C-mac® Level relays RL10, RL11 and RL12

RL10: Universal relay for filling or emptying
RL11: Level relay for emptying
RL12: Level relay for filling
1 or 2 sensor levels
Adjustable sensitivity
1- or 2-pole relay output
DC supply (RL10 only) or AC supply up to 230 VAC
Made in accordance with the CE and EMC regulations

C-mac® level relays, series RL, are made for monitoring and control of the level in conductive liquids. The level is monitored by 1 or 2 electrodes in the liquid.

RL10 is supplied with internal oscillator for the signal to the electrodes, which means the module can be used for both AC and DC supply, and furthermore it is possible to adjust the unit to a very high sensitivity, which means it can be used for very clean liquids, i.e. liquids with low conductivity.

RL11 and RL12 use the frequency of the supply voltage to generate the signal for the electrodes, therefore these units are only available for AC supply, and the sensitivity is not so high as the RL10.
RL11 and RL12 are available with either adjustable or fixed sensitivity.

Common technical data:

Supply, AC: 24, 115 and 230 VAC +/- 10%
Supply frequency: 40-70 Hz
Variable supply: 12-50 or 48-250 VDC (RL10 only)
Isolation voltage: Supply - input - output: 3.75 kV
Supply voltage, DC: 24 VDC +/- 10% (RL10 only)
Note: With this DC-supply there is no isolation between supply and internal electronics.
Optional: 12-50 VDC with internal DC/DC converter and galvanic isolation between supply and internal circuits.
Power consumption: 2,5 VA
Operation temp.: -20°C to +60°C
Humidity: 0 - 90% RH, non-condensing
Sensor signal:
RL10: 8 VAC / 70 Hz, max 1 mA
RL11 and RL12: 8 VAC, max 1 mA
Sensor cable: Standard 2- or 3-wire cable max. 100 m.
Adjustments: Potentiometer, scale 1 to 10 (RL11F and RL12F: no adjustment)
Indications:
Green LED: Supply voltage connected
Red LED: Relay active

Sensitivity:

module type	function	potentio-meter	relay activates	relay releases
RL10	filling	min.	> 18 kΩ	< 9 kΩ
		max.	> 100 kΩ	< 66 kΩ
	emptying	min.	< 9 kΩ	> 18 kΩ
		max.	< 66 kΩ	> 100 kΩ
RL11	emptying	min.	< 3,5 kΩ	> 8 kΩ
		max.	< 25 kΩ	> 45 kΩ
RL11F	emptying	-	< 25 kΩ	> 35 kΩ
RL12	filling	min.	> 8 kΩ	< 3,5 kΩ
		max.	> 45 kΩ	< 25 kΩ
RL12F	filling	-	> 35 kΩ	< 25 kΩ

RL10 is a universal relay, with a 3-bit dipswitch in the buttom of the relay, where you can select the function:
Filling: switch 1 ON switch 2 OFF switch 3 ON
Emptying: switch 1 OFF switch 2 ON switch 3 OFF

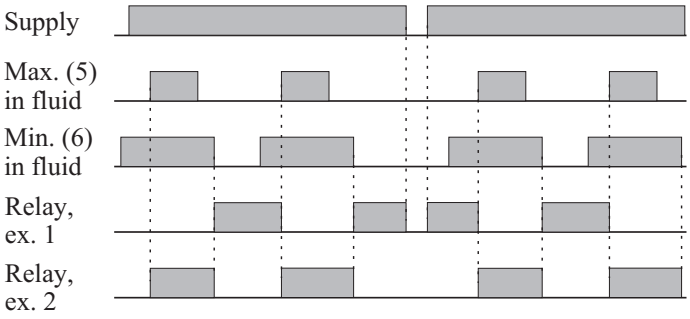
Max. load, relay: 1-pole: 8 A - 250 VAC
2-pole: 5 A - 250 VAC, ohmic load

EMC and safety regulations.

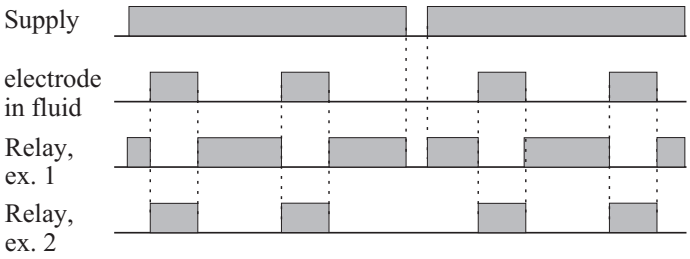
Emmision: EN 50 081 - 1
Immunity: EN 50 082 - 2
Safety: EN 60 730

Approvals: The units are produced in accordance with the CE og low voltage regulations.

Functional diagram 1: 2 electrodes



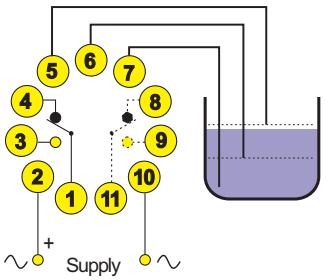
Functional diagram 2: 1 electrode



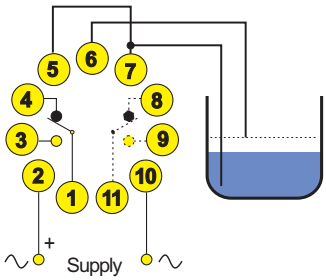
Example 1: Filling
RL12 or RL10, selector switch in

Example 2: Emptying
RL11 or RL10, selector switch out

Connections:



Example 1: 2 electrodes
(max. and min. level)



Example 2: 1 electrode
(ON/OFF control)

Connections 8-9-11:
2-pole version only

Ordering guide:

RL10-x-y-zzz

x = relay output
1 = 1-pole
2 = 2-pole

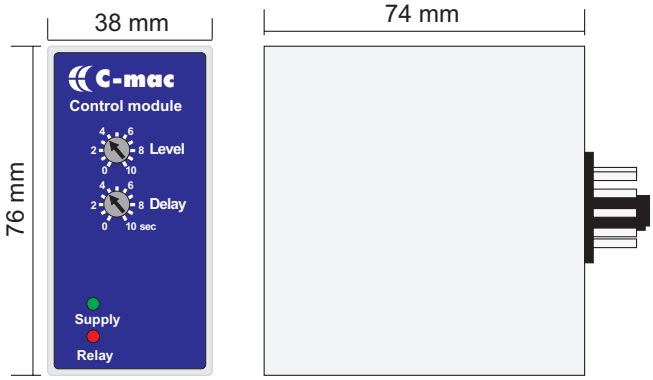
y-zzz = supply voltage:

0-024:	24 VDC	RL10 only
4-012:	12-50 VDC	RL10 only
1-024:	24 VAC	
1-115:	115 VAC	
1-230:	230 VAC	

Ordering example: RL10-2-1-230

The examples are shown for RL10, but the same principle is used for RL11(F) and RL12(F).

Mechanical dimensions:



Materials and weight:

Housing:	NORYL-SE-1, grey, self-extinguishing
Housing bottom:	NORYL SE-1, GFN-2, black, self-extinguishing
Terminals:	Nickel-plated brass
Weight:	190 g

Comadan Produktion a/s