

## LEVEL CONTROL RELAYS

- For conductive liquids
  Single, dual or multivoltage
  Emptying or filling functions
  Multifunctions
- Automatic reset
- Modular and plug-in versions.



PROBES, ELECTRODES AND ELECTRODE HOLDERS

- Single poleThree pole.



#### FLOAT SWITCHES

- Versions for grey and dirty waterVersions with PVC and Neoprene cable
- Emptying or filling functions.



# START-UP PRIORITY CHANGE RELAYS 2 outputs Single or multivoltage Modular and plug-in versions.

# **LEVEL CONTROLS**



- Level monitoring for electrically conductive liquids
- Modular and plug-in versions
- Adjustable 2.5...200kΩ sensitivity
- Single and three-pole probes
- Float switches
- Start-up priority change relays.

```
SEC. - PAGE
```

Level monitoring relays	SEC.	-	Pa
Modular version for conductive liquids	19	-	3
Plug-in version for conductive liquids	19	-	5
Probes, electrodes and electrode holders			
Float switches	19	-	7
Start-up priority change relays			
Modular version	19	-	8
Plug-in version	19	-	8
Accessories	19	-	9
Dimensions			
Wiring diagrams	19	- 1	11
Technical characteristics	19	- 1	14







# Level controls



Description			LEVEL CONT		Annu .	Sector C	RELA	CORITY CHANG	ORS
	LVM20	LVM25	LVM30	LVM40	LV1E	LV2E	LVMP05	LVMP10	CSP2E
Modular version	●(2U)	●(1U)	●(3U)	●(3U)			●(1U)	●(3U)	
Plug-in version					(8 pin)	(11 pin)			(11 pin)
3 detecting electrodes (MIN, MAX and COM)	•	•	•		•	•			
5 detecting electrodes (MIN1, MAX1, MIN2, MAX2 and COM)				•					
Sensitivity adjustment 2.550k $\Omega$	•								
Sensitivity adjustment 2.5100k $\Omega$		•							
Sensitivity adjustment 2.5200k $\Omega$				•					
Fixed sensitivity: $78k\Omega$						•			
Adjustable sensitivity full-scale value $25-50-100-200 \text{ k}\Omega$				•					
Separate sensitivity adjustment for MAX probe (foam detection)				•					
Emptying function and alarms		•		•	•	•			
Filling function and alarms		•	•	•					
Emptying function with Extra-MIN and/or Extra-MAX alarm relays				•					
Filling function with Extra-MIN and/or Extra-MAX alarm relays				•					
Emptying function with start change control				•					
Filling function with start change control				•					
Tank filling, well drawing functions and alarm				•					
Filling-emptying adjustment selector		•	•						
Programming selector for 5 different functions				•					
Motor start-up priority change									
Motor start-up priority change with stand-by motor function								•	•
Page		19-3		19-4	19	-5		19-8	





	Some permitted	liquid substances		Liquid substances not permitted
Type of liquid	Resistivity kΩcm	Type of liquid	Resistivity kΩcm	
Drinking water	5–10	Milk	~1	Purified water
Well water	2–5	Whey	~1	Deionised water
River water	2–15	Fruit juices	~1	Petrol
Rainwater	15–25	Vegetable juices	~1	• Oil
Sludge	0.5–2	Soups	~1	Liquid gases
Seawater	~0.03	Wine	~2.2	Paraffin     Thulana shugal
Salt water	~2.2	Beer	~2.2	Ethylene glycol     Paints
Natural/hard water	~5	Coffee	~2.2	Liquids with a high
Chlorinated water	~5	Suds	~18	percentage of alcohol
Condensed water	~18			Frank Stranger

N.B. The resistivity values in the table are purely indicative.

# Level controls Level control relays. **Modular version**





LVM20...

Order code	Auxiliary supply voltage	Type of output contact	Qty per pack	Wt
	[V] 50/60Hz	۲'	n°	[kg]
Emptying funct Automatic rese				
LVM20 A024	24VAC	1 C/O (SPDT)	1	0.215
LVM20 A127	110127VAC	1 C/O (SPDT)	1	0.215
LVM20 A240	220240VAC	1 C/O (SPDT)	1	0.215
LVM20 A415	380415VAC	1 C/O (SPDT)	1	0.215

#### **Operational characteristics**

- Used with 3 sensing electrodes, MIN, MAX and COM
- 2.5...50k $\Omega$  adjustable sensitivity
- Double insulation between each supply, electrodes and output relay circuits

- Fixed probe signal delay: <1s</li>
   Green LED indicator for power on
   Red LED indicator for output relay state
- Modular DIN 43880 housing (2 modules)
- IEC degree of protection: IP40 on front (only when mounted in housing or electric board with IP40); IP20 on terminals.

#### Certifications and compliance

**Operational characteristics** 

with fail-safe operation

\_

- 2.5...100kΩ adjustable sensitivity

Certifications obtained: EAC, UL Listed, for USA and Canada (cULus-File E93601), as Auxiliary Devices - Level control relays.

Compliant with standards: IEC/EN 60255-5, IEC/EN 61000-6-2, IEC/EN 61000-6-3, UL508, CSA C22.2 no. 14.

#### Probes, electrode holders and float switches

Use probes and electrode holders type: SN1/PS31/PS3S/SCM/CGL or similar (see page 19-6). For the choice of float switches see page 19-7.

Used with 3 sensing electrodes, MIN, MAX and COM

Insensitivity to stray electrode-cable capacitance Programming selector for emptying or filling function

Double insulation between each supply, electrodes and

## **Multi-voltage relay**



LVM25 240

LVMKIT25



#### LVM25 240 24...240VAC/DC 1 C/0 (SPDT) 1 0.095 Order Description Wt Qty code per pack n [ka]

Type of

output

contact

۲

Auxiliary

supply

voltage

[V]

Emptying or filling functions.

Automatic reset.

Wt

[kg]

Qty

per

n°

pack

			[rg]
Level control re	lay LVM25 240 and SN1 electro	odes ki	t.
LVMKIT25	Level control relay LVM25 240 and 2 SN1 probes	1	0.192

### **Dual-voltage relay**

Ă		й	11 1	2
118.3	ivato	Sameline's D		, 14 2 (1
		Search In	1	
100				
10 10	shiche Spi	0		-

#### LVM30...

Order code	Auxiliary supply voltage	Type of output contact	Qty per pack	Wt
	[V] 50/60Hz	μ,	n°	[kg]
Emptying or fill	ina functions.			

#### Automatic reset

Order

code

ratomatio 1000				
LVM30 A240	24/220240VAC	2 C/O (SPDT)	1	0.315
LVM30 A415	110127VAC 380415VAC	2 C/O (SPDT)	1	0.315

# Nodular DIN 43880 housing (1 module) IEC degree of protection: IP40 on front (only when mounted in housing or electric board with IP40);

IP20 on terminals. Certifications and compliance Certifications obtained: EAC, UL Listed, for USA and Canada (cULus-File E93601), as Auxiliary Devices - Level

control relays. Compliant with standards: IEC/EN 60255-5 IEC/EN 61000-6-2, IEC/EN 61000-6-4, UL508, CSA C22.2 n° 14.

output relay circuits Fixed probe signal delay: <1s Green LED indicator for power on Red LED indicator for output relay state

#### Probes, electrode holders and float switches

Use probes and electrode holders type: SN1/PS31/PS3S/SCM/CGL or similar (see page 19-6). For the choice of float switches see page 19-7.

#### **Operational characteristics**

- Used with 3 sensing electrodes, MIN, MAX and COM
- 2.5...50k $\Omega$  adjustable sensitivity
- Programming selector for emptying or filling function with fail-safe operation
- Double insulation between each supply, electrodes and output relay circuits
- Adjustable probe signal delay: 1...10s or pump start delay: 0...300s
- Green LED indicator for power on
- Red LED indicator for output relay state
- Modular DIN 43880 housing (3 modules) - IEC degree of protection: IP40 on front (only when mounted in housing or electric board with IP40); IP20 on terminals.

#### Certifications and compliance

Certifications obtained: EAC, UL Listed, for USA and Canada (cULus-File E93601), as Auxiliary Devices - Level control relays.

Compliant with standards: IEC/EN 60255-5, IEC/EN 61000-6-2, IEC/EN 61000-6-3, UL508, CSA C22.2 nº 14.

#### Probes, electrode holders and float switches

Use probes and electrode holders type: SN1/PS31/PS3S/SCM/CGL or similar (see page 19-6). For the choice of float switches see page 19-7.

(		
	men	sions
יטון	111011	31011
llna	ao 1	9-10
l Da	uei	3-10

#### Wiring diagrams page 19-11



Single-voltage multifunction relay	code	Auxiliary supply voltage
		[V] 50/60Hz

Emptying or filling functions.

Multifunctions

Automatic rese	t.			
LVM40 A024	24VAC	1+1NO	1	0.278
LVM40 A127	110127VAC	1+1N0	1	0.278
LVM40 A240	220240VAC	1+1NO	1	0.278
LVM40 A415	380415VAC	1+1NO	1	0.278

Type of

output

0

contacts

Weight

[kg]

Qtv

per

n°

pack

Two relay outputs; one with c/o (SPDT) and the other with N/O (SPST).

To achieve this type of operation, two electrodes are used

When one of the alarm electrodes is wet, the alarm relay is

to control the liquid between the fixed limits using MIN1 and MAX1 and two alarm levels using MIN2 and MAX2.

The alarm can be caused by pump malfunction, insufficient pump delivery capacity, MAX control level failure or MIN level electrode shorted.

With a proper connection, only the MIN alarm or MAX alarm can be activated or neither of the two can be

activated so the relative output contacts can be used for

This operation is obtained by using four electrodes positioned at four different levels and two relay outputs to

positioned at four different levels and two relay outputs to control two pumps. For example, one can place the four electrodes, MIN1, MIN2, MAX1 and MAX2, in increasing order from the lowest to the highest levels and must control the tank emptying. Usually the level is controlled between the MIN1 and MAX1 levels by starting one of the two pumps. This case is different so the pumps can be

two pumps. This case is different so the pumps can be maintained at the best efficiency and optimise their wear. When the liquid wets the MAX2 level and because the first pump is faulty or else a higher delivery capacity is needed.

the second stand-by pump is activated to back up the first pump. When the liquid lowers and no longer wets the MIN2 level, the second pump is stopped and then when the MIN1 level is no longer wet, the first pump is stopped

EXAMPLE OF EMPTYING OPERATION

EXAMPLE OF EMPTYING OPERATION

de-energised.

pump control

#### **Operational characteristics**

- Use with 5 sensing electrodes, MIN1, MAX1, MIN2, MAX2 and COM
  - 2.5...200k $\Omega$  adjustable sensitivity
- Adjustable sensitivity full-scale value: 25-50-100-200k $\Omega$ \_ Separate sensitivity adjustment of MAX electrodes for \_
- foam detection Insensitivity to stray electrode-cable capacitance
- \_ Programming selector for 5 different functions:
  - emptying function and alarms (pos. A)
  - filling function and alarms (pos. B)
  - emptying function with priority start-up change control (pos. C)
  - filling function with priority start-up change pump (pos. D)
  - well draining and tank filling and alarms (pos. E)
- Double insulation between each supply, electrodes and output relay circuits
- Adjustable probe signal delay: 1...10s Adjustable pump start delay: 0...30min
- Green LED indicator for power on
- Red LED indicators for output relay and electrode state
- Modular DIN 43880 housing (3 modules) IEC degree of protection: IP40 on front (only when mounted in housing or electric board with IP40); IP20 on terminals.

#### **Certifications and compliance**

Certifications obtained: EAC, UL Listed, for USA and Canada (cULus-File E93601), as Auxiliary Devices - Level control relays.

Compliant with standards: IEC/EN 60255-5, IEC/EN 61000-6-2, IEC/EN 61000-6-3, UL508, CSA C22.2 nº 14.

#### Probes, electrode holders and float switches

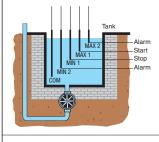
Use probes and electrode holders type: SN1/PS31/PS3S/SCM/CGL or similar (see page 19-6). For the choice of float switches see page 19-7.



#### FUNCTIONS

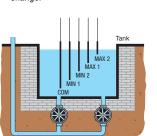
A- Emptying with MIN and/or MAX alarms.

B- Filling with MIN and/or MAX alarms



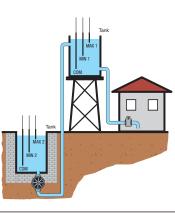
#### C- Emptying with pump priority change.

D-Filling with pump priority change.



# 19

E- Tank filling and well drawing with alarm.



#### FXAMPI F

too

Two electrodes are used in this operation to control the tank level and another two for the well. One relay is used to activate the pump while the other for dry running / no water alarm.

When the well liquid wets the MAX2 level and the liquid wets the MIN1 tank level, the tank-filling pump is activated

When the tank MAX1 level is wet, the pump is stopped. During the tank filling, the pump could stop before the MAX1 level is wet because the well MIN2 level is no longer

wet. Should the tank MIN1 level no longer be wet at which the pump should restart but the well MIN2 level is also no longer wet, then the alarm relay is de-energised.

# Level controls Level control relays. **Plug-in version**



## **Single-voltage relay**

EV1E	•

31 LV1E...

Order code	Auxiliary supply voltage	Type of output contact	Qty per pack	Wt
	[V] 50/60Hz	μ,	n°	[kg]

Emptying or filling functions.

Automatic rese	l.			
31 LV1E 24	24VAC	1 C/0 (SPDT)	1	0.263
31 LV1E 110	110120VAC	1 C/0 (SPDT)	1	0.263
31 LV1E 230	220240VAC	1 C/0 (SPDT)	1	0.263
31 LV1E 400	380415VAC	1 C/O (SPDT)	1	0.263

- Operational characteristics

   Used with 3 sensing electrodes, MIN, MAX and COM

   7...8kΩ fixed sensitivity

   Red LED indicator for output relay state

   Max. relay-electrode cable length: 500m/547yd single-open, dwble incurred to the period.
   core, double insulated cables
- Mounting on 35mm (IEC/EN 60715) DIN rail or 8-pin plug-in housing
- 8-pin plug-in housing (socket S8 or L48 P8 with G216; see page 19-9)
   IEC degree of protection: IP30.

#### **Certifications and compliance**

Certifications obtained: EAC. Compliant with standards: IEC/EN 60255-5.

#### Probes, electrode holders and float switches

Use probes and electrode holders type: SN1/PS31/PS3S/SCM/CGL or similar (see page 19-6). For the choice of float switches see page 19-7.

## **Dual-voltage relay**



31 LV2E...

Order	Auxiliary	Type of	Qty	Wt
code	supply	output	per	
	voltage	contact	pack	
	[V] 50/60Hz	Υ'	n°	[kg]
Emptying or fil Automatic rese				
31 LV2E 48	24/48VAC	1 C/0 (SPDT)	1	0.266
31 LV2E 220	110120VAC/ 220240VAC	1 C/O (SPDT)	1	0.266
31 LV2E 400	220240VAC/	1 C/O (SPDT)	1	0.266

380...415VAC

#### **Operational characteristics**

- Used with 3 sensing electrodes, MIN, MAX and COM \_ 7...8k $\Omega$  fixed sensitivity
- \_
- Red LED indicator for output relay state - Max. relay-electrode cable length: 500m/547yd single-
- core, double insulated cables
- Mounting on 35mm (IEC/EN 60715) DIN rail or 11-pin plug-in housing 11-pin plug-in housing (socket S11 or L48 P11 with
- G216; see page 19-9) IEC degree of protection: IP30.

#### **Certifications and compliance**

Certifications obtained: EAC. Compliant with standards: IEC/EN 60255-5.

#### Probes, electrode holders and float switches

Use probes and electrode holders type: SN1/PS31/PS3S/SCM/CGL or similar (see page 19-6). For the choice of float switches see page 19-7.

# Level controls Probes and electrode holders for conductive liquids. **Electrodes**

Order

code

11 SN1

31 SCM 04

31 SCM 50

31 SCM 100

31 CGL125 3

31 CGL125 5

31 CGL125 7

31 PS31

31 PS3S

31 CGL125 10

Three pole electrode.

Total electrode length.

Single pole electrodes.

Probe

yes

yes

yes

yes

yes

yes

yes

yes

ves

no

Electrode holder (for 3 rod probes).

included

Probe

length

[mm/in]

43/1.7"

500/19.7"

327/12.9"

500/19.7"

700/27.6"

1000/39.4" 1

300/11.8" 1

1000/39.4" 1

1000/3.9" 10

Qty

per

n°

1

1

1

1

1

pack

Weight

[kg]

0.050

0.060

0.115

0.162

0.126

0.158

0.208

0.281

0.120

0.184



#### **Probes and electrode** holders





31 SCM....



In

31 CGL125...



#### 31 PS3S 19

**Electrodes** 



Order code	Rod probe length	Qty per pack	Weight
	[mm/in]	n°	[kg]
For SCM probes.			
31 ASTA 460 MM4	460/18.11"	1	0.053
31 ASTA 960 MM4	960/37.8"	1	0.103
For PS3S electrode	holder.		
31 ASTA 460 MM6	460/18.11"	1	0.100
31 ASTA 960 MM6	960/37.8"	1	0.210

**General characteristics** SN1 SINGLE POLE PROBES A single pole probe used for level control in wells or storage tanks. It comprises of an AISI 303 stainless steel electrode, a plastic (PPOX) holder and a cable gland. A seal ring and the tightening of the cable gland PG7 prevent water from entering the cable terminal connector and causing its oxidation. Cable connection: screw. The external cable diameter must be 2.5 to 6mm/Ø0.1 to 0.24" to warrant perfect sealing. Maximum connection cable section: 2.5mm<sup>2</sup> Maximum operating temperature: +60°C. Application: Tanks and deep wells.

SCM... PROBES

A single pole probe used for level control on boilers, autoclaves and in general where pressure (10 bar maximum) and high temperature (+100°C maximum) are present. It comprises of an AISI 303 stainless steel electrode embedded in an aluminium oxide body and a 3/8" GAS threaded metal support holder. Cable connection: Threaded rod with nut Application: Tanks, pressurised tanks and boilers.

#### CGL125... PROBES

A single pole probe with AISI 302 electrode, used for level control on boilers and autoclaves and in general wherever pressure is up to 10 bar maximum. Maximum operating temperature: +180°C. Threaded coupling: 3/8" GAS. Cable connection: Threaded rod with nut. Application: Tanks, pressurised tanks and boilers.

#### PS31 PROBE

A small electrode holder, complete with three AISI 304 stainless steel probes. Particularly suited to small containers whenever pressure is maximum up to 2 bar. Maximum operating temperature: +70°C. Threaded coupling: 1/2" GAS. Faston termination; related lugs supplied. Application: Tanks and automatic dispensers.

#### PS3S ELECTRODE HOLDER

A thermoset resin electrode holder to be used with three probes (rods probes to be ordered separately) and complete with terminal cover. Maximum operating temperature: +100°C. 2" GAS threaded coupling. Cable connection: screw. Application: tanks.

#### Certification and compliance

Certification obtained: EAC. Compliant with standards: IEC/EN 60255-5.

#### **General characteristics**

Stainless steel AISI 304 electrodes with 4M or 6M threaded extremity suitable as extensions for SCM probe or as rod probe for PS3S electrode holder. For connecting SCM probes with electrode extension unit (ASTA...MM4), see page 19-9.

#### Certification

Certification obtained: EAC.

# Level controls Float switches



### For grey water



Order

code

Cable

PVC

PVC

PVC

PVC

and float

and float

0.11

15°

Start

Start

page 19-10

Start

45°

Neoprene 5

material

Cable

length

[m]

3

5

10

15

Counter-

weiaht

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

This function is achieved by connecting the

regulator contact closes the lower circuit at

minimum level and opens the circuit when

the float reaches the upper maximum level.

The MIN and MAX levels can be adjusted by

varying the distance between counterweight

This function is achieved by connecting the black and brown float terminals. The level

regulator contact closes the upper circuit at maximum level and opens the circuit when

the float reaches the lower minimum level.

The MIN and MAX levels can be adjusted by

varving the distance between counterweight

black and blue float terminals. The level

included

Qty Wt

n°

1

1

1

1

1

1

1

1

Stop

Stop

Stop

Stop

Coble Counter Otr W/t

This function uses two floats and is achieved by connecting the black and blue float

terminals. The MIN and MAX levels can be

by connecting the black and brown float

terminals. The MIN and MAX levels can be

adjusted by varying the position of the floats.

adjusted by varying the position of the floats.

[kg]

0.610

0.830

1.410

1.930

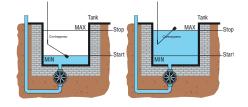
0.880

1.510

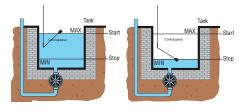
2.080

2.480

**Filling function** 



Emptying function



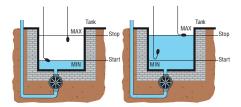
#### For dirty water



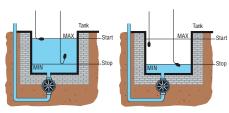
code	material	length	weight	Qty	VVT
		[m]		n°	[kg]
LVFS N1 B 05	Neoprene	5	Internal	1	1.250
LVFS N1 B 10	Neoprene	10	Internal	1	1.860
LVFS N1 B 15	Neoprene	15	Internal	1	2.460
LVFS N1 B 20	Neoprene	20	Internal	1	3.060

Start

Filling function



#### Emptying function



• It is possible to use even a single float for black water, adjusting the level in a fixed range of 10cm MAX, a solution which is not advisable for turbulent waters

#### General characteristics

Float switches are used in the automation of electrical equipment, such as: pumps, solenoid valves, alarms, motorised sluice gates, etc. All versions feature an internal changeover contact operated in accordance with the level of liquid where the float is located. The cables used are high-quality and offer excellent mechanical and chemical resistance over time.

The cables are 3x1 type, that is 3 wires with section 1mm<sup>2</sup>. This allows the user to choose the filling and emptying function during regulator wiring.

#### **Operational characteristics**

They are used for the civil and industrial control of levels of grey water, e.g. rainwater, groundwater or cooling water from industry. They are available with PVC and neoprene cables of various lengths.

- Activation angle -45° ... +45°
- 130g external counterweight included
- Float casing material: polypropylene
- Cable A05 VV-F3X1 (PVC) available in lengths of 3, 5, 10 and 15m and cable H07 RN-F3X1 (Neoprene) available in lengths of 5, 10, 15 and 20m
- Rated cable diameter: 9mm (PVC and Neoprene)
- Relay with changeover contact 10(8)A 250VAC 50/60Hz
- Maximum installation depth: 30m
- Maximum pressure: 3bar
- Operating temperature: 0...+50°C
- Storage temperature: -20...+70°C
- IEC degree of protection: IP68
- Insulation class: II.

#### **Certifications and compliance**

Certifications obtained: TÜV Compliant with standards: IEC/EN 60730-1, IEC/EN 60730-2-15.

#### **Operational characteristics**

These float switches are used for the civil and industrial control of levels of dirty water, e.g. sewage or waste water from industry. The float switches comprises of a one-piece external blow-moulded polypropylene casing, with fixed internal counterweight located in the cable exit area

The regulator contact is positioned centrally in its own watertight chamber. This is insulated from the external casing by injecting closed-cell foam. This solution further increases protection against moisture leakage and heat insulates the watertight chamber housing the contact, eliminating the creation of condensation.

- Activation angle -15° ... +15°
- Internal counterweight
  - Float casing material: polypropylene
- Cable H07 RN-F3X1 (Neoprene) available in lengths of 5, 10, 15 and 20m
- 50/60Hz
- Operating temperature: 0...+50°C

#### Certifications and compliance

Certifications obtained: TÜV Compliant with standards: IEC/EN 60730-1. IEC/EN 60730-2-15

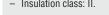


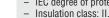
19-7



- Rated cable diameter: 9mm
- Relay with changeover contact 10(4)A 250VAC Maximum installation depth: 50m
- Maximum pressure: 5bar

- Storage temperature: -20...+70°C IEC degree of protection: IP68







# Level controls Start-up priority change relays

**Modular version** 



Order code	Auxiliary supply voltage	Type of output contacts	Qty per pack	Weight
	[V] 50/60Hz		n°	[kg]
2 outputs. AC s	upply voltage.			
LVMP10 A024	24VAC	2 NO (SPST)	1	0.250
LVMP10 A127	110127VAC	2 NO (SPST)	1	0.250
LVMP10 A240	220240VAC	2 NO (SPST)	1	0.250
LVMP10 A415	380415VAC	2 NO (SPST)	1	0.250

Auxiliary

supply

voltage

24/48VDC

24...240VAC

[V]

2 outputs. AC and DC supply voltage.

Type of

contacts

2N/0 (SPST)

output

Qty

per

n°

1

pack

Weight

[kg]

0.090

Order

code

LVMP05

#### **General characteristics**

Priority change relays are designed to balance the operating time, and hence the wear of pumps, compressors, generators, when two units, primary and stand-by, are installed.

- **Operational characteristics**  Operating limits: 0.85...1.1 Ue
- Connection: permanent
- \_ Green LED indicator for power on
- Red LED indicators for output relay state \_
- Modular DIN 43880 housing (1 module) IEC degree of protection: IP40 on front (only when \_
- mounted in housing or electric board with IP40); IP20 on terminals.

#### **Certifications and compliance**

Certifications obtained: EAC, UL Listed, for USA and Canada (cULus-File E93601), as Auxiliary Devices -Automatic starting control. Compliant with standards: IEC/EN 60255-5, IEC/EN 61000-6-2, IEC/EN 61000-6-3, UL508, CSA C22.2 nº 14.

#### **General characteristics**

Priority change relays are designed to balance the operating time, and hence the wear of pumps, compressors, generators, when two units, primary and stand-by, are installed.

#### **Operational characteristics**

- Operating limits: 0.85...1.1 Ue
- Connection: permanent
- Green LED indicator for power on Red LED indicators for output relay state
- Modular DIN 43880 housing (3 modules) IEC degree of protection: IP40 on front (only when mounted in housing or electric board with IP40); IP20 on terminals.

**Certifications and compliance** Certifications obtained: EAC, UL Listed, for USA and Canada (cULus-File E93601), as Auxiliary Devices -Automatic starting control. Compliant with standards: IEC/EN 60255-5, IEC/EN 61000-6-2, IEC/EN 61000-6-3, UL508, CSA C22.2 nº 14.

#### **Plug-in version**

.........

LVMP10...



Order code	Auxiliary supply voltage	Type of output contacts	Qty per pack	Weight
	[V] 50/60Hz	1	n°	[kg]
2 outputs. AC s	upply voltage.			
31 CSP2E 24	24VAC	2 NO (SPST)	1	0.150
31 CSP2E 110	110VAC	2 NO (SPST)	1	0.150
31 CSP2E 220	220VAC	2 NO (SPST)	1	0.150
31 CSP2E 230	230240VAC	2 NO (SPST)	1	0.150

#### **General characteristics**

Priority change relays are designed to balance the operating time, and hence the wear of pumps, compressors, generators, when two units, primary and stand-by, are installed.

#### **Operational characteristics**

- Operating limits: 0.85...1.1 Ue
- Connection: permanent
- Voltage applied to input contacts: 15VDC not insulated at power supply.
- Current consumption, input contacts: about 1mA. \_ 11-pin plug-in housing (sockets S11 or L48 P11 with
- 31 G216; see page 19-9)
- IEC degree of protection: IP30.

#### **Certifications and compliance**

Certifications obtained: EAC. Compliant with standards: IEC/EN 60255-5.

# Level controls Accessories



## **Accessories**





31 S8



31 S11

Order code	Description	Qty per pack	Weight
		n°	[kg]
31 RE213	Coupler unit for SCM with electrode extension ASTAMM4	1	0.008
31 58	8-pin socket for screw fixing or mounting on 35mm DIN rail (IEC/EN 60715), used with LV1E relay. Screw terminals.	10	0.061
31 \$11	11-pin socket for screw fixing or mounting on 35mm DIN rail (IEC/EN 60715), used with LV2E and CSP2E relays. Screw terminals.	10	0.064
31 RE014	Relay-socket retention bracket; S8 or S11 types only.	10	0.001
31 L48 P8	8-pin loose socket. Screw terminals	10	0.040
31 L48P11	11-pin socket, loose. Screw terminals	10	0.048
31 G216	Kit for flush mounting socketed relays	1	0.080

Dimensions page 19-10

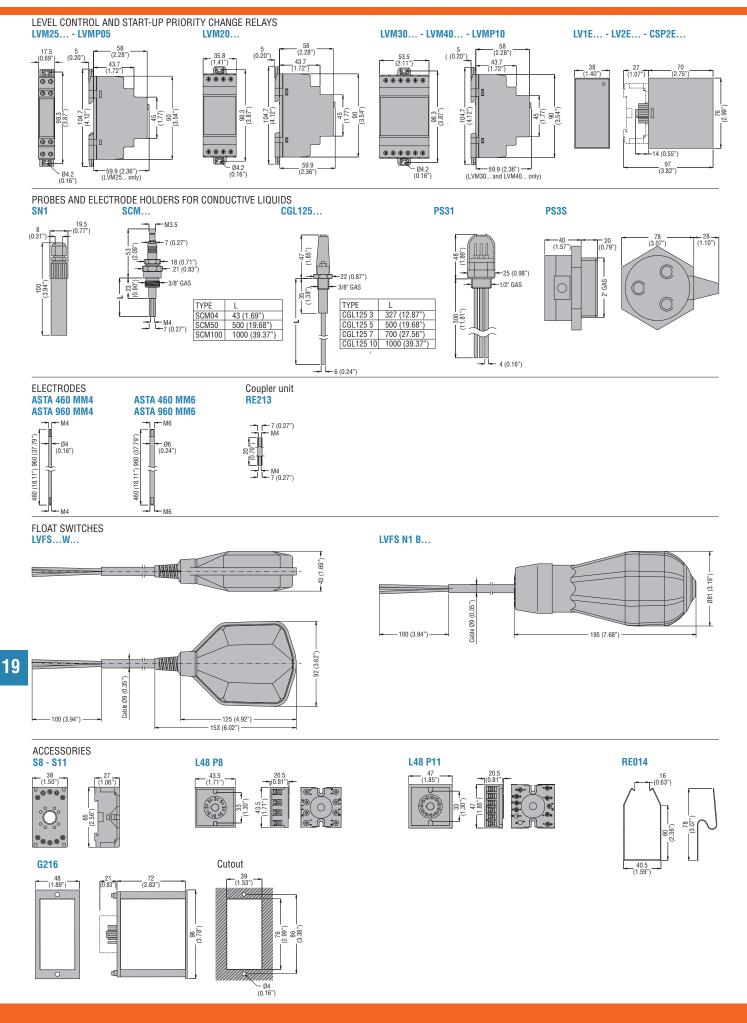
Operational characteristics SOCKETS FOR INSTALLING PLUG-IN LEVEL CONTROL RELAYS. – max. wire section for sockets: 2x2.5mm²/2x14AWG – tightening torque: 0.8Nm/7.1lbin.

Certifications and compliance Certifications obtained: EAC. Compliant with standards: IEC/EN 61984, IEC/EN 61210, IEC/EN 60999-1.

19-9

# Level controls Dimensions [mm (in)]





19-10

# Level controls Wiring diagrams

LVM20

2 [COM]MAN

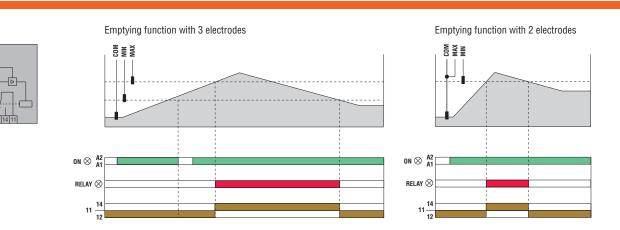
Î -MAX

> -MIN сом

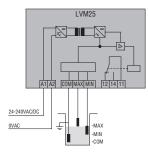
Emptying function LVM20

24VAC 110-127 220-240 380-415 OVAC

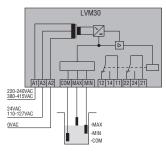


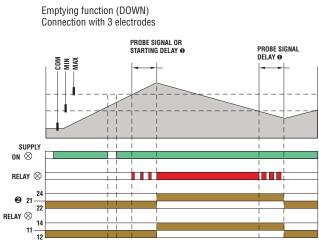


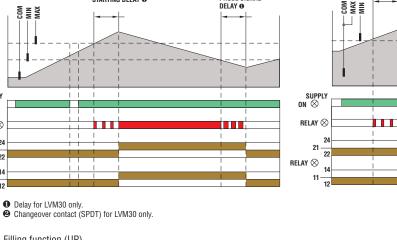
Emptying or filling functions LVM25

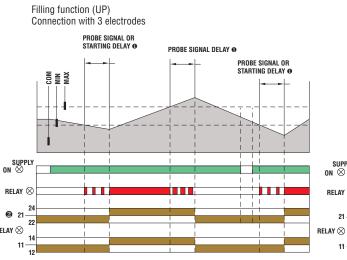


LVM30







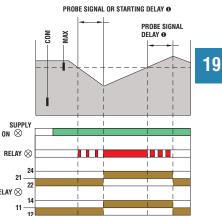


Connection with 2 electrodes

Connection with 2 electrodes

PROBE SIGNAL OR STARTING DELAY O

PROBE SIGNAL Delay o



Delay for LVM30 only.
Changeover contact (SPDT) for LVM30 only.

**2**1

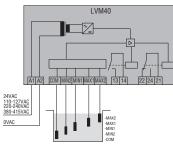
11

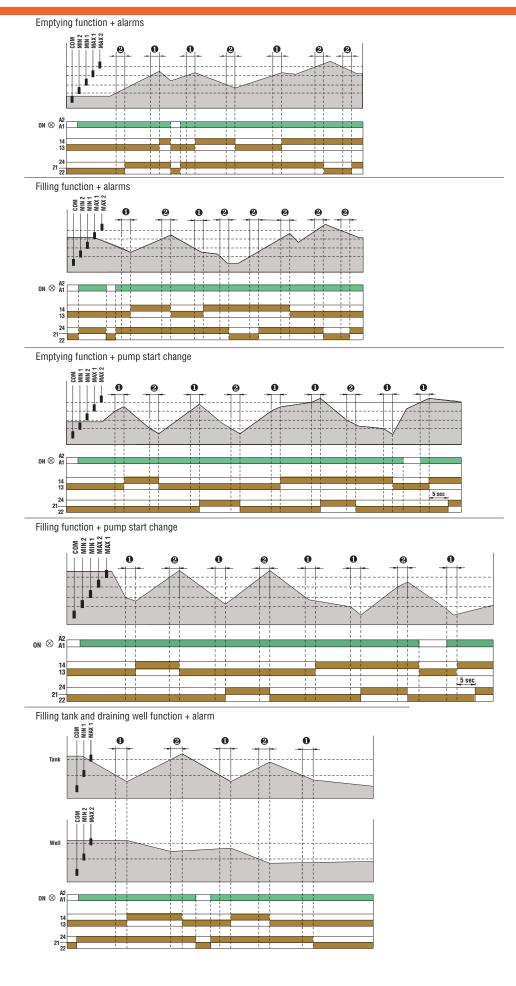
 $\operatorname{relay}\otimes$ 

# Level controls Wiring diagrams







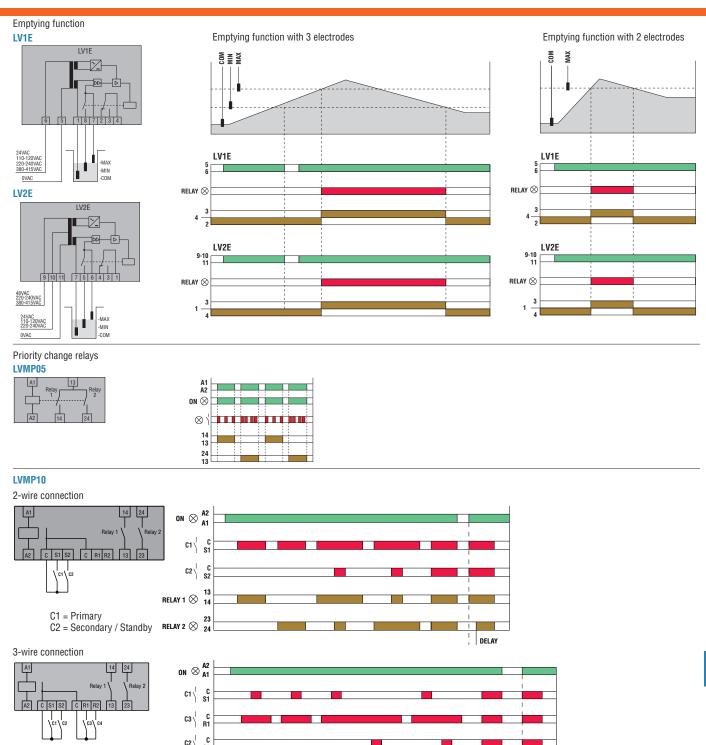


19

Probe signal + starting delay.Probe signal delay.

# Level controls Wiring diagrams





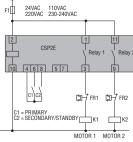
C1 = Start Primary C2 = Start Standby

C4 C R2 RELAY 1  $\otimes \begin{array}{c} 13\\ 14 \end{array}$ 

RELAY 2  $\otimes \frac{23}{24}$ 

C3 = Stop PrimaryC4 = Stop Standby

CSP2E



19

DELAY

# Level controls Technical characteristics



$\begin{array}{  c c c c }   c c c c c c c c c c c c c $	TVDE	LVMOO	LVMOC	LVMOO	11/14/0	
Medical         Medical         Medical         Medical           Application (examples)         Emplying thing function         Dati voltage Emplying ring function         Dati voltage Emplying ring function         Multi unclean         Multi unclea		LVM20	LVM25	LVM30	LVM40	
Adoptical reset         Adoptical reset           Application (examples)         Emplying of timing function         Emplying of timing bunchon         Emplying of timing bunchon         Multifunctions           Gganting principle	DESCRIPTION		Mor	lular		
Single voltage Application (samples)Single voltage Emplying ref IIIng InstationDate voltage Emplying ref IIIng InstationMultifunctionsApplication (samples)Emplying ref IIIng InstationElectrical constructivity of IiguitsMultifunctionsDate voltage Instation244022440202440224402Diperting voltage US244022440202440224402Diperting voltage US24402244022440224402Diperting voltage US24402244022440224402Diperting voltage US24402244022440224402Diperting voltage US3884153403502525Diperting voltage Constructivity of Iiguits25252526Diperting voltage Constructivity of Iiguits25252525Diperting Voltage Constructivity of Iiguits<	-					
Application (coaruples)         Emplying of IIIIng function         Emplying of IIIIng function         Emplying of IIIIng function         Multiumstans           Garneling introdul AJULLARY SUPPLY         2400 220, 249040, 220, 249040, 380, 415940         244220, 249040, 230, 415940         244220, 249040, 230, 415940         244220, 249040, 230, 415940         24420, 249040, 250, 41594         250, 415, 415, 415, 415, 415, 415, 415, 415	-	Single voltage			Single voltage	
function         function         function         function           Operating principle         Electrical control (vol liquids)         24/00	Application (examples)					
AUXILIARY SUPPY         241-2003AGDC         241-2003AGDC         241/220_2400AG           Supply voltage Us         220_2400AG         100.127/380.4159/AG         120.427/380.4159/AG           Operating voltage range         0.85.1.11 Us; f00HDF +5%.         280.2.1159/AG         220_4200 AG           Dever dissignific meanump)         35/4.         304.         5.55/A         4.51/A           Power dissignific meanump)         35/4.         304.         5.55/A         4.51/A           DUPPTS         Power dissignific meanump.         2.55/AC         2.55/AC         2.55/AC           Dyne of dissignific meanump.         2.55/AC         2.5.20/AC         2.5.20/AC         2.5.20/AC           Dyne of disclose disclose         5.50/A         4.51/A         1.5         1.5           Dyne of disclose disclos disclose disclose disclose disclose disclos disclose disclose d					Multifunctions	
Supply voltage Us         24N-0C 220.2424/NC 220.2424/NC 220.2424/NC 220.2424/NC 220.2424/NC 220.2424/NC 220.2424/NC 220.2424/NC 230.4151/NC         24N-20 10.127/380.2157/NC 220.2424/NC 230.4151/NC           Operating voltage range Power dissipator (maximum) 2.57%         2.5%         0.5.51/N         4.50/A         2.20/V/C 220.2424/NC 230.4151/NC           Power dissipator (maximum) 2.5%         2.5%         0.5.51/N         4.50/A         4.50/A           Power dissipator (maximum) 0.18/W         1.2W         2.8W         2.8W           OUTPUTS Sensitivity         2.5.50/KL         5.5/L         5.5/L         5.5/L           Sensitivity         2.5.50/KL         2.5.70/KL         5/VP         5.5/L           Sensitivity         2.5.50/KL         2.5.70/KL         2.5.70/KL         5/VP           Sensitivity         2.5.50/KL         2.5.70/KL         2.5.70/KL         5/VP           Sensitivity         2.5.50/KL         2.5.70/KL         5/VP         5.5/L           Sensitivity         2.5.50/KL         2.5.70/KL         5/VP         5.5/L           Relation tool (minimum)         4.50/KL         1.105         1.05         1.05           Relation tool (minimum)         4.50/KL         1.015         1.016         1.016         1.016         1.016         1.016         1.01			Electrical condu	ctivity of liquids		
110_1272AGC 220_40/AC         110_1272AGC 220_40/AC         110_1272AGC 220_40/AC         110_1272AGC 220_40/AC           Operating voltage range         0         0.511 Ue: 5080Hz 55%         0.00000           Power consumption (maximum)         3.51A         2.40         2.50         4.50A           Power consumption (maximum)         3.51A         2.40         2.60         2.60         2.60           Power consumption (maximum)         3.51A         2.40         2.60         2.60         2.60           Power consumption (maximum)         3.51A         3         5         5         5           Power consumption (maximum)         3.51A         3         5         5         5           Power discipation (maximum)         2.50AC         2.50AC         2.50AC         2.50AC         5		0.0.00	04.040040400	0.1/000 0.101/0.0	0.000	
220.240VAC 380.415VAC         220.240VAC 380.415VAC         220.240VAC 380.415VAC           Operating voltage range         0.85.1.1 Ur; 50/60Hz 4.5%             Operating voltage range         0.85.1.1 Ur; 50/60Hz 4.5%             Operating voltage range         0.85.1.1 Ur; 50/60Hz 4.5%         4.5VA            OVER displated intervalue         3.5VA         3.5VA         4.5VA            OVER displated intervalue         3.5VA         3.9VA         2.8W         2.8W           OUTPUTS	Supply voltage Us		24240VAC/DC			
Operating voltage range         0.55.1.1 Lis 5.06012 ±5%         0.05.1.1 Lis 5.06012 ±5%           Power displation (maximum)         3.5%         3%         5.5%         4.5%           Derzer displation (maximum)         1.8W         1.2W         2.8W         2.8W           DUTP 15	-	220240VAC	-	110127/000410740	220240VAC	-
Prover consumption (maximum) 3.50% 30% 1.2W 2.50% 4.50% 4.50% 2.00 Prover dissipation (maximum) 1.8W 1.2W 2.8W 2.8W 2.8W 2.8W 2.8W 2.8W 2.8W 2		380415VAC			380415VAC	
Prover consumption (maximum) 3.50% 30% 1.2W 2.50% 4.50% 4.50% 2.00 Prover dissipation (maximum) 1.8W 1.2W 2.8W 2.8W 2.8W 2.8W 2.8W 2.8W 2.8W 2	Operating valtage range		0.05 1110			
Prover displation (maximum)         1.8W         1.2W         2.8W         2.8W         2.8W           OUTPUTS         0UTPUTS         0UTPUTS         5         0           Number of connectable inlectudes         3         3         5         0           Type of electrode and electrode indicers: SN1 / SCM / CGL / PS3 or milar         5         0           Electrode values         7.5VAC         SVPP         7.5VAC         SVPP           Sensitivity         2.5.50kQ         2.5.:00kQ         2.5.:00kQ         2.5.:00kQ         2.5.:00kQ           Sensitivity         3.500ms         4.15         1.6         1.6         1.6           Pase-tripping diaty         -         -         0FE.:10.6         110.6         110.6           Pase-tripping diaty         -         -         0FE.:10.6         110.6         110.6           Pase-tripping diaty         -         -         0FE.:10.6         110.6         110.6           Relax outation values         1         1         1         2         2000min         100.7           Relax outation values         1         1         1         2         2000min         100.7           Relax outation values         1 <td></td> <td>2 5\/A</td> <td>,</td> <td></td> <td>4.5\/A</td> <td></td>		2 5\/A	,		4.5\/A	
OUTPUTS         Immetra of connectable electrode         3         3         3         5           Number of connectable electrode         3         3         5         SVPP         7.5VAC         SVPP         7.5VAC         SVPP         SVPP         SVAC         SVAC         SVPP         SVAC         SVPP         SVAC         SVAC<						
Number of connectable electrode on electrode no loders: SNI / SOM / CGL / PS31 / PS35 or similar         5           Type of electrode no loders: SNI / SOM / CGL / PS31 / PS35 or similar         SVPP           Serisfivity         2.500k2         2.500k2         2.500k2         2.500k2           Serisfivity         2.500k3         2.500k2         2.500k3         2.500k3         2.500k3           The DE LXY         The DE LXY         1         1         1         1           Resting time (ininitum)		1.0W	1.2W	2.000	2.0W	
Type of decirode         Electrode and electrode holders: SM1 / SCM / CSL / PS31 / PS35 or similar         Image: SMP / SVM / S		3	3	3	5	
Electrodic voltage         7.5VAC         5VPP         7.5VAC         5VPP           Sensitivity         2.550k2         2.5700k2         2.5700k2         2.5700k2           Sensitivity         2.550k2         2.5700k2         2.5700k2         2.5700k2           Tripping firm (niminum)         =.500ms        115         1s         1s           Besting time (niminum)         =.750ms        15         1s         1s           Probe tripping delay           0.0FL.00s         110s           Relay antation delay           0.0FL.00s         030min           Relay state         1         1         2				-	-	
Sensitivity         2.550k2         2.5100k2         2.550k3         2.520k3           TIME DELAYS         Time (minimum)         a600ms        1s         1s         1s           Resetting time (minimum)         a750ms        1s         1s         1s        1s           Probe tripping delay           00FF10s         11os        1s           Rely encyping delay           00FF30s         030min        30min           Rely encyping delay           00FF30s         030min        30min           Rely encyping delay           00FF30s         130min        30min           Rely encyping delay           00FF30s         130min        30min           Rely encyping delay          1 changeover / SPDT and 1 changeover / SPDT and 1 with 1.w0SPST         1 changeover / SPDT and 1 with 1.w0SPST        30min           Red utilisation votage          250/AC         2 changeover / SPDT and 1 with 1.w0SPST						
TIME DELAYS         Import (initianum)         ac60ms         s1s         1s           Tripping fine (initinum)         ac60ms         s1s         1s         1s           Probe tripping delay           0FF.10s         110s           Ready anerging delay          0FF.30s         030min         0           Relay anerging delay          0FF.30s         030min         0           Relay anerging delay          0FF.30s         030min         0           Relay state         Normally de-energised, energises at tripping         0         1 changeover / SPDT and         1           Relay state         Normally de-energised, energises at tripping         1 changeover / SPDT and         1         1           Red utilisation voltage         250VAC         1 changeover / SPDT and         1	v					
Tripping time (minimum)         s600ms         s1s         1s         1s           Resetting time (minimum)         a.750ms         s.1s         1s         1s           Probe tripping delay           OFE10s         110s           Relay energising delay           OFE300s         030min           Relay atta time         1         1         1         2         2           Contact arrangement         1 changeover / SPDT         1 changeover / SPDT         2 changeover / SPDT         1 changeover / SPDT           Rated utilisation voltage         250V/4C         2         1 changeover / SPDT         1 changeover / SPDT           Rated utilisation voltage           B30         1 changeover / SPDT         2 changeover / SPDT           Inclustorins         1 green LED for power on 1 red LED for power on 1 red LED for power on 1 red LED for relay state         1 green LED indicator for power on 2 red LED is for probe state         2 red LED for prob		2.000822	2.3100832	2.050832	2.0200822	
Resetting time (minimum)         x750ms         x1s         1s         1s         1s           Probe tripping delay           OFF10s         110s        10s           Relay energising delay           OFF20s         03min        10s           Relay ording delay         1         1         1         2        10s        10s           Relay ording delay         1         1         1         2        10s        10s           Relay ording delay         1         1         1         2        10s        10s           Relay ording delay         1         1         1         2        10s        10s <td< td=""><td></td><td>&lt;600ms</td><td>&lt;15</td><td>15</td><td>1s</td><td></td></td<>		<600ms	<15	15	1s	
Probe tripping delay           OFF10s         110s           Relay energising delay           OFF30ds         030min         Relay energising delay         030min         Relay energising delay         030min         Relay energising delay         030min         Relay offer         030min         Relay faits         030min         Relay faits         030min         Relay faits         030min         Relay faits         1         1         1         2         Relay faits         030min         Relay faits         1         faits and faits faits         Contract anrangement         1 changeover / SPDT         2 changeover / SPDT and 1 with 1 MO - SPST         1         faits angeover / SPDT and 1 with 1 MO - SPST         Relay faits         Relay faits         Relay faits         Changeover / SPDT and 1 with 1 MO - SPST         Relay faits         Relay fai						
Relay energising delay          OFF300s         030min           RELAY OUTPUTS           OFF300s         030min           RELAY OUTPUTS         1         1         1         2           Relay state          2 changeover / SPDT         1 changeover / SPDT and 1 with 1 N/O - SPDT and 1 with 1 N/O - SPST         1 changeover / SPDT and 1 with 1 N/O - SPST           Rated utilisation voltage          200VAC             Waximum switching voltage               WuCSA and EC/EN 00947-5-1               UCSA and EC/EN 00947-5-1                Mechanical life                 Indications         1 green LED for power on 1 red LED for relay state         1 green LED indicator for power on 1 red LED for relay state           2 red LEDs for relay state            INSULATION          1 green LED for power on 1 red LED for relay state         1 green LED indicator for power on 1 red LED for relay state         2 red LEDs for relay state          2 red LEDs for r						
BELKY OUTPUTS       1       1       2         Number of relays       1       1       2       Relay state						
Number of relays         1         1         2           Relay state         Normally de-energised, energises at tripping         Ichangeover / SPDT and 1 with 1 M/O - SPST         Ichangeover / SPDT and 1 with 1 M/O - SPST           Rated utilisation voltage         250VAC         Ichangeover / SPDT and 1 with 1 M/O - SPST         Ichangeover / SPDT and 1 with 1 M/O - SPST           Maximum switching voltage         400VAC         SA         Ichangeover / SPDT         Ichangeover / SPDT           Maximum switching voltage         400VAC         SA         Ichangeover / SPDT         Ichangeover / SPDT           IEC conventional free air thermal current thi         8A         Ichangeover / SPDT         Ichangeover / SPDT           UL/CSA and IECEN 60947-5-1 designation         8A         Ichangeover / SPDT         Ichangeover / SPDT           Indication free air thermal current thi         10° request         B300         Ichangeover / SPDT           Indication free air thermal current thi         10° represe         Ichangeover / SPDT         Ichangeover / SPDT           NULCSA and IECEN 60947-5-1 designation         10° represe         Ichangeover / SPDT         Ichangeover / SPDT           UL/CSA and IECEN for power on 1 red LED for relay state         1 green LED indicator for power on 1 red LED for relay state         2 red LEDs for relay state         2 red LEDs for relay state           IEC ra				0110003	0001111	
Relay state       Normally de-energised. energises at tripping       1 changeover / SPDT       2 changeover / SPDT each       1 changeover / SPDT and         Rated utilisation voltage       2050VAC       1 with 1 N/O - SPST       2 changeover / SPDT each       1 with 1 N/O - SPST         Rated utilisation voltage       2050VAC       4000VAC       400VAC       400VAC         Else conventional free air thermal current the       8A       8A       400VAC       400VAC         UCSS and ECVE 60947-5-1       8300       2 red LEO 60947-5-1       2 red LEO for power on 10° cycles       400VAC       400V		1	1	1	2	
Contact arrangement         1 changeover / SPDT         1 changeover / SPDT ach 1 with 1 N/O - SPST           Rated utilisation voltage         250VAC         1 with 1 N/O - SPST           Maximum switching voltage         400VAC         1           IEC conventional free air thermal current tim         8A         1           UL/CSA and IE/CFN 60947-5-1 designation         8A         10 <sup>6</sup> cycles         1           Bechanical life Indications         1 green LED for power on 1 red LED for relay state         1 green LED indicator for power on 1 red LED for relay state         1 green LED indicator for power on 1 red LED for relay state         1 green LED indicator for power on 1 red LED for relay state         2 red LEDs for relay state         2 red LEDs for relay state         2 red LEDs for relay state         2 red LED for probe state         1 green LED indicator for power on 1 red LED for relay state         2 red LED for probe state         1 green LED indicator for power on 1 red LED for relay state         2 red LED for probe state         1 green LED indicator for power on 1 red LED for relay state         2 red LED for probe state         1 red LED for relay state         2 red LED for probe state         1 green LED indicator for power on 2 red LED for relay state         2 red LED for probe state         1 red LED for relay state         2 red LED for power on 2 red LED for power on 2 red LED for power on		· ·		L energises at tripping	_	
Rate utilisation voltage     1 with 1N/0 - SPST       Maximum switching voltage     250VAC       Maximum switching voltage     400VAC       LCC conventional free air thermal current th     8A       UCSA and EC/EN 60947-5-1     B300       designation     10 <sup>6</sup> cycles       Electrical life (with rated load)     10 <sup>6</sup> cycles       Indications     1 green LED for power on 1 red LED for relay state     1 green LED indicator for power on 1 red LED for relay state     1 green LED indicator for power on 1 red LED for relay state     1 green LED indicator for power on 1 red LED for relay state     1 green LED indicator for power on 1 red LED for relay state     1 green LED indicator for power on 1 red LED for relay state     2 red LEDs for relay state       INSULATION     EC rate insulation     415VAC     415VAC     415VAC       EC rate insulation     44V     2kV     4kV     6kV       voltage Uinp     6kV     240VAC     4kV     4kV       voltage Uinpulse winstand     6kV     240VAC     4kV     4kV       voltage Uinpulse winstand     6kV     240VAC     4kV     6kV       convertrons     =250VAC     >250VAC     250VAC       convertrons     =250VAC     <250VAC		1 changeover / SPDT			1 changeover / SPDT and	
Maximum switching voltage     400VAC       IEC conventional free air thermal current th     8A       UL/CSA and IEC/EN 60947-5-1 designation     B300       Electrical life (with rated load)     10 <sup>6</sup> cycles       Indications     1 green LED for power on 1 red LED for power on 1 red LED for preaves the LED for prea		<b>3</b>				
IEC conventional free air thermal current Ith       8A         UL/CSA and IEC/EN 00947-5-1 designation       B300         Betricial life (with rated load)       10° cycles         Mechanical life (with rated load)       10° cycles         Indications       1 green LED for power on 1 red LED for power on 1 red LED for relay state       1 green LED indicator for power on 2 red LEDs for probe state         INSULATION       1 green LED for value state       1 green LED indicator for power on 2 red LEDs for probe state         IEC rated insulation       415VAC       240VAC       415VAC       415VAC         Valtage llimp       6kV       4kV       6kV       6kV       6kV       0         EC power frequency withstand voltage llimp       6kV       250VAC       ≤250VAC       ≤250VAC       ≤250VAC       ≤250VAC       s250VAC       s250VA						
current lthImage: curr						
$\begin{array}{ c c c c c } designation & & & & & & & & & & & & & & & & & & &$			8	A		
Mechanical life         30x10° cycles           Indications         1 green LED for power on 1 red LED for relay state         1 green LED indicator for power on 1 red LED for relay state         1 green LED indicator for power on 1 red LED for relay state         2 red LEDs for relay state 2 red LEDs for pray state         0           INSULATION         Ited LED for relay state         1 red LED for relay state         2 red LEDs for pray state 2 red LEDs for probe state         2           IEC rated insulation         415VAC         240VAC         415VAC         415VAC           Voltage Uin         6kV         4kV         6kV         6kV           IEC rated inpulse withstand voltage Uinnp         6kV         240VAC         4kV         6kV           Double insulation supply/relay/electrode         ≤250VAC         ≤250VAC         ≤250VAC         ≤250VAC           CONNECTIONS           0.2-4mm² (24-12AWG; 18-12 AWG per UL/CSA)            Conductor section min-max         0.2-4mm² (24-12AWG; 18-12 AWG per UL/CSA)             AMBIENT CONDITIONS               Operating temperature         -20+60 °C              HOUSING <t< td=""><td></td><td></td><td>B3</td><td>00</td><td></td><td></td></t<>			B3	00		
Indications       1 green LED for power on 1 red LED for relay state       1 green LED indicator for power on 1 red LED for relay state       green LED indicator for power on 1 red LED for relay state       green LED indicator for power on 2 red LEDs for relay state         INSULATION       ISCUMPTION       ISCUMPTION       415VAC       415VAC       415VAC       415VAC       2 red LEDs for probes state       2 red LEDs for relay state       2 red LEDs for relay state       2 red LEDs for power on 2 red LEDs for probes state       2 red LEDs for power on 2 red LEDs for relay state       2 red LEDs for power on 2 red LED for felay state         IEC rated insulation Voltage Uimp       4 KV       2 40VAC       4 KV       2 5 0VAC	Electrical life (with rated load)		10 <sup>5</sup> c	ycles		
1 red LED for relay state1 red LED for relay state1 red LED for relay state2 red LEDs for relay state 2 red LEDs for relay stateINSULATIONIEC rated insulation415VAC240VAC415VAC415VACvoltage Ui6kV4kV6kV6kVIEC rated insulation6kV2kV4kV6kVvoltage Uinge6kV2kV4kV6kVDouble winstand6kV2kV4kV6kVvoltage Uinge3250VAC3250VAC3250VAC3250VACDouble insulation3250VAC3250VAC3250VAC3250VACSupply/relay/electrode0.2-4mm² (24-12AWG; 18-12 AWG per UL/CSA)6kV6kVConductor section min-max0.2-4mm² (24-12AWG; 18-12 AWG per UL/CSA)6kV6kVAMBIENT CONDITIONS-0.2+60 °C-0+60 °C5torage temperature-0+80 °CHOUSING-0.2+80 °C-0+80 °C-0+80 °C-0+80 °CHOUSING-0.2+80 °C-0+80 °C-0+80 °C-0+80 °CHOUSING-0.2+80 °C-0+80 °C-0+80 °C-0+80 °CMaterial0.2+80 °C-0+80 °C-0+80 °C-0+80 °CHOUSING-0.2+80 °C-0+80 °C-0+80 °C-0+80 °CHOUSING-0.2+80 °C-0+80 °C-0+80 °C-0+80 °CHOUSING-0.2+80 °C-0+80 °C-0+80 °C-0+80 °CMaterial-0+80 °C-0+80 °C-0+80 °C-0+80 °C <td< td=""><td>Mechanical life</td><td></td><td>30x10<sup>6</sup></td><td>cycles</td><td></td><td></td></td<>	Mechanical life		30x10 <sup>6</sup>	cycles		
IEC rated insulation voltage Ui415VAC240VAC415VAC415VACIEC rated impulse wihstand voltage Uimp6kV4kV6kV6kV6kVIEC power frequency withstand voltage4kV2kV4kV4kV4kVDouble insulation Supply/relay/electrode≤250VAC≤250VAC≤250VAC≤250VACCONNECTIONS0.8Nm (7lbin; 7-9lbin er UL/CSA)Conductor section min-max0.2-4mm² (24-12AWG; 18-12 AWG per UL/CSA)Operating temperature-20+60 °CStorage temperature-30+80 °CHOUSINGSelf-extinguishing polyamideTypical configuration (examples)LVM20 + n° 3 SN1 electrodes LVM30 + n° 3 SN1 electrodesLVM25 + n° 3 SN1 electrodes	Indications		1 green LED for power on 1 red LED for relay state	1 green LED indicator for power on 1 red LED for relay state	2 red LEDs for relay state	
voltage UiotherwiseotherwiseotherwiseIEC rated impulse winstand voltage Uimp $6kV$ $4kV$ $6kV$ $6kV$ IEC power frequency withstand voltage $4kV$ $2kV$ $4kV$ $4kV$ Double insulation supply/relay/electrode $\leq 250VAC$ $\leq 250VAC$ $\leq 250VAC$ Double insulation supply/relay/electrode $\leq 250VAC$ $\leq 250VAC$ $\leq 250VAC$ CONNECTIONS $\leq 250VAC$ $\leq 250VAC$ $\leq 250VAC$ $\leq 250VAC$ Conductor section min-max $0.2-4mm^2(24-12AWG; 18-12 AWG per UL/CSA)$ $0.2-4mm^2(24-12AWG; 18-12 AWG per UL/CSA)$ AMBIENT CONDITIONS $-20+60$ °C $-20+60$ °COperating temperature $-20+60$ °C $-20+60$ °CHOUSING $VU20 + n^{\circ} 3 SN1$ electrodes $VV25 + n^{\circ} 3 SN1$ electrodesTypical configuration $LVM20 + n^{\circ} 3 SN1$ electrodes $LVM25 + n^{\circ} 3 SN1$ electrodes						
voltage UimpImage: Constraint of the second sec	voltage Ui					
voltageImage: Self-extinguishing polyamideVoltageSelf-extinguishing polyamideVoltageSelf-extinguishing polyamideVoltageSelf-extinguishing polyamide	voltage Uimp					
Supply/relay/electrodeImage: constraint of the section o		4kV	2kV	4kV	4kV	
CONNECTIONS         Tightening torque maximum       0.8Nm (7lbin; 7-9lbin er UL/CSA)         Conductor section min-max       0.2-4mm² (24-12AWG; 18-12 AWG per UL/CSA)         AMBIENT CONDITIONS         Operating temperature       -20+60 °C         Storage temperature       -30+80 °C         HOUSING       Vertical configuration         Material       Self-extinguishing polyamide         Typical configuration       LVM20 + n° 3 SN1 electrodes         LVM30 + n° 3 SN1 electrodes       LVM40 + n° 5 SN1 electrodes		≤250VAC	≤250VAC <b>●</b>	≤250VAC	≤250VAC	
Conductor section min-max       0.2-4mm² (24-12AWG; 18-12 AWG per UL/CSA)         AMBIENT CONDITIONS         Operating temperature       -20+60 °C         Storage temperature       -30+80 °C         HOUSING         Material       Self-extinguishing polyamide         Typical configuration (examples)       LVM20 + n° 3 SN1 electrodes LVM30 + n° 5 SN1 electrodes						
Conductor section min-max       0.2-4mm² (24-12AWG; 18-12 AWG per UL/CSA)         AMBIENT CONDITIONS         Operating temperature       -20+60 °C         Storage temperature       -30+80 °C         HOUSING         Material       Self-extinguishing polyamide         Typical configuration (examples)       LVM20 + n° 3 SN1 electrodes LVM30 + n° 5 SN1 electrodes	Tightening torque maximum		0.8Nm (7lbin; 7-	9lbin er UL/CSA)		
Operating temperature       -20+60 °C         Storage temperature       -30+80 °C         HOUSING       Self-extinguishing polyamide         Material       Self-extinguishing polyamide         Typical configuration (examples)       LVM20 + n° 3 SN1 electrodes LVM30 + n° 3 SN1 electrodes				,		
Storage temperature     -30+80 °C       HOUSING       Material       Self-extinguishing polyamide       Typical configuration (examples)       LVM20 + n° 3 SN1 electrodes LVM30 + n° 3 SN1 electrodes       LVM20 + n° 3 SN1 electrodes	AMBIENT CONDITIONS		· · ·			
HOUSING       Self-extinguishing polyamide         Material       Self-extinguishing polyamide         Typical configuration (examples)       LVM20 + n° 3 SN1 electrodes LVM30 + n° 3 SN1 electrodes         LVM20 + n° 3 SN1 electrodes       LVM25 + n° 3 SN1 electrodes	Operating temperature		-20	⊦60 °C		
HOUSING       Self-extinguishing polyamide         Material       Self-extinguishing polyamide         Typical configuration (examples)       LVM20 + n° 3 SN1 electrodes LVM30 + n° 3 SN1 electrodes         LVM20 + n° 3 SN1 electrodes       LVM25 + n° 3 SN1 electrodes			-30	+80 °C		
Typical configuration (examples)         LVM20 + n° 3 SN1 electrodes LVM30 + n° 3 SN1 electrodes         LVM25 + n° 3 SN1 electrodes	HOUSING					
Typical configuration (examples)         LVM20 + n° 3 SN1 electrodes LVM30 + n° 3 SN1 electrodes         LVM25 + n° 3 SN1 electrodes	Material		Self-extinguish	ning polyamide		
			LVM20 + n° 3 SN1 electrodes	LVM25 + n° 3 SN1 electrodes		
Maximum cable length 📀	<u> </u>					
	Maximum cable length			3		

Double insulaton between supply, electrodes and output relay circuit.
 Voltage applied to input contacts, not insulated at power supply.
 Consult Customer Service; see contact details on inside front cover.

# Level controls Technical characteristics



LV1E	LV2E	LVMP 05	LVMP 10	CSP2E
 DI.	a in	Madular	Madular	Diug in
	g-in	Modular 	Modular	Plug-in
 Automatic resetting	Automatic resetting	 Multistage		
Single voltage	L		Single voltage	Single voltage
– Maintains level between – Protection agains	mum level threshold n minimum and maximum st dry pump running		Priority change relay for motors	
Electrical condu	ictivity of liquids			
			1	
24VAC	24/48VAC	2448VDC	24VAC	24VAC@
 110120VAC	110120VAC/220240VAC	24240VAC	110127VAC	110VAC@
220240VAC 380415VAC	220240VAC/380415VAC		220240VAC 380415VAC	230/240VAC@
3004137A0			3004137A0	
		0.81.1 Ue 50/60Hz		
5.	5VA	1.6VA	4.8VA	5VA
Ζ.	BW	0.9W	3W	3W
	-			
	3			
 	/ SCM / CGL / PS31 / PS3S / or similar			-
 9VAC (voltage l	petween probes)			
 78 k	Ω fixed	_		_
 1			1	
<5	Oms			
	0ms	_		
	_			
	_			
				0
	1	2	2	2
		ally de-energised, energises at trip		1
1 changeover	contact / SPDT	1 N/O - SPST	1 N/O - SPST	1 N/O - SPST
		250VAC		
	220VAC		250VAC	250VAC
	VAC			
Ę	5A	8A	8A	5A
B	300	B300	B300	B300
0.5.10	5 eveloe	105 avalas	105 avalas	105 avalas
	<sup>5</sup> cycles	10 <sup>5</sup> cycles	10 <sup>5</sup> cycles	10 <sup>5</sup> cycles
	<sup>3</sup> cycles	30x10 <sup>6</sup> cycles	30x10 <sup>6</sup> cycles	30x10 <sup>6</sup> cycles
1 red	LED for	1 green LED for power on 1 red LED for relay state	1 green LED for power on	1 green LED for power on 1 red LED for relay state
relay t	ripping	1 red LED for relay state	1 red LED for relay state	1 red LED for relay state
 A4r	VAC	250VAC	415VAC	250VAC
410	WAU .	ZUUVAU	413VAU	ZOUVAU
5	kV	4kV	4kV	4kV
0	I. V	-1 L V	V NF	-1r.V
2	kV	2kV	2.5kV	2.5kV
		—		
	_	0.8Nm (7lbin; 7-	9lbin er III /CSA)	
		0.2-4.0mm² (24-12AWG;		
		0.2 T.011111 (24-12AWG,		
		00 .0000		
		-20+60°C		
		-30+80°C		
				1 -
	ng polycarbonate	Self-extinguishing polyamide	Self-extinguishing polyamide	Self-extinguishing polycarbon
LV1E + n° 3		—		
LV2E + n° 2 SN1 elec	SN1 electrode strodes + reset button e, double insulated cables		_	_

# **X-ON Electronics**

Largest Supplier of Electrical and Electronic Components

Click to view similar products for General Purpose Relays category:

Click to view products by Lovato manufacturer:

Other Similar products are found below :

 APF30318
 JVN1AF-4.5V-F
 PCN-105D3MHZ
 5JO-10000S-SIL
 5JO-1000CD-SIL
 5JO-400CD-SIL
 LY2S-AC220/240
 LYQ20DC12

 6031007G
 6131406HQ
 6-1393099-3
 6-1393099-8
 6-1393122-4
 6-1393123-2
 6-1393767-1
 6-1393843-7
 6-1415012-1
 6-1419102-2
 6 

 1423698-4
 6-1608051-6
 6-1608067-0
 6-1616170-6
 6-1616248-2
 6-1616348-2
 6-1616350-1
 6-1616350-8
 6-1616358-7
 6 

 1616359-9
 6-1616360-9
 6-1616931-6
 6-1617039-1
 6-1617052-1
 6-1617090-2
 6-1617347-5
 6-1617353-3
 6-1617801-8
 6 

 1617802-2
 6-1618107-9
 6-1618248-4
 M83536/1-027M
 CX-4014
 MAHC-5494
 MAVCD-5419-6
 703XCX-120A
 7-1393100-5
 7-1393111-7

 7-1393144-5
 7-1393767-8