



Main

Range of product	Zelio Control
Product or component type	Industrial measurement and control relays
Relay type	Liquid level control relay
Relay name	RM4-L
Relay monitored parameters	Detection by resistive probes
Time delay type	Adjustable 0.1...10 s
Power consumption in VA	2.7 VA AC
Contacts type and composition	2 C/O

Complementary

Maximum switching voltage	440 V AC
[Us] rated supply voltage	24...240 V DC 24...240 V AC 50/60 Hz +/- 5 %
Control circuit voltage limits	0.85...1.1 Uc
Power consumption in W	2.4 W DC
Output contacts	2 C/O
Maximum electrode voltage	24 V AC
Maximum electrode current	1 mA
Maximum cable capacity	0 mF
Cable distance between devices	1000 m
Sensitivity scale	0.25...5 kOhm LS (Low Sensitivity) 2.5...50 kOhm St (Standard Sensitivity) 25...500 kOhm HS (High Sensitivity)
Marking	CE : EMC 89/336/EEC CE : LVD 73/23/EEC
Overvoltage category	III conforming to IEC 60664-1
[Ui] rated insulation voltage	500 V conforming to IEC
Supply disconnection value	> 0.1 Uc
Operating position	Any position without derating
Connections - terminals	Screw terminals 2 x 1.5 mm ² , flexible cable with cable end Screw terminals 2 x 2.5 mm ² , flexible cable without cable end
Tightening torque	0.6...1.1 N.m
Mechanical durability	30000000 cycles

[Ith] conventional free air thermal current	8 A
[Ie] rated operational current	2 A at 24 V DC-13 70 °C conforming to IEC 60947-5-1/1991 2 A at 24 V DC-13 70 °C conforming to VDE 0660 3 A at 115 V AC-15 70 °C conforming to IEC 60947-5-1/1991 3 A at 115 V AC-15 70 °C conforming to VDE 0660 3 A at 24 V AC-15 70 °C conforming to IEC 60947-5-1/1991 3 A at 24 V AC-15 70 °C conforming to VDE 0660 3 A at 250 V AC-15 70 °C conforming to IEC 60947-5-1/1991 3 A at 250 V AC-15 70 °C conforming to VDE 0660 0.1 A at 250 V DC-13 70 °C conforming to IEC 60947-5-1/1991 0.1 A at 250 V DC-13 70 °C conforming to VDE 0660 0.3 A at 115 V DC-13 70 °C conforming to IEC 60947-5-1/1991 0.3 A at 115 V DC-13 70 °C conforming to VDE 0660
Switching capacity in mA	10 mA at 12 V
Switching voltage	250 V AC
Contacts material	90/10 silver nickel contacts
Number of cables	2
Width	22.5 mm
Terminals description ISO n°1	(15-16-18)OC (25-26-28)OC (A1-A2)CO (B1-B2-B3)CO
Output relay state	According to chosen function
9 mm pitches	2.5
Product weight	0.165 kg

Environment

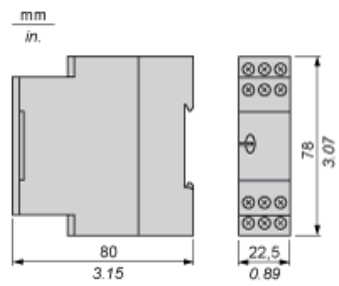
Electromagnetic compatibility	Electrostatic discharge - test level 6 kV, level 3 - contact discharge conforming to IEC 61000-4-2 Electrostatic discharge - test level 8 kV, level 3 - air discharge conforming to IEC 61000-4-2
Standards	EN/IEC 60255-6
Product certifications	CSA GL UL
Ambient air temperature for storage	-40...85 °C
Ambient air temperature for operation	-20...65 °C
Relative humidity	15...85 % 3K3 conforming to IEC 60721-3-3
Vibration resistance	0.35 ms (f = 10...55 Hz) conforming to IEC 60068-2-6
Shock resistance	15 gn for 11 ms conforming to IEC 60068-2-27
Pollution degree	3 conforming to IEC 60664-1
Dielectric test voltage	2.5 kV
Resistance to electrostatic discharge	6 kV contact conforming to IEC 61000-4-2 level 3 8 kV air conforming to IEC 61000-4-2 level 3
Resistance to electromagnetic fields	10 V/m conforming to IEC 61000-4-3 level 3
Resistance to fast transients	2 kV conforming to IEC 61000-4-4 level 3
Protection against electric shocks	2 kV : level 3 conforming to IEC 61000-4-5
Disturbance radiated/conducted	CISPR 11 group 1 - class A CISPR 22 - class A

Contractual warranty

Warranty period	18 months
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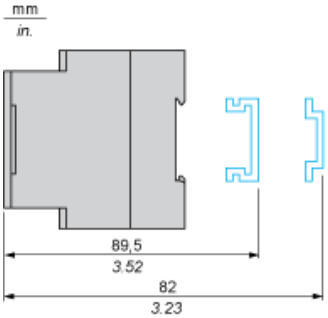
Liquid Level Control Relays

Dimensions

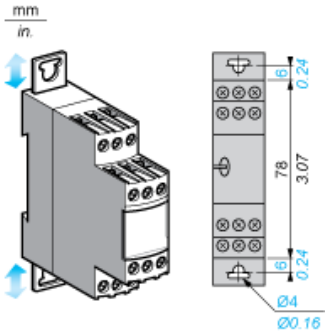


Liquid Level Control Relays

Rail mounting

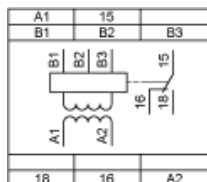


Screw fixing



Liquid Level Control Relays

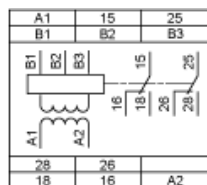
RM4LG01 Wiring Diagram



A1-A2, B1-B2, B3 Voltage Electrodes (see table below)
15-18, 15-16 C/O contact of the output relay

Electrodes and level controlled	
B1	Reference or tank earth electrode
B2	High level
B3	Low level

RM4LA32 Wiring Diagram

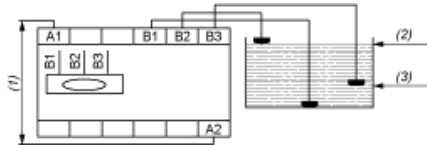


A1-A2, B1-B2, B3 Voltage Electrodes (see table below)
15-18, 15-16 C/O contact of the output relay
25-28, 25-26 C/O contact of the output relay

Electrodes and level controlled	
B1	Reference or tank earth electrode
B2	High level
B3	Low level

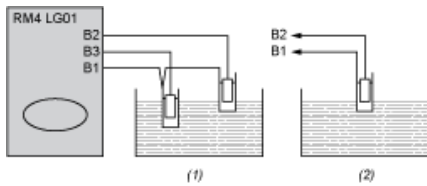
Connection Examples

Control by Electrodes



- (1) Supply voltage
- (2) High level
- (3) Low level

Control by Probes

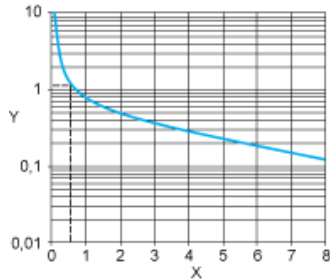


- (1) 2 levels
- (2) 1 level

Electrical Durability and Load Limit Curves

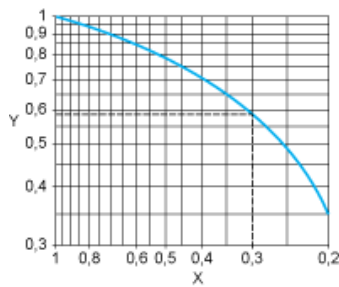
AC Load

Curve 1: Electrical durability of contacts on resistive load in millions of operating cycles



X Current broken in A
Y Millions of operating cycles

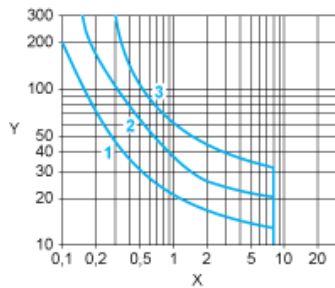
Curve 2: Reduction factor k for inductive loads (applies to values taken from durability Curve 1)



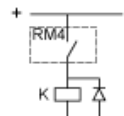
X Power factor on breaking ($\cos \varphi$)
Y Reduction factor K

DC Load

Load limit curve



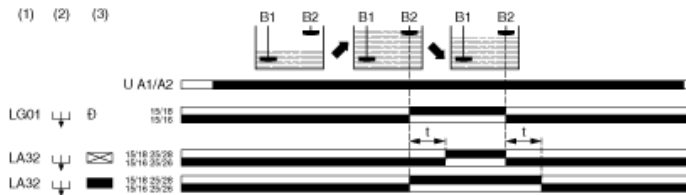
X Current in A
Y Voltage in V
1 L/R = 20 ms
2 L/R with load protection diode
3 Resistive load



Function Diagrams

Empty Function

Maximum level detection (2 electrodes or 1 probe LA9RM201)



Legend

U A1/A2 Supply voltage
 B1 Reference electrode
 B2 High/low level electrode

(1) Type RM4

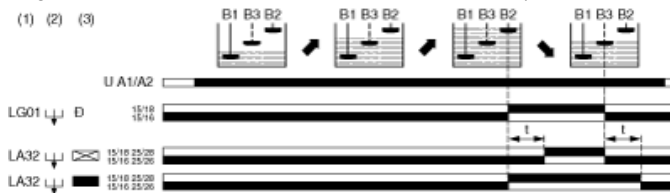
(2) Function switch

(3) Time delay switch

15/16, 15/18; 25/26, 25/28 Output relays connections

Relay status: black color = energized.

Regulation between a maximum and a minimum level (3 electrodes or 2 probes LA9RM201)



Legend

U A1/A2 Supply voltage
 B1 Reference electrode
 B2 High level electrode
 B3 Low level electrode

(1) Type RM4

(2) Function switch

(3) Time delay switch

15/16, 15/18; 25/26, 25/28 Output relays connections

Relay status: black color = energized.

Fill Function

Maximum level detection (2 electrodes or 1 probe LA9RM201)



Legend

U A1/A2 Supply voltage

B1 Reference electrode

B2 High/low level electrode

(1) Type RM4

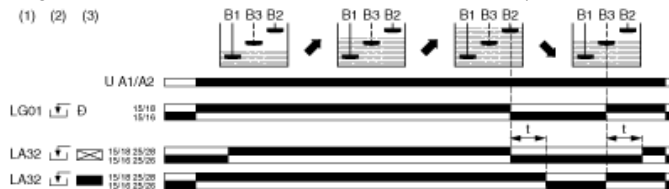
(2) Function switch

(3) Time delay switch

15/16, 15/18; 25/26, 25/28 Output relays connections

Relay status: black color = energized.

Regulation between a maximum and a minimum level (3 electrodes or 2 probes LA9RM201)



Legend

U A1/A2 Supply voltage

B1 Reference electrode

B2 High level electrode

B3 Low level electrode

(1) Type RM4

(2) Function switch

(3) Time delay switch

15/16, 15/18; 25/26, 25/28 Output relays connections

Relay status: black color = energized.

NOTE: On RM4LA32, a time delay can be set on energization or de-energization of the output relay.