finder®
SWITCH TO THE FUTURE

Modular Solid State Relay 5 - 15 - 30 - 50 A

77
SERIES

- Drying kilns
- Heating and cooling
- Lighting control in corridors (for hotels, offices and hospitals)
- Bottling plant
- Labelling machines
- Packaging machines

5 A modular SSR, 1 NO AC output

- 17.5 mm housing
- 60 to 240 V AC output (with back to back SCR)
- 5 kV (1.2/50 µs) insulation between Input and Output
- Zero-crossing and random switch-on versions available
- High switching speed
- High endurance
- Silent switching
- Spark and bounce-free switching
- Low control power
- 3-phase general purpose
- 35 mm rail (EN 60715) mount

77.01
Screw terminal

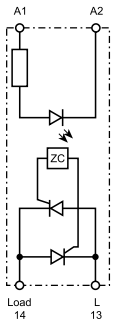
* See L77-3 diagram page 13
** See L77-1 and L77-2 diagrams page 12

For outline drawing see page 16

77.01.x.xxx.8050

Zero-crossing switch-on
Suggested applications:

- Lamp inrush current reduction (CFL - Compact Fluorescent energy-saving Lamps and similar)
- Heater control
- Solenoid, contactor driver

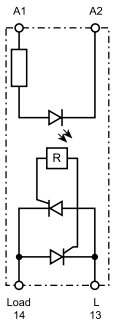


Simplified circuit diagram

77.01.x.xxx.8051

Random switch-on
Suggested applications:

- Finer control requiring short operate time (specially motor control)
- AC Input phase different from AC Output phase



Simplified circuit diagram

Output specification					
Output configuration		1 NO (SPST-NO)		1 NO (SPST-NO)	
Rated current I_N/Max. peak current* (10 ms)	A	5/300*		5/300*	
Rated voltage	V AC (50/60 Hz)	230		230	
Switching voltage range	V AC (50/60 Hz)	48…265		48…265	
Repetitive peak off-state voltage	V_{pk}	800		800	
Rated load AC7a (cos φ = 0.8)	A	5		5	
Rated load AC15	A	5		3	
Single phase motor rating (230 V AC)	kW	—		0.1	
Nominal lamp rating:					
230 V incandescent/halogen	W	1000		800	
fluorescent tubes with electronic ballast	W	1000		800	
fluorescent tubes with electromechanical ballast	W	1000		800	
CFL	W	800		400	
230 V LED	W	800		400	
LV halogen or LED with electronic ballast	W	800		400	
LV halogen or LED with electromechanical ballast	W	1000		800	
Minimum switching current @ 230 V	mA	100		100	
Typical "OFF-state" leakage current @ 230 V	mA	0.5		3.5	
Max "ON-state" voltage drop @ 25 °C and 5 A/100 mA	V	0.85/1.5		0.85/1.5	
Power loss @ 5 A	W	4		4	
Input specification					
Nominal voltage (U_N)	V AC (50/60 Hz)	24	230	24	230
	V DC	12…24	—	12…24	—
Rated power	VA (50 Hz)/W	0.6/0.5	3.6/0.3	0.6/0.5	3.6/0.3
Operating range	V AC (50/60 Hz)	16…32	90…265	16…32	90…265
	V DC	9.8…32	—	9.8…32	—
Must drop-out voltage	V AC (50/60 Hz)/DC	2.4	24	2.4	24
Technical data					
Electrical life	cycles	$10 \cdot 10^6$		$10 \cdot 10^6$	
Operate/release time	ms	20/12		9/8	
Insulation between input and output (1.2/50 µs)	kV	5		5	
Ambient temperature	°C	–20…+70**		–20…+70**	
Protection category		IP 20		IP 20	
Approvals (according to type)		CE EAC cULus			

7 - 15 A modular SSR, 1 NO DC output

- 17.5 mm housing
- 2 versions, for 24 and 125 V DC mosfet output
- 4 kV (1.2/50 µs) insulation between Input and Output
- Short circuit protection
- High switching speed
- High endurance
- Silent switching
- Spark and bounce-free switching
- Low control power
- Suitable for railway applications
- 35 mm rail (EN 60715) mount

77.01
Screw terminal

* See L77-12 and L77-13 diagrams page 10

For outline drawing see page 16

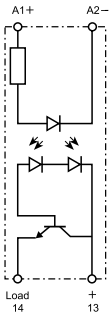
D

77.01.9.024.9024

24 V DC output switching
15 A rated

Applications in Energy, Automation and Machines:

- Control of electric, pneumatic and hydraulic electromagnetic valves
- Direct control of loads such as motors and electromagnets



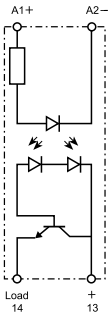
Simplified circuit diagram

77.01.9.024.9125

110…125 V DC output switching
7 A rated

Applications in Energy, Automation and Machines:

- Control of electric, pneumatic and hydraulic electromagnetic valves
- Direct control of loads such as motors and electromagnets



Simplified circuit diagram

		77.01.9.024.9024	77.01.9.024.9125
Output specification			
Output configuration		1 NO (SPST-NO)	1 NO (SPST-NO)
Rated current I_N/Max. peak current (10 ms)	A	15/160	7/60
Rated voltage	V DC	24	125
Switching voltage range	V DC	16…32	43…140
Rated load DC13	A	5	2.5
DC motor rating	kW	0.2	—
Minimum switching current	mA	100	50
Typical "OFF-state" leakage current	mA	3	6
Max "ON-state" voltage drop @ 25 °C and I_N	V	0.06	0.2
Power loss @ I_N	W	1	1.5
Input specification			
Nominal voltage (U_N)	V DC	6…24	6…24
Rated power	W	0.5	0.5
Operating range	V DC	4…36	4…36
Must drop-out voltage	V DC	3	3
Technical data			
Electrical life	cycles	$10 \cdot 10^6$	$10 \cdot 10^6$
Operate/release time	ms	0.05/2	0.05/2
Insulation between input and output (1.2/50 µs)	kV	4	4
Ambient temperature	°C	−20…+70*	−20…+70*
Protection category		IP 20	IP 20
Approvals (according to type)		CE EAC cULus	

15 A modular SSR, 1 NO output

- 22.5 mm housing, heat-sink + plastic cover
- 24 to 277 V AC output (with triac)
- 6 kV (1.2/50 µs) insulation between Input and Output
- Zero-crossing and random switch-on versions available
- High switching speed
- High endurance
- Silent switching
- Spark and bounce-free switching
- Low control power
- 3-phase general purpose
- "Relay-style" terminal arrangement (input and output terminals on opposite sides)
- 35 mm rail (EN 60715) mount

77.11
Screw terminal

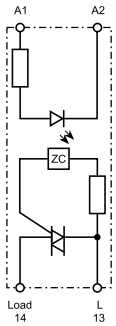
* See L77-7 diagram page 13
** See L77-6 diagrams page 12

For outline drawing see page 16

77.11.x.xxx.8250

Zero-crossing switch-on
Suggested applications:

- Lamp inrush current reduction (CFL - Compact Fluorescent energy-saving Lamps and similar)
- Heater control
- Solenoid, contactor driver

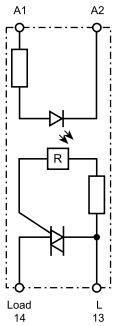


Simplified circuit diagram

77.11.x.xxx.8251

Random switch-on
Suggested applications:

- Fine controls involving shorter time (specially motor control)



Simplified circuit diagram

Output specification					
Output configuration		1 NO (SPST-NO)		1 NO (SPST-NO)	
Rated current I_N/Max. peak current* (10 ms)	A	15/400*		15/400*	
Rated voltage	V AC (50/60 Hz)	230		230	
Switching voltage range	V AC (50/60 Hz)	19…305		19…305	
Repetitive peak off-state voltage	V_{pk}	800		800	
Rated load AC7a (cos φ = 0.8, @ 25 °C)	A	20		20	
Rated load AC15	A	15		15	
Single phase motor rating (230 V AC)	kW	—		0.75	
Nominal lamp rating: 230 V incandescent/halogen	W	4000		2500	
fluorescent tubes with electronic ballast	W	4000		2500	
fluorescent tubes with electromechanical ballast	W	2000		1000	
CFL	W	3000		1500	
230 V LED	W	3000		1500	
LV halogen or LED with electronic ballast	W	3000		1500	
LV halogen or LED with electromechanical ballast	W	3000		1500	
Minimum switching current @ 250 V	mA	100		100	
Typical "OFF-state" leakage current @ 250 V	mA	1		1	
Max "ON-state" voltage drop @ 25 °C and 15 A	V	1.55		1.55	
Power loss @ 15 A	W	14		14	
Input specification					
Nominal voltage (U_N)	V AC (50/60 Hz)	—	230	—	230
	V DC	24	—	24	—
Rated power	VA (50 Hz)/W	0.4	7.5/0.9	0.4	7.5/0.9
Operating range	V AC (50/60 Hz)	—	40…305	—	40…305
	V DC	4…32	—	4…32	—
Must drop-out voltage	V AC (50/60 Hz)/DC	—/2	6/—	—/2	6/—
Technical data					
Electrical life	cycles	$10 \cdot 10^6$		$10 \cdot 10^6$	
Operate/release time	ms	< 10/< 10	< 10/< 30	< 1/< 10	< 2/< 25
Insulation between input and output (1.2/50 µs)	kV	6		6	
Ambient temperature	°C	–20…+80**		–20…+80**	
Protection category		IP 20		IP 20	
Approvals (according to type)		CE EAC cULus			

30 A modular SSR, 1 NO output

- 22.5 mm housing, heat-sink + plastic cover
- 60 to 440 V AC output (with back to back SCR)
- 6 kV (1.2/50 µs) insulation between Input and Output
- Zero-crossing and random switch-on versions available
- High switching speed
- High endurance
- Silent switching
- Spark and bounce-free switching
- Low control power
- 3-phase general purpose
- "Relay-style" terminal arrangement (input and output terminals on opposite sides)
- 35 mm rail (EN 60715) mount

77.31
Screw terminal

* See L77-5 diagram page 13
** See L77-4 diagrams page 12

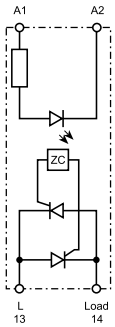
For outline drawing see page 16

D

77.31.x.xxx.8050

Zero-crossing switch-on
Suggested applications:

- Lamp inrush current reduction (CFL - Compact Fluorescent energy-saving Lamps and similar)
- Heater control
- Solenoid, contactor driver

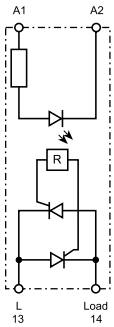


Simplified circuit diagram

77.31.x.xxx.8051

Random switch-on
Suggested applications:

- Finer control requiring short operate time (specially motor control)



Simplified circuit diagram

Output specification					
Output configuration		1 NO (SPST-NO)		1 NO (SPST-NO)	
Rated current I_N/Max. peak current* (10 ms)	A	30/520*		30/520*	
Rated voltage	V AC (50/60 Hz)	400		400	
Switching voltage range	V AC (50/60 Hz)	48…480		48…480	
Repetitive peak off-state voltage	V_{pk}	1100		1100	
Rated load AC7a (cos φ = 0.8)	A	30		30	
Rated load AC15	A	20		20	
Single phase motor rating (230 V AC)	kW	—		1.5	
Nominal lamp rating: 230 V incandescent/halogen	W	6000		4500	
fluorescent tubes with electronic ballast	W	6000		4000	
fluorescent tubes with electromechanical ballast	W	3000		1800	
CFL	W	4000		2500	
230 V LED	W	4000		2500	
LV halogen or LED with electronic ballast	W	4000		2500	
LV halogen or LED with electromechanical ballast	W	4000		2500	
Minimum switching current @ 400 V	mA	300		300	
Typical "OFF-state" leakage current @ 400 V	mA	1		1	
Max "ON-state" voltage drop @ 25 °C and 30 A	V	0.85		0.85	
Power loss @ 30 A	W	16		16	
Input specification					
Nominal voltage (U_N)	V AC (50/60 Hz)	—	230	—	230
	V DC	24	—	24	—
Rated power @ U_{MAX}	VA (50 Hz)/W	0.4	7.5/0.9	0.4	7.5/0.9
Operating range	V AC (50/60 Hz)	—	40…280	—	40…280
	V DC	4…32	—	4…32	—
Must drop-out voltage	V AC (50/60 Hz)/DC	—/2	6/—	—/2	6/—
Technical data					
Electrical life	cycles	$10 \cdot 10^6$		$10 \cdot 10^6$	
Operate/release time	ms	< 10/< 10	< 10/< 30	< 1/< 10	< 2/< 25
Insulation between input and output (1.2/50 µs)	kV	6		6	
Ambient temperature	°C	–20…+80**		–20…+80**	
Protection category		IP 20		IP 20	
Approvals (according to type)		CE EAC cULus			

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30 A modular SSR, 1 NO output

- 22.5 mm housing, heat-sink + plastic cover
- 60 to 440 V AC output (with back to back SCR)
- 6 kV (1.2/50 µs) insulation between Input and Output
- Zero-crossing and random switch-on versions available
- High switching speed
- High endurance
- Silent switching
- Spark and bounce-free switching
- Low control power
- 3-phase general purpose
- "Contactor-style" terminal arrangement (input and output terminals on adjacent sides)
- 35 mm rail (EN 60715) mount

77.31
Screw terminal

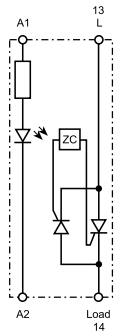
* See L77-5 diagram page 13
** See L77-4 diagrams page 12

For outline drawing see page 16

77.31.x.xxx.8070

Zero-crossing switch-on
Suggested applications:

- Lamp inrush current reduction (CFL - Compact Fluorescent energy-saving Lamps and similar)
- Heater control
- Solenoid, contactor driver

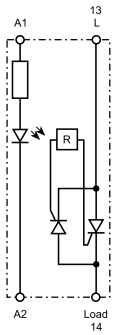


Simplified circuit diagram

77.31.x.xxx.8071

Random switch-on
Suggested applications:

- Fine controls involving shorter time (specially motor control)



Simplified circuit diagram

Output specification					
Output configuration		1 NO (SPST-NO)		1 NO (SPST-NO)	
Rated current I_N/Max. peak current* (10 ms)	A	30/520*		30/520*	
Rated voltage	V AC (50/60 Hz)	400		400	
Switching voltage range	V AC (50/60 Hz)	48…480		48…480	
Repetitive peak off-state voltage	V_{pk}	1100		1100	
Rated load AC7a (cos φ = 0.8)	A	30		30	
Rated load AC15	A	20		20	
Single phase motor rating (230 V AC)	kW	—		1.5	
Nominal lamp rating:					
230 V incandescent/halogen	W	6000		4500	
fluorescent tubes with electronic ballast	W	6000		4000	
fluorescent tubes with electromechanical ballast	W	3000		1800	
CFL	W	4000		2500	
230 V LED	W	4000		2500	
LV halogen or LED with electronic ballast	W	4000		2500	
LV halogen or LED with electromechanical ballast	W	4000		2500	
Minimum switching current @ 400 V	mA	300		300	
Typical "OFF-state" leakage current @ 400 V	mA	1		1	
Max "ON-state" voltage drop @ 25 °C and 30 A	V	0.85		0.85	
Power loss @ 30 A	W	16		16	
Input specification					
Nominal voltage (U_N)	V AC (50/60 Hz)	—	230	—	230
	V DC	24	—	24	—
Rated power	VA (50 Hz)/W	0.4	7.5/0.9	0.4	7.5/0.9
Operating range	V AC (50/60 Hz)	—	40…280	—	40…280
	V DC	4…32	—	4…32	—
Must drop-out voltage	V AC (50/60 Hz)/DC	—/2	6/—	—/2	6/—
Technical data					
Electrical life	cycles	$10 \cdot 10^6$		$10 \cdot 10^6$	
Operate/release time	ms	< 10/< 10	< 10/< 30	< 1/< 10	< 2/< 25
Insulation between input and output (1.2/50 µs)	kV	6		6	
Ambient temperature	°C	–20…+80**		–20…+80**	
Protection category		IP 20		IP 20	
Approvals (according to type)		CE EAC cULus			

D

77 SERIES
Hockey puck Solid State Relay 25 - 40 - 50 A

finder

25, 40 And 50 A panel SSR, "hockey puck" style

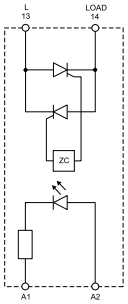
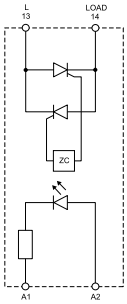
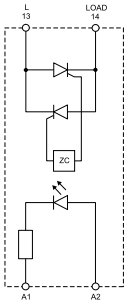
- "hockey puck" housing with cover
- 24 to 240 V AC output
- Zero-crossing version
- High switching speed
- High endurance
- Silent switching
- Spark and bounce-free switching
- Low control power
- 3-phase general purpose
- "Relay-style" terminal arrangement (input and output terminals on opposite sides)
- Mounting on heatsink with screws

77.x5
Screw terminal (plate clamp)

D

* See L77-11 diagrams page 13
** See L77-8, L77-9 and L77-10 diagrams page 13

For outline drawing see page 16

	77.25.x.xxx.8250		77.45.x.xxx.8250		77.55.x.xxx.8250	
	Zero-crossing switch-on • Output: 25 A/230 V AC • Suggested applications: heater control		**Zero-crossing switch-on** • Output: 40 A/230 V AC • Suggested applications: heater control		**Zero-crossing switch-on** • Output: 50 A/230 V AC • Suggested applications: heater control	
						
	Simplified circuit diagram		Simplified circuit diagram		Simplified circuit diagram	
Output specification						
Output configuration	1 NO (SPST-NO)		1 NO (SPST-NO)		1 NO (SPST-NO)	
Rated current I_N/Max. peak current* (10 ms) A	25/300*		40/500*		50/520*	
Rated voltage V AC (50/60 Hz)	230		230		230	
Switching voltage range V AC (50/60 Hz)	21.6…280		21.6…280		21.6…280	
Repetitive peak off-state voltage V_{pk}	600		600		600	
Nominal lamp rating: 230 V incandescent/halogen W	2000		4000		6000	
fluorescent tubes with electronic ballast W	2000		4000		6000	
fluorescent tubes with electromechanical ballast W	1000		2000		3000	
CFL W	800		3000		4000	
230 V LED W	800		3000		4000	
LV halogen or LED with electronic ballast W	800		3000		4000	
LV halogen or LED with electromechanical ballast W	1000		3000		4000	
Minimum switching current @ 250 V mA	120		250		250	
Typical "OFF-state" leakage current @ 250 V mA	10		10		10	
Max "ON-state" voltage drop @ 25 °C and I_N V	1.6		1.6		1.6	
Power loss @ I_N W	40		64		80	
Input specification						
Nominal voltage (U_N) V AC (50/60 Hz)	—	230	—	230	—	230
V DC	24	—	24	—	24	—
Rated power @ U_{MAX} VA (50 Hz)/W	—/0.6	2.4/—	—/0.6	2.4/—	—/0.6	2.4/—
Operating range V AC (50/60 Hz)	—	90…280	—	90…280	—	90…280
V DC	3…32	—	3…32	—	3…32	—
Must drop-out voltage V AC (50/60 Hz)/DC	—/1	10/—	—/1	10/—	—/1	10/—
Technical data						
Electrical life cycles	$10 \cdot 10^6$		$10 \cdot 10^6$		$10 \cdot 10^6$	
Operate/release time ms	10/10	40/80	10/10	40/80	10/10	40/80
Insulation between input and output (1.2/50 µs) kV	5.6		5.6		5.6	
Ambient temperature °C	–30…+80**		–30…+80**		–30…+80**	
Protection category	IP 20		IP 20		IP 20	
Approvals (according to type)	CE EAC cULus					

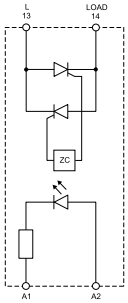
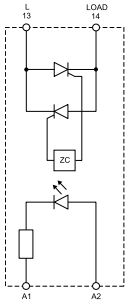
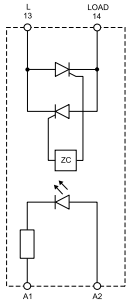
X-2017, www.findernet.com

25, 40 And 50 A panel SSR, "hockey puck" style

- "hockey puck" housing with cover
- 48 to 600 V AC output
- Zero-crossing version
- High switching speed
- High endurance
- Silent switching
- Spark and bounce-free switching
- Low control power
- 3-phase general purpose
- "Relay-style" terminal arrangement (input and output terminals on opposite sides)
- Mounting on heatsink with screws

77.x5
Screw terminal (plate clamp)

* See L77-11 diagrams page 13
** See L77-8, L77-9 and L77-10 diagrams page 13
For outline drawing see page 16

	77.25.x.xxx.8650		77.45.x.xxx.8650		77.55.x.xxx.8650	
	Zero-crossing switch-on • Output: 25 A/600 V AC • Suggested applications: heater control		**Zero-crossing switch-on** • Output: 40 A/600 V AC • Suggested applications: heater control		**Zero-crossing switch-on** • Output: 50 A/600 V AC • Suggested applications: heater control	
						
Output specification						
Output configuration	1 NO (SPST-NO)		1 NO (SPST-NO)		1 NO (SPST-NO)	
Rated current I_N/Max. peak current* (10 ms) A	25/300*		40/500*		50/520*	
Rated voltage V AC (50/60 Hz)	600		600		600	
Switching voltage range V AC (50/60 Hz)	43.2…660		43.2…660		43.2…660	
Repetitive peak off-state voltage V_{pk}	1200		1200		1200	
Nominal lamp rating: 230 V incandescent/halogen W	2000		4000		6000	
fluorescent tubes with electronic ballast W	2000		4000		6000	
fluorescent tubes with electromechanical ballast W	1000		2000		3000	
CFL W	800		3000		4000	
230 V LED W	800		3000		4000	
LV halogen or LED with electronic ballast W	800		3000		4000	
LV halogen or LED with electromechanical ballast W	1000		3000		4000	
Minimum switching current @ 250 V mA	120		250		250	
Typical "OFF-state" leakage current @ 250 V mA	10		10		10	
Max "ON-state" voltage drop @ 25 °C and I_N V	1.6		1.6		1.6	
Power loss @ I_N W	40		64		80	
Input specification						
Nominal voltage (U_N) V AC (50/60 Hz)	—	230	—	230	—	230
V DC	24	—	24	—	24	—
Rated power @ U_{MAX} VA (50 Hz)/W	—/0.6	2.4/—	—/0.6	2.4/—	—/0.6	2.4/—
Operating range V AC (50/60 Hz)	—	90…280	—	90…280	—	90…280
V DC	4…32	—	4…32	—	4…32	—
Must drop-out voltage V AC (50/60 Hz)/DC	—/1	10/—	—/1	10/—	—/1	10/—
Technical data						
Electrical life cycles	$10 \cdot 10^6$		$10 \cdot 10^6$		$10 \cdot 10^6$	
Operate/release time ms	10/10	40/80	10/10	40/80	10/10	40/80
Insulation between input and output (1.2/50 µs) kV	5.6		5.6		5.6	
Ambient temperature °C	–30…+80**		–30…+80**		–30…+80**	
Protection category	IP 20		IP 20		IP 20	
Approvals (according to type)	CE EAC cULus					

D

Ordering information

Example: 77 series modular SSR, 1 output 30 A AC, input voltage 230 V AC, relay style terminals arrangement, zero-crossing switch-on.

77	.	3	1	.	8	.	2 3 0	.	8 (A)	0 (B)	5 (C)	0 (D)

Series

Type/rated current
0 = 5/7/15 A output (77.01)
1 = 15 A output (77.11)
2 = 25 A output (77.25)
3 = 30 A output (77.31)
4 = 40 A output (77.45)
5 = 50 A output (77.55)

No. of poles/mounting
1 = 1 pole, modular housing (plastic or heat sink/plastic), DIN rail mounting
5 = 1 pole, heat-sink or directly panel mounting ("hockey puck")

Input version
0 = DC/AC (50/60 Hz)
8 = AC (50/60 Hz)
9 = DC

Supply voltage
See "input specification"

D: Switch-on mode
0 = Zero-crossing
1 = Random

C: Terminals arrangement
5 = "Relay style" (input and output on opposite sides)
7 = "Contactor style" (input and output on adjacent sides)

AB: Output circuit (rated voltage)
80 = 230 V AC (77.01), 400 V AC (77.31)
82 = 230 V AC (77.11, 77.x5)
86 = 600 V AC (77.x5)
9024 = 24 V DC
9125 = 110…125 V DC

Codes/Module width

77.01.8.230.8050/17.5 mm 5 A
77.01.0.024.8050/17.5 mm 5 A
77.01.8.230.8051/17.5 mm 5 A
77.01.0.024.8051/17.5 mm 5 A
77.01.9.024.9125/17.5 mm 7 A
77.01.9.024.9024/17.5 mm 15 A

77.11.8.230.8250/22.5 mm 15 A
77.11.9.024.8250/22.5 mm 15 A
77.11.8.230.8251/22.5 mm 15 A
77.11.9.024.8251/22.5 mm 15 A

77.31.8.230.8050/22.5 mm 30 A
77.31.9.024.8050/22.5 mm 30 A
77.31.8.230.8051/22.5 mm 30 A
77.31.9.024.8051/22.5 mm 30 A
77.31.8.230.8070/22.5 mm 30 A
77.31.9.024.8070/22.5 mm 30 A
77.31.8.230.8071/22.5 mm 30 A
77.31.9.024.8071/22.5 mm 30 A

77.25.8.230.8250/hockey puck 25 A
77.25.9.024.8250/hockey puck 25 A
77.25.8.230.8650/hockey puck 25 A
77.25.9.024.8650/hockey puck 25 A
77.45.8.230.8250/hockey puck 40 A
77.45.9.024.8250/hockey puck 40 A
77.45.8.230.8650/hockey puck 40 A
77.45.9.024.8650/hockey puck 40 A
77.55.8.230.8250/hockey puck 50 A
77.55.9.024.8250/hockey puck 50 A
77.55.8.230.8650/hockey puck 50 A
77.55.9.024.8650/hockey puck 50 A

Technical data

		77.01.8xxx		77.01.9xxx		77.11		77.31		72.25/45/55	
		Dielectric strength	Impulse (1.2/50 µs)	Dielectric strength	Impulse (1.2/50 µs)	Dielectric strength	Impulse (1.2/50 µs)	Dielectric strength	Impulse (1.2/50 µs)	Dielectric strength	Impulse (1.2/50 µs)
Between input and output		2500 V AC	5 kV	3000 V AC	4 kV	3000 V AC	6 kV	3000 V AC	6 kV	4000 V AC	5.6 kV
Between input and ground (heat-sink)		—	—	—	—	3000 V AC	6 kV	3000 V AC	6 kV	4000 V AC	5.6 kV
Between output and ground (heat-sink)		—	—	—	—	2500 V AC	4 kV	4000 V AC	6 kV	4000 V AC	5.6 kV

EMC specifications		**Reference standard**	**77.01.8xxx**		**77.01.9xxx**	**77.11**		**77.31**		**72.25/45/55**
			24 V AC/DC	230 V AC	24 V DC	24 V AC/DC	230 V AC	24 V AC/DC	230 V AC	24 V AC/DC - 230 V AC
Electrostatic discharge	contact discharge	EN 61000-4-2	4 kV		4 kV	4 kV		4 kV		4 kV
	air discharge	EN 61000-4-2	8 kV		8 kV	8 kV		8 kV		8 kV
Radiated electromagnetic field (80…1000 MHz)		EN 61000-4-3	30 V/m		—	20 V/m		30 V/m		—
Fast transients on supply terminals (burst 5/50 ns, 5 and 100 kHz)		EN 61000-4-4	1 kV	4 kV	2 kV	1 kV	3 kV	1 kV	3 kV	2 kV
Voltage pulses on supply terminals (surge 1.2/50 µs)	common mode	EN 61000-4-5	2 kV	4 kV	1 kV	3 kV	3 kV	3 kV	3 kV	2 kV
	differential mode	EN 61000-4-5	1 kV	4 kV	0.5 kV	0.5 kV	1.5 kV	0.5 kV	1.5 kV	1 kV
Radio-frequency common mode voltage (0.15…230 MHz)	on supply terminals	EN 61000-4-6	—		10 V	10 V		10 V		—

Terminals		**77.01.8xxx**		**77.01.9xxx**		**77.11**		**77.31**		**72.25/45/55**	
										Input	**Output**
Screw torque	Nm	0.8		0.8		0.8		0.8		0.5	1.2
Max. wire size		solid cable	stranded cable	solid cable	stranded cable	solid cable	stranded cable	solid cable	stranded cable	solid and stranded cable	
	mm^2	1 x 6 / 2 x 4	1x4/ 2x2.5	1 x 6 / 2 x 4	1x4/ 2x2.5	1 x 6 / 2 x 4	1 x 6 / 2 x 4	1 x 6 / 2 x 4	1 x 6 / 2 x 4	1 (with ferrule)	4 (with ferrule) 10 (with fork tip)
	AWG	1x10/ 2x12	1x12/ 2x14	1x10/ 2x12	1x12/ 2x14	1x10/ 2x12	1x10/ 2x12	1x10/ 2x12	1x10/ 2x12	18 (with ferrule)	12 (with ferrule) 8 (with fork tip)
Wire strip length	mm	9		9		9		9		10	10
Other data											
Power lost to the environment without output current	W	0.5		0.5		0.9		0.9		0.6	
with rated current	W	4.0		4.0		14		16		40/64/80	

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Input specification

77.01

Nominal voltage	Input code	Operating range				Must drop-out voltage	Input current
		AC		DC			
U_N		U_{min}	U_{max}	U_{min}	U_{max}	(AC/DC)	I_N at U_N
V		V	V	V	V	V	mA
24	**0**.024	16	32	9.8	32	2.4	25
24	**9**.024	—	—	4	32	3.0	18
230	**8**.230	90	265	—	—	24	15

77.11

Nominal voltage	Input code	Operating range				Must drop-out voltage	Input current
		AC		DC			
U_N		U_{min}	U_{max}	U_{min}	U_{max}	(AC/DC)	I_N at U_N
V		V	V	V	V	V	mA
24	**9**.024	—	—	4	32	2	11
230	**8**.230	40	305	—	—	6	25

77.31

Nominal voltage	Input code	Operating range				Must drop-out voltage	Input current
		AC		DC			
U_N		U_{min}	U_{max}	U_{min}	U_{max}	(AC/DC)	I_N at U_N
V		V	V	V	V	V	mA
24	**9**.024	—	—	4	32	2	11
230	**8**.230	40	280	—	—	6	25

77.x5.x.xxx.8250

Nominal voltage	Input code	Operating range				Must drop-out voltage	Input current
		AC		DC			
U_N		U_{min}	U_{max}	U_{min}	U_{max}	(AC/DC)	I_N at U_N
V		V	V	V	V	V	mA
24	**9**.024	—	—	3	32	1	22
230	**8**.230	90	280	—	—	10	20

77.x5.x.xxx.8650

Nominal voltage	Input code	Operating range				Must drop-out voltage	Input current
		AC		DC			
U_N		U_{min}	U_{max}	U_{min}	U_{max}	(AC/DC)	I_N at U_N
V		V	V	V	V	V	mA
24	**9**.024	—	—	4	32	1	25
230	**8**.230	90	280	—	—	10	10

Led indication

LED	Supply voltage
	OFF
	ON

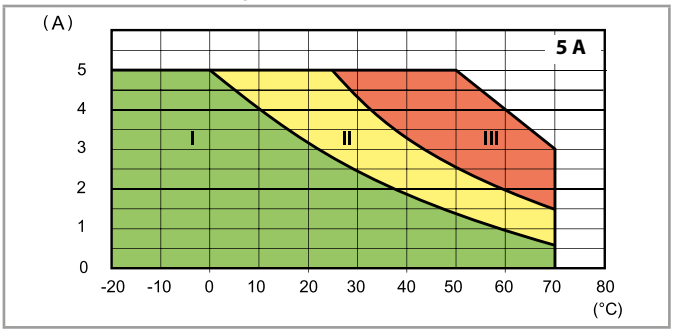
LED (77.01.9.024.9xxx only)	Short circuit*
	NO
	YES

* To restore normal operation it is necessary to disconnect the power, resolve the short circuit and then restore power.

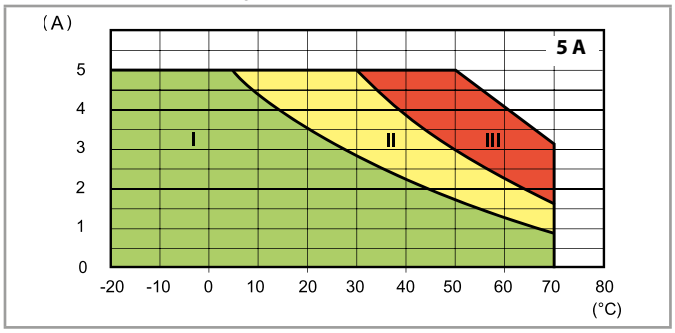
D

Output specification

L77-1 Output RMS current v ambient temperature
77.01.0.024.805x @ 32 V DC



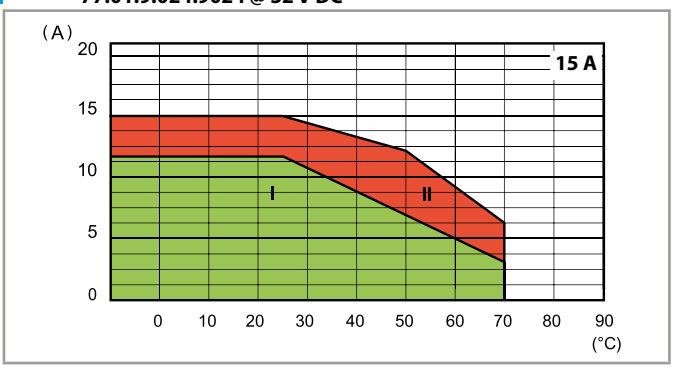
L77-2 Output RMS current v ambient temperature
77.01.8.230.805x @ 265 V AC



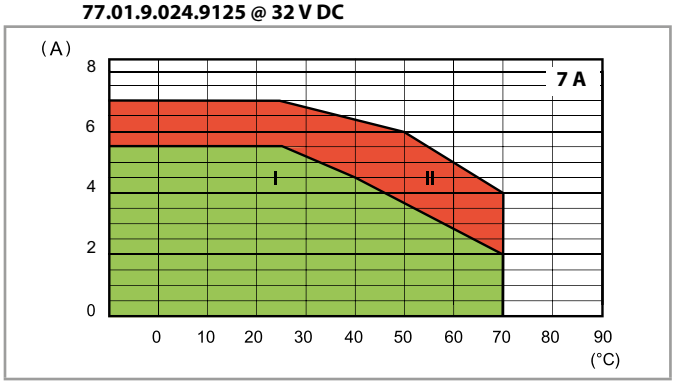
- **I** - Modular SSR installed as a group (without gap)
- **II** - Modular SSR installed as a group (9 mm gap between each SSR)
- **III** - Modular SSR installed individually in free air (without a significant influence from nearby components)

D

L77-12 Output DC current v ambient temperature
77.01.9.024.9024 @ 32 V DC

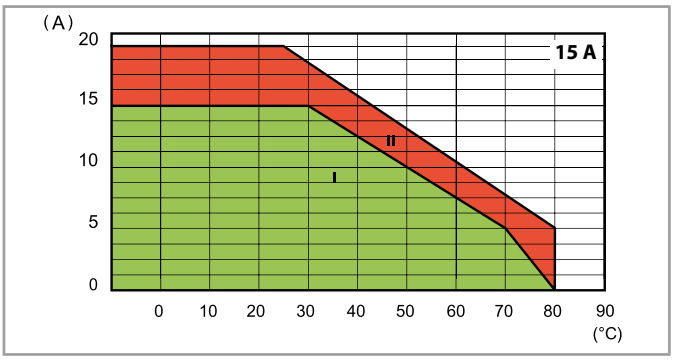


L77-13 Output DC current v ambient temperature
77.01.9.024.9125 @ 32 V DC



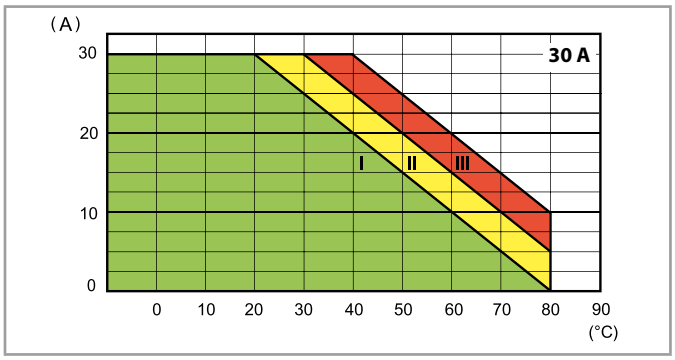
- **I** - Modular SSR installed as a group (without gap)
- **II** - Modular SSR installed individually in free air , or with a gap ≥ 9 mm, which implies a not significant influence from nearby components

L77-6 Output RMS current v ambient temperature
77.11.x.xxx.82xx



- **I** - Modular SSR installed as a group (without gap)
- **II** - Modular SSR installed individually in free air , or with a gap ≥ 20 mm, which implies a not significant influence from nearby components

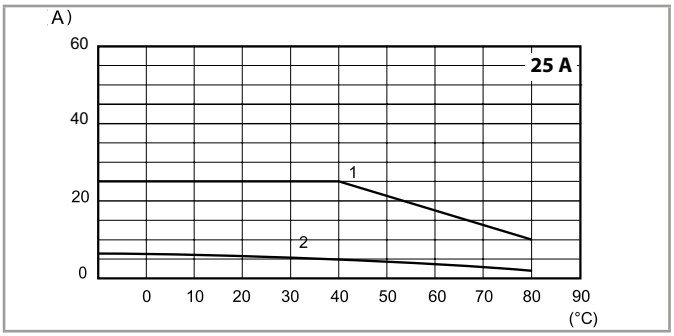
L77-4 Output RMS current v ambient temperature
77.31.x.xxx.80xx



- **I** - Modular SSR installed as a group (without gap)
- **II** - Modular SSR installed as a group (20 mm gap between each SSR)
- **III** - Modular SSR installed individually in free air , or with a gap ≥ 40 mm, which implies a not significant influence from nearby components)

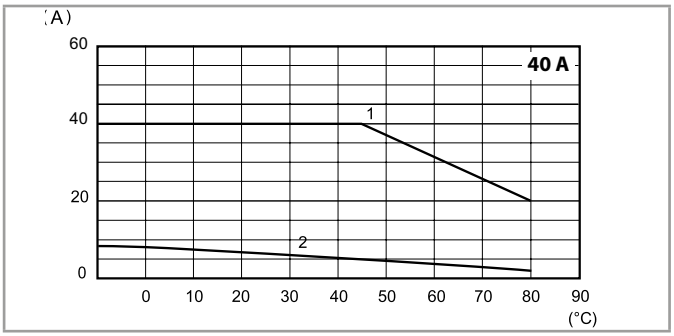
Output specification

L77-10 Output RMS current v ambient temperature
77.25.x.xxx.8x50



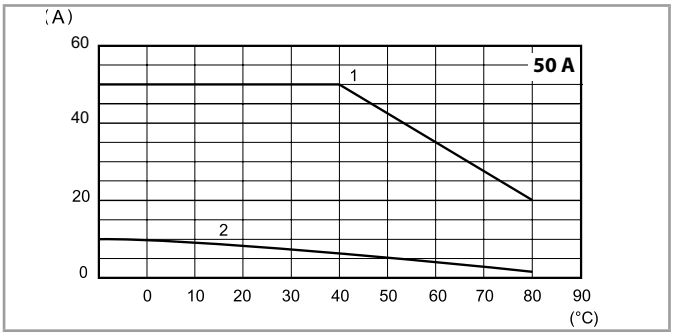
1 - Installation on 077.25 heat-sink (2 K/W)
2 - Installation individually in free-air

L77-9 Output RMS current v ambient temperature
77.45.x.xxx.8x50



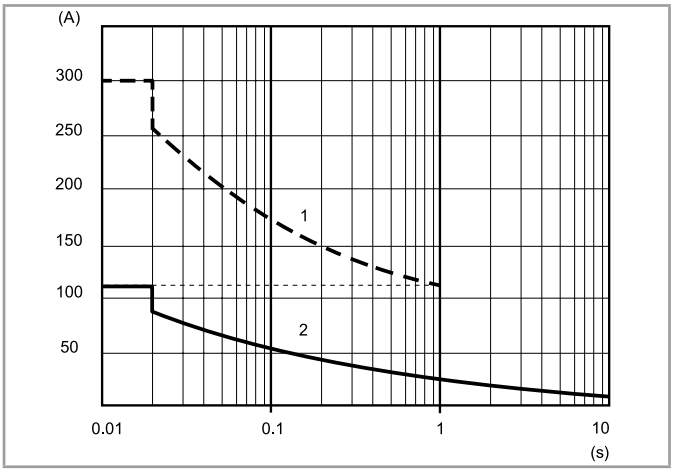
1 - Installation on 077.55 heat-sink (0.9 K/W)
2 - Installation individually in free-air

L77-8 Output RMS current v ambient temperature
77.55.x.xxx.8x50

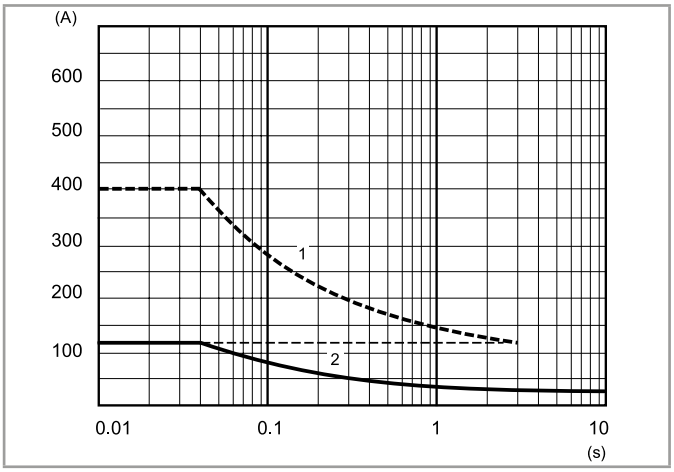


1 - Installation on 077.55 heat-sink (0.9 K/W)
2 - Installation individually in free-air

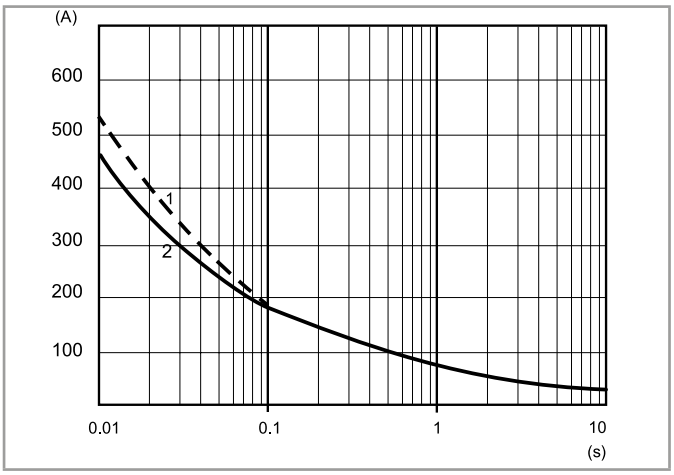
L77-3 Inrush peak current (AC) v inrush time
77.01.x.xxx.80xx



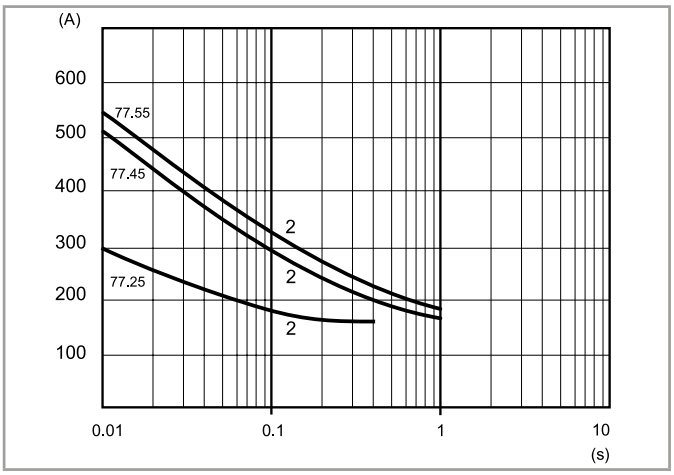
L77-7 Inrush peak current (AC) v inrush time
77.11.x.xxx.82xx



L77-5 Inrush peak current (AC) v inrush time
77.31.x.xxx.80xx



L77-11 Inrush peak current (AC) v inrush time
77x5.x.xxx.8x50



1 - Cold" conditions (ambient temperature = 23 °C, no output current during the last 15 minutes)
2 - "Hot" conditions (ambient temperature = 50 °C, rated output current)

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Output specification

Max recommended switching frequency (Cycles/Hour, with 50% Duty-cycle)							
Load	**77.01.8xxx**	**77.01.9xxx**	**77.11**	**77.31**	**77.25**	**77.45**	**77.55**
5 A 230 V (AC1)	5000	—	—	—	—	—	—
5 A 24 V DC L/R = 20 ms	—	3600					
1 A (AC15)	10000	—	—	—	—	—	—
0.5 A (AC15)	20000	—	—	—	—	—	—
15 A 305 V cos φ = 0.8	—	—	1800	—	—	—	—
15 A 305 V cos φ = 0.5	—	—	1200	—	—	—	—
30 A 480 V cos φ = 0.8	—	—	—	1800	—	—	—
30 A 480 V cos φ = 0.5	—	—	—	1200	—	—	—
25 A 230 V cos φ = 0.7	—	—	—	—	1800	—	—
40 A 230 V cos φ = 0.7	—	—	—	—	—	1800	—
50 A 230 V cos φ = 0.7	—	—	—	—	—	—	1800

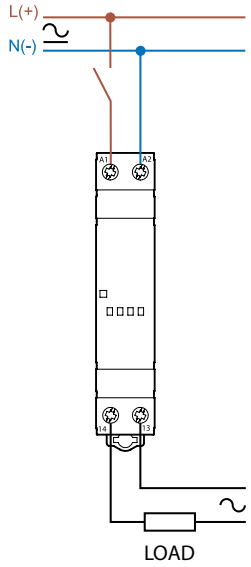
D

Other data							
	77.01.8xxx	**77.01.9xxx**	**77.11**	**77.31**	**77.25**	**77.45**	**77.55**
Critical rising voltage dv/dt without input control (gate open) @ T_j = 125 °C	> 1000 V/µs	> 1000 V/µs	> 500 V/µs > 10 V/µs (with di/dt = 20 A/ms)	> 1000 V/µs	300 V/µs (..8250) 500 V/µs (..8650)	500 V/µs (..8250) 1000 V/µs (..8650)	1000 V/µs (..8250) 1000 V/µs (..8650)
Critical rising current di/dt @ T_j = 125 °C	> 50 A/µs	> 50 A/µs	> 50 A/µs	> 150 A/µs	—	—	—
I^2t for fusing @ t_p = 10 ms	450 A^2s	450 A^2s	1000 A^2s*	1350 A^2s**	450 A^2s	1250 A^2s	1350 A^2s

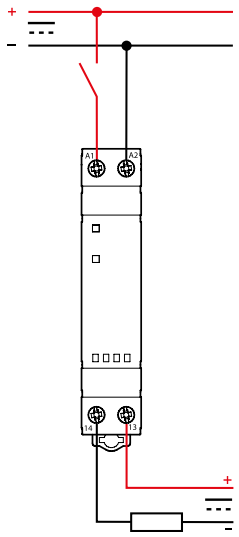
Suggested fuse (depending on application) for short-circuit protection (Ultra-Fast acting types for semiconductors):
* 20 A, 660 V AC, 10 x 38 mm, 200 kA, 360 A^2s.
** 30 A, 660 V AC, 10 x 38 mm, 200 kA, 1000 A^2s.

Wiring diagrams

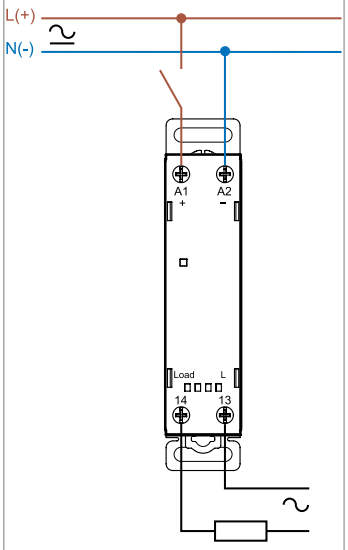
Single-phase connection (77.01.....802x)



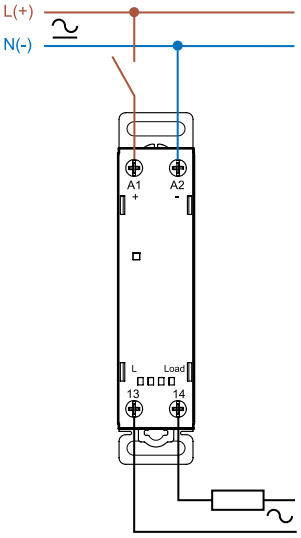
Single-phase connection DC (77.01.....9x2x)



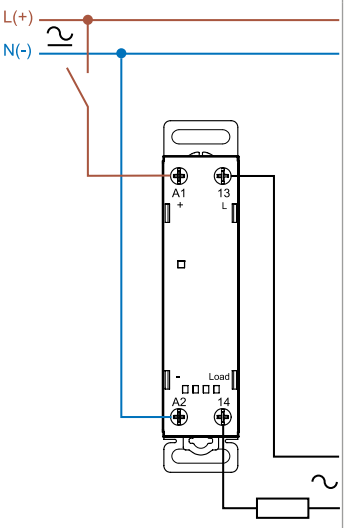
Single-phase connection (77.11)



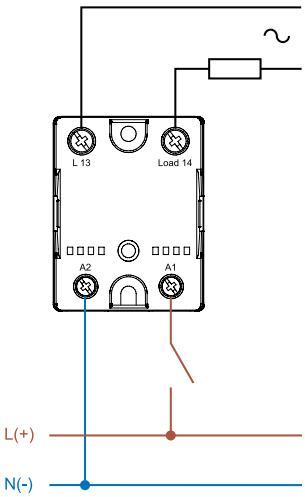
Single-phase connection (77.31....805x)



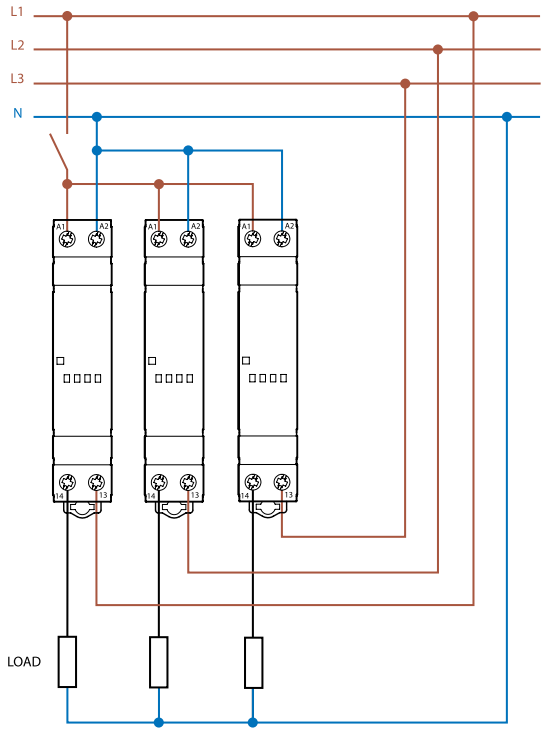
Single-phase connection (77.31....807x)



Single-phase connection (77.x5)



Example of three-phase connection (with 3 x 77.01)

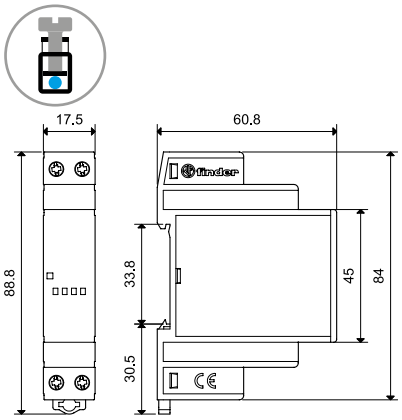


Note: this connection can be used with all 77 series types.

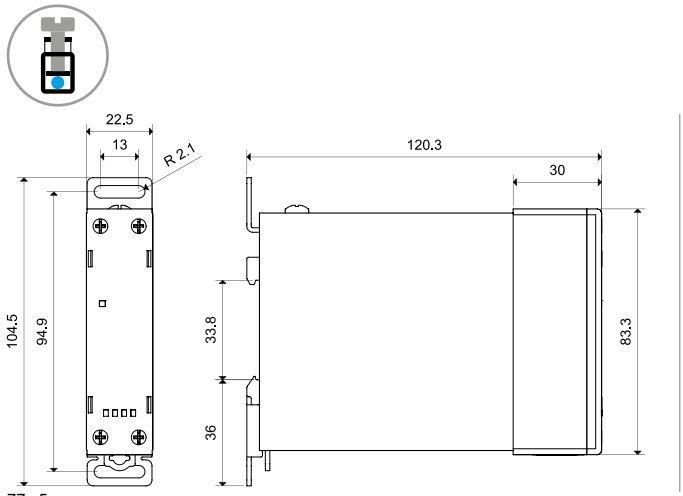
D

Outline drawings

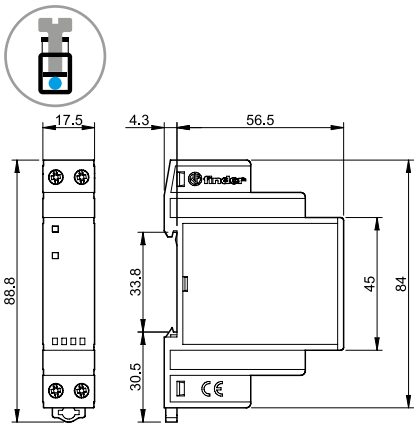
77.01
Screw terminal



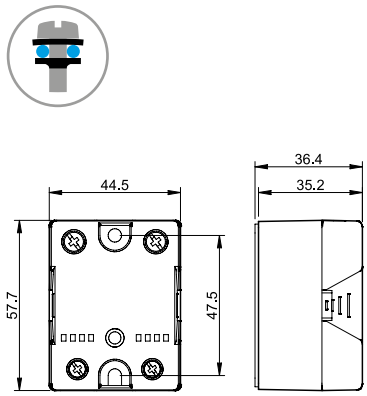
77.11/31
Screw terminal



77.01 DC
Screw terminal



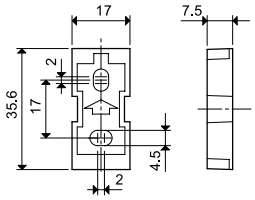
77.x5
Screw terminal (plate clamp)



Accessories

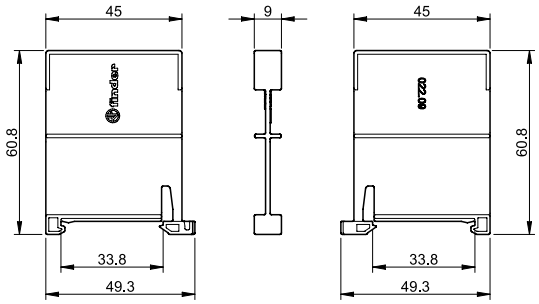
020.01

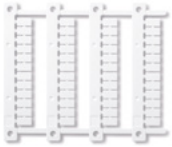
Adaptor for panel mounting, plastic, 17.5 mm wide for 77.01 only	020.01



022.09

Separator for rail mounting, plastic, 9 mm wide	022.09





060.48

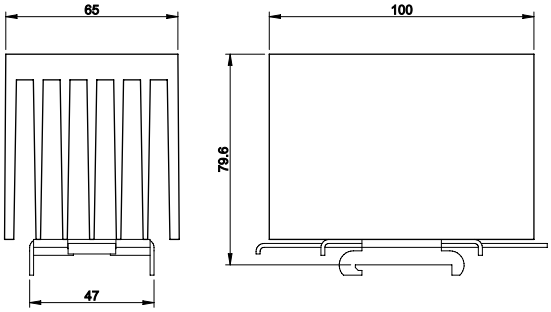
Sheet of marker tags (CEMBRE Thermal transfer printers) for all relays (48 tags), 6 x 12 mm	060.48

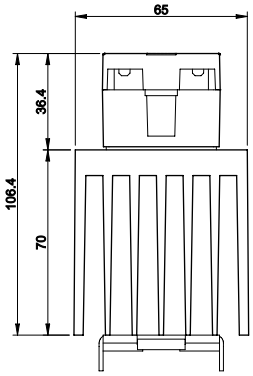
Accessories

077.25

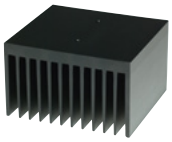
Heat-sink, anodized aluminium, 2 K/W, 65 x 100 mm, for 77.25 only	077.25

- Both the SSR and 35 mm rail clip mount to the heat-sink using M4 screws (supplied with heat-sink)
- Before assembling to the heat-sink, it is necessary to apply a thin and even layer of thermal conductive paste (not supplied) to the lower metal surface of the SSR





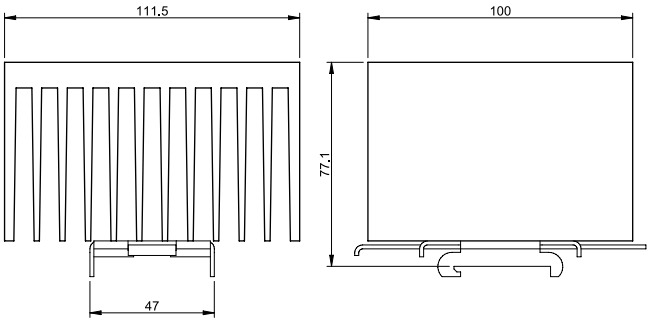
077.25 with 77.25

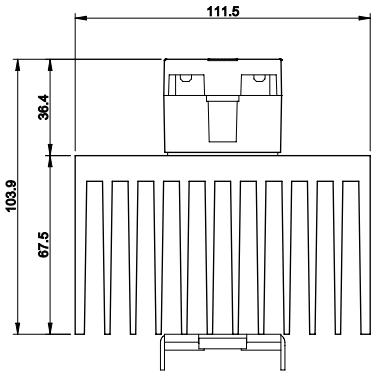


077.55

Heat-sink, anodized aluminium, 0.9 K/W, 111 x 100 mm, for 77.45 and 77.55	077.55

- Both the SSR and 35 mm rail clip mount to the heat-sink using M4 screws (supplied with heat-sink)
- Before assembling to the heat-sink, it is necessary to apply a thin and even layer of thermal conductive paste (not supplied) to the lower metal surface of the SSR





077.55 with 77.45/55

D