

## Features

### 5 A modular SSR, 1 NO 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
- 35 mm rail (EN 60715) mount

77.01  
Screw terminal



- \* See L77-3 diagram page 10
- \*\* See L77-1 and L77-2 diagrams page 9

For outline drawing see page 12

### Output specification

|   |                |
|---|----------------|
| Output configuration  | 1 NO (SPST-NO) |
| Rated current I <sub>N</sub> / Max. peak current* (10 ms) A | 5 / 300 *      |
| Rated voltage V AC (50/60 Hz)                               | 230            |
| Rated voltage range V AC (50/60 Hz)                         | 60...240       |
| Switching voltage range V AC (50/60 Hz)                     | 48...265       |
| Blocking (max. reverse repetitive) voltage V DC             | 800            |
| Rated load AC7a (cos φ = 0.8) A                             | 5              |
| Rated load AC15 A   | 5              |
| Single phase motor rating (230 V AC) kW                     | —              |
| 230 V lamps rating: incandescent/halogen W                  | 1,000          |
| compact fluorescent (CFL)/Led W                             | 800            |
| electronic ballast fluorescent tubes W                      | 1,000          |
| electromagnetic ballast compensated fluorescent tubes W     | 500            |
| Minimum switching current @ 230 V mA                        | 100            |
| Typical "OFF-state" leakage current @ 230 V mA              | 1              |
| Max "ONstate" voltage drop @ 25 °C and 5A/100mA V           | 0.85 / 1.5     |
| Power loss @ 5 A W  | 4              |

### Input specification

|  |                 |           |           |
|--|-----------------|-----------|-----------|
| Nominal voltage (U <sub>N</sub> )        | V AC (50/60 Hz) | 24        | 230       |
|  | V DC            | 12 ... 24 | —         |
| Rated power VA (50 Hz)/W                 |                 | 0.6 / 0.5 | 3.6 / 0.3 |
| Operating range                          | V AC (50/60 Hz) | 16...32   | 90...265  |
|  | V DC            | 9.8...32  | —         |
| Must drop-out voltage V AC (50/60 Hz)/DC |                 | 2.4       | 24        |

### Technical data

|   |                    |
|---|--------------------|
| Electrical life cycles                            | 10·10 <sup>6</sup> |
| Operate / release time ms                         | 20 / 12            |
| Insulation between input and output (1.2/50µs) kV | 5                  |
| Ambient temperature °C                            | -20...+70 **       |
| Protection category                               | IP20               |

### Approvals (according to type)

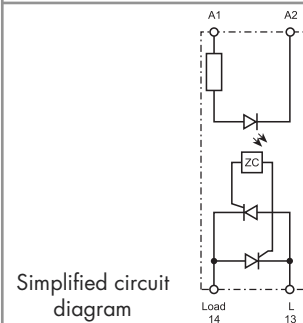
### 77.01.x.xxx.8050



#### 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

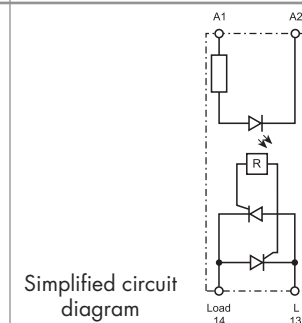
### 77.01.x.xxx.8051



#### Random switch-on

Suggested applications:

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



Simplified circuit diagram

## Features

### 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  $\mu$ s) 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
- "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 10
- \*\* See L77-6 diagrams page 9

For outline drawing see page 12

### 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            |  |
| Rated voltage range V AC (50/60 Hz)                     | 24...277       |  | 24...277       |  |
| Switching voltage range V AC (50/60 Hz)                 | 19...305       |  | 19...305       |  |
| Blocking (max. reverse repetitive) voltage V DC         | 800            |  | 800            |  |
| Rated load AC7a (cos $\varphi$ = 0.8, @ 25 °C) A        | 20             |  | 20             |  |
| Rated load AC15 A                                       | 15             |  | 15             |  |
| Single phase motor rating (230 V AC) kW                 | —              |  | 1.2            |  |
| 230 V lamps rating: incandescent/halogen W              | 4,000          |  | 2,500          |  |
| compact fluorescent (CFL)/Led W                         | 3,000          |  | 1,500          |  |
| electronic ballast fluorescent tubes W                  | 4,000          |  | 2,500          |  |
| electromagnetic ballast compensated fluorescent tubes W | 2,000          |  | 1,000          |  |
| 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 @ $U_{MAX}$   | VA (50 Hz)/W       | 0.4    | 7.5 / 0.9 | 0.4    | 7.5 / 0.9 |
| Operating range           | V AC (50/60 Hz)    | —      | 40...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 | 10·10 <sup>6</sup> |             | 10·10 <sup>6</sup> |            |
| Operate / release time                               | ms     | < 10 / <10         | < 10 / < 30 | < 1 / <10          | < 2 / < 25 |
| Insulation between input and output (1.2/50 $\mu$ s) | kV     | 6                  |             | 6                  |            |
| Ambient temperature                                  | °C     | -20...+80 **       |             | -20...+80 **       |            |
| Protection category                                  |        | IP20               |             | IP20               |            |

Approvals (according to type)



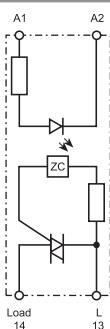
### 77.11.x.xxx.8250



#### 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

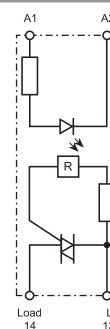
### 77.11.x.xxx.8251



#### Random switch-on

Suggested applications:

- Fine controls involving shorter time (specially motor control)



Simplified circuit diagram

## Features

### 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
- "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 10
- \*\* See L77-4 diagrams page 9

For outline drawing see page 12

### Output specification

|   |                |
|---|----------------|
| Output configuration                                    | 1 NO (SPST-NO) |
| Rated current $I_N$ / Max. peak current* (10 ms) A      | 30 / 520 *     |
| Rated voltage V AC (50/60 Hz)                           | 400            |
| Rated voltage range V AC (50/60 Hz)                     | 60...440       |
| Switching voltage range V AC (50/60 Hz)                 | 48...480       |
| Blocking (max. reverse repetitive) voltage V DC         | 1,100          |
| Rated load AC7a (cos φ = 0.8) A                         | 30             |
| Rated load AC15 A                                       | 20             |
| Single phase motor rating (230 V AC) kW                 | —              |
| 230 V lamps rating: incandescent/halogen W              | 6,000          |
| compact fluorescent (CFL)/Led W                         | 4,000          |
| electronic ballast fluorescent tubes W                  | 6,000          |
| electromagnetic ballast compensated fluorescent tubes W | 3,000          |
| Minimum switching current @ 400 V mA                    | 300            |
| Typical "OFF-state" leakage current@ 400 V mA           | 1              |
| Max "ON-state" voltage drop @25 °C and 30 A V           | 0.85           |
| Power loss @ 30 A W                                     | 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 | 10·10 <sup>6</sup> | 10·10 <sup>6</sup> |
| Operate / release time                         | ms     | < 10 / <10         | < 10 / < 30        |
| Insulation between input and output (1.2/50μs) | kV     | 6                  | 6                  |
| Ambient temperature                            | °C     | -20...+80 **       | -20...+80 **       |
| Protection category                            |        | IP20               | IP20               |

### Approvals (according to type)

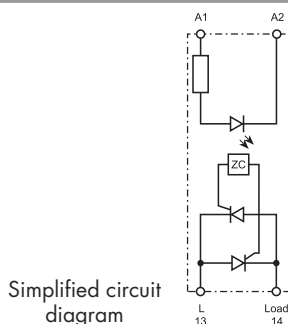
### 77.31.x.xxx.8050



#### 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

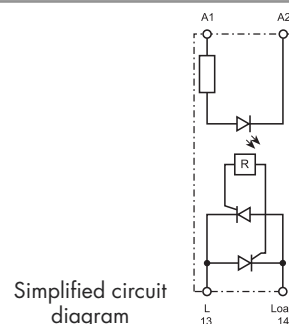
### 77.31.x.xxx.8051



#### Random switch-on

Suggested applications:

- Fine controls involving shorter time (specially motor control)



Simplified circuit diagram

## Features

### 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
- "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 10  
\*\* See L77-4 diagrams page 9

For outline drawing see page 12

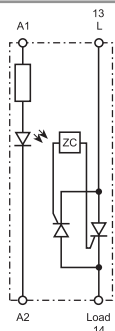
### 77.31.x.xxx.8070



#### 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

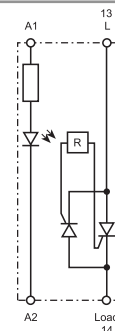
### 77.31.x.xxx.8071



#### 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 <sub>N</sub> / Max. peak current* (10 ms) A | 30 / 520 *     |  | 30 / 520 *     |  |
| Rated voltage V AC (50/60 Hz)                               | 400            |  | 400            |  |
| Rated voltage range V AC (50/60 Hz)                         | 60...440       |  | 60...440       |  |
| Switching voltage range V AC (50/60 Hz)                     | 48...480       |  | 48...480       |  |
| Blocking (max. reverse repetitive) voltage V DC             | 1,100          |  | 1,100          |  |
| Rated load AC7a (cos φ = 0.8) A                             | 30             |  | 30             |  |
| Rated load AC15 A   | 20             |  | 20             |  |
| Single phase motor rating (230 V AC) kW                     | —              |  | 2.5            |  |
| 230 V lamps rating: incandescent/halogen W                  | 6,000          |  | 4,500          |  |
| compact fluorescent (CFL)/Led W                             | 4,000          |  | 2,500          |  |
| electronic ballast fluorescent tubes W                      | 6,000          |  | 4,000          |  |
| electromagnetic ballast compensated fluorescent tubes W     | 3,000          |  | 1,800          |  |
| 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 <sub>N</sub> ) | V AC (50/60 Hz)    | —      | 230       | —      | 230       |
|                                   | V DC               | 24     | —         | 24     | —         |
| Rated power @ U <sub>MAX</sub>    | 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 | 10·10 <sup>6</sup> |             | 10·10 <sup>6</sup> |            |
| Operate / release time                         | ms     | < 10 / <10         | < 10 / < 30 | < 1 / <10          | < 2 / < 25 |
| Insulation between input and output (1.2/50μs) | kV     | 6                  |             | 6                  |            |
| Ambient temperature                            | °C     | -20...+80 **       |             | -20...+80 **       |            |
| Protection category                            |        | IP20               |             | IP20               |            |

### Approvals (according to type)



## Features

### 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
- "Relay-style" terminal arrangement (input and output terminals on opposite sides)
- Mounting to heatsink with screws

77.x5

Screw terminal (plate clamp)



\* See L77-11 diagrams page 10

\*\* See L77-8, L77-9 and L77-10 diagrams page 9

For outline drawing see page 12

### 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            |  |
| Rated voltage range V AC (50/60 Hz)                | 24...240       |  | 24...240       |  | 24...240       |  |
| Switching voltage range V AC (50/60 Hz)            | 21.6...280     |  | 21.6...280     |  | 21.6...280     |  |
| Blocking (max. reverse repetitive) voltage V DC    | 600            |  | 600            |  | 600            |  |
| 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 | 4.8 / —  | — / 0.6 | 4.8 / —  | — / 0.6 | 4.8 / —  |
| 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 | 10·10 <sup>6</sup> |         | 10·10 <sup>6</sup> |         | 10·10 <sup>6</sup> |         |
| Operate / release time                         | ms     | 10 / 10            | 40 / 80 | 10 / 10            | 40 / 80 | 10 / 10            | 40 / 80 |
| Insulation between input and output (1.2/50µs) | kV     | 5.6                |         | 5.6                |         | 5.6                |         |
| Ambient temperature                            | °C     | -30...+80 **       |         | -30...+80 **       |         | -30...+80 **       |         |
| Protection category                            |        | IP20               |         | IP20               |         | IP20               |         |

### Approvals (according to type)

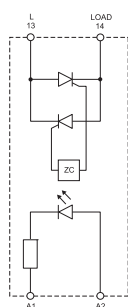


**NEW** 77.25.x.xxx.8250



#### Zero-crossing switch-on

- Output: 25 A / 230 V AC
- Suggested applications: heater control



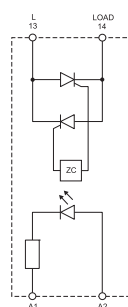
Simplified circuit diagram

**NEW** 77.45.x.xxx.8250



#### Zero-crossing switch-on

- Output: 40 A / 230 V AC
- Suggested applications: heater control



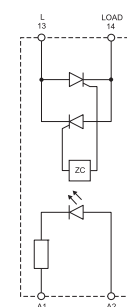
Simplified circuit diagram

**NEW** 77.55.x.xxx.8250



#### Zero-crossing switch-on

- Output: 50 A / 230 V AC
- Suggested applications: heater control



Simplified circuit diagram

## Features

### 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
- "Relay-style" terminal arrangement (input and output terminals on opposite sides)
- Mounting on heatsink with screws

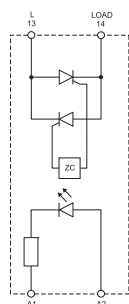
77.x5  
Screw terminal (plate clamp)



**NEW** 77.25.x.xxx.8650



**Zero-crossing switch-on**  
• Output: 25 A / 600 V AC  
• Suggested applications: heater control

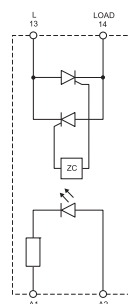


Simplified circuit diagram

**NEW** 77.45.x.xxx.8650



**Zero-crossing switch-on**  
• Output: 40 A / 600 V AC  
• Suggested applications: heater control

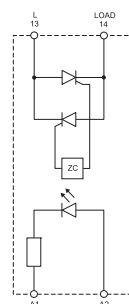


Simplified circuit diagram

**NEW** 77.55.x.xxx.8650



**Zero-crossing switch-on**  
• Output: 50 A / 600 V AC  
• Suggested applications: heater control



Simplified circuit diagram

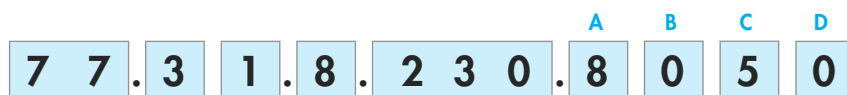
\* See L77-11 diagrams page 10  
\*\* See L77-8, L77-9 and L77-10 diagrams page 9

For outline drawing see page 12

| Output specification  |                    |                    |          |                    |          |                    |          |
|---|--------------------|--------------------|----------|--------------------|----------|--------------------|----------|
| Output configuration  |                    | 1 NO (SPST-NO)     |          | 1 NO (SPST-NO)     |          | 1 NO (SPST-NO)     |          |
| Rated current I <sub>N</sub> / Max. peak current* (10 ms) A |                    | 25/300 *           |          | 40/500 *           |          | 50/520 *           |          |
| Rated voltage V AC (50/60 Hz)                               |                    | 600                |          | 600                |          | 600                |          |
| Rated voltage range V AC (50/60 Hz)                         |                    | 48...600           |          | 48...600           |          | 48...600           |          |
| Switching voltage range V AC (50/60 Hz)                     |                    | 43.2...660         |          | 43.2...660         |          | 43.2...660         |          |
| Blocking (max. reverse repetitive) voltage V DC             |                    | 1,200              |          | 1,200              |          | 1,200              |          |
| 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 <sub>N</sub> V     |                    | 1.6                |          | 1.6                |          | 1.6                |          |
| Power loss @ I <sub>N</sub> W                               |                    | 40                 |          | 64                 |          | 80                 |          |
| Input specification   |                    |                    |          |                    |          |                    |          |
| Nominal voltage (U <sub>N</sub> )                           | V AC (50/60 Hz)    | —                  | 230      | —                  | 230      | —                  | 230      |
|   | V DC               | 24                 | —        | 24                 | —        | 24                 | —        |
| Rated power @ U <sub>MAX</sub>                              | 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             | 10·10 <sup>6</sup> |          | 10·10 <sup>6</sup> |          | 10·10 <sup>6</sup> |          |
| Operate / release time                                      | ms                 | 10 / 10            | 40 / 80  | 10 / 10            | 40 / 80  | 10 / 10            | 40 / 80  |
| Insulation between input and output (1.2/50µs)              | kV                 | 5.6                |          | 5.6                |          | 5.6                |          |
| Ambient temperature   | °C                 | -30...+80 **       |          | -30...+80 **       |          | -30...+80 **       |          |
| Protection category   |                    | IP20               |          | IP20               |          | IP20               |          |
| Approvals (according to type)                               |                    |                    |          |                    |          |                    |          |

## 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.

**Series****Type/rated current**

0 = 5 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 range)

80 = 60...240 V AC (77.01),  
60...440 V AC (77.31)  
82 = 24...277 V AC (77.11),  
24...240 V AC (77.x5)  
86 = 48...600 V AC (77.x5)

**Codes / Module width**

|                                |                                 |                                 |                                     |
|--------------------------------|---------------------------------|---------------------------------|-------------------------------------|
| 77.01.8.230.8050 / 17.5 mm 5 A | 77.11.8.230.8250 / 22.5 mm 15 A | 77.31.8.230.8050 / 22.5 mm 30 A | 77.25.8.230.8250 / hockey puck 25 A |
| 77.01.0.024.8050 / 17.5 mm 5 A | 77.11.9.024.8250 / 22.5 mm 15 A | 77.31.9.024.8050 / 22.5 mm 30 A | 77.25.9.024.8250 / hockey puck 25 A |
| 77.01.8.230.8051 / 17.5 mm 5 A | 77.11.8.230.8251 / 22.5 mm 15 A | 77.31.8.230.8051 / 22.5 mm 30 A | 77.25.8.230.8650 / hockey puck 25 A |
| 77.01.0.024.8051 / 17.5 mm 5 A | 77.11.9.024.8251 / 22.5 mm 15 A | 77.31.9.024.8051 / 22.5 mm 30 A | 77.25.9.024.8650 / hockey puck 25 A |
|                                |                                 | 77.31.8.230.8070 / 22.5 mm 30 A | 77.45.8.230.8250 / hockey puck 40 A |
|                                |                                 | 77.31.9.024.8070 / 22.5 mm 30 A | 77.45.9.024.8250 / hockey puck 40 A |
|                                |                                 | 77.31.8.230.8071 / 22.5 mm 30 A | 77.45.8.230.8650 / hockey puck 40 A |
|                                |                                 | 77.31.9.024.8071 / 22.5 mm 30 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

| Insulation   |                        | 77.01               |                     | 77.11               |                     | 77.31               |                     | 77.25/45/55              |                     |                    |                    |
|--|------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|--------------------------|---------------------|--------------------|--------------------|
|  |                        | 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) |                    |                    |
| Between input and output   |                        | 2,500 V AC          | 5 kV                | 3,000 V AC          | 6 kV                | 3,000 V AC          | 6 kV                | 4,000 V AC               | 5.6 kV              |                    |                    |
| Between input and ground (heat-sink)                                     |                        | —                   | —                   | 3,000 V AC          | 6 kV                | 3,000 V AC          | 6 kV                | 4,000 V AC               | 5.6 kV              |                    |                    |
| Between output and ground (heat-sink)                                    |                        | —                   | —                   | 2,500 V AC          | 4 kV                | 4,000 V AC          | 6 kV                | 4,000 V AC               | 5.6 kV              |                    |                    |
| EMC specifications   |                        | Reference standard  |                     | 77.01               |                     | 77.11               |                     | 77.31                    |                     | 77.25/45/55        |                    |
|  |                        |                     |                     | 24 V AC/DC          | 230 V AC            | 24 V DC             | 230 V AC            | 24 V DC                  | 230 V AC            | 24 V DC - 230 V AC |                    |
| Electrostatic discharge  | contact discharge      | EN 61000-4-2        | 4 kV                | 4 kV                | 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                | 8 kV                     | 8 kV                |                    |                    |
| Radiated electromagnetic field (80 ... 1,000 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                | 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                | 3 kV                | 3 kV                | 3 kV                | 3 kV                     | 2 kV                |                    |                    |
|  | differential mode      | EN 61000-4-5        | 1 kV                | 4 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                | —                   |                     |                          |                     |                    |                    |
| Terminals  |                        | 77.01               |                     | 77.11               |                     | 77.31               |                     | 77.25/45/55              |                     |                    |                    |
|  |                        |                     |                     |                     |                     |                     |                     | Input                    | Output              |                    |                    |
| Screw torque   |                        | Nm                  |                     | 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 and stranded cable |                     |                    |                    |
|  |                        | mm <sup>2</sup>     | 1x6/2x4             | 1x4/2x2.5           | 1x6/2x4             | 1x6 / 2x4           | 1x6/2x4             | 1x6 / 2x4                | 1 (with ferrule)    |                    | 4 (with ferrule)   |
|  |                        | AWG                 | 1x10/2x12           | 1x12/2x14           | 1x10/2x12           | 1x10/2x12           | 1x10/2x12           | 1x10/2x12                | 10 (with ferrule)   |                    | 10 (with fork tip) |
|  |                        |                     |                     |                     |                     |                     |                     |                          | 12 (with ferrule)   |                    | 12 (with ferrule)  |
|  |                        |                     |                     |                     |                     |                     |                     |                          | 8 (with ferrule)    |                    | 8 (with fork tip)  |
| Wire strip length  |                        | mm                  | 9                   |                     | 9                   |                     | 9                   |                          | 10                  | 10                 |                    |
| Other data   |                        |                     |                     |                     |                     |                     |                     |                          |                     |                    |                    |
| Power lost to the environment  | without output current | W                   | 0.5                 |                     | 0.9                 |                     | 0.9                 |                          | 0.6                 |                    |                    |
|  | with rated current     | W                   | 4.0                 |                     | 14                  |                     | 16                  |                          | 40/64/80            |                    |                    |

## Input specification

## 77.01

| Nominal voltage | Input code | Operating range |                |                |                | Must drop-out voltage (AC/DC) | Input current<br>$I_N$ at $U_N$<br>mA |
|-----------------|------------|-----------------|----------------|----------------|----------------|-------------------------------|---------------------------------------|
|                 |            | AC              |                | DC             |                |                               |                                       |
|                 |            | $U_{min}$<br>V  | $U_{max}$<br>V | $U_{min}$<br>V | $U_{max}$<br>V |                               |                                       |
| $U_N$<br>V      |            |                 |                |                |                |                               |                                       |
| 24              | 0.024      | 16              | 32             | 9.8            | 32             | 2.4                           | 25                                    |
| 230             | 8.230      | 90              | 265            | —              | —              | 24                            | 15                                    |

## 77.11

| Nominal voltage | Input code | Operating range |                |                |                | Must drop-out voltage (AC/DC) | Input current<br>$I_N$ at $U_N$<br>mA |
|-----------------|------------|-----------------|----------------|----------------|----------------|-------------------------------|---------------------------------------|
|                 |            | AC              |                | DC             |                |                               |                                       |
|                 |            | $U_{min}$<br>V  | $U_{max}$<br>V | $U_{min}$<br>V | $U_{max}$<br>V |                               |                                       |
| $U_N$<br>V      |            |                 |                |                |                |                               |                                       |
| 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 (AC/DC) | Input current<br>$I_N$ at $U_N$<br>mA |
|-----------------|------------|-----------------|----------------|----------------|----------------|-------------------------------|---------------------------------------|
|                 |            | AC              |                | DC             |                |                               |                                       |
|                 |            | $U_{min}$<br>V  | $U_{max}$<br>V | $U_{min}$<br>V | $U_{max}$<br>V |                               |                                       |
| $U_N$<br>V      |            |                 |                |                |                |                               |                                       |
| 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 (AC/DC) | Input current<br>$I_N$ at $U_N$<br>mA |
|-----------------|------------|-----------------|----------------|----------------|----------------|-------------------------------|---------------------------------------|
|                 |            | AC              |                | DC             |                |                               |                                       |
|                 |            | $U_{min}$<br>V  | $U_{max}$<br>V | $U_{min}$<br>V | $U_{max}$<br>V |                               |                                       |
| $U_N$<br>V      |            |                 |                |                |                |                               |                                       |
| 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 (AC/DC) | Input current<br>$I_N$ at $U_N$<br>mA |
|-----------------|------------|-----------------|----------------|----------------|----------------|-------------------------------|---------------------------------------|
|                 |            | AC              |                | DC             |                |                               |                                       |
|                 |            | $U_{min}$<br>V  | $U_{max}$<br>V | $U_{min}$<br>V | $U_{max}$<br>V |                               |                                       |
| $U_N$<br>V      |            |                 |                |                |                |                               |                                       |
| 24              | 9.024      | —               | —              | 4              | 32             | 1                             | 25                                    |
| 230             | 8.230      | 90              | 280            | —              | —              | 10                            | 10                                    |

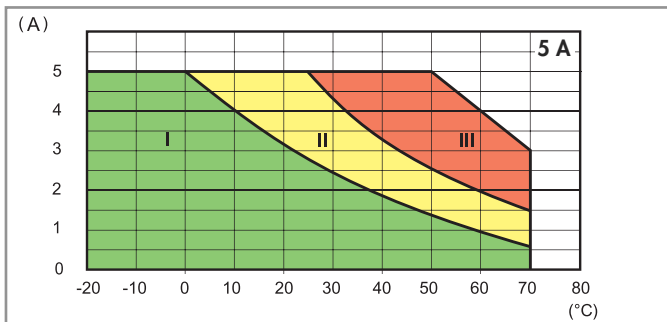
## Led indication

| LED  | Supply voltage |
|--|----------------|
|  | OFF            |
|  | ON             |



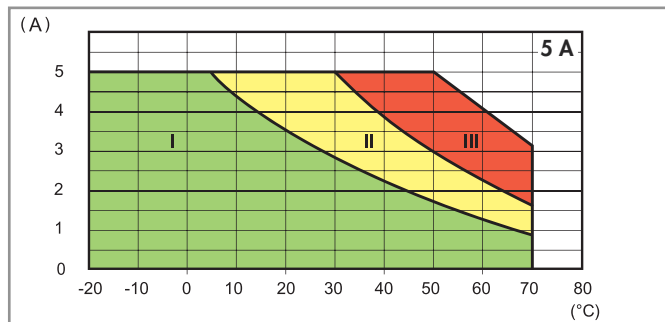
Output specification

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

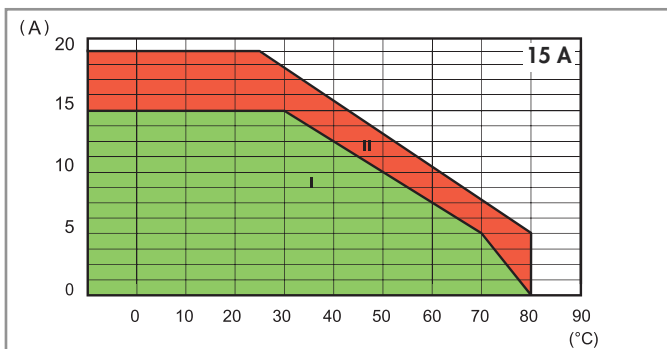


- I - Modular SSR installed as a group (without gap)
- II - Modular SSR installed as a group (9 mm gap between each SSR)
- III - Modular SSR installed individually in free air (without a significant influence from nearby components)

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

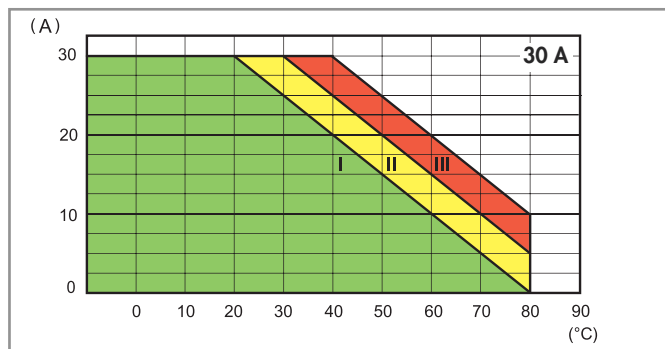


**L77-6 Output RMS current v ambient temperature**  
77.11.x.xxx.82xx



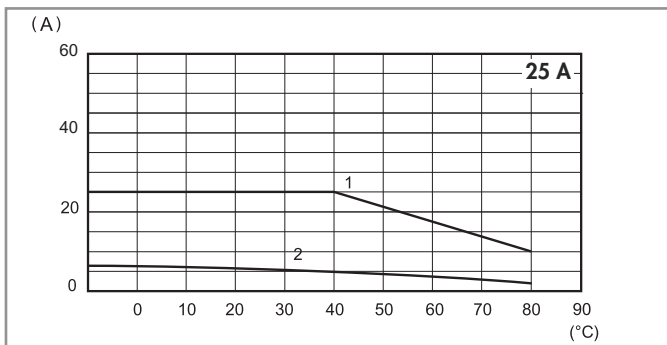
- I - Modular SSR installed as a group (without gap)
- II - Modular SSR installed individually in free air , or with a gap  $\geq 20$  mm, which implies a not significant influence from nearby components

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



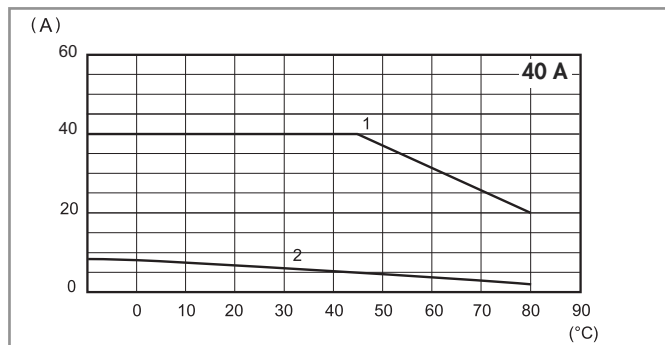
- I - Modular SSR installed as a group (without gap)
- II - Modular SSR installed as a group (20 mm gap between each SSR)
- III - Modular SSR installed individually in free air , or with a gap  $\geq 40$  mm, which implies a not significant influence from nearby components

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



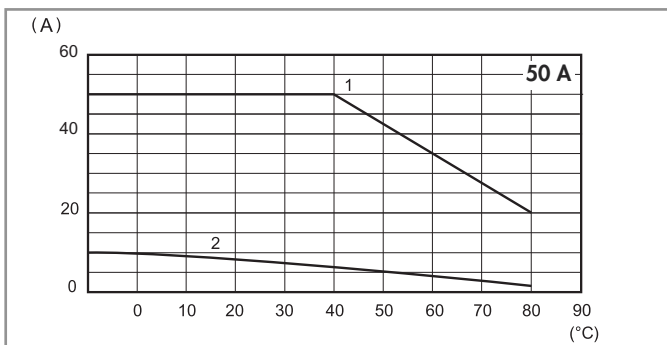
- 1 - Installation on 0.77.25 heat-sink (2 K/W)
- 2 - Installation individually in free-air

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



- 1 - Installation on 0.77.55 heat-sink (0.9 K/W)
- 2 - Installation individually in free-air

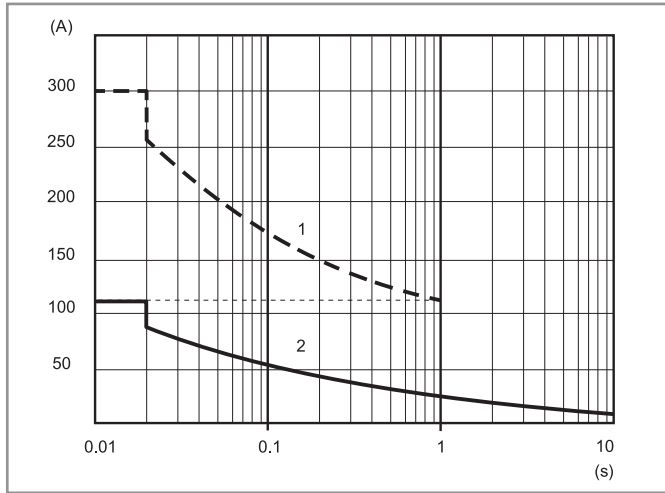
**L77-8 Output RMS current v ambient temperature**  
77.55.x.xxx.8x50



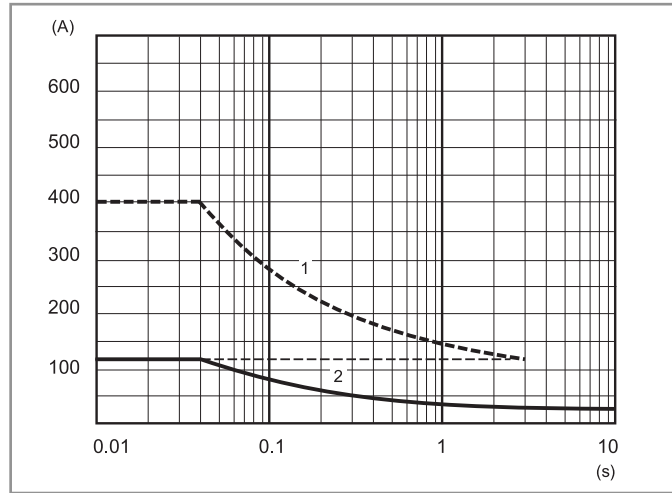
- 1 - Installation on 0.77.55 heat-sink (0.9 K/W)
- 2 - Installation individually in free-air

Output specification

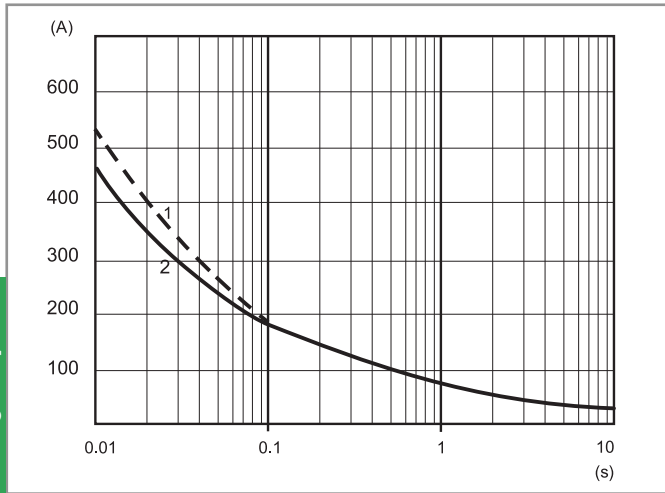
**L77-3 Inrush peak current (AC) v inrush time**  
77.01.x.xxx.80xx



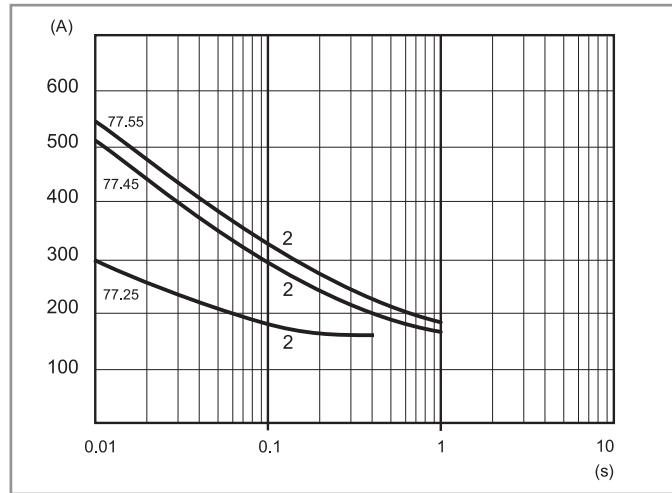
**L77-7 Inrush peak current (AC) v inrush time**  
77.11.x.xxx.82xx



**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)

**Max recommended switching frequency (Cycles/Hour, with 50 % Duty-cycle)**

| Load                   | 77.01  | 77.11 | 77.31 | 77.25 | 77.45 | 77.55 |
|------------------------|--------|-------|-------|-------|-------|-------|
| 5 A 230 V (AC1)        | 5,000  | —     | —     | —     | —     | —     |
| 1A (AC15)              | 10,000 | —     | —     | —     | —     | —     |
| 0.5 A (AC15)           | 20,000 | —     | —     | —     | —     | —     |
| 15 A 305 V cos φ = 0.8 | —      | 1,800 | —     | —     | —     | —     |
| 15 A 305 V cos φ = 0.5 | —      | 1,200 | —     | —     | —     | —     |
| 30 A 480 V cos φ = 0.8 | —      | —     | 1,800 | —     | —     | —     |
| 30 A 480 V cos φ = 0.5 | —      | —     | 1,200 | —     | —     | —     |
| 25 A 230 V cos φ = 0.7 | —      | —     | —     | 1,800 | —     | —     |
| 40 A 230 V cos φ = 0.7 | —      | —     | —     | —     | 1,800 | —     |
| 50 A 230 V cos φ = 0.7 | —      | —     | —     | —     | —     | 1,800 |

**Other data**

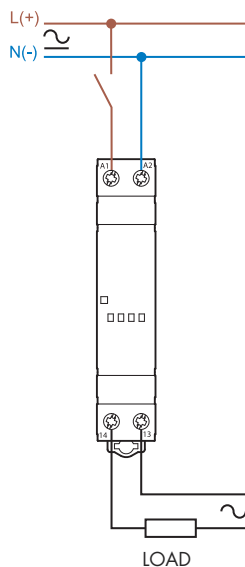
|  | 77.01                | 77.11   | 77.31                    | 77.25                                | 77.45                                  | 77.55                                    |
|--|----------------------|---|--------------------------|--------------------------------------|--|--|
| <b>Critical rising voltage</b> dv/dt without input control (gate open) @ T <sub>i</sub> = 125 °C | > 1,000 V/μs         | > 500 V/μs<br>> 10 V/μs<br>(with di/dt = 20 A/ms) | > 1,000 V/μs             | 300 V/μs (.8250)<br>500 V/μs (.8650) | 500 V/μs (.8250)<br>1,000 V/μs (.8650) | 1,000 V/μs (.8250)<br>1,000 V/μs (.8650) |
| <b>Critical rising current</b> di/dt @ T <sub>i</sub> = 125 °C                                   | > 50 A/μs            | > 50 A/μs   | > 150 A/μs               | —                                    | —                                      | —  |
| <b>I<sup>2</sup>t for fusing</b> @ t <sub>p</sub> = 10 ms  | 450 A <sup>2</sup> s | 1,000 A <sup>2</sup> s*                           | 1,350 A <sup>2</sup> s** | 450 A <sup>2</sup> s                 | 1,250 A <sup>2</sup> s                 | 1,350 A <sup>2</sup> s                   |

Suggested fuse (depending on application) for short-circuit protection (Ultra-Fast acting types for semiconductors):

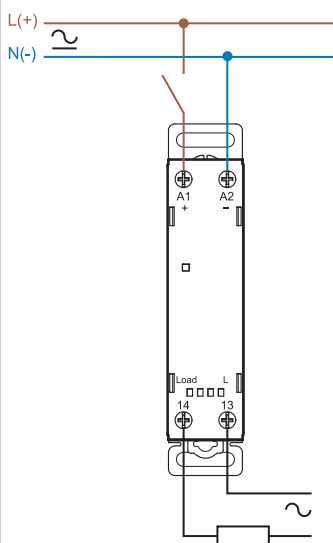
- \* 20 A, 660 V AC, 10x38 mm, 200 kA, 360 A<sup>2</sup>s.
- \*\* 30 A, 660 V AC, 10x38 mm, 200 kA, 1,000 A<sup>2</sup>s.

## Wiring diagrams

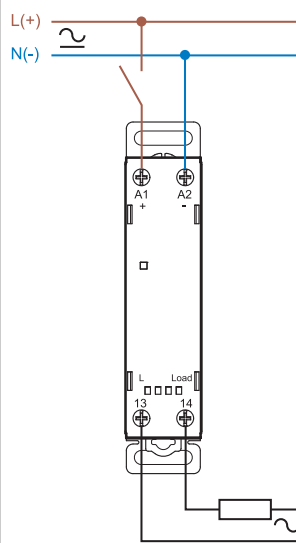
Single-phase connection (77.01)



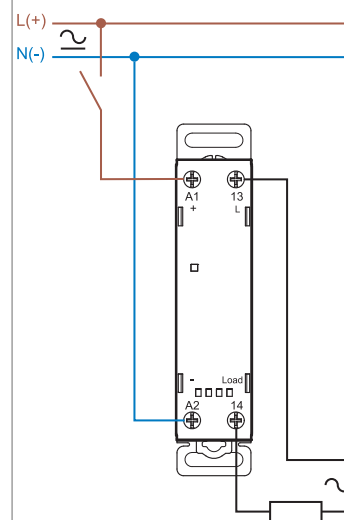
Single-phase connection (77.11)



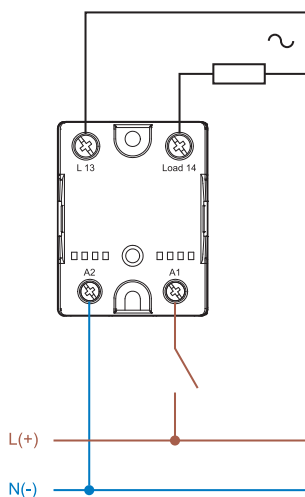
Single-phase connection (77.31.....5x)



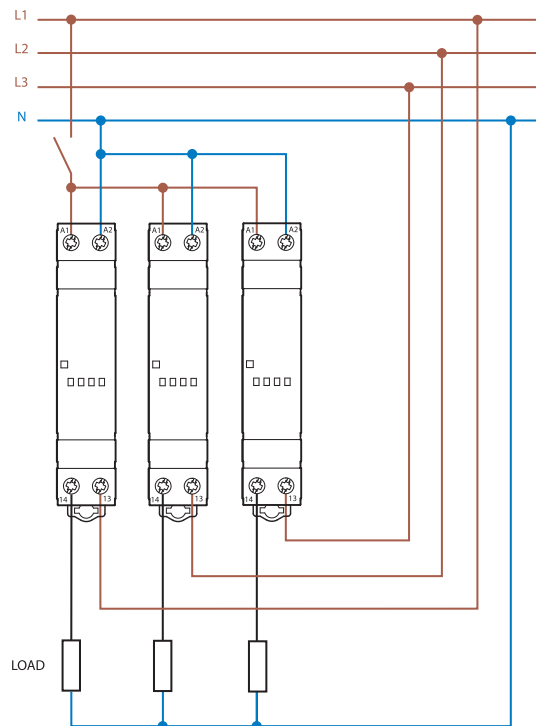
Single-phase connection (77.31.....7x)



Single-phase connection (77.x5)



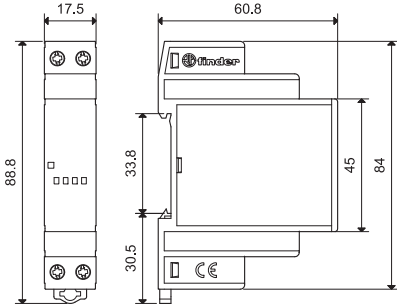
Example of three-phase connection (with 3 x 77.01.8.230.8051)



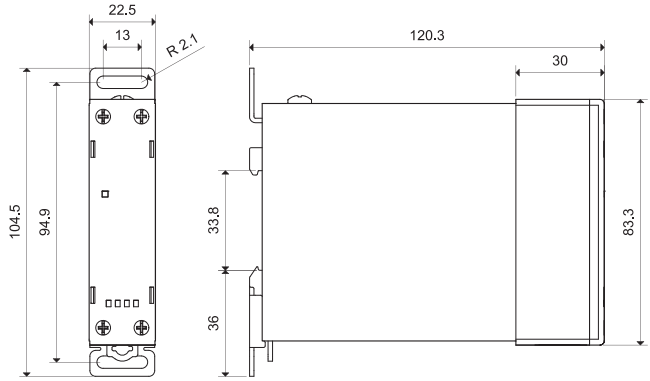
Note: this connection can be used with all 77 series types, with the exception of 77.01.8.230.8050.

Outline drawings

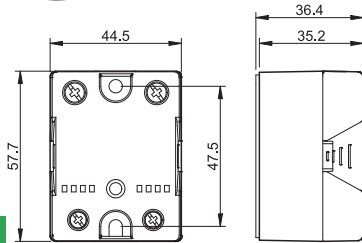
77.01  
Screw terminal



77.11/31  
Screw terminal



77.x5  
Screw terminal (plate clamp)



Timers and Monitoring relays

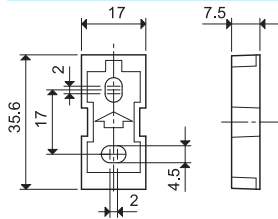
Accessories



020.01

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

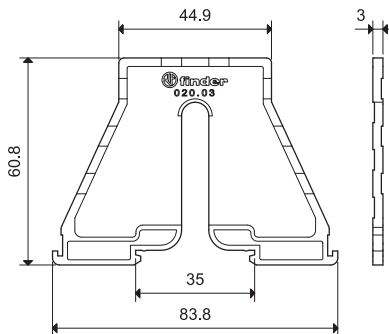
020.01



020.03

Separator for panel mounting, plastic, 3 mm wide

020.03



060.72

Sheet of marker tags, plastic, 72 tags, 6x12 mm

060.72

## Accessories

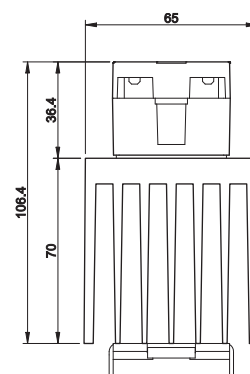
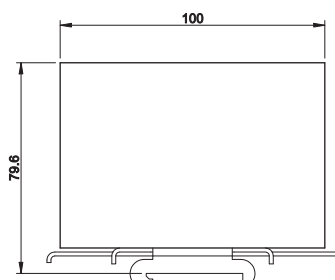
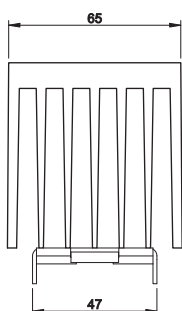


077.25

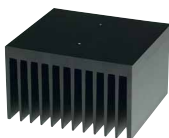
**Heat-sink**, anodized aluminium, 2 K/W, 65 x 100 mm, for 77.25 only

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

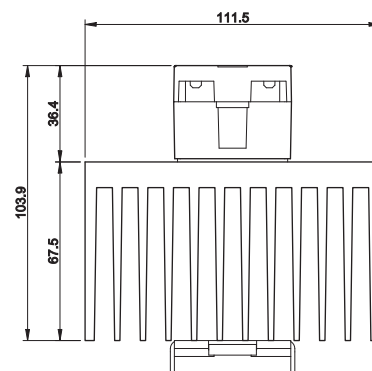
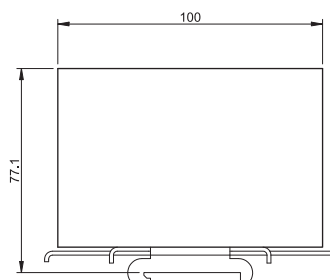
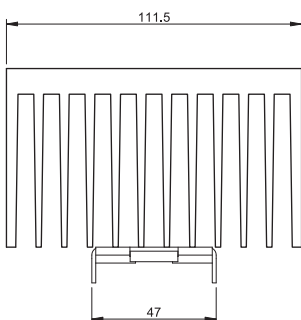


077.55

**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

