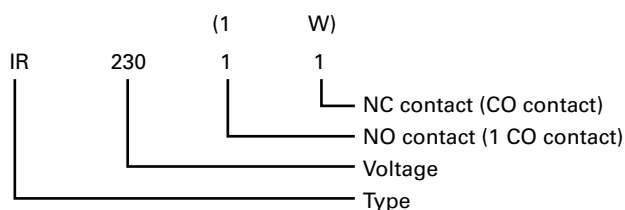
2) Should several remote switches and installation relays be under continuous excitation, please make sure that there is sufficient ventilation in accordance with the power loss calculation and additionally that a ventilation interval of approx. ½ modules is observed.

Function description:

IR = Installation relay  
SP = Storage relay

Type key

e.g. installation relay  
article no. IR23011



# DIN-RAIL PANEL PRODUCTS

## Electronic control relays



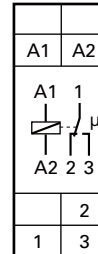
CONTROL RELAYS  
 10 A / 250 V  
 1 CO contact  
 Universal control voltage  
 8 – 230 V

1 M

	ARTICLE NO.	WEIGHT g/EACH	PACKING UNIT
8 to 230 V UC	STU1W	58	1

8 to 230 V UC	STU1W	58	1
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STU1W



### Bistable relay contact

After installation, the mains voltage must first be applied to the relay so that the switching contacts can go into a defined state. After about 2 seconds, the switched load can be connected to the mains.



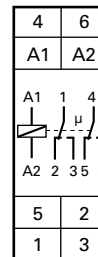
CONTROL RELAYS  
 10 A / 250 V  
 2 CO contacts  
 Universal control voltage  
 8 – 230 V

1 M

	ARTICLE NO.	WEIGHT g/EACH	PACKING UNIT
8 to 230 V UC	STU2W	74	1

8 to 230 V UC	STU2W	74	1
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STU2W



### Bistable relay contact

After installation, the mains voltage must first be applied to the relay so that the switching contacts can go into a defined state. After about 2 seconds, the switched load can be connected to the mains.

# DIN-RAIL PANEL PRODUCTS

## Electronic control relays

Electronic control relays	
Technical data / type	STU1W / STU2W
<b>Contacts</b>	
Contact material / Contact interval	AgSnO <sub>2</sub> / 0.5 mm
Interval control connections / contact	< 6mm
Interval control connections C1-C2 / contact	
Test voltage contact / contact	1000 V
Test voltage control connections / contact	4000V
Nominal switching capacity AC	10A / 250V
Incandescent lamps and halogen lamp load 230 V for lamps with max. 200 W	1000 W
Fluorescent lamp load in DUO switching	1000 W
Fluorescent lamp load inductive or capacitive	1000 W
Fluorescent lamp load compensated in parallel	4 A; 500 W
High-pressure mercury lamp and metal halide lamp, uncompensated	-
Electronic ballasts	$I_{VV}$ max. 70A /10ms <sup>1)</sup>
Inductive load $\cos \varphi = 0.6$ / 230 V AC	5 A, 650 W
Max. switching current DC1: 12 V / 24 V DC	8 A
Endurance with rated load, $\cos \varphi = 1$ or incandescent lamps 1,000 W at 100 / h	> 10 <sup>5</sup>
Endurance for rated load, $\cos \varphi = 0.6$ und 100 / h	> 4 x 10 <sup>4</sup>
Switching frequency max.	10 <sup>4</sup> / h
Closing delay	5 - 10 ms
Opening delay	5 - 10 ms
Switch position display	Light emitting diode
Box terminal cross section	12 mm <sup>2</sup>
Maximum cross section of a conductor	6 mm <sup>2</sup>
Screw heads slotted/cross slot	pozidriv
Protection cover (device side)	DIN EN 50274, VDE 0660-514 BGV A3
<b>Electronics</b>	
Switch-on duration	100%
Temperature at the installation location max. / min.	+50 °C / -20 °C
Minimum command duration / control voltage area	50 ms / 0.9 to 1.1 x U <sub>n</sub>
Coil power loss AC+DC ± 20%	1U 0.5 W, 2U 0.8 W
Control current	
	12 V UC: 90 mA <sup>2)</sup>
	230 V UC 20 mA <sup>2)</sup>
Max. parallel capacity (length) of the control line	0.06 µF (approx. 200 m)

### Fulfilled EN 61000-6-3, EN 61000-6-1 and EN 60669 standards

1) For electronic ballasts, a switch-on current 40 times more powerful is to be expected

2) Control relays STU1W and STU2W are clocked. From this, currents of up to 1 A result in the µs range.



# DIN-RAIL PANEL PRODUCTS

## Mechanical remote switches



### REMOTE SWITCH

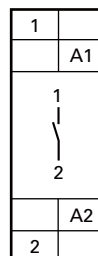
16 A 250 V~  
1-pole 1NO

**1 M**

	ARTICLE NO.	WEIGHT g/EACH	PACKING UNIT
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12 V~	<b>FS01210</b>	96	12
230 V~	<b>FS23010</b>	96	12

FS...10



### REMOTE SWITCH

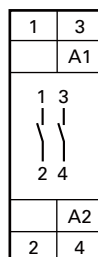
16 A 250 V~  
2-pole 2NO

**1 M**

	ARTICLE NO.	WEIGHT g/EACH	PACKING UNIT
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230 V~	<b>FS23020</b>	107	12
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FS...20



### REMOTE SWITCH

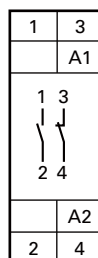
16 A 250 V~  
2-pole 1NO + 1NC

**1 M**

	ARTICLE NO.	WEIGHT g/EACH	PACKING UNIT
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230 V~	<b>FS23011</b>	107	12
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FS...11



# DIN-RAIL PANEL PRODUCTS

## Mechanical remote switches

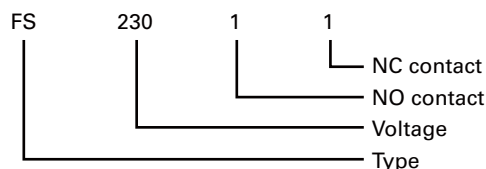
Mechanical remote switches	
Technical data / type	FS
Contact material	Ag Sn O <sub>2</sub>
Contact interval	3 mm / 2 mm
Interval control connections / contact	> 6 mm
Test voltage contact / contact contact / magnet system	2000 V 4000 V
Nominal switching capacity AC 250 V, 400 V	16 A, 10 A / 10 A, 6 A
Incandescent lamps and halogen lamp load 230 V	10 A (2300 W)
Fluorescent lamp load in DUO switching	16 A (3500 W) / 10 A (2000 W)
Fluorescent lamp load inductive or capacitive	10 A (1300 W)
Electronic ballasts	$I_{on} 140 A 10 ms / 70 A 10 ms$ <sup>1)</sup>
Fluorescent lamp load compensated in parallel	4 A (500 W)
Inductive load $\cos \varphi = 0.6 / 230 V AC$	10 A (1300 W)
High-pressure mercury lamp and metal halide lamp, uncompensated	500 W
Contact load DC max.	100 W
Mechanical endurance, change of position 10 <sup>3</sup> / h	>10 <sup>6</sup>
Endurance with rated load, $\cos \varphi = 1$ und 10 <sup>3</sup> / h	>10 <sup>5</sup>
Endurance with incandescent lamps 1000 W and 10 <sup>3</sup> / h	>10 <sup>5</sup>
Endurance with rated load, $\cos \varphi = 0.6$ and 10 <sup>3</sup> / h	>4 x 10 <sup>4</sup>
Switching frequency max.	10 <sup>3</sup> / h
Switch position display	per contact
Manual operation	yes
Switch-on duration	100% <sup>2)</sup>
Temperature at the installation location max. / min.	+50° / -5°C
Control voltage range	0.9 to 1.1 x U <sub>n</sub>
Coil power loss AC + DC ± 20%	1- and 2-pole 5 - 6 W
Total power loss when continually excited	1-pole 7 - 8 W
Rated voltage and rated contact load	2-pole 9 - 10 W
Max. parallel capacity (length) of the control line	0.06 µF (200 m)
Max. induction voltage at the control inputs	0.2 x U <sub>n</sub>
Glow lamps parallel to the 230 V control buttons	5 mA
With capacitor 1 µF / 250 V AC parallel to the coil	10 mA
With capacitor 2.2 µF / 250 V AC parallel to the coil	15 mA

1) For electronic ballasts, a switch-on current 40 times more powerful is to be expected.

2) If several remote switches and installation relays are under continuous excitation, please make sure that there is sufficient ventilation in accordance with the power

Function description:  
FS = Remote switch

Type key  
e.g. remote switch  
article no. FS23011



# DIN-RAIL PANEL PRODUCTS

## Remote switch central electronic control



### REMOTE SWITCH CENTRAL CONTROL

16 A / 250 V  
2 NO floating  
Incandescent lamp load 2,000 W

#### 1 M

	ARTICLE NO.	WEIGHT g/EACH	PACKING UNIT
8 to 230 V UC	FZU20	70	12

8 to 230 V UC	FZU20	70	12
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### FZU20 – Local Universal Control Voltage 8...230V UC

With additional control inputs, central on and central off for 8...230V UC, with galvanic separation from the local control input.

Very low switching noise. Glow lamp current from 110 V control voltage up to 50 mA in switch positions 1 to 3 and 5 to 7.

#### A rotary switch allows for setting various priorities.

These determine which other control inputs are blocked as long as a control input is continually excited.

This will then determine how the remote switch reacts during failure and subsequent return of mains voltage:

In switch positions 1 to 4 the switching position remains unaltered.

Switch off is done in switch positions 5 to 8.

Central commands pending will then be executed.

**OFF** = Permanently OFF

**Positions 1 + 5** = No priority. Local button pressing is even possible with permanently excited central control inputs. The final central command is carried out.

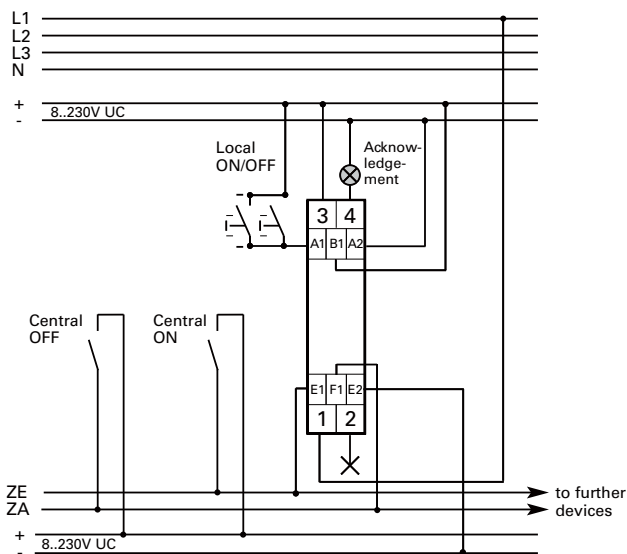
**Positions 2 + 6** = Priority for central ON and OFF. Local button pressing is without any effect for the duration central OFF, however, has priority over central ON

**Positions 3 + 7** = Priority for central ON and OFF. Local button pressing is without any effect for the duration central ON, however, has priority over central OFF.

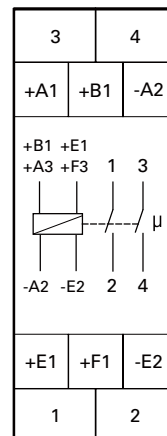
**Positions 4 + 8** = Priority for the permanently excited local button. Central commands are not carried out for the duration. Glow lamp current is not permitted in these positions.

**ON** = Continuously ON

### Switching example of electronic impulse switch for central control



FZU20



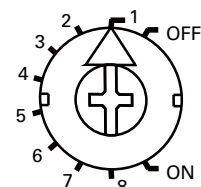
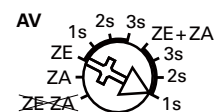
Function rotary switch

~~ZE-ZA~~ = no central control

**ZA** = only central control OFF

**ZE** = only central control ON + response delay 0, 1, 2 or 3 seconds

**ZE ZA** = central control ON and OFF + response delay 0, 1, 2 or 3 seconds



# DIN-RAIL PANEL PRODUCTS

## Electronic remote switch

Electronic remote switch	
Technical data / type	FZU20
<b>Contacts</b>	
Contact material / Contact interval	AgSnO <sub>2</sub> / 0.5 mm
Interval control connections / contact	6 mm
Test voltage C1-C2 or A1-A2 / contact	4000 V
Test voltage contact / contact	4000 V
Test voltage control connections / contact	4000 V
Nominal switching capacity AC	16 A / 250 V
Incandescent lamps and halogen lamp load 230 V <sup>1)</sup>	2000 W
Fluorescent lamp load in (conventional ballast) DUO switching	1000 VA
Fluorescent lamp load in (conventional ballast) uncompensated or serially compensated	500 VA
Compact fluorescent lamps with electronic ballast and energy-saving lamps (ESL)	I <sub>ON</sub> max. 70 A / 10 ms <sup>2)</sup>
Max. switching current DC1: 12 V / 24 V DC	8 A
Endurance with rated load, cos φ = 1 and incandescent lamps 1,000 W for 100 / h	>10 <sup>5</sup>
Endurance with rated load, cos φ = 0.6 at 100 / h	>4 x 10 <sup>4</sup>
Switching frequency max.	10 <sup>3</sup> / h
Maximum cross section of a conductor (3-fold terminal)	6 mm <sup>2</sup> (4 mm <sup>2</sup> )
2 conductors with same cross-section (3-fold terminal)	2.5 mm <sup>2</sup> (1.5 mm <sup>2</sup> )
Screw head	Slotted / cross slot pozidriv
Protection cover (device side)	DIN EN 50274, VDE 00660-514 BGV A3

Electronics	
Switch-on duration (also for central ON/OFF)	100%
Temperature at the installation location max. / min.	+50 °C / -20 °C
Stand-by loss (active power) 230 V	0,4 W
Stand-by loss (active power) 12 V / 24 V	0.03 W / 0,06 W
Control current Universal control voltage all control voltages (< 5 s) ± 20%	
Control current Universal control voltage 8/12/24/230 V (<10 s) ± 20%	0.1 / 0.1 / 0.2 / 1 / (30) mA
Control current Central 8/12/24/230 V (<10 s) ± 20%	2 / 4 / 9 / 5 / (100) mA
Max. parallel capacitance (length) of the central control line for 230 V AC	0.3 μF (1000 m)
Max. parallel capacitance (length) of the central control line for 230 V AC	0.9 μF (3000 m)

Fulfilled EN 50081-1, EN 50082-2 and EN 60669 standards

Bistable relay as NOC. Wait for short automatic synchronisation after installation before applying the switched load to the mains.

1) For lamps with max. 150 W

2) For electronic ballasts, a switch-on current 40 times more powerful is to be expected

# DIN-RAIL PANEL PRODUCTS

## Touch dimmer



### TOUCH DIMMER

Universal control voltage  
8 to 230 V UC,  
R, L and C loads 400 W  
Dimmable ESL 100 W  
Dimmable LED, 230 V 100 W

#### 1 M

ARTICLE NO.	WEIGHT g/EACH	PACKING UNIT
TDU500	96	1

### Electronic universal touch dimmer for R, L and C loads

Universal control voltage 8..230 V UC, galvanically separated from supply and switching voltage 230 V.

Short control commands switch on/off, permanent activation adjusts brightness up to the maximum value.

A brief interruption of the activation alters the dimming direction.

The set level of brightness remains saved when switched off.

### With switches for children's rooms:

When switching on and pressing the button for at least 1 second, the light will switch on at the lowest brightness level and slowly increase brightness, without altering the last brightness level saved.

### With sleep function:

The lighting is dimmed from its current brightness and switches off when it receives a double impulse. The maximum dimming time of 60 minutes is dependent on the current brightness and can be shortened accordingly.

Switching-off during the dimming procedure is always possible by pressing the button briefly. Pressing the button for a longer time during the dimming procedure turns up the light and ends the sleep function.

Defined switch-off during electricity failure.

From 110 V control voltage, glow lamp current 30 mA

With the % -rotary switch the minimum brightness can be set (completely dimmed) e.g. for dimmable energy-saving lamps.

The **dim speed rotary switch** can be used to set the dimming speed. At the same time the duration of the soft ON and soft OFF is altered. The **+ESL** settings take into consideration the special conditions for dimmable energy-saving lamps: The switching-on procedure is optimised and the dimming rate is altered logarithmically. The children's room switch is not possible in these settings and wound (inductive) transformers are not allowed to be dimmed.

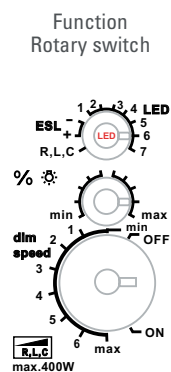
Memory is switched off in the **-ESL** setting. This can be advantageous with ESL, since cold ESL require a higher minimum brightness than might be stored in the memory with warm ESL.

The **LED** settings take into account the special conditions for dimmable 230V LED lamps. Different dimming curves can be selected. In these settings, no wound (inductive) transformers may be dimmed.

Automatic electronic overload protection and thermal overload switch-off.

L loads (inductive loads, e.g. wound transformers) and C loads (capacitor loads, e.g. electronic transformers) must not be mixed.

L and C loads can be mixed as desired with R loads (ohmic loads, e.g. 230 V incandescent and halogen lamps).

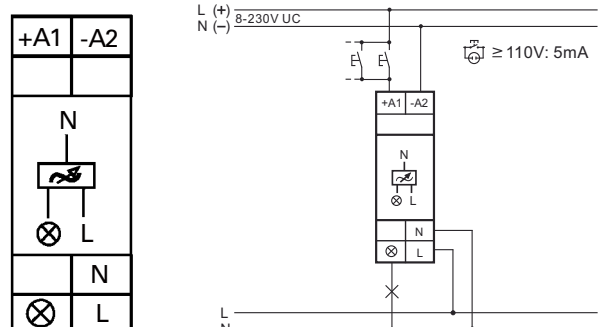


Technical data for dimmer TDU500 <sup>1)</sup>	
Incandescent lamps 230 V (R)	400 W
Halogen lamps 230 V (R)	400 W
Inductive transformers (L)	400 W <sup>2) 3)</sup>
Electronic transformers (C)	400 W <sup>2) 3)</sup>
Dimmable energy-saving lamps ESL	100 W <sup>4)</sup>
Dimmable LED 230 V	100 W
Temperature at the installation location max. / min.	+50°C / -20°C <sup>5)</sup>
Control voltage area	0.9 bis 1.1 x U <sub>n</sub>
Constant current supply	12 mA

The parallel operation of inductive (wound) and capacitive (electronic) transformers is not allowed!

- For loads greater than 300 W, a ventilation interval of 1/2 module is to be maintained to devices mounted next to each other.
- A maximum of two inductive (wound) transformers are allowed per universal dimmer switch and only the same types may be used; in addition, secondary-side idling is not allowed. Otherwise the universal dimmer switch may be destroyed! Therefore no secondary-side load switch-off allowed.
- When calculating loads, 20% loss for inductive (wound) transformers and 5% loss for capacitive (electronic) transformers must be taken into account in addition to the lamp load.
- In the ESL settings, no inductive (wound) transformers may be dimmed.
- Influences the maximum switching capacity.

### Connection example



# DIN-RAIL PANEL PRODUCTS

## Load shedding relays



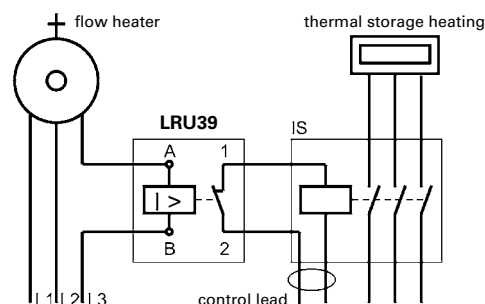
### LOAD SHEDDING RELAYS

sealable  
for electronically and pneumatically  
regulated flow heaters

1 M

	ARTICLE NO.	WEIGHT g / EACH	PACKING UNIT
6,7-39 A	LRU39	90	12

6,7-39 A	LRU39	90	12
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Load shedding relays			
Technical data / type	LRU39 for electronic and pneumatic flow heaters		
<b>Field coil</b>			
Rated current area AC	6.7 ... 39 A	Response current AC	< 5.3 A
Rated power for 230 V AC	1.5 ... 9 KW / 230 V~	Max. continuous current AC	43 A
Rated power for 230 / 400 V AC	4.6 ... 27 KW / 400 V~	Constant thermal load capacity 40°C	2.5 W
Operating / rated power	0.5 ... 4 VA	Connection terminal single wire	2.5 mm <sup>2</sup> – 16 mm <sup>2</sup>
		Connection terminal multiple wire	2.5 mm <sup>2</sup> – 16 mm <sup>2</sup>
<b>Relay contact</b>			
Contact	1 NC	Max. electrical switching frequency / h	approx. 1,800 switching cycles / h
Rated contact current for 250 V AC	1 A	Max. ambient temperature	40°C
Contact material	Hard silver gold-flashed	Response time / release time	10... 20 ms / 20 ... 30 ms
Max. switching voltage AC	400 V	Volume resistance	approx. 3 mΩ
Max. switching capacity	250 VA	Test voltage contact / coil AC	2.5 KV
Max. switch-on peak current	5 A	Isolation group acc. to VDE 0110	C / 250 V
Electric endurance with rated load	>100,000 switching cycles	Protection type housing	IP40
Mechanical endurance	approx. 1 million switching cycles	Connection terminal single wire	0.75 mm <sup>2</sup> – 4 mm <sup>2</sup>
Switch-on duration	100%	Connection terminal multiple wire	0.75 mm <sup>2</sup> – 4 mm <sup>2</sup>

# DIN-RAIL PANEL PRODUCTS

## Twilight switch



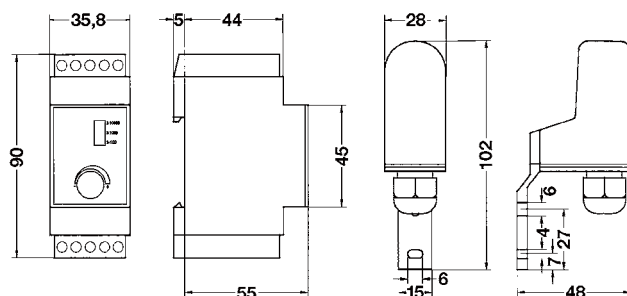
### TWILIGHT SWITCH WITH SEPARATE LIGHT COLLECTOR

230 V~, 50 ... 60 Hz  
16 A, 1 CO contact

2 M

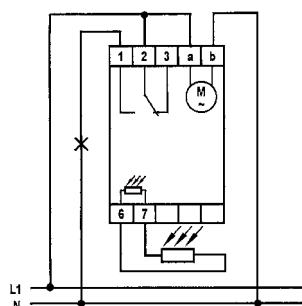
ARTICLE NO.	WEIGHT g/EACH	PACKING UNIT
DS2301W	230	1

DS2301W	230	1
---------	-----	---



Twilight switch DS2301W		
<b>Technical data</b>		
Light intensity	Area 1 Area 2 Area 3	2 -100 Lux 2 -1000 Lux 2 -10 000 Lux
Delay when switching on		8 sec.
Delay when switching off		38 sec.
Contact material		AgCdO
Contact interval		< 3 mm
Interval control connections / contact		5 mm
Rated insulation voltage contact / contact contact / magnet system		1 KV 4 KV
Switching capacity AC		16 A / 250 V $\cos \varphi = 1$
Incandescent lamp load		2300 W
Inductive load $\cos \varphi = 0.8$		3 A / 250 V
Mechanical endurance, change of position		$5 \times 10^7$
Endurance with rated load, $\cos \varphi = 1$ and $10^3$ / h		$10^5$
Endurance with incandescent lamps 1000 W and $10^3$ / h		$25 \times 10^3$
Endurance with rated load, $\cos \varphi = 0.6$ und $10^3$ / h		$75 \times 10^3$
Switch position display relay		LED red
Switch position display switch point		LED green
Switch-on duration		100%
Temperature at the installation location min. / max.		0°C to 55°C
Total power loss during continuous excitation		2.2 W
Degree of protection		IP20
Protection type light collector		IP65
Max. cable length to light collector		100 m

Wiring diagram:  
Twilight switch  
with separate light collector



# DIN-RAIL PANEL PRODUCTS

Time relays and multi-function time relays



## MULTI-FUNCTION TIME RELAYS

16 functions  
1 CO contact 10 A / 250 V~  
Time range 0.1 sec. - 40 hrs

### 1 M

	ARTICLE NO.	WEIGHT g / EACH	PACKING UNIT
8 V to 230V UC	MRU1W	75	10

8 V to 230V UC	MRU1W	75	10
----------------	-------	----	----



## TIME RELAYS

1 CO contact 10 A / 250 V~  
Time range 0.1 sec. - 40 hrs

### 1 M

	ARTICLE NO.	WEIGHT g / EACH	PACKING UNIT
8 V to 230V UC	AVU1W	75	1
	RVU1W	75	1

8 V to 230V UC	AVU1W	75	1
	RVU1W	75	1

## Function description MRU1W

Stand-by loss only 0.1 Watt

Depending on the connection for the electricity supply to terminal B1 or B2, **two different function levels can be selected:**

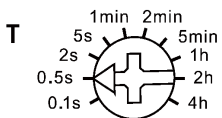
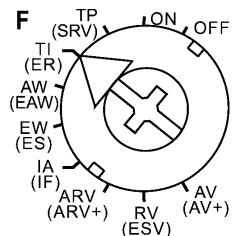
### Function level 1 for connection of electricity supply to B1-A2

- RV** = Release delay
- AV** = Response delay
- TI** = Clock generator starting with impulse
- TP** = Clock generator starting with pause
- IA** = Impulse-controlled response delay
- EW** = Passing make contact

- AW** = Passing break contact
- ARV** = Response and release delay
- ON** = Continuously ON
- OFF** = Permanently OFF

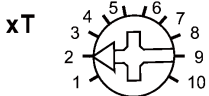
### Function level 2 for connection to electricity supply to B2-A2

- ER** = Relay function
- EAW** = Passing make and break contact
- Er S** = Impulse switch function
- IF** = Impulse former
- ARV+** = Additive response and release delay
- ESV** = Impulse switch with release delay and Pre-warning of switch-off
- AV+** = Additive response delay
- SRV** = Impulse switch with release delay
- ON** = Continuously ON
- OFF** = Permanently OFF



### The time base T

is set for latching rotary switches [T]. There is a choice between the base values 0.1 seconds, 0.5 seconds, 2 seconds, 5 seconds, 1 minute, 2 minutes, 5 minutes, 1 hour, 2 hours and 4 hours. The total time is calculated from the time base multiplied by the multiplier.

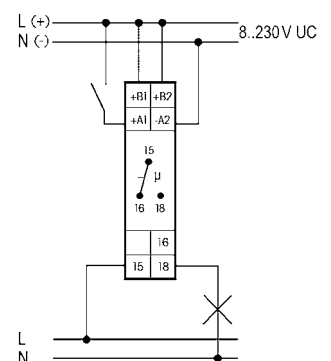
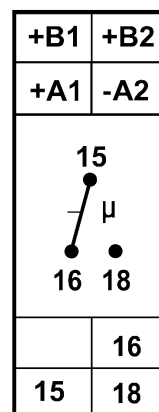


### The multiplier x T

is set with the latching rotary switch [xT] and is between 1 and 10. This makes it possible to set times between 0.1 seconds (time base 0.1 seconds and multiplier 1) and 40 hours (time base 4 hours and multiplier 10).

## Light emitting diode

under the large rotary switch provides information about the contact position during the time period. It blinks as long as NOC 15 -18 is open (15 -16 closed) and glows continuously as long as NOC 15 -18 is closed (15-16 open).



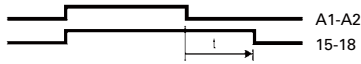


# DIN-RAIL PANEL PRODUCTS

## Time relays and multi-function time relays · Function descriptions

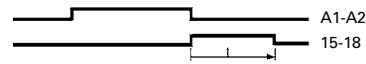
### RV = Release delay

(Delay in switching off)



When applying control voltage, the NOC changes to 15–18. With the interruption of the control voltage, the time period begins and at its end the NOC returns to its rest position. Can be reset during the time period.

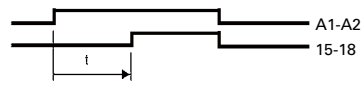
### AW = Passing break contact relay



When the control voltage is interrupted, the NOC changes to 15–18 and returns after the impulse time has elapsed. If the control voltage is applied during the impulse time, the NOC immediately reverts to its rest position and the residual time is deleted.

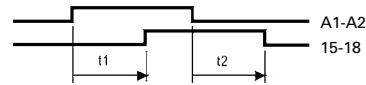
### AV = Response delay

(Delay when switching on)



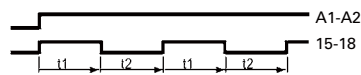
With the application of the control voltage, the time period begins and at its end the NOC changes to 15–18. After an interruption, the time period starts again.

### ARV = Response and release delay



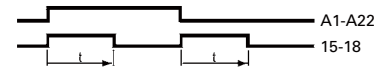
When the control voltage is applied, the timing period is started; at its end the NOC changes to 15–18. If the control voltage is interrupted after this, another timing period is started; at its end the NOC returns to the rest position. This release delay is identical to the response delay. After an interruption of the response delay, the time period begins again.

### TI = Clock generator starting with impulse



As long as the control voltage is applied, the NOC closes and opens. For MRU1W the switching time in both directions is identical and corresponds to the time set. For TIUMW both times can be set separately. When the control voltage is applied, the NOC immediately changes to 15–18.

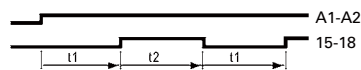
### EAW = Passing make contact relay and passing break contact relay



When the control voltage is applied and interrupted, the NOC changes to 15–18 and returns after the set impulse time has elapsed.

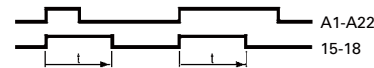
### TP = Clock generator starting with pause

(Flashing relay)



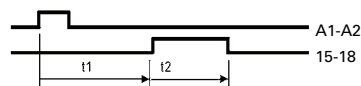
Function descriptions same as TI, except that when the control voltage is applied, the contact does not change to 15–18 but rather first remains at 15-16 or open.

### IF = Impulse former



When the control voltage is applied, the NOC changes to 15–18 for the time set. Further activations are only evaluated after the set time has elapsed.

### IA = Impulse-controlled response delay



With the start of a control pulse from 20 ms, the timing period  $t_1$  starts; at its end, the NOC changes to 15–18 for the time  $t_2$  (=1 second) (e.g. for automatic door openers). If  $t_1$  is set to the shortest time of 0.1 seconds, IA operates as an impulse former, for which  $t_2$  elapses, independent of the control signal's duration (min. 150ms).

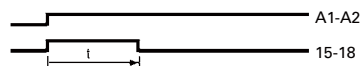
### ARV+ = Additive response and release delay

Same function as the ARV, but after an interruption of the response delay, the elapsed time remains stored.

### ESV = Impulse switch with release delay and pre-warning of switch-off

Function as SRV. Also with pre-warning of switch-off: approx. 30 sec. before time elapses, the light flickers 3 times in shorter and shorter periods.

### EW = Passing make contact relay



With the application of the control voltage, the NOC changes to 15–18 and returns after the impulse time. If the control voltage is removed during the impulse time, the NOC immediately returns to the rest position and the remaining time is deleted.

### AV+ = Additive response delay

Same function as the AV, but after an interruption, the time already elapsed remains stored.

### SRV = Impulse switch with release delay

The NOC switches back and forth with control impulses from 50 ms. In contact position 15-18, the device automatically switches to the rest position after the delay time has elapsed.

# DIN-RAIL PANEL PRODUCTS

## Time relays and multi-function relays

Time relays and multi-function relays	
Technical data / type	MRU1W / AVU1W / RVU1W
Switch-on duration	100%
Temperature at the installation location max. / min.	+50°C / -20°C
Contact material / contact interval	AgSnO <sub>2</sub> / 0.5 mm
Interval control connections / contact	3 mm
Test voltage contact / contact	1000 V
Test voltage control connections / contact	2000 V
Nominal switching capacity AC	10 A / 250 V
Incandescent lamps and fluorescent lamps, inductive or capacitive	1000 W
Fluorescent lamps in DUO switching	1000 W
Fluorescent lamps compensated in parallel	500 W
Electronic ballasts	$I_{ON} \max 70 \text{ A} / 10 \text{ ms}^{2)}$
Inductive load $\cos \varphi = 0.6 / 230 \text{ V AC}$	650 W
Max. switching current DC 1 (not for NP type): 12 V / 24 V DC	8 A
Endurance with rated load, $\cos \varphi = 1$ and incandescent lamps 1000 W for 100 / h	$>10^5$
Endurance with rated load, $\cos \varphi = 0.6$ bei 100 / h	$>4 \times 10^4$
Temperature dependency	$<0,2\%$ each °C
Repetition accuracy at 25 °C	$\pm 0,1\%$
Setting accuracy from 1 minute	$\pm 0,2\%$
Control voltage dependency between 0.8 and 1.1 x U <sub>n</sub>	none
Bridging time during mains failures (then total reset)	min. 0.2 seconds
Control current 12 V / 230 V $\pm 20\%$	0.05 / 0.9 mA
Control current 12 V DC / 230 V DC $\pm 20\%$	0.09 / 1.7 mA
Power consumption continuous electricity supply 12 V / 230 V UC relay OFF	0.02 / 0.4 W
Power consumption continuous electricity supply 12 V / 230 V UC relay ON	0.3 / 1.0 W <sup>3)</sup>
Max. parallel capacity (length) of the control lines for 230 V	0.2 $\mu\text{F}$ (approx. 600 m)
Protection cover (device side)	DIN EN 50274, VDE 0660-514 BGV A3
Box terminal cross section	12 mm <sup>2</sup>
Maximum cross section of a conductor	6 mm <sup>2</sup>
Screw head	Slotted / cross slot pozidriv

Meets VDE0435, EN 61000-6-3, EN 61000-6-1 and EN 60669 standards

1) Only with constant mains voltage  $>110 \text{ V}$  and only when "relay on" for more than 60 minutes, is it necessary to maintain a ventilation interval of 1/2 module on both sides. If required, use the distance device.  
For 230 V AC, a capacitor 0.33  $\mu\text{F}$  / 250 V in series with B1 is also sufficient.

2) For electronic ballasts, a switch-on current 40 times more powerful is to be expected.

# DIN-RAIL PANEL PRODUCTS

## Mains monitoring

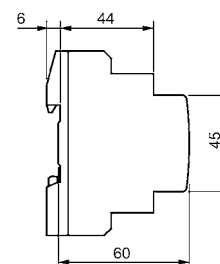
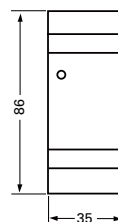


**MAINS MONITORING**  
**NW1**  
 NWA1 asymmetrical monitoring  
 UAB 154 V, UAN 198 V

**2 M**

	ARTICLE NO.	WEIGHT g / EACH	PACKING UNIT
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1NO + 1NC	<b>NW1</b>	98	1
	<b>NWA1</b>	98	1

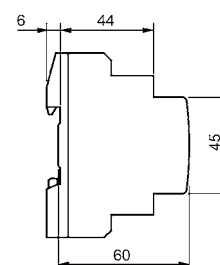
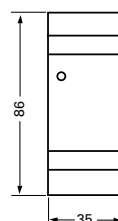


**MAINS MONITORING**  
**NW2**  
 NWA2 asymmetrical monitoring  
 UAB 187 V, UAN 210 V

**2 M**

	ARTICLE NO.	WEIGHT g / EACH	PACKING UNIT
--	-------------	-----------------	--------------

1S + 1Ö	<b>NW2</b>	98	1
	<b>NWA2</b>	98	1



<b>Mains monitoring</b>		<b>NW1 / NW2</b>	<b>NWA1 / NWA2</b>
<b>Technical data / type</b>			
Mains connection		1 - 3-phase 230 / 400 V	3-phase 230 / 400 V
Operational voltage		via L1-N 230 V AC	
Frequency		45...65 Hz	
Power consumption		5.5 VA	
Response / drop delay		0.15...0.5 sec.	
Input pulse amplitude max. 6 ms		2.5 KV	
20 ms		1.0 KV	
Asymmetrical monitoring		none	10%
Back-up fuse		no / device inherently stable	
<b>Relays</b>			
Contact material		Ag Ni 0.15 + HV	
Contact interval		> 0.35	
Interval control connections / contact		15 mm	
Rated insulation voltage contact / contact		1000 V <sub>eff</sub>	
contact / magnet system		4000 V <sub>eff</sub>	
Rated switching capacity		2000 VA	
Contact load DC max. (A) 24 V		8 A	
60 V		1.8 A	
110 V		0.4 A	
220 V		0.3 A	
Minimum contact load		10 mA / 12 V	
Mechanical endurance		3 x 10 <sup>7</sup>	
Endurance with rated load, cos φ =1		100 000	
Endurance with rated load cos φ = 0.4		80 000	
Switching frequency max.		3000 / h	
Switch position display		LED	
Switch-on duration / switching safety		100%	
Temperature at the installation location max. / min.		-40°C / + 70°C	
Total power loss during constant excitation		0.55 VA	

# DIN-RAIL PANEL PRODUCTS

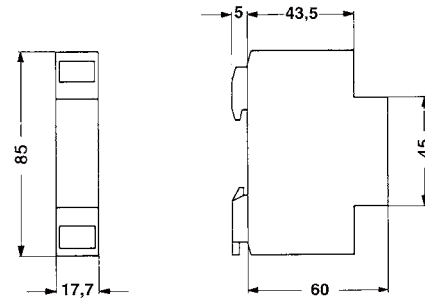
## Installation contactors



INSTALLATION CONTACTOR  
20 A / 230 V AC  
2-pole · Control voltage 230 V AC

1 M

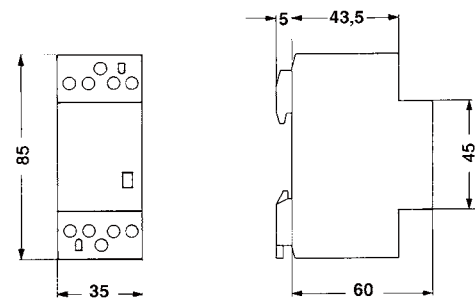
	ARTICLE NO.	WEIGHT g/EACH	PACKING UNIT
2NO	IS2020	200	12
1NO 1NC	IS2011	200	12



INSTALLATION CONTACTOR  
25 A 230 / 400 V AC  
4-pole · Control voltage 230 V AC

2 M

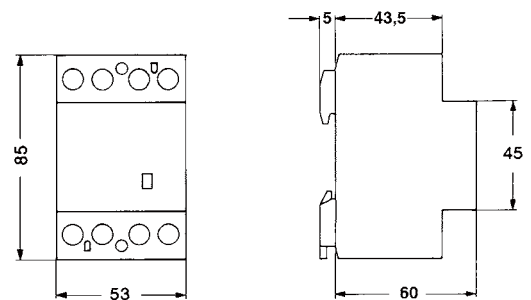
	ARTICLE NO.	WEIGHT g/EACH	PACKING UNIT
4NO	IS2540	280	6
2NO 2NC	IS2522	280	6
3NO 1NC	IS2531	280	6



INSTALLATION CONTACTOR  
40 A and 63 A 230 / 400 V AC  
4-pole · Control voltage 230 V AC

3 M

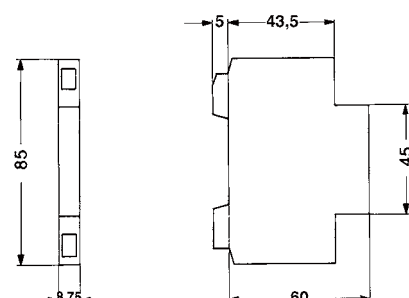
	ARTICLE NO.	WEIGHT g/EACH	PACKING UNIT
4NO	IS4040	450	4
4NO	IS6340	450	4



AUXILIARY CONTACT  
Continuous thermal current  $I_{th} = 6$  A  
Rated operating current  $I_e$   
with AC-15 for  $U_e$  240 V AC 3 A  
415 V AC 2 A  
440 V AC 1,6 A

½ M

	ARTICLE NO.	WEIGHT g/EACH	PACKING UNIT
1NO 1NC	ISH11	23	3



SEALING CAP

	ARTICLE NO.	WEIGHT g/EACH	PACKING UNIT
2 M	ISP2	2	10
3 M	ISP3	3	10



DISTANCE DEVICE 9MM

	ARTICLE NO.	WEIGHT g/EACH	PACKING UNIT
½ M	ISD	13	10

We recommend the use of distance devices at ambient temperatures higher than 40° C

# DIN-RAIL PANEL PRODUCTS

## Installation contactors

Technical data acc. to IEC 60947-3, IEC 60947-5-1, VDE 0660, EN 60947-3, EN 60947-5-1

Main contact element types		IS20..	IS25..	IS40..	IS63..
Rated insulation voltage $U_i$	V AC	440	440	440	440
Rated operating voltage $U_e$	V AC	440	440	440	440
Allowed switching frequency z	AC1, AC3 1 / h	300	300	600	600
Mechanical endurance	S x 10 <sup>6</sup>	1	1	1	1

### Usage category AC1

Rated operating current $I_e$ (= $I_{th}$ ) open	at 60 °C A	20	25	40	63
Switching element endurance	S x 10 <sup>6</sup>	0.1	0.1	0.1	0.1
Power loss per pole for $I_e$ / AC1	W	2	2	3	7

### Usage category AC3 – Switching of three-phase motors

Rated operating current $I_e$	A	-	9	27	30
Rated power for 220 V	kW	-	2.2	7.5	8
Three-phase motors 230 - 240 V 50 - 60Hz	kW	-	2.5	8	8.5
	kW	-	4	12.5	15
Switching element endurance	S x 10 <sup>6</sup>	-	0.15	0.15	0.15

### Magnetic coil

Magnetic coil output	Switching VA	7 - 9	14 - 18	33 - 45	33 - 45
	Stop VA	2.2 - 4.2	4.4 - 8.4	7	7
Alternating current activation	W	0.8 - 1.6	1.6 - 3.2	2.6	2.6

### Magnetic coil operating areas

Control voltage dependency $U_s$		0.85 - 1.1	0.85 - 1.1	0.85 - 1.1	0.85 - 1.1
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### Short circuit protection

Max. back-up fuse main circuits	gL (gG) / A	35	35	63	80
Switching times for control voltage $U_s \pm 10\%$	Closing delay ms	7 - 16	9 - 15	11 - 15	11 - 15
	Opening delay ms	6 - 12	4 - 8	6 - 13	6 - 13
	Arc duration ms	10 - 15	10 - 15	10 - 15	10 - 15

### Connection cross sections

Single or multiple wire main conductor	mm <sup>2</sup>	1.5 - 10	1.5 - 10	2.5 - 25	2.5 - 25
Stranded wire	mm <sup>2</sup>	1.5 - 6	1.5 - 6	2.5 - 16	2.5 - 16
Stranded wire with ferrule	mm <sup>2</sup>	1.5 - 6	1.5 - 6	2.5 - 16	2.5 - 16
Number of clampable conductors per terminal		1	1	1	1
Coil single wire or multiple wire	mm <sup>2</sup>	0.75 - 2.5	0.75 - 2.5	0.75 - 2.5	0.75 - 2.5
Stranded wire	mm <sup>2</sup>	0.5 - 2.5	0.5 - 2.5	0.5 - 2.5	0.5 - 2.5
Stranded wire with ferrule	mm <sup>2</sup>	0.5 - 1.5	0.5 - 1.5	0.5 - 1.5	0.5 - 1.5
Number of clampable conductors per terminal		1	1	1	1

### Auxiliary contact ISH11

Rated insulation voltage $U_i$	V AC	440			
Thermal rated current = $I_{th}$	40 °C	A	10		
	60 °C	A	6		

### Usage category AC15

Rated operating current $I_e$	220 - 240 V	A	3		
	380 - 415 V	A	2		
	440 V	A	1.6		

### Usage category DC13

Rated operating current $I_e$ each pole	24 - 60 V	A	2		
	110 V	A	0.4		
	220 V	A	0.1		

### Short-circuit protection

Largest rated current of the fuses short-circuit current 1kA, without welding the contacts	gL (gG) / A	10			
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# DIN-RAIL PANEL PRODUCTS

Installation contactor IS – Switching of lamp loads

LAMP TYPE	OUTPUT Watt	CURRENT $I_n$ / A	CAPACITOR $\mu$ F	MAX. NUMBER OF LAMPS PER CONDUCTING PATH FOR 230 V 50 HZ AND MAX. 60 °C			
				IS20..	IS25..	IS40..	IS63..
<b>Incandescent lamps</b>	60	0,27	-	22	28	92	129
	100	0,45	-	13	17	55	77
	200	0,91	-	7	8	27	38
	300	1,36	-	4	5	19	26
	500	2,27	-	3	3	11	16
	1000	4,5	-	1	1	6	8
<b>Fluorescent lamps</b> Uncompensated or Serially compensated	11	0.16	1,3	60	75	210	310
	18	0.37	2,7	25	30	90	140
	24	0.35	2,5	25	30	90	140
	36	0.43	3,4	20	25	70	140
	58	0.67	5,3	14	17	45	70
	65	0.67	5,3	13	16	40	65
	85	0.8	5,3	11	14	35	60
<b>Fluorescent lamps</b> Duo switching	11	0.07	-	2 x 100	2 x 110	2 x 220	2 x 250
	18	0.11	-	2 x 50	2 x 55	2 x 130	2 x 200
	24	0.14	-	2 x 40	2 x 44	2 x 110	2 x 160
	36	0.22	-	2 x 30	2 x 33	2 x 70	2 x 100
	58	0.35	-	2 x 20	2 x 22	2 x 45	2 x 70
	65	0.35	-	2 x 15	2 x 16	2 x 40	2 x 60
	85	0.47	-	2 x 10	2 x 11	2 x 30	2 x 40
<b>Fluorescent lamps</b> Parallel compensation	11	0.09	2	30	43	67	107
	18	0.13	2	20	32	50	80
	24	0.16	3	15	32	50	80
	36	0.27	4	10	32	50	80
	58	0.45	7	6	18	36	46
	65	0.5	7	5	18	36	46
	85	0.6	8	4	18	33	44
<b>Fluorescent lamps</b> with electronic ballast	18	0.09	-	40	40	100	150
	36	0.16	-	20	20	50	75
	58	0.25	-	15	15	30	55
	2 x 18	0.17	-	2 x 20	2 x 20	2 x 50	2 x 60
	2 x 36	0.32	-	2 x 10	2 x 10	2 x 25	2 x 30
	2 x 58	0.49	-	2 x 7	2 x 7	2 x 15	2 x 20
<b>Transformers</b> for low-voltage halogen lamps	20	0.09	-	40	52	110	174
	50	0.22	-	20	24	50	80
	75	0.33	-	13	16	35	54
	100	0.43	-	10	12	27	43
	150	0.65	-	7	9	19	29
	200	0.87	-	5	5	14	23
	300	1.3	-	3	4	9	14
<b>Mercury high-pressure lamps</b> uncompensated e.g. high-pressure mercury lamp and metal halide lamp	50	0.61	-	16	21	38	55
	80	0.8	-	12	16	29	40
	125	1.15	-	8	11	20	28
	250	2.15	-	4	6	11	15
	400	3.25	-	3	4	7	10
	700	5.4	-	1	2	4	6
	1000	7.5	-	1	1	3	4
<b>Mercury high-pressure lamps</b> compensated e.g. high-pressure mercury lamp and metal halide lamp	50	0.28	7	7	18	36	50
	80	0.41	8	5	16	31	44
	125	0.65	10	3	13	25	35
	250	1.22	18	2	7	14	19
	400	1.95	25	1	5	10	14
	700	3.45	45	1	3	6	8
	1000	4.8	60	-	2	4	6

# DIN-RAIL PANEL PRODUCTS

Installation contactor IS – Switching of lamp loads

LAMP TYPE	OUTPUT Watt	CURRENT $I_n$ / A	CAPACITOR $\mu$ F	MAX. NUMBER OF LAMPS PER CONDUCTING PATH FOR 230 V 50 HZ AND MAX. 60 °C			
				IS20..	IS25..	IS40..	IS63..
<b>Metal halogen lamps</b> uncompensated e.g. high-pressure mercury lamp and metal halide lamp, CDM	35	0.53	-	22	24	57	65
	70	1	-	12	14	30	35
	150	1.8	-	6	8	17	18
	250	3	-	4	5	10	12
	400	3.5	-	3	4	8	10
	1000	9.5	-	1	1	3	4
	2000	16.5	-	-	-	2	2
	2000 / 400 V	10.5	-	-	-	2	2
3500 / 400 V	18	-	-	-	1	1	
<b>Metal halogen lamps</b> compensated e.g. high-pressure mercury lamp and metal halide lamp, CDM	35	0.25	6	8	21	42	58
	70	0.45	12	4	11	21	29
	150	0.75	20	2	7	13	18
	250	1.5	33	1	4	9	11
	400	2.1	35	1	4	9	10
	1000	5.8	95	-	1	3	4
	2000	11.5	148	-	-	2	2
	2000 / 400 V	6.6	58	-	-	3	4
3500 / 400 V	11.6	100	-	-	2	3	
<b>Metal halogen lamps</b> with electronic ballast (e.g. PCI) 50 - 125 x $I_n$ lamps for 0.6 ms	20	0.1	Integrated	9	9	18	20
	35	0.2	Integrated	6	6	11	13
	70	0.36	Integrated	5	5	10	12
	150	0.7	Integrated	4	4	8	10
<b>Low pressure sodium vapour lamps</b> uncompensated	35	1.5	-	7	9	22	30
	55	1.5	-	7	9	22	30
	90	2.4	-	4	6	13	19
	135	3.3	-	3	4	10	14
	150	3.3	-	3	4	10	14
	180	3.3	-	3	4	10	14
	200	3.3	-	3	4	10	14
<b>Low pressure sodium vapour lamps</b> compensated	35	0.31	20	3	6	15	18
	55	0.42	20	2	6	15	18
	90	0.63	30	1	4	10	12
	135	0.94	45	1	3	7	8
	150	1	40	1	3	8	9
	180	1.16	40	1	3	8	9
	200	1.32	25	-	-	10	12
<b>High pressure sodium vapour lamps</b> uncompensated	150	1.8	-	5	8	17	22
	250	3	-	4	5	10	13
	330	3.7	-	3	4	8	10
	400	4.7	-	2	3	6	8
	1000	10.3	-	1	1	3	4
<b>High pressure sodium vapour lamps</b> compensated	150	0.83	20	2	7	20	25
	250	1.5	33	1	4	12	15
	330	2	40	1	3	10	13
	400	2.4	48	1	2	8	12
	1000	6.3	106	-	1	4	6
<b>High pressure sodium vapour lamps</b> Sodium vapour lamps with electronic ballast (e.g. PCI) 50 - 125 x $I_n$ lamp for 0.6 ms	20	0.1	Integrated	9	9	18	20
	35	0.2	Integrated	6	6	11	13
	70	0.36	Integrated	5	5	10	12
	150	0.7	Integrated	4	4	8	10

# DIN-RAIL PANEL PRODUCTS

## Stairway light time switches



STAIRWAY LIGHT TIME SWITCHES  
WITH PRE-WARNING  
OF SWITCH-OFF  
230 V AC 50 / 60 Hz  
16 A 1 NO (not floating)  
Time range 1 to 30 minutes  
Incandescent lamp load 2300 W  
Glow lamp current 50 mA

1 M

ARTICLE NO.	WEIGHT g/EACH	PACKING UNIT
TZA2301	76	12

### TZA2301 Stairway light time switches Stand-by loss only 0.5 Watt.

**Contact circuit in zero crossing** to protect the contacts and lamps. This is especially good for increasing the endurance for energy-saving lamps. Very low switching noise.  
Exact time settings from 1 to 30 minutes with minute scale.  
Control, supply and switching voltage 230 V. Also with galvanically separated universal control voltage 8...230 V UC.  
Glow lamp current up to 50 mA, independent of the glow lamp ignition voltage.

**Own continuous light switch** with large rotary switch.

When the pre-warning switch-off is activated , the light flickers approx. 30 seconds before time elapses and 3 times in total in shorter and shorter periods.

**When the continuous light button is activated**, pressing the button for longer than one second can activate the continuous light, which is automatically switched off after 60 minutes or can be switched off by pressing for longer than 2 seconds.  
If the continuous light button and the pre-warning of switch-off are activated, then the pre-warning of switch-off only activates after switching off the continuous light.  
If energy-saving lamps are switched (ESL) completely or partly, then set the pre-warning of switch-off and the continuous light button on the right ESL side of the rotary switch.  
Within 1 second after switch-on or subsequent switch-on, the **time** can be **extended** (pumped) with the TLZ functions by briefly pressing the button three times. Every touch adds one time to the set time.

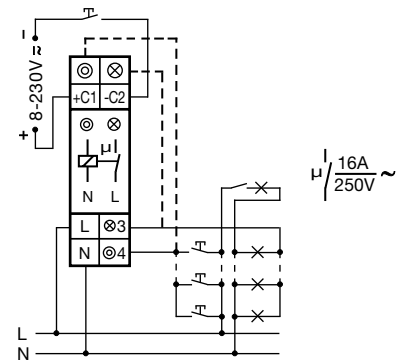
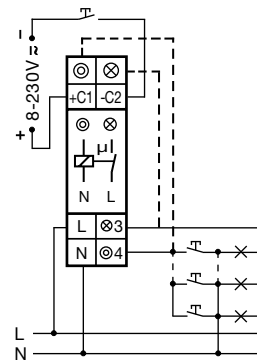
**Multifunctional:** Can switch between the **FS** (impulse relay), **ST** (relay) and **ESV** (impulse relay with release delay) functions. The ESV function, the times (t) settable with the rotary switch above correspond to the following values: 1 = 2 min, 2 = 5 min, 3 = 10 min, 4 = 15 min, 6 = 25 min, 8 = 35 min, 10 = 45 min, 12 = 60 min, 20 = 90 min, 30 = 120 min.

After the set delay time has elapsed, automatic switch-off is carried out if the manual OFF command was not given. Pre-warning of switch-off and the continuous light button can be connected for ESV. Forgotten continuous light is switched off after 2 hours.

### Connection examples

3-conductor circuit  
with subsequent switching

4-conductor circuit,  
with attic lighting,  
with subsequent switching

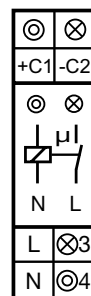


Automatic mode:

pre-warning switch

continuous light button

TLZ:  $t_{\max} = 30 \text{ min}$   
ESV:  $t_{\max} = 120 \text{ min}$



**With double connections** for button and lamp so that they can be connected above and below or only below.

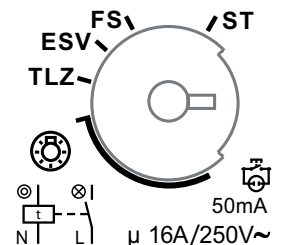
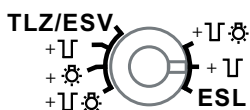


### Time setting

**TLZ / ESL** t = time 1 to 30 minutes  
**ESV** t = time 2 to 120 minutes

### Function selection switch TLZ / ESV and ESL

- = Pre-warning of switch-off
- = Continuous light button
- = Continuous light button + pre-warning of switch-off
- = Continuous light switch





# DIN-RAIL PANEL PRODUCTS

## Stairway light time switches

Technical data stairway light time switch	TZA2301 *
<b>Contacts</b>	
Contact material / contact interval	AgSnO <sub>2</sub> / 0.5mm
Interval control connections / contact	3 mm
Interval A1-A2 / contact	6 mm
Test voltage control connections / contact	2 000 V
Test voltage A1-A2 / contact	4 000 V
Nominal switching capacity AC	16 A / 250 V
Incandescent lamps and halogen lamp load 230 V <sup>1)</sup>	2 300 W
Fluorescent lamp load (conventional ballast) In DUO switching or uncompensated	1 000 VA
Fluorescent lamp load (conventional ballast) with parallel compensation or with electronic ballast	500 VA
Compact fluorescent lamps with electronic ballast And energy-saving lamps ESL	15 x 7 W 10 x 20 W
Endurance with rated load, $\cos \varphi = 1$ or for incandescent lamps 1000 W for 100 / h	>10 <sup>5</sup>
Endurance with rated load, $\cos \varphi = 0.6$ to 100 / h	>4 x 10 <sup>4</sup>
Switching frequency max.	10 <sup>3</sup> / h
Box terminal cross sections	12 mm <sup>2</sup>
Maximum cross section of a conductor	6 mm <sup>2</sup>
Screw head	Slotted / cross slot, pozidriv slot
Protection cover (device side)	VDE 0106 part 100

<b>Electronics</b>	
Switch-on duration	100%
Temperature at the installation location max. / min.	+50 °C / -20 °C
Stand-by loss (active power)	0.5 W
Control current locally at 230 V (<10 s) ± 20%	5 (100) mA
Max. parallel capacity (approx. length) of the individual control lines for 230 V AC	0.06 µF (approx. 200 m)

Fulfilled EN 61000-6-3, EN 61000-6-1 and EN 60 669 standards

With pre-warning of switch-off acc. to DIN 18015-2

\* Bistable relay as NOC. Wait for automatic synchronisation after installation before applying the switched load to the mains.

1) For lamps with max. 150 W.

# DIN-RAIL PANEL PRODUCTS

## Synchronised / Quartz time switch



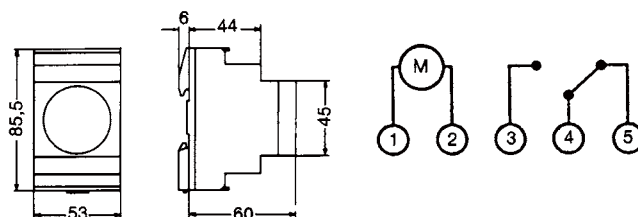
### SYNCHRONISED TIME SWITCH

230 V~ 50 Hz  
16 A, 1 CO contact  
without power reserve

#### 3 M

	ARTICLE NO.	WEIGHT g/EACH	PACKING UNIT
24 h	<b>AZ1TS</b>	200	1
7 Tage	<b>AZ7TS</b>	200	1

24 h	<b>AZ1TS</b>	200	1
7 Tage	<b>AZ7TS</b>	200	1



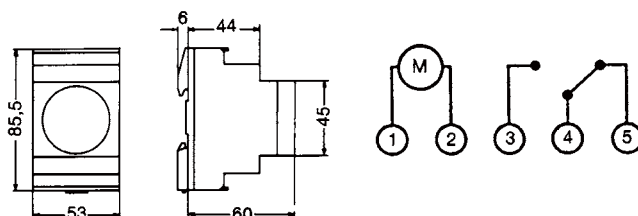
### QUARTZ TIME SWITCH

230 V~ 50 / 60 Hz  
16 A, 1 CO contact  
Power reserve 150 h

#### 3 M

	ARTICLE NO.	WEIGHT g/EACH	PACKING UNIT
24 h	<b>AZ1TQ</b>	200	1
7 Tage	<b>AZ7TQ</b>	200	1

24 h	<b>AZ1TQ</b>	200	1
7 Tage	<b>AZ7TQ</b>	200	1



Technical data / type	AZ1TS / AZ7TS	AZ1TQ / AZ7TQ
Operating voltage	220 - 240 V AC	230 V AC / 130 V DC
Frequency	50 Hz	45 - 60 Hz
Power consumption	approx. 1 VA	
Power reserve	-	150 h battery
Charge time	-	70 h
Accuracy	Network synchronisation	± 2.5 sec. / day at 20 °C
Minimum switch-on duration	30 min 3 h	
Programming	30 min 3 h	
Manual switch	Continuous OFF / clock operations / continuously ON	
Contacts	1 CO contact	
Contact power	16 A / 250 V AC $\mu$ 4 A / 250 V AC	
For incandescent lamps	1350 W	
Temperature range	-25 °C to +55 °C	
Protection class	II acc. to EN 60335-1	
Degree of protection	IP20 acc. to EN 60529	

# DIN-RAIL PANEL PRODUCTS

## Digital timer



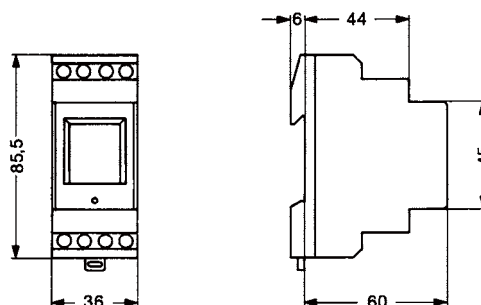
### DIGITAL TIMER

230 V~, 50/60 Hz, 16 A  
 1 channel, 50 storage places  
 2 channels, 50 storage places  
 Program 24 h, 7 days

### 2 M

	ARTICLE NO.	WEIGHT g / EACH	PACKING UNIT
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1 channel	<b>DZ201</b>	170	1
2 channels	<b>DZ302</b>	170	1



Technical data / Typ	DZ201	DZ302
Operating voltage	220-240 V / 50-60 Hz	
Power input up to 230 V~ (AC)	5 VA	
<b>Switching capacity AC</b> Ohmic load (VDE, IEC) Inductive load cos. $\varphi$ 0,6 Incandescent lamp load	16 A / 250 V AC 8 A / 250 V AC 1000 W	
<b>Switching capacity DC</b> 24 V– 50 V– 220 V–	800 mA 300 mA 150 mA	
Switching output	Floating	
Switching contacts	1 CO contact	2 CO contact
Ambient temperature	–25 °C *) ... + 55 °C	
Protection class	II acc. to EN 60335-1	
Accuracy	type $\pm$ 1 s / day when +20 °C	
Power reserve	3 years ex works for +20 °C	
Shortest switching time	1 min	
Programmable	1 min	
Storage places	50	
Manual switch	Automatic / pre-selection Fix ON/ Fix OFF	
Block formation of week days	Free assignment	
Display switch state	Yes	
Daylight saving time option	automatic / free selection / off	
Max. conductor cross section	4 mm <sup>2</sup>	
Type of connection	Captive $\pm$ screw terminals	
Sealable	Yes	
Programming	Menu in 15 languages	

\*) for limited display functions

# DIN-RAIL PANEL PRODUCTS

## Transformers

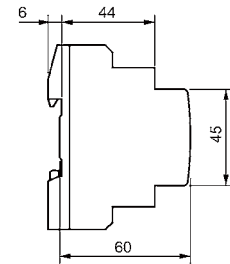
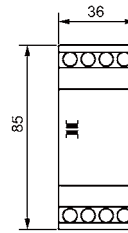


SAFETY BELL  
TRANSFORMER  
230 V~ 50 Hz  
U/I secondary  
8 - 12 V / 1 – 0.67 A  
Short-circuit proof with PTC

**2 M**

	ARTICLE NO.	WEIGHT g/EACH	PACKING UNIT
8 VA	KT08	211	1

8 VA	KT08	211	1
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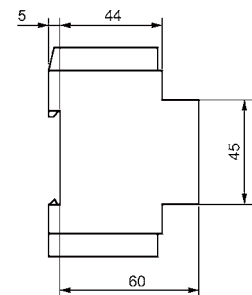
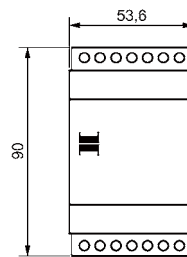


SAFETY BELL  
TRANSFORMER  
230 V~ 50 Hz  
U/I secondary  
16 VA 8-12-24 V / 1.3-1.3-0.67 A  
24 VA 8-12-24 V / 2-2-1 A  
Short-circuit proof with PTC

**3 M**

	ARTICLE NO.	WEIGHT g/EACH	PACKING UNIT
16 VA	KT16	537	1
24 VA	KT24	758	1

16 VA	KT16	537	1
24 VA	KT24	758	1

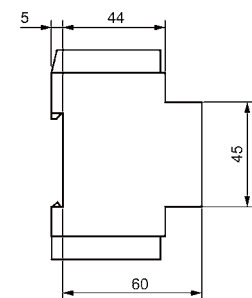
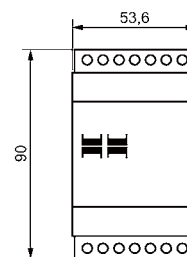


SAFETY TRANSFORMER  
230 V~ 50 Hz  
U/I secondary 12-12 V / 1.67-1.67 A  
Parallel circuit 12 V / 3.3 A  
Series circuit 24 V / 1.67 A  
Short-circuit proof with PTC

**3 M**

	ARTICLE NO.	WEIGHT g/EACH	PACKING UNIT
40 VA	ST40	790	1

40 VA	ST40	790	1
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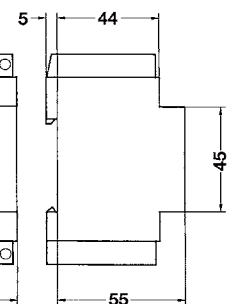
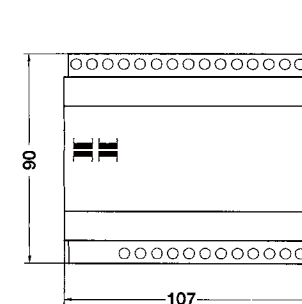


SAFETY TRANSFORMER  
230 V~ 50 Hz  
U/I secondary 12-12 V / 2.63-2.63 A  
Parallel circuit 12 V / 5.25 A  
Series circuit 24 V / 2.63 A  
Short-circuit proof with PTC

**6 TE**

	ARTICLE NO.	WEIGHT g/EACH	PACKING UNIT
63 VA	ST63	1731	2

63 VA	ST63	1731	2
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# DIN-RAIL PANEL PRODUCTS

## LOMO logic module



### LOMOcompact LOGIC MODULE

Inputs:  
 8 x digital (180-264 V)  
 2 x analogue (0-10 V)  
 Switching outputs:  
 5 x 230 V~/30 V = 5 A floating  
 DC output: 1 x 11.3 V 280 mA

ARTICLE NO.	WEIGHT g/EACH	PACKING UNIT
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LOM8522	260	1
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### LOMO 552 EXPANSION MODULE

Inputs:  
 5 x digital (180-264 V)  
 2 x analogue (0-10 V)  
 Switching outputs:  
 5 x 230 V~/30 V = 5 A floating

ARTICLE NO.	WEIGHT g/EACH	PACKING UNIT
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LOM5521	176	1
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Technical Data / Type			
Interfaces			
	LoMo852	LoMo552	
Digital inputs	8	5	180-264 V~ galvanically separated
Switching outputs	5	5	230 V~/30 V= 5 A floating
Analogue inputs	2	2	0-10 V
RS232	1	1	
DC output	1	0	11.3 V 280 mA

Nominal voltage	
LoMo 852	230 V~ 50 Hz
LoMo 552	12 V= 120 mA

Ambience	
Ambient storage temperature	-30 ... 85 °C
Ambient working temperature	-20 ... 55 °C
Relative humidity	10 ... 90% (without condensation)
Protection class	II
Overvoltage category	II
Degree of protection	IP20
Housing	6M (LoMo 852) on DIN-rail 35 mm 4M (LoMo 552) on DIN-rail 35 mm

# DIN-RAIL PANEL PRODUCTS

## LOMO accessories



### TOUCHSCREEN DISPLAY

Display: 7" TFT 800 x 480 (WVGA)  
4wire, resistive touchscreen  
Interface: RS232 & RS485  
Protection rating: IP20 (LOMD112)  
or IP65 (LOMD212)

User programmable GUI and functions (via script)

ARTICLE NO.	PACKING UNIT
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LOMD112	1
LOMD212	1



### LOMware Software

Programming application for LOMcompact

ARTICLE NO.	PACKING UNIT
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LOMW100	1
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### POWER CORD for Touchscreen Display

ARTICLE NO.	LENGTH CM	PACKING UNIT
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LOMK430	300	1
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### PROGRAMMING CABLE

ARTICLE NO.	LENGTH CM	PACKING UNIT
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LOMK218	180	1
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### CONNECTION CABLE LOMcompact to Touchscreen Display

ARTICLE NO.	LENGTH CM	PACKING UNIT
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LOMK330	330	1
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