



#### Contact characteristics

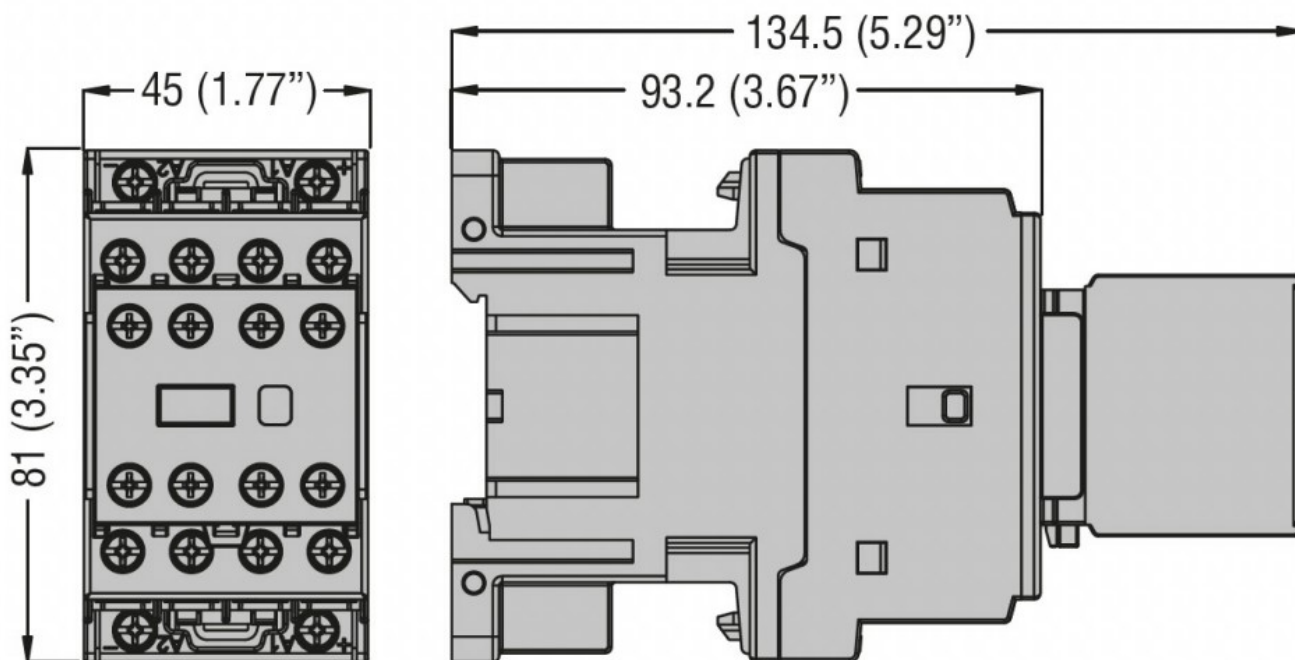
|                                                                                |                                                                               |        |
|--------------------------------------------------------------------------------|-------------------------------------------------------------------------------|--------|
| Number of poles                                                                | Nr.                                                                           | 3      |
| Rated insulation voltage $U_i$ IEC/EN                                          | V                                                                             | 690    |
| Rated impulse withstand voltage $U_{imp}$                                      | kV                                                                            | 6      |
| Operational frequency                                                          | min                                                                           | Hz 25  |
|                                                                                | max                                                                           | Hz 400 |
| IEC Conventional free air thermal current $I_{th} \leq 40^\circ\text{C}$       | A                                                                             | 28     |
| Operational current $I_e$                                                      | AC-1 ( $\leq 40^\circ\text{C}$ )                                              | A 28   |
|                                                                                | AC-1 ( $\leq 40^\circ\text{C}$ ) with 16mm <sup>2</sup> wire and fork end lug | A 0    |
|                                                                                | AC-1 ( $\leq 55^\circ\text{C}$ )                                              | A 23   |
|                                                                                | AC-1 ( $\leq 55^\circ\text{C}$ ) with 16mm <sup>2</sup> wire and fork end lug | A 0    |
|                                                                                | AC-1 ( $\leq 70^\circ\text{C}$ )                                              | A 20   |
|                                                                                | AC-1 ( $\leq 70^\circ\text{C}$ ) with 16mm <sup>2</sup> wire and fork end lug | A 0    |
|                                                                                | AC-3 ( $\leq 440\text{V} \leq 55^\circ\text{C}$ )                             | A 12   |
|                                                                                | AC-4 (400V)                                                                   | A 7.9  |
| Rated operational power AC-3 ( $T \leq 55^\circ\text{C}$ )                     | 230V                                                                          | kW 3.2 |
|                                                                                | 400V                                                                          | kW 5.7 |
|                                                                                | 415V                                                                          | kW 6.2 |
|                                                                                | 440V                                                                          | kW 6.2 |
|                                                                                | 500V                                                                          | kW 7.5 |
|                                                                                | 690V                                                                          | kW 10  |
| Rated operational power AC-1 ( $T \leq 40^\circ\text{C}$ )                     | 230V                                                                          | kW 10  |
|                                                                                | 400V                                                                          | kW 18  |
|                                                                                | 500V                                                                          | kW 23  |
|                                                                                | 690V                                                                          | kW 32  |
| IEC max current $I_e$ in DC1 with $L/R \leq 1\text{ms}$ with 1 poles in series | $\leq 24\text{V}$                                                             | A 17   |
|                                                                                | 48V                                                                           | A 15   |
|                                                                                | 75V                                                                           | A 13   |
|                                                                                | 110V                                                                          | A 6    |
|                                                                                | 220V                                                                          | A –    |
| IEC max current $I_e$ in DC1 with $L/R \leq 1\text{ms}$ with 2 poles in series | $\leq 24\text{V}$                                                             | A 20   |
|                                                                                | 48V                                                                           | A 20   |
|                                                                                | 75V                                                                           | A 18   |
|                                                                                | 110V                                                                          | A 13   |
|                                                                                | 220V                                                                          | A 1    |
| IEC max current $I_e$ in DC1 with $L/R \leq 1\text{ms}$ with 3 poles in series | $\leq 24\text{V}$                                                             | A 22   |
|                                                                                | 48V                                                                           | A 22   |
|                                                                                | 75V                                                                           | A 20   |

|                                                                                  |                 |      |     |
|----------------------------------------------------------------------------------|-----------------|------|-----|
|                                                                                  | 110V            | A    | 16  |
|                                                                                  | 220V            | A    | 11  |
| IEC max current I <sub>e</sub> in DC1 with L/R ≤ 1ms with 4 poles in series      |                 |      |     |
|                                                                                  | ≤24V            | A    | 20  |
|                                                                                  | 48V             | A    | 20  |
|                                                                                  | 75V             | A    | 20  |
|                                                                                  | 110V            | A    | 16  |
|                                                                                  | 220V            | A    | 12  |
| IEC max current I <sub>e</sub> in DC3-DC5 with L/R ≤ 15ms with 1 poles in series |                 |      |     |
|                                                                                  | ≤24V            | A    | 12  |
|                                                                                  | 48V             | A    | 11  |
|                                                                                  | 75V             | A    | 10  |
|                                                                                  | 110V            | A    | 2   |
|                                                                                  | 220V            | A    | –   |
| IEC max current I <sub>e</sub> in DC3-DC5 with L/R ≤ 15ms with 2 poles in series |                 |      |     |
|                                                                                  | ≤24V            | A    | 15  |
|                                                                                  | 48V             | A    | 13  |
|                                                                                  | 75V             | A    | 12  |
|                                                                                  | 110V            | A    | 8   |
|                                                                                  | 220V            | A    | 2   |
| IEC max current I <sub>e</sub> in DC3-DC5 with L/R ≤ 15ms with 3 poles in series |                 |      |     |
|                                                                                  | ≤24V            | A    | 18  |
|                                                                                  | 48V             | A    | 18  |
|                                                                                  | 75V             | A    | 15  |
|                                                                                  | 110V            | A    | 12  |
|                                                                                  | 220V            | A    | 6   |
| IEC max current I <sub>e</sub> in DC3-DC5 with L/R ≤ 15ms with 4 poles in series |                 |      |     |
|                                                                                  | ≤24V            | A    | 15  |
|                                                                                  | 48V             | A    | 15  |
|                                                                                  | 75V             | A    | 15  |
|                                                                                  | 110V            | A    | 16  |
|                                                                                  | 220V            | A    | 7   |
| Short-time allowable current for 10s (IEC/EN60947-1)                             |                 | A    | 150 |
| Protection fuse                                                                  |                 |      |     |
|                                                                                  | gG (IEC)        | A    | 32  |
|                                                                                  | aM (IEC)        | A    | 12  |
| Making capacity (RMS value)                                                      |                 | A    | 120 |
| Breaking capacity at voltage                                                     |                 |      |     |
|                                                                                  | 440V            | A    | 96  |
|                                                                                  | 500V            | A    | 96  |
|                                                                                  | 690V            | A    | 94  |
| Resistance per pole (average value)                                              |                 | mΩ   | 2.5 |
| Power dissipation per pole (average value)                                       |                 |      |     |
|                                                                                  | I <sub>th</sub> | W    | 2   |
|                                                                                  | AC-3            | W    | 0.4 |
| Tightening torque for terminals                                                  |                 |      |     |
|                                                                                  | min             | Nm   | 1.5 |
|                                                                                  | max             | Nm   | 1.8 |
|                                                                                  | min             | lbin | 1.1 |
|                                                                                  | max             | lbin | 1.5 |
| Tightening torque for coil terminal                                              |                 |      |     |
|                                                                                  | min             | Nm   | 0.8 |
|                                                                                  | max             | Nm   | 1   |

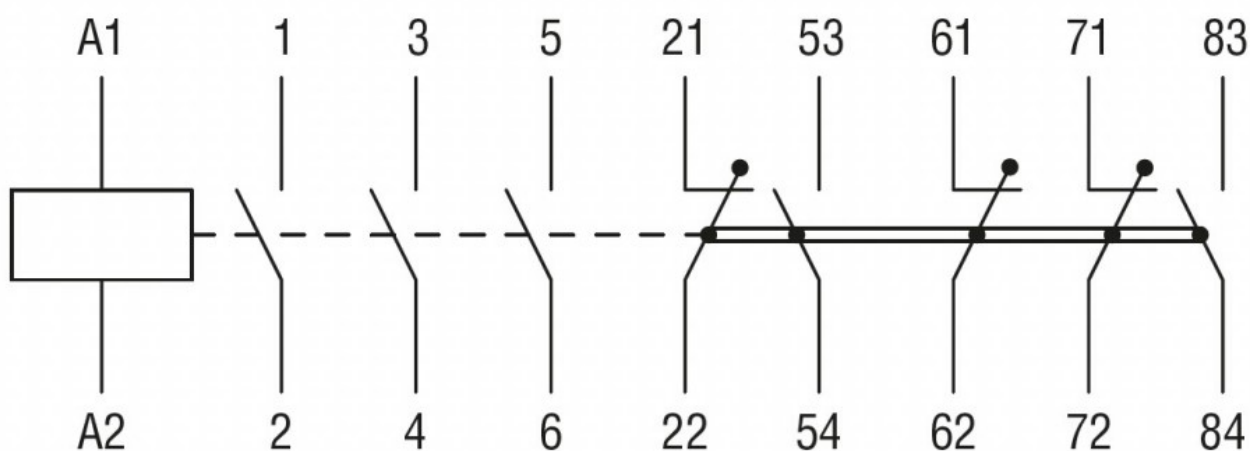
|                                                       |                                          |                  |                          |
|-------------------------------------------------------|------------------------------------------|------------------|--------------------------|
|                                                       | min                                      | I <sub>bin</sub> | 0.8                      |
|                                                       | max                                      | I <sub>bin</sub> | 0.74                     |
| Max number of wires simultaneously connectable        |                                          | Nr.              | 2                        |
| Conductor section                                     |                                          |                  |                          |
| AWG/Kcmil                                             |                                          |                  |                          |
|                                                       | max                                      |                  | 10                       |
| Flexible w/o lug conductor section                    |                                          |                  |                          |
|                                                       | min                                      | mm <sup>2</sup>  | 1                        |
|                                                       | max                                      | mm <sup>2</sup>  | 6                        |
| Flexible c/w lug conductor section                    |                                          |                  |                          |
|                                                       | min                                      | mm <sup>2</sup>  | 1                        |
|                                                       | max                                      | mm <sup>2</sup>  | 4                        |
| Flexible with insulated spade lug conductor section   |                                          |                  |                          |
|                                                       | min                                      | mm <sup>2</sup>  | 1                        |
|                                                       | max                                      | mm <sup>2</sup>  | 4                        |
| Power terminal protection according to IEC/EN 60529   |                                          |                  | IP20 when properly wired |
| Cable stripping lenght                                |                                          |                  |                          |
|                                                       | main circuit                             | mm               | 0                        |
|                                                       | command circuit                          | mm               | 0                        |
|                                                       | auxiliary circuit                        | mm               | 0                        |
| <b>Mechanical features</b>                            |                                          |                  |                          |
| Operating position                                    |                                          |                  |                          |
|                                                       | normal allowable                         |                  | Vertical plan ±30°       |
| Fixing                                                |                                          |                  | Screw / DIN rail 35mm    |
| Weight                                                |                                          | g                | 490                      |
| <b>Auxiliary contact characteristics</b>              |                                          |                  |                          |
| Thermal current I <sub>th</sub>                       |                                          | A                | 10                       |
| IEC/EN 60947-5-1 designation                          |                                          |                  | A600 - Q600              |
| Operating current AC15                                |                                          |                  |                          |
|                                                       | 230V                                     | A                | 3                        |
|                                                       | 400V                                     | A                | 1.9                      |
|                                                       | 500V                                     | A                | 1.4                      |
| Operating current DC13                                |                                          |                  |                          |
|                                                       | 110V                                     | A                | 0.55                     |
|                                                       | 125V                                     | A                | 0.55                     |
|                                                       | 220V                                     | A                | 0.27                     |
|                                                       | 600V                                     | A                | 0.1                      |
| <b>Operations</b>                                     |                                          |                  |                          |
| Mechanical life                                       |                                          | cycles           | 20000000                 |
| Electrical life                                       |                                          | cycles           | 2000000                  |
| <b>Safety related data</b>                            |                                          |                  |                          |
| Performance level B10d according to EN/ISO 13489-1    |                                          |                  |                          |
|                                                       | rated load                               | cycles           | 2000000                  |
|                                                       | mechanical load                          | cycles           | 20000000                 |
| Mirror contacts according to IEC/EN 60947-4-1 annex F |                                          |                  | Yes                      |
| EMC compatibility                                     |                                          |                  | yes                      |
| <b>AC coil operating</b>                              |                                          |                  |                          |
| AC operating voltage                                  |                                          |                  |                          |
|                                                       | of 50/60Hz coil powered at 50Hz drop-out |                  |                          |

|                                                  |            |         |          |      |
|--------------------------------------------------|------------|---------|----------|------|
|                                                  |            | max     | %Us      | 0    |
| <b>DC coil operating</b>                         |            |         |          |      |
| DC rated control voltage                         |            |         | V        | 24   |
| DC operating voltage                             |            |         |          |      |
| pick-up                                          |            | min     | %Us      | 70   |
|                                                  |            | max     | %Us      | 125  |
| drop-out                                         |            |         |          |      |
|                                                  |            | min     | %Us      | 10   |
|                                                  |            | max     | %Us      | 40   |
| <b>Average coil consumption ≤20°C</b>            |            |         |          |      |
|                                                  |            | in-rush | W        | 5.4  |
|                                                  |            | holding | W        | 5.4  |
| <b>Max cycles frequency</b>                      |            |         |          |      |
| Mechanical operation                             |            |         | cycles/h | 3600 |
| <b>Operating times</b>                           |            |         |          |      |
| Average time for Us control                      |            |         |          |      |
| in AC                                            |            |         |          |      |
|                                                  | Closing NO | min     | ms       | 8    |
|                                                  |            | max     | ms       | 24   |
|                                                  | Opening NO | min     | ms       | 10   |
|                                                  |            | max     | ms       | 20   |
|                                                  | Closing NC | min     | ms       | 14   |
|                                                  |            | max     | ms       | 28   |
|                                                  | Opening NC | min     | ms       | 7    |
|                                                  |            | max     | ms       | 18   |
| in DC                                            |            |         |          |      |
|                                                  | Closing NO | min     | ms       | 54   |
|                                                  |            | max     | ms       | 66   |
|                                                  | Opening NO | min     | ms       | 14   |
|                                                  |            | max     | ms       | 17   |
|                                                  | Closing NC | min     | ms       | 24   |
|                                                  |            | max     | ms       | 30   |
|                                                  | Opening NC | min     | ms       | 47   |
|                                                  |            | max     | ms       | 57   |
| <b>UL technical data</b>                         |            |         |          |      |
| Rated operational voltage AC (UL)                |            |         | V        | 600  |
| Full-load current (FLA) for three-phase AC motor |            |         |          |      |
|                                                  | at 480V    | A       |          | 11   |
|                                                  | at 600V    | A       |          | 11   |
| <b>Yielded mechanical performance</b>            |            |         |          |      |
| for single-phase AC motor                        |            |         |          |      |
|                                                  | 110/120V   | HP      |          | 1    |
|                                                  | 230V       | HP      |          | 2    |
| for three-phase AC motor                         |            |         |          |      |
|                                                  | 200/208V   | HP      |          | 5    |

|                                                      |                       |                       |    |             |
|------------------------------------------------------|-----------------------|-----------------------|----|-------------|
|                                                      |                       | 220/240V              | HP | 5           |
|                                                      |                       | 460/480V              | HP | 7.5         |
|                                                      |                       | 575/600V              | HP | 10          |
| General USE                                          |                       |                       |    |             |
|                                                      | Contactor             | AC current            | A  | 28          |
|                                                      | Auxiliary contacts    | AC voltage            | V  | 600         |
|                                                      |                       | AC current            | A  | 10          |
|                                                      |                       | DC voltage            | V  | 250         |
|                                                      |                       | DC current            | A  | 1           |
| Short-circuit protection fuse, 600V                  |                       |                       |    |             |
|                                                      | High fault            | Short circuit current | kA | 100         |
|                                                      |                       | Fuse rating           | A  | 30          |
|                                                      |                       | Fuse class            |    | J           |
|                                                      | Standard fault        | Short circuit current | kA | 5           |
|                                                      |                       | Fuse rating           | A  | 70          |
| Contact rating of auxiliary contacts according to UL |                       |                       |    | A600 - Q600 |
| Ambient conditions                                   |                       |                       |    |             |
| Temperature                                          |                       |                       |    |             |
|                                                      | Operating temperature | min                   | °C | -50         |
|                                                      |                       | max                   | °C | 70          |
|                                                      | Storage temperature   | min                   | °C | -60         |
|                                                      |                       | max                   | °C | 80          |
| Max altitude                                         |                       |                       |    | m 3000      |
| Resistance & Protection                              |                       |                       |    |             |
| Impact resistance                                    |                       |                       |    | 0           |
| Vibration resistance                                 |                       |                       |    | 0           |
| Special thermic treatments                           |                       |                       |    | 0           |
| Pollution degree                                     |                       |                       |    | 3           |
| Resistance to flame (GWT)                            |                       |                       |    | 0           |
| Flame retardant according to UL94                    |                       |                       |    | 0           |
| Dimensions                                           |                       |                       |    |             |



## Wiring diagrams



## Certifications and compliance

### Compliance

CSA C22.2 n° 60947-1

CSA C22.2 n° 60947-4-1

IEC/EN/BS 60947-1

IEC/EN/BS 60947-4-1

IEC/EN/BS 60947-5-1

UL 60947-1

UL 60947-4-1

### Certificates

cULus

UL listed for USA and Canada

## ETIM classification

ETIM 8.0

EC000066 -  
Power contactor,  
AC switching