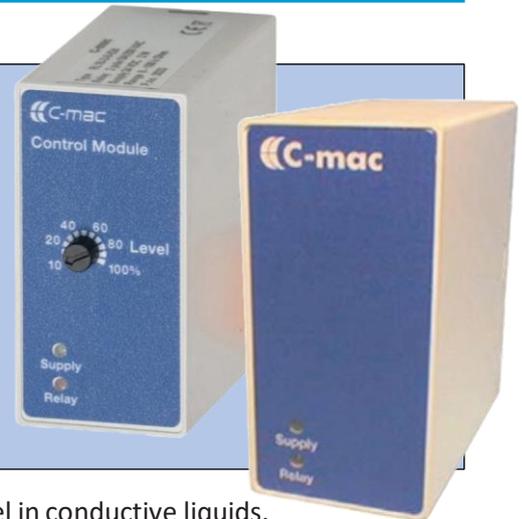


- RL10: Universal relay for filling or emptying**
- RL11: Level relay for emptying**
- RL12: Level relay for filling**
- 1 eller 2 sensor levels**
- Adjustable sensitivity**
- 1 – or 2 relay output**
- DC supply (RL10 only) or AC supply up to 230 VAC**



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.

Technical data	
Supply, AC:	24, 120 and 230 VAC +/- 10%
Supply frequency:	40-70 Hz
Variable supply:	12-60 VDC or 85-260 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
Optinal:	12 – 60 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% relative non-condensing
Sensor signal:	RL10: 8 VAC / 70Hz, max 1 mA RL11: 8 VAC, max 1 mA RL12: 8 VAC, max 1 mA
Sensor cable:	Standard 2- or 3-wire cable Max. 100 m.
Adjustments:	Potentiometer, scala 1 to 10 (RL11F and RL12F: no adjustment)
Indications:	Green LED: Supply voltage connected Red LED: Relay active
Maks. Max. load, relay:	1-pole: 8 A-250 VAC 2-pole: 5 A-250 VAC Ohmic load

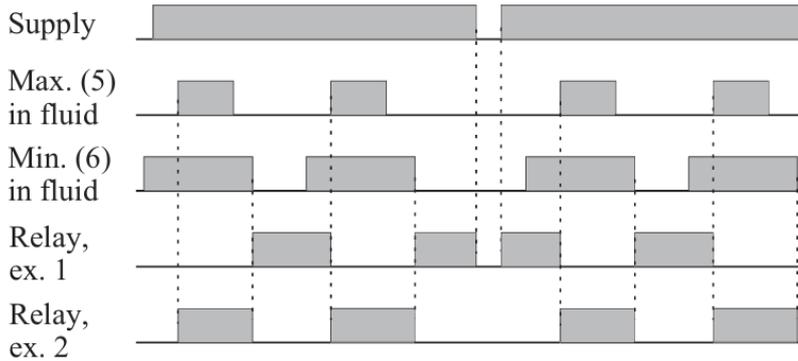
Sensitivity:

Module type	Function	Potentiometer	Relæ trækker	Relæ slipper
RL10	Filling	Min.	> 18 kΩ	< 9 kΩ
		Max.	> 100 kΩ	< 66 kΩ
	Emptying	Min.	< 9 kΩ	> 18 kΩ
		Max.	< 66 kΩ	> 100 kΩ
RL11	filling	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
			> 45 kΩ	< 25 kΩ
RL12F	Filling	-	> 35 kΩ	< 25 kΩ

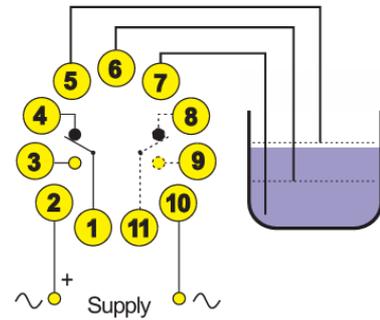
RL10 is a universal relay, with a 3-bit dipswitch in the bottom of the relay, where you can select the function:

	Switch 1	Switch 2	Switch 3
Filling	ON	OFF	ON
Emptying	OFF	ON	OFF

Functional diagram 1: 2 electrodes

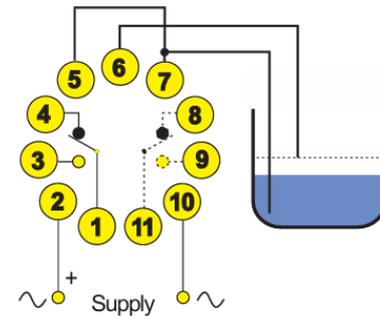
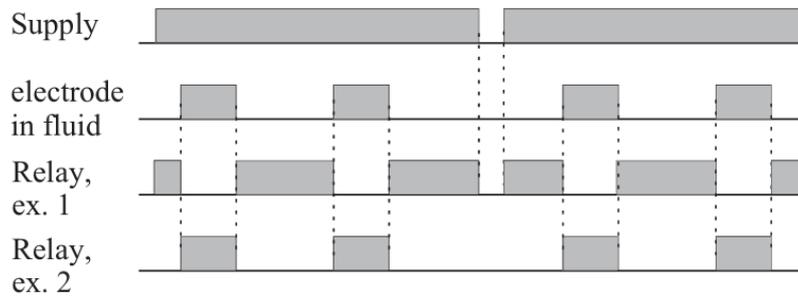


Connections



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

Functional diagram 2: 1 electrode



Example 2: 1 electrode (ON/OFF control)

Example 1: Filling

RL12 or RL10, see page 1 for function

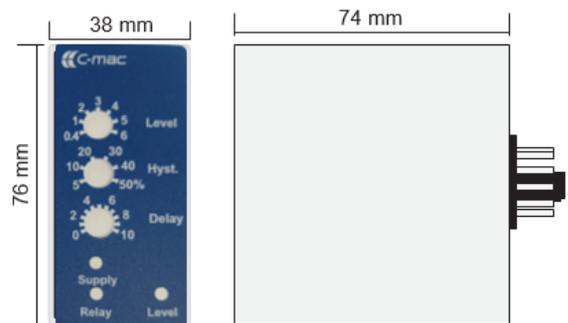
Example 2: Emptying

RL11 or RL10, see page 1 for function

Ordering guide:

Type	Relay	Supply voltage
RL10	1 = 1 pole	0-024 = 24 VDC (RL10 only)
RL11	2 = 2 pole	4-012 = 12 - 60 VDC (RL10 only)
RL11F		4-100 = 85 - 260 VAC/DC (RL10 only)
RL12		1-024 = 24 VAC
RL12R		1-120 = 120 VAC
		1-230 = 230VAC
		1-100 = 85 - 260 VAC/DC
Eksempel:	RL10-2-1-230	

Mechanical dimensions:



EMC and safety regulations

Emmision: EN50081-1
 Immunity: EN50082-2
 Safety: EN60730



Materials and weight:

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