



### Main

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|-------------------------------------|--|
| Range                               | TeSys  |
| Product name                        | TeSys LF   |
| Product or component type           | Enclosed DOL starter                                   |
| Device application                  | AS interface   |
| Device composition                  | Circuit-breaker<br>AS interface module<br>Contactor    |
| Utilisation category                | AC-3   |
| Network type                        | AC   |
| Control circuit voltage             | 24 V for AC circuit at 50/60 Hz                        |
| Thermal protection adjustment range | 1.6...2.5 A  |
| Control type                        | Rotary handle for protection control - OFF - Trip - ON |

### Complementary

|  |  |
|--|--|
| Motor power kW                               | 0.75 kW at 400/415 V - AC at 50/60 Hz<br>0.37 kW at 220/230 V - AC at 50/60 Hz   |
| Network frequency                            | 50/60 Hz   |
| [Ue] rated operational voltage               | 30 V - DC for output control relay<br>250 V - AC at 50/60 Hz for output control relay<br>415 V - AC at 50/60 Hz for power circuit  |
| [Uimp] rated impulse withstand voltage       | 2.5 kV for AS-Interface conforming to IEC 60947-1<br>2.5 kV for sensor conforming to IEC 60947-1<br>2.5 kV for 24 V conforming to IEC 60947-1<br>6 kV for power circuit conforming to IEC 60947-1  |
| Insulation resistance                        | > 1000 mOhm between output and communication   |
| Insulation                                   | Between input and communication<br>1500 V between output and internal logic<br>1500 V between output and ground  |
| [Ui] rated insulation voltage                | 415 V AC at 50/60 Hz conforming to IEC 60947   |
| [Ithe] conventional enclosed thermal current | 5 A for output control relay at 40 °C  |
| Protection type                              | Phase failure<br>Inductive overvoltage   |
| Breaking capacity                            | 100 kA at 400/415 V conforming to IEC 60947-2<br>100 kA at 230/240 V conforming to IEC 60947-2   |
| Mechanical durability                        | Contactor : 30 Mcycles<br>Circuit breaker : 0.1 Mcycles  |
| Electrical durability                        | Relay : $\geq$ 1 Mcycles - 24 V with 30 cyc/mn - DC-3 - 0.25 A<br>Relay : 0.5 Mcycles - 24 V with 15 cyc/mn - DC-3 - 1 A<br>Relay : 0.2 Mcycles - 24 V with 6 cyc/mn - DC-12 - 2 A<br>Relay : 0.1 Mcycles - 24 V with 6 cyc/mn - DC-12 - 5 A<br>Relay : 5 Mcycles - 24 V with 30 cyc/mn - AC-14 - 0.25 A<br>Relay : 1 Mcycles - 24 V with 15 cyc/mn - AC-14 - 0.5 A<br>Relay : 0.5 Mcycles - 24 V with 15 cyc/mn - AC-14 - 1 A<br>Relay : 1 Mcycles - 24 V with 15 cyc/mn - AC-12 - 1 A<br>Relay : 0.1 Mcycles - 24 V with 6 cyc/mn - AC-12 - 5 A<br>Contactor : 0.8 Mcycles - AC-3 - 8.5 A<br>Circuit breaker : 0.1 Mcycles |
| Current consumption                          | 110 mA at 24 V for supply circuit inrush<br>30 mA at 24 V for supply circuit maintained mode<br>0 mA at 24 V for supply circuit de-energisation<br>60 mA for communication bus sensor<br>20 mA for communication bus during operation  |
| Local signalling                             | Input/Output status by LED<br>Product status by 3 LEDs   |

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|                               |   |
|-------------------------------|---|
| Number of inputs              | 2 M12   |
| Nominal input value           | 19...30 V 0...50 mA - DC  |
| Input description             | Status D3 : unused - bit value 1<br>Status D2 : enable relay - bit value 1<br>Status D1 : reverse start - bit value 1<br>Status D0 : forward start - bit value 1<br>Status D3 : unused - bit value 0<br>Status D2 : disable relay - bit value 0<br>Status D1 : reverse stop - bit value 0<br>Status D0 : forward stop - bit value 0   |
| Input type                    | Resistive   |
| Sensor compatibility          | 2 or 3-wire PNP   |
| Output description            | Command D3 : sensor 2 present - bit value 1<br>Command D2 : sensor 1 present - bit value 1<br>Command D1 : started - bit value 1<br>Command D0 : ready - bit value 1<br>Command D3 : sensor 2 missing - bit value 0<br>Command D2 : sensor 1 missing - bit value 0<br>Command D1 : stopped - bit value 0<br>Command D0 : not ready - bit value 0  |
| Response time                 | Output control relay : <= 15 ms during opening<br>Output control relay : <= 10 ms during closing  |
| Contacts type and composition | 1 C/O   |
| AS-interface profile          | 7A70 - extended A/B   |
| Cable gland type              | Output control relay : Pg 16 - 10...15 mm<br>Output control relay : Pg 13 - 10...15 mm<br>Power circuit : Pg 16 - 10...15 mm<br>Supply circuit : Pg 16 - 10...15 mm   |
| Connections - terminals       | Supply circuit : HARTING socket<br>Output control relay : HARTING socket<br>Power circuit : screw clamp terminals with 1...2 cables of 1.5...2.5 mm <sup>2</sup> - flexible with cable end<br>Power circuit : screw clamp terminals with 1...2 cables of 1.5...4 mm <sup>2</sup> - flexible without cable end<br>Power circuit : screw clamp terminals with 1...2 cables of 1.5...4 mm <sup>2</sup> - rigid |
| Tightening torque             | Power circuit : 0.8 N.m - with screwdriver flat Ø 5.5 mm  |
| Width                         | 222 mm  |
| Height                        | 183 mm  |
| Depth                         | 175 mm  |
| Product weight                | 1.35 kg   |

## Environment

|                                       |   |
|---------------------------------------|---|
| Electromagnetic compatibility         | <p>Disturbing field emission class B conforming to CISPR 11</p> <p>Disturbing field emission class B conforming to ENV 55011</p> <p>Radiated radio-frequency electromagnetic field immunity test 10 V/m conforming to ENV 50140</p> <p>Radiated radio-frequency electromagnetic field immunity test 10 V/m conforming to ENV 50204</p> <p>Radiated radio-frequency electromagnetic field immunity test 10 V/m conforming to IEC 61000-4-3</p> <p>Conducted RF disturbances 10 V/m conforming to ENV 50141</p> <p>Conducted RF disturbances 10 V/m conforming to IEC 61000-4-6</p> <p>Electrical fast transient/burst immunity test 2 kV level 3 conforming to EN/IEC 61000-4-4</p> <p>Surge immunity test 500 V level 2 - control circuit, line to line - conforming to EN/IEC 61000-4-5</p> <p>Surge immunity test 2 kV level 2 - control circuit, line to ground - conforming to IEC 61000-4-5</p> <p>Surge immunity test 2 kV level 4 - power, line to line - conforming to EN/IEC 61000-4-5</p> <p>Surge immunity test 4 kV level 4 - power, line to ground - conforming to IEC 61000-4-5</p> <p>Electrostatic discharge 4 kV level 2 - in indirect mode - conforming to EN/IEC 61000-4-2</p> <p>Electrostatic discharge 8 kV level 3 - in air - conforming to EN/IEC 61000-4-2</p> |
| Mechanical robustness                 | <p>Vibrations : 4 Gn during contactor closed conforming to IEC 60068-2-6</p> <p>Vibrations : 2 Gn during contactor open conforming to IEC 60068-2-6</p> <p>Shocks : 15 gn during contactor closed conforming to IEC 60068-2-27</p> <p>Shocks : 10 Gn during contactor open conforming to IEC 60068-2-27</p>   |
| IP degree of protection               | IP54 conforming to IEC 60529  |
| Protective treatment                  | TC  |
| Fire resistance                       | 960 °C conforming to IEC 60695-2-1  |
| Operating altitude                    | 2000 m  |
| Standards                             | <p>EN 60204-1</p> <p>EN 60439-1</p> <p>EN 60947-1</p> <p>IEC 60204-1</p> <p>IEC 60439-1</p> <p>IEC 60947-1</p>  |
| Material                              | <p>Top : polycarbonate + 20 % FG - white : RAL 9001</p> <p>Bottom : polycarbonate + 20 % FG - black</p>   |
| Ambient air temperature for operation | -5...40 °C conforming to IEC 61439-1  |
| Ambient air temperature for storage   | -40...80 °C conforming to IEC 61439-1   |