



Main

Range	TeSys
Product name	TeSys LF
Device short name	LF4P
Product or component type	Enclosed DOL reversing starter
Device application	AS interface
Device composition	Circuit-breaker AS interface module Reversing contactor
Utilisation category	AC-3
Network type	AC
Control circuit voltage	24 V for AC circuit at 50/60 Hz
Thermal protection adjustment range	6...10 A
Control type	Selector switch 3 positions for start/stop/start - 1 - 0 - 2 Rotary handle for protection control - OFF - Trip - ON

Complementary

Motor power kW	4 kW at 400/415 V - AC at 50/60 Hz 1.5 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 250 V - AC at 50/60 Hz for output control relay 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 2.5 kV for sensor conforming to IEC 60947-1 2.5 kV for 24 V conforming to IEC 60947-1 6 kV for power circuit conforming to IEC 60947-1
Insulation resistance	> 1000 mOhm between output and communication
Insulation	Between input and communication 1500 V between output and internal logic 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	Short-circuit protection (magnetic) Thermal protection Phase failure Inductive overvoltage
Breaking capacity	At 400/415 V conforming to IEC 60947-2 At 230/240 V conforming to IEC 60947-2
Mechanical durability	Contactor : 30 Mcycles Circuit breaker : 0.1 Mcycles
Electrical durability	Relay : >= 1 Mcycles - 24 V with 30 cyc/mn - DC-3 - 0.25 A Relay : 0.5 Mcycles - 24 V with 15 cyc/mn - DC-3 - 1 A Relay : 0.2 Mcycles - 24 V with 6 cyc/mn - DC-12 - 2 A Relay : 0.1 Mcycles - 24 V with 6 cyc/mn - DC-12 - 5 A Relay : 5 Mcycles - 24 V with 30 cyc/mn - AC-14 - 0.25 A Relay : 1 Mcycles - 24 V with 15 cyc/mn - AC-14 - 0.5 A Relay : 0.5 Mcycles - 24 V with 15 cyc/mn - AC-14 - 1 A Relay : 1 Mcycles - 24 V with 15 cyc/mn - AC-12 - 1 A Relay : 0.1 Mcycles - 24 V with 6 cyc/mn - AC-12 - 5 A Contactor : 0.8 Mcycles - AC-3 - 8.5 A Circuit breaker : 0.1 Mcycles

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Current consumption	20 mA for output relay 110 mA at 24 V for supply circuit inrush 30 mA at 24 V for supply circuit maintained mode 0 mA at 24 V for supply circuit de-energisation 60 mA for communication bus sensor 20 mA for communication bus during operation
Local signalling	Input/Output status by LED Product status by 3 LEDs
Number of inputs	2 M12
Nominal input value	19...30 V 0...50 mA - DC
Input description	Status D3 : unused - bit value 1 Status D2 : enable relay - bit value 1 Status D1 : reverse start - bit value 1 Status D0 : forward start - bit value 1 Status D3 : unused - bit value 0 Status D2 : disable relay - bit value 0 Status D1 : reverse stop - bit value 0 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 Command D2 : sensor 1 present - bit value 1 Command D1 : started - bit value 1 Command D0 : ready - bit value 1 Command D3 : sensor 2 missing - bit value 0 Command D2 : sensor 1 missing - bit value 0 Command D1 : stopped - bit value 0 Command D0 : not ready - bit value 0
Response time	Output control relay : ≤ 15 ms during opening 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 Output control relay : Pg 13 - 10...15 mm Power circuit : Pg 16 - 10...15 mm Supply circuit : Pg 16 - 10...15 mm
Connections - terminals	Output control relay : screw clamp terminals with 1 cables of 0.5...1.5 mm ² - flexible with cable end Output control relay : screw clamp terminals with 1 cables of 0.5...1.5 mm ² - flexible without cable end Output control relay : screw clamp terminals with 1 cables of 0.5...1.5 mm ² - rigid Power circuit : screw clamp terminals with 1...2 cables of 1.5...2.5 mm ² - flexible with cable end Power circuit : screw clamp terminals with 1...2 cables of 1.5...4 mm ² - flexible without cable end Power circuit : screw clamp terminals with 1...2 cables of 1.5...4 mm ² - rigid Supply circuit : screw clamp terminals with 1...2 cables of 1.5...4 mm ² - flexible with cable end Supply circuit : screw clamp terminals with 1...2 cables of 1.5...6 mm ² - flexible without cable end Supply circuit : screw clamp terminals with 1...2 cables of 1.5...6 mm ² - rigid
Tightening torque	Output control relay : 0.7 N.m - with screwdriver flat Ø 3.5 mm Power circuit : 0.8 N.m - with screwdriver flat Ø 5.5 mm Supply circuit : 1.7 N.m - with screwdriver flat Ø 5.5 mm
Width	175 mm
Height	195 mm
Depth	175 mm
Product weight	1.6 kg

Environment

Electromagnetic compatibility	Disturbing field emission class B conforming to CISPR 11 Disturbing field emission class B conforming to ENV 55011 Radiated radio-frequency electromagnetic field immunity test 10 V/m conforming to ENV 50140 Radiated radio-frequency electromagnetic field immunity test 10 V/m conforming to ENV 50204 Radiated radio-frequency electromagnetic field immunity test 10 V/m conforming to IEC 61000-4-3 Conducted RF disturbances 10 V/m conforming to ENV 50141 Conducted RF disturbances 10 V/m conforming to IEC 61000-4-6 Electrical fast transient/burst immunity test 2 kV level 3 conforming to EN/IEC 61000-4-4 Surge immunity test 500 V level 2 - control circuit, line to line - conforming to EN/IEC 61000-4-5 Surge immunity test 2 kV level 2 - control circuit, line to ground - conforming to IEC 61000-4-5 Surge immunity test 2 kV level 4 - power, line to line - conforming to EN/IEC 61000-4-5 Surge immunity test 4 kV level 4 - power, line to ground - conforming to IEC 61000-4-5 Electrostatic discharge 4 kV level 2 - in indirect mode - conforming to EN/IEC 61000-4-2 Electrostatic discharge 8 kV level 3 - in air - conforming to EN/IEC 61000-4-2
Mechanical robustness	Vibrations : 4 Gn during contactor closed conforming to IEC 60068-2-6 Vibrations : 2 Gn during contactor open conforming to IEC 60068-2-6 Shocks : 15 gn during contactor closed conforming to IEC 60068-2-27 Shocks : 10 Gn during contactor open conforming to IEC 60068-2-27
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	EN 60204-1 EN 60439-1 EN 60947-1 IEC 60204-1 IEC 60439-1 IEC 60947-1
Material	Top : polycarbonate + 20 % FG - white : RAL 9001 Bottom : polycarbonate + 20 % FG - black
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