



Motor protection  
circuit breaker  
SM1R

Product designation

Product type designation

### Electrical features

|                                           |     |            |
|-------------------------------------------|-----|------------|
| Number of poles                           | Nr. | 3          |
| Magnetic protection                       |     | yes        |
| Thermal protection                        |     | yes        |
| Phase failure detection                   |     | yes        |
| Rated insulation voltage $U_i$ IEC/EN     | V   | 690        |
| Rated impulse withstand voltage $U_{imp}$ | kV  | 6          |
| Rated frequency                           | Hz  | 50/60      |
| Thermal trip adjustment range             |     | 1...1.6    |
| Rated current ( $I_n$ )                   | A   | 1.6        |
| Magnetic tripping                         |     | 13 x $I_n$ |

Power dissipation per pole

|     |   |      |
|-----|---|------|
| min | W | 0.90 |
| max | W | 2.30 |

Operational short-circuit current breaking capacity ( $I_{cs}$ ) at AC

|      |    |     |
|------|----|-----|
| 230V | kA | 100 |
| 400V | kA | 100 |
| 440V | kA | 100 |
| 500V | kA | 100 |
| 690V | kA | 100 |

Maximum short-circuit current breaking capacity ( $I_{cu}$ ) at AC

|      |    |     |
|------|----|-----|
| 230V | kA | 100 |
| 400V | kA | 100 |
| 440V | kA | 100 |
| 500V | kA | 100 |
| 690V | kA | 100 |

Tripping class 10A

IEC Utilization category A

### Operations

|                 |        |        |
|-----------------|--------|--------|
| Mechanical life | cycles | 100000 |
| Electrical life | cycles | 100000 |

### Mechanical features

Tightening torque for terminals

|     |      |      |
|-----|------|------|
| min | Nm   | 2.5  |
| max | Nm   | 3    |
| min | lbin | 22   |
| max | lbin | 26.5 |

Max number of wires simultaneously connectable Nr. 2

Conductor section

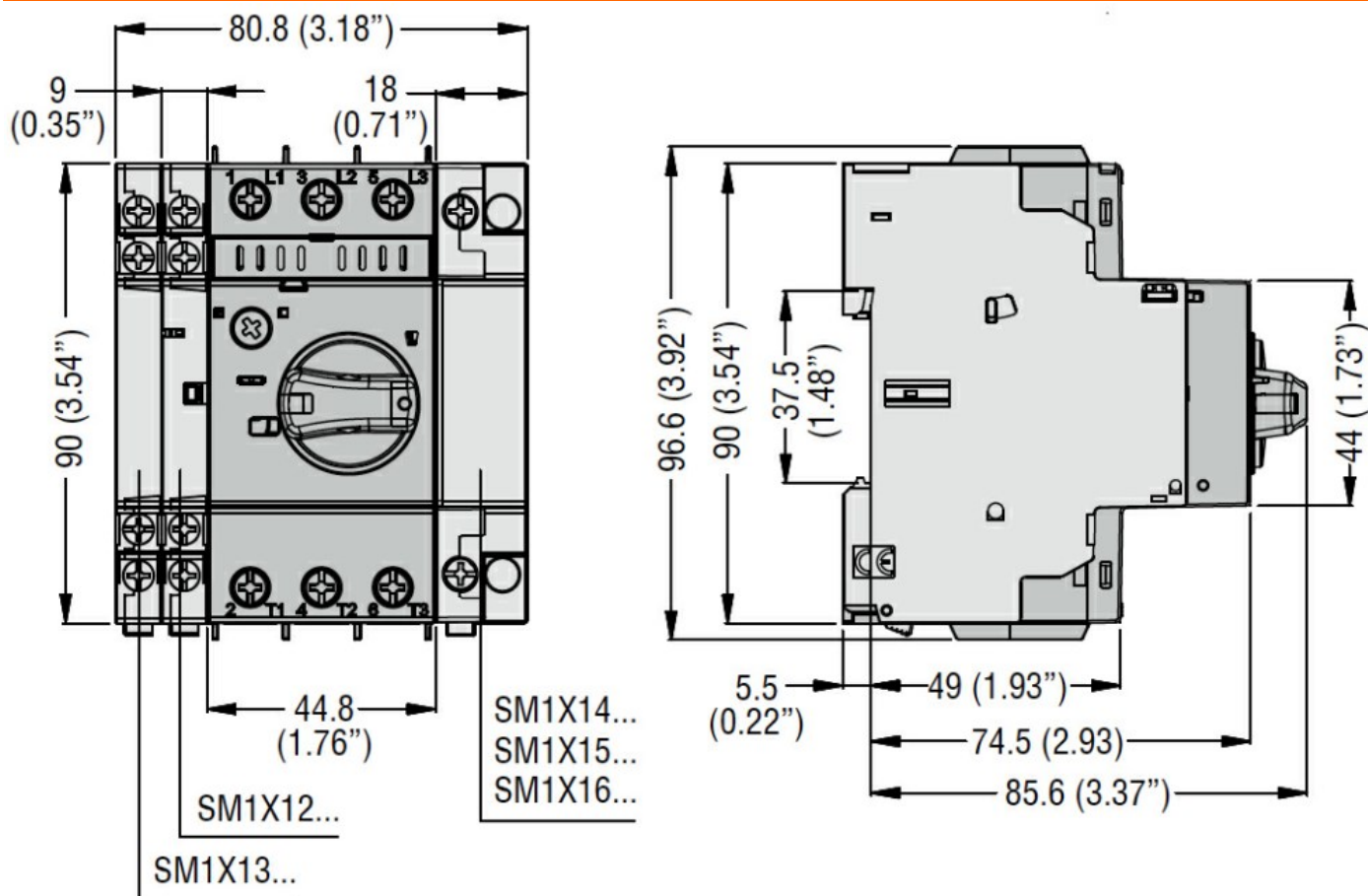
AWG/Kcmil

|     |    |
|-----|----|
| min | 16 |
| max | 8  |

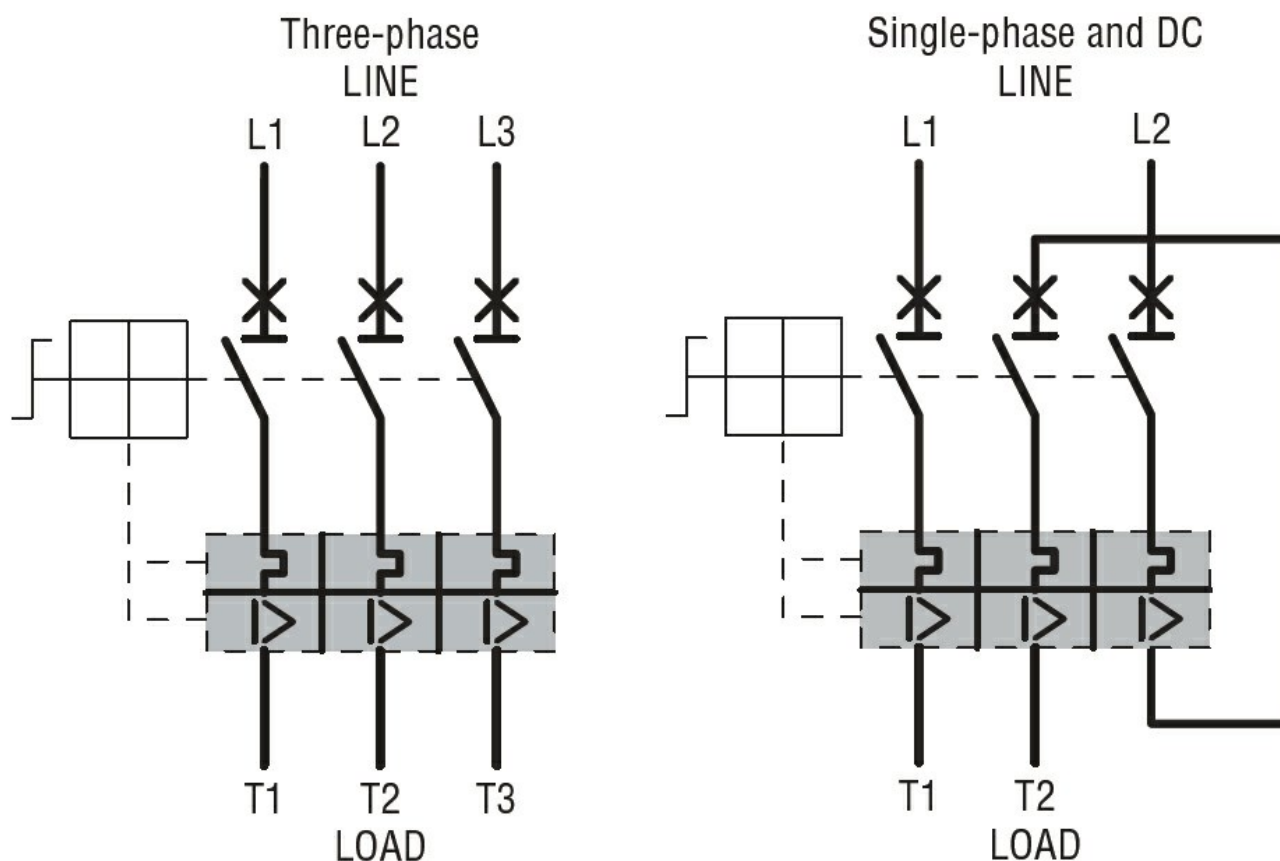
|                                                                                                        |              |                 |                  |
|--------------------------------------------------------------------------------------------------------|--------------|-----------------|------------------|
| Flexible w/o lug conductor section                                                                     |              |                 |                  |
|                                                                                                        | min          | mm <sup>2</sup> | 1                |
|                                                                                                        | max          | mm <sup>2</sup> | 10               |
| Flexible c/w lug conductor section                                                                     |              |                 |                  |
|                                                                                                        | min          | mm <sup>2</sup> | 1                |
|                                                                                                        | max          | mm <sup>2</sup> | 10               |
| Flexible with insulated spade lug conductor section                                                    |              |                 |                  |
|                                                                                                        | min          | mm <sup>2</sup> | 1                |
|                                                                                                        | max          | mm <sup>2</sup> | 10               |
| Screwdriver                                                                                            |              |                 | PH2              |
| Power terminal protection according to IEC/EN 60529                                                    |              |                 | IP20 on front    |
| Cable stripping length                                                                                 |              |                 |                  |
|                                                                                                        | main circuit | mm              | 12               |
| Ambient conditions                                                                                     |              |                 |                  |
| Temperature                                                                                            |              |                 |                  |
| Operating temperature                                                                                  |              |                 |                  |
|                                                                                                        | min          | °C              | -20              |
|                                                                                                        | max          | °C              | +60              |
| Storage temperature                                                                                    |              |                 |                  |
|                                                                                                        | min          | °C              | -50              |
|                                                                                                        | max          | °C              | +80              |
| Compensation temperature                                                                               |              |                 |                  |
|                                                                                                        | min          | °C              | -20              |
|                                                                                                        | max          | °C              | +50              |
| Max altitude                                                                                           |              | m               | 3000             |
| Operating position                                                                                     |              |                 |                  |
|                                                                                                        | normal       |                 | Vertical plan    |
|                                                                                                        | allowable    |                 | Any              |
| Fixing                                                                                                 |              |                 | Screw / DIN rail |
|                                                                                                        |              |                 | 35mm             |
| Weight                                                                                                 |              | g               | 320              |
| UL technical data                                                                                      |              |                 |                  |
| Motor Disconnect                                                                                       |              |                 |                  |
|                                                                                                        | at 240V      | kA              | 65               |
|                                                                                                        | at 480V      | kA              | 65               |
|                                                                                                        | at 600V      | kA              | 50               |
|                                                                                                        | protection   |                 | Fuse or CB       |
| Group Motor Installation                                                                               |              |                 |                  |
|                                                                                                        | at 480V      | kA              | 50               |
|                                                                                                        | at 600V      | kA              | 50               |
|                                                                                                        | protection   |                 | Fuse or CB       |
| Tap Conductor Protection                                                                               |              |                 |                  |
|                                                                                                        | at 480Y/277V | kA              | 50               |
|                                                                                                        | at 600Y/347V | kA              | 50               |
| UL508 / UL 60947-4-1 Manual Self Protected Combination Motor Controller (Type E) Short circuit current |              |                 |                  |
|                                                                                                        | at 240V      | kA              | 65               |
|                                                                                                        | at 480Y/277V | kA              | 65               |
|                                                                                                        | at 600Y/347V | kA              | 50               |
| Maximum UL/CSA horsepower ratings single-phase                                                         |              |                 |                  |
|                                                                                                        | 110V-120V    | HP              | -                |
|                                                                                                        | 220V-240V    | HP              | 1/10             |
| Maximum UL/CSA horsepower ratings three-phase, 3-pole                                                  |              |                 |                  |
|                                                                                                        | 200V-208V    | HP              | -                |

|           |    |     |
|-----------|----|-----|
| 220V-240V | HP | -   |
| 440V-480V | HP | 3/4 |
| 550V-600V | HP | 1   |

## Dimensions



## Wiring diagrams



## Certifications and compliance

### Certifications

CSA C22.2 n° 14  
IEC/EN 60947-1  
IEC/EN 60947-2  
IEC/EN 60947-4-1  
UL508

### Compliance

cULus  
EAC

## ETIM classification

ETIM 8.0

EC000074 -  
Motor protection  
circuit-breaker