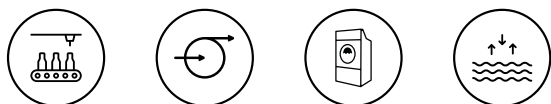


SELECTION GUIDE

72 SERIES LEVEL CONTROL RELAYS FOR CONDUCTIVE LIQUIDS

Level control relays and float switches with emptying or filling functions for conductive liquids and the beverage sector



ABOUT US



Finder was founded in Italy in 1954. Since then it has been designing and manufacturing a wide range of electromechanical and electronic components for both the residential and industrial sectors.

Today, thanks to its global vision, Finder now distributes its products around the world through a network of 29 company-owned subsidiaries and more than 80 trade partnerships.

Finder is an international family made up of more than 2000 individuals, all united by the same values and passion for our products.



14,000+ different products to satisfy a myriad of applications. From products at the heart of automation to the control of machines, power, time, temperature, liquid level and light

OUR PRODUCTS CARRY MORE CERTIFICATIONS THAN ANY OTHER RELAY MANUFACTURER



FINDER IS AN ITALIAN BRAND WITH A WORLDWIDE PRESENCE

4 PRODUCTION PLANTS IN EUROPE

29 SUBSIDIARIES

80+ OFFICIAL DISTRIBUTORS



ENVIRONMENTAL, SOCIAL AND GOVERNANCE (ESG)

Finder considers social and environmental sustainability as fundamental principles of doing business, just as it believes that business growth must develop in synergy with a conscious vision of the future.

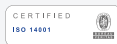
That is why Finder is committed to reducing and eliminating CO2 emissions, focusing on circularity, caring for its employees to foster a safe, fair and inclusive work environment, spreading a culture of integrity and transparency, and collaborating with stakeholders who share its values.



ISO 9001:2015
Quality management system



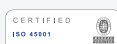
IECEx
Equipment for Use in Explosive Atmospheres



ISO 14001:2015
Environmental management system



ISO 27001-27701
Information Security and Privacy Management System



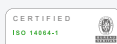
ISO 45001:2018
Health and safety management system



ISO 50001:2018
Energy management system

AUTONOMY AND INDEPENDENCE

Finder's managerial, financial and technological autonomy allows optimal control over all its business processes, the results of which include simplified customs procedures and a high reliability of commercial relations.



ISO 14064-1:2019
Carbon Footprint verification



AEOF
Simplified customs and enhanced supply chain security



FSC
Forest Stewardship Council



Cribis Prime Company
Recognition of highest reliability of commercial relations

APPLICATIONS EVERYWHERE

72 SERIES



Residential and commercial sectors

- Level control for pools, fountains and aquariums
- Flood control for laundries and utility rooms
- Submerged pump control



Food

- Condensation control for refrigerated cabinets
- Level control for the beverage sector
- Level control of drinking water tanks



Agriculture

- Level control for irrigation channels and systems
- Level control for water tanks, reservoirs or underground wells
- Level control for sewage tanks or mixing plants



Water treatment and distribution

- Control of filling and emptying of tanks
- Control of emptying and filling functions for treated drinking water
- Level control for sewage treatment plants
- Controlling the supply of hot water heated by solar energy

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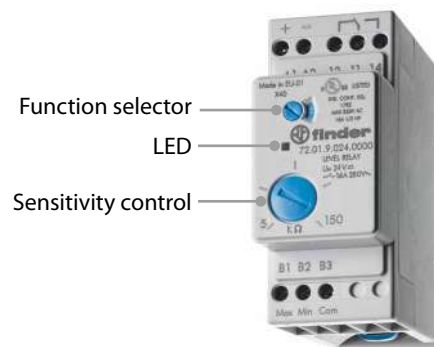
Level control relays for conductive liquids

Types 72.01 and 72.11

Suitable for the level control of conductive liquids.

2 electrodes for control about a single level, or 3 electrodes for control between minimum and maximum limits.

- Emptying or filling functions
- Control about a single level or between Min./Max. limits
- LED indicator, of contact status
- 1 CO (SPDT) 16 A - 250 V AC
- Positive logic output
- Nominal voltage AC or DC
- Special version for low loads down to 5 V, 1 mA
- Reinforced insulation between supply/contacts/electrodes (6 kV - 1.2/50 μ s)
- 35 mm rail (EN 60715) mount



Type 72.01



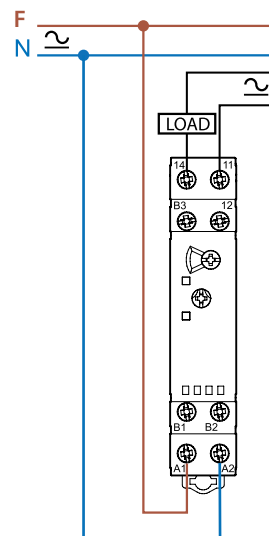
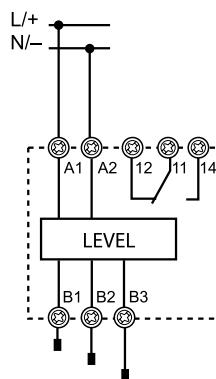
Type 72.11



Filling function	✓	✓
Emptying function	✓	✓
Sensitivity	5...150 k Ω / 5...450 k Ω (Adjustable)	150 k Ω (Fixed)
Run-on time	0.5 - 7 (selectable)	1 second (Fixed)
LED indicator	✓	✓
Contact configuration	1 CO (SPDT)	1 CO (SPDT)
Rated current/Maximum peak current	16/30 A	16/30 A
Nominal voltage AC (50/60 Hz)	24, 110...125, 230...240, 400 V	24, 110...125, 230...240 V
Nominal voltage DC	24 V	24 V
Insulation: supply/contacts/electrodes	6 kV	6 kV
Electrical life at rated load	100.000 cycles	100.000 cycles
Ambient temperature	- 20...+60°C	- 20...+60°C
Functions	FL = Level control by Filling, Long (7 s) run-on delay EL = Level control by Emptying, Long (7 s) run-on delay FS = Level control by Filling, Short (0.5 s) run-on delay ES = Level control by Emptying, Short (0.5 s) run-on delay	F = Level control by Filling, Run-on time fixed at 1 s E = Level control by Emptying, Run-on time fixed at 1 s

Type 72.51 **NEW**

- Emptying or filling functions (6 functions)
- Control about a single level, between Min./Max. limits or Window mode
- LED indicator
- 72.51.0.xxx.000x: internal isolation transformer
- Reinforced insulation (6 kV - 1.2/50 μ s) between:
 - supply and contacts
 - electrodes and supply
 - contacts and electrodes
- 35 mm rail (EN 60715) mount



Type 72.51



Filling function	✓
Emptying function	✓
Window functions	✓
Sensitivity	5...150 k Ω / 5...450 k Ω (Adjustable)
Run-on time	0.5 - 7 second
LED indicator	✓
Contact configuration	1 CO (SPDT)
Rated current/Maximum peak current	6/15 A
Nominal voltage AC (50/60 Hz)	24, 110...240
Nominal voltage DC	24, 110...240
Insulation: supply/contacts/electrodes	5 kV
Ambient temperature	- 20...+60°C
Functions	FL = Level control by Filling, Long (7 s) run-on delay FS = Level control by Filling, Short (0.5 s) run-on delay ES = Level control by Emptying, Short (0.5 s) run-on delay EL = Level control by Emptying, Long (7 s) run-on delay. WL = Window function, Long (7 s) run-on delay WS = Window function, Short (0.5 s) run-on delay

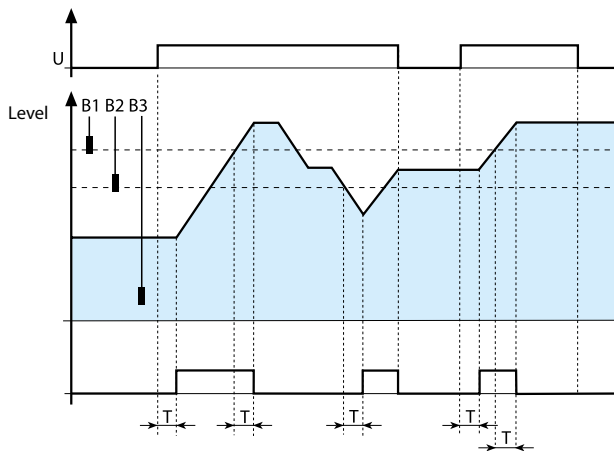
Level control relays for conductive liquids

Product code	Description	Nominal voltage
72.01.8.024.0000	Sensitivity range adjustable (5...150)k Ω	24 V AC
72.01.8.024.0002	Sensitivity range adjustable (5...450)k Ω	24 V AC
72.01.8.125.0000	Sensitivity range adjustable (5...150)k Ω	110...125 V AC
72.01.8.240.0000	Sensitivity range adjustable (5...150)k Ω	230...240 V AC
72.01.8.240.0002	Sensitivity range adjustable (5...450)k Ω	230...240 V AC
72.01.8.240.5002	Sensitivity range adjustable (5...450)k Ω , for low loads	230...240 V AC
72.01.8.400.0000	Sensitivity range adjustable (5...150)k Ω	400 V AC
72.01.9.024.0000	Sensitivity range adjustable (5...150)k Ω	24 V DC
72.11.8.024.0000	Sensitivity fixed 150 k Ω	24 V AC
72.11.8.125.0000	Sensitivity fixed 150 k Ω	110...125 V AC
72.11.8.240.0000	Sensitivity fixed 150 k Ω	230...240 V AC
72.11.9.024.0000	Sensitivity fixed 150 k Ω	24 V DC

72.51.0.240.0000	Modular level control relay, Max. 150 k Ω	110...240 V
72.51.0.240.0002	Modular level control relay, Sensitivity range adjustable (5...450)k Ω	110...240 V
72.51.0.024.0000	Modular level control relay,, Max. 150 k Ω	24 V
72.51.0.024.0002	Modular level control relay, Sensitivity range adjustable (5...450)k Ω	24 V

Filling functions

Examples with 3 electrodes



Filling Control – between Min. and Max. levels.

Under normal operation the liquid level can be expected to cycle between the Minimum and the Maximum electrodes, B2 and B1 (plus a degree of over and under-shoot).

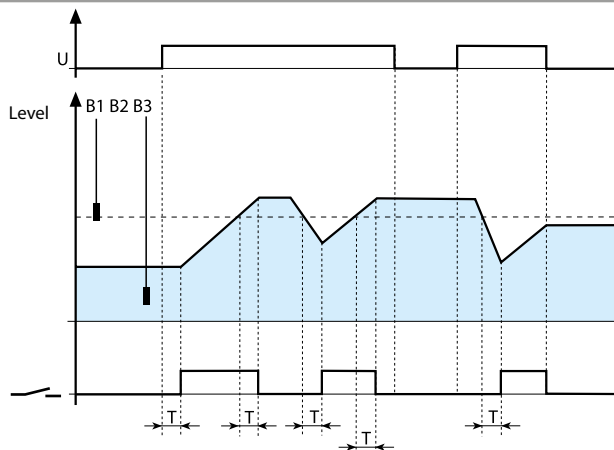
Switch On:

- On “power-up”, if the liquid is below B1 the output relay will operate after time T has expired.
- On the liquid level falling below B2, the output relay will operate after time T has expired.

Switch Off:

- On the liquid level reaching electrode B1, the output relay will de-energise after time T has expired.
- On “power-off”, the output relay will immediately de-energise.

Examples with 2 electrodes



Filling Control – about a single level, B1.

Under normal operation the liquid level can be expected to cycle about the level set by electrode B1 with a degree of over and under-shoot.

Switch On:

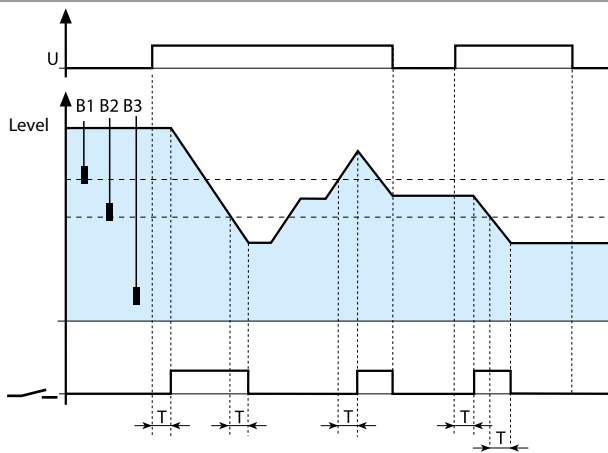
- On “power-up”, if the liquid is below B1 the output relay will operate after time T has expired.
- On the liquid level falling below B1, the output relay will operate after time T has expired.

Switch Off:

- On the liquid level reaching electrode B1, the output relay will de-energise after time T has expired.
- On “power-off”, the output relay will immediately de-energise.

Emptying functions

Examples with 3 electrodes



Emptying Control - between Max. and Min. levels.

Under normal operation the liquid level can be expected to cycle between the Maximum and the Minimum electrodes, B1 and B2 (plus a degree of over and under-shoot).

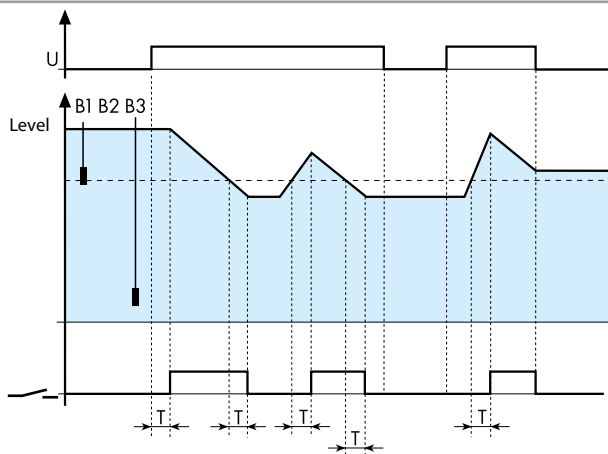
Switch On:

- On "power-up", if the liquid level is above B2 the output relay will operate after time T has expired.
- On the liquid level rising to B1, the output relay will operate after time T has expired.

Switch Off:

- On the liquid level falling below electrode B2, the output relay will de-energise after time T has expired.
- On "power-off", the output relay will immediately de-energise.

Examples with 2 electrodes



Emptying Control about a single level, B1.

Under normal operation the liquid level can be expected to cycle about the level set by electrode B1 with a degree of over and under-shoot.

Switch On:

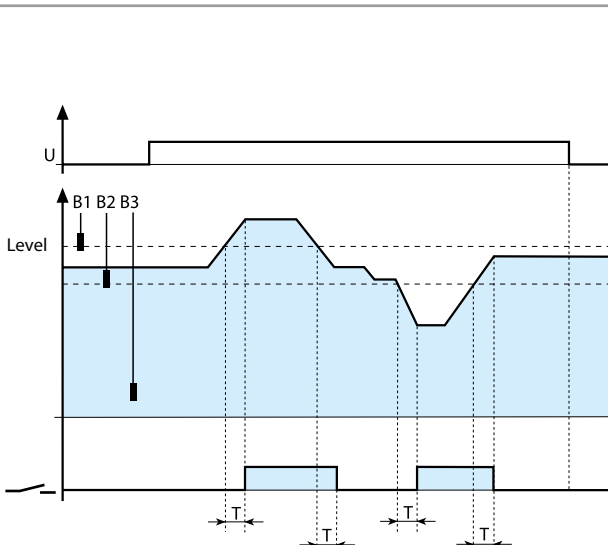
- On "power-up", if the liquid is above B1 the output relay will operate after time T has expired.
- On the liquid level rising to B1, the output relay will operate after time T has expired.

Switch Off:

- On the liquid level falling below electrode B1, the output relay will de-energise after time T has expired.
- On "power-off", the output relay will immediately de-energise

Window functions (only 72.51)

Examples with 3 electrodes



Window function - between Min. and Max. levels.

Under normal operation the liquid level is kept between the Minimum and the Maximum electrodes, B2 and B1.

B1 level:

If the liquid is over electrode B1 the output relay will operate after time T has expired.
After activation, when the liquid is below electrode B1 the output relay will de-energise after time T has expired.

B2 level

If the liquid is below electrode B2 the output relay will operate after time T has expired.
After activation, when the liquid is over electrode B2 the output relay will de-energise after time T has expired.

Probes and accessories for liquid level control

Types 72.01, 72.11 and 72.51

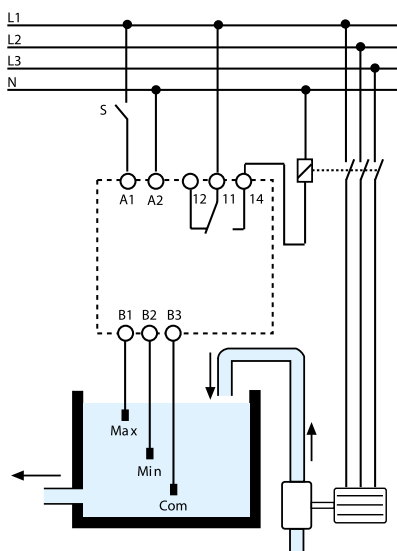
A wide and diverse range of electrodes allow the Types 72.01, 72.11 and 72.51 level control relays to work in many diverse applications. Normally 2 electrodes are used for the control about a single level, although 3 probes can be used for level control between "Minimum" and "Maximum" levels. It is possible to use the tank itself as the common electrode (terminal B3), if it is made of a conductive material. If two different levels are required to be set-up within the same tank, it is possible to do this by simply utilising two level control relays.

Codes and Descriptions	
	Type 072.01.06 - Cable length: 6 m (1.5 mm ²)
	Type 072.01.15 - Cable length: 15 m (1.5 mm ²)
	Suspended electrode for conductive liquids. Suitable for level monitoring in wells and reservoirs not under pressure. All materials used are compatible with food processing applications. (Compliant with European Directive 2002/72 and FDA Code Title 21 Part 177.)
	Type 072.02.06 - Cable length (blue colour): 6 m (1.5 mm ²) Suspended electrode for swimming pools with high levels of chlorine, or in salt-water pools with high levels of salinity. High quality electrode material: stainless steel (AISI 316L) with high corrosion resistance. Max. liquid temperature +100°C.
	Type 072.41 Suspended electrode for wells and tanks. High quality electrode material: stainless steel (AISI 316L) with high corrosion resistance. Plastic parts made of polypropylene for good resistance to aqueous solutions of inorganic salts, acids, alkaline solutions, alcohol, some oils and washing solutions. Physiologically harmless and therefore particularly suitable for use in the food and pharmaceutical sectors. Max. liquid temperature +80°C.
	Type 072.51 Electrode holder suitable for metal tank with G3/8" fitting. The tank can be used as the common electrode and electrically wired to the common terminal B3 of the 72.01 / 11 relay by utilising the threaded part and fixing nut as a terminating point. The total length of the probe is obtained by connecting an appropriate number of 072.500 electrodes. High quality electrode material: stainless steel (AISI 316L) with high corrosion resistance. Max. liquid temperature +100°C.
	Type 072.53 Electrode holder with three poles , for overhead mounting in wells and tanks. The total length of the probes is obtained by connecting an appropriate number of 072.500 electrodes. High quality electrode material: stainless steel (AISI 303) with high corrosion resistance. Max. liquid temperature +70°C.
	Type 072.503 Electrode separator (for three pole electrode holder 072.53). Use to avoid electrodes touching where otherwise they might sway due to their length.
	Type 072.500 - Electrode - 475 mm long, M4 thread, stainless steel (AISI 316L)
	Type 072.501 - Electrode connector , M4 thread, stainless steel (AISI 316L). Multiple electrodes may be interconnected to provide required length.
	<i>Illustration of interconnection of electrodes.</i> 
	Type 072.11 Floor water sensor , flood warning. Designed for the detection and signalling of the presence of floor surface water and for the detection of condensation (for example in refrigerated cabinets).

Suitable liquids and unsuitable liquids

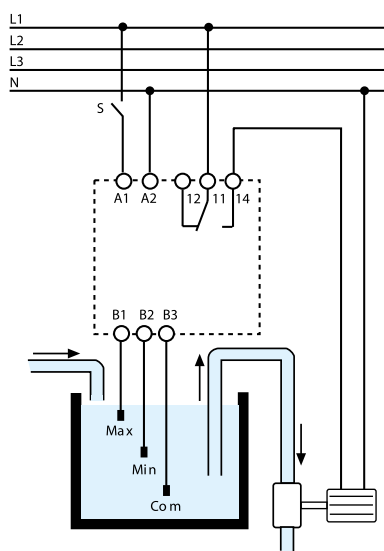
FILLING function:

Examples with 3 electrodes and with a contactor connected to the contact.



EMPTYING function:

Examples with 3 electrodes and with a motor pump connected directly to the contact.



The 72 series level control relays work by measuring the resistance through the liquid, between the common (B3) electrode and Min. and Max. electrodes (B2 and B1). If the tank is metallic, then this can be substituted as the B3 electrode.

Take care to ensure that the liquid has a suitable resistivity – see below:

SUITABLE LIQUIDS

- City water
- Well water
- Rainwater
- Sea water
- Liquids with low-percentage alcohol
- Wine
- Milk, Beer, Coffee
- Sewage
- Liquids fertilizer

UNSUITABLE LIQUIDS

- Demineralised water
- Fuels
- Oil
- Liquids with high-percentage alcohol
- Liquid gas
- Paraffins
- Ethylene glycol
- Paint



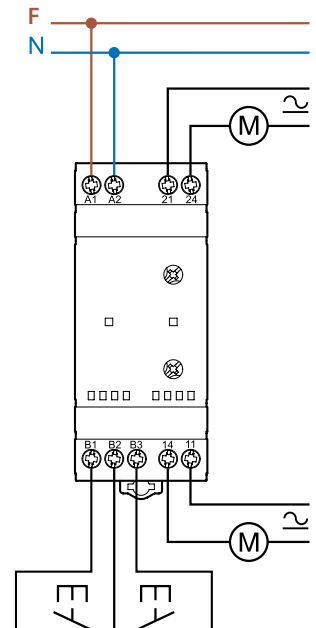
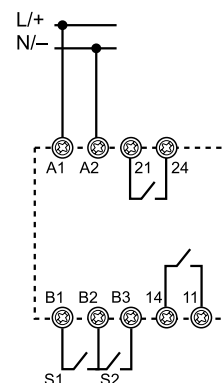
Priority change relay

Type 72.42

Special alternating relay for load changeover in pump, compressor, air conditioning, and refrigeration applications

This relay is recommended to equalise the wear in equipment, such as pumps, compressors, air conditioning, etc., when the plant comprises two units, one of which is spare.

- 2 independent NO output, 12 A - 250 V AC
- 4 functions
- 2 independent control signals, insulated from supply
- Nominal voltage AC and DC
- 35 mm rail (EN 60715) mount



Adjustable delay to output response

Function selector

It is possible to activate both contacts, in the event of an alarm signal, via the external Start S2.



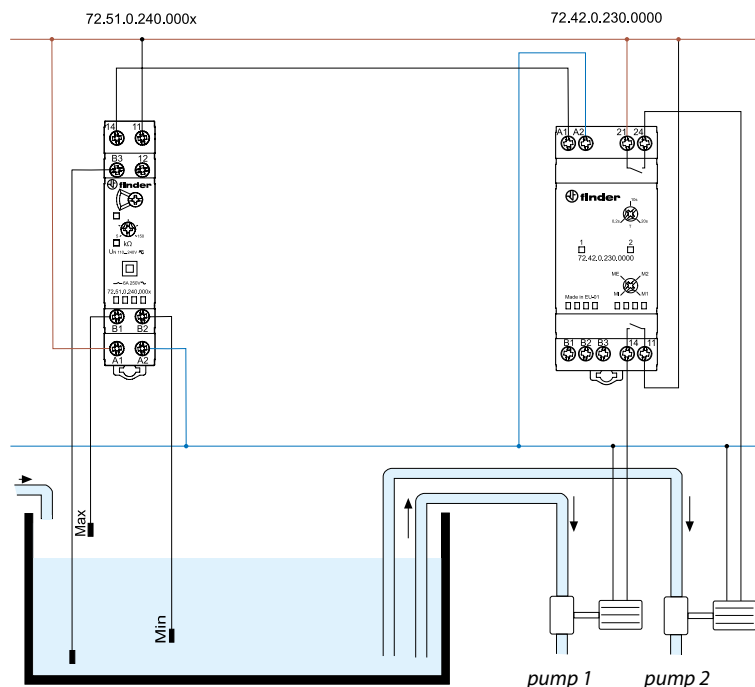
Type 72.42

Minimum impulse duration	50 ms
Power-on activation time	≤ 0.7 seconds
LED indicator	✓
Contact configuration	2 NO (DPST-NO)
Rated current/Max. peak current	12/20 A
Nominal voltage AC/DC	24, 110...240 V
Rated power in stand-by W	0.12 (24 V AC/DC), 0.18 (110...240 V AC/DC)
Rated power with 2 active relays	1.1 W/1.7 VA (24 V AC/DC), 1.5 W/3.9 VA (110...240 V AC/DC)
Insulation: supply/contacts/electrodes	6 kV
Electrical life at rated load	100.000 cycles
Ambient temperature	- 20...+50°C
Functions	MI = Outputs alternate on successive applications of supply voltage ME = Outputs alternate on successive applications of control signal S1 M1/M2 = In case of a load malfunction, it is possible to force the operation of a specific output

Examples for the management of two pumps

Function (MI)

This shows the 72.42 Priority change relay working in conjunction with a single 72.01 level controller. Under normal conditions the liquid level is expected to remain within the range shown as Min to Max. In this case the function of the 72.42 will be to alternate the duty between both pumps, to even wear across both pumps. There is no provision to run both pumps simultaneously.

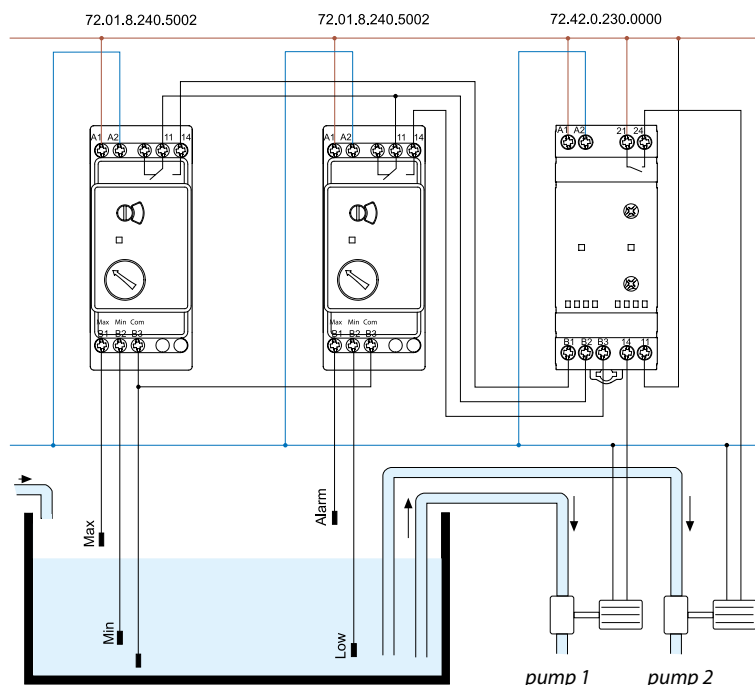


Function (ME)

This shows the 72.42 Priority change relay working in conjunction with two 72.01 level controllers. Under normal conditions the liquid level is expected to remain within the range shown as Min to Max. In this case the function of the 72.42 will be to alternate the duty between both pumps, to even wear across both pumps.

Should the liquid level rise above the Alarm level then the function of the 72.42 will call for the simultaneous operation of both pumps, by virtue of the signal to terminal B3 from the Alarm/Low level controller.

Note: due to the low load of 72.42 control signals, it is suggested to use level controller 72.01.8.240.5002 because of its superior low load switching capability.



Product code	Description	Nominal voltage
72.42.0.024.0000	Priority change relay	24 V AC/DC
72.42.8.230.0000	Priority change relay	110...240 V AC/DC

Float switches

Float switch for grey water

Type 72.A1



Float switch for grey water, suitable for automatic pumping, professional plumbing systems and waste water. Counterweight (110 g) with cable grip, included.

- 10 A (resistive load), 8 A (inductive load)
- Emptying or filling functions
- Cable length 5 m, 10 m, 15 m or 20 m

Counterweight (110 g) for Type 72.A1.
Included in the package.

Fixes to the cable to allow adjustment of the overall level and the switching hysteresis.



Type 72.A1.1.000.xx01

Contact configuration	1 CO (SPDT)
Rated current resistive load (inductive load)	10 A (8 A)
Rated voltage	250 V AC
Protection degree	IP 68
Max liquid temperature	+45 °C
Max pressure	10 BAR
Cable material	H05 RN F
Body material	Polypropylene

Product code	Description
72.A1.1.000.0501	Float switch, cable length 5 m, H05 RN F
72.A1.1.000.1001	Float switch, cable length 10 m, H05 RN F
72.A1.1.000.1501	Float switch, cable length 15 m, H05 RN F
72.A1.1.000.2001	Float switch, cable length 20 m, H05 RN F

Float switch for liquid foodstuff and potable water

Type 72.A1 - ACS



ACS certified

(Attestation de Conformité Sanitaire)

Counterweight (110 g) for Type 72.A1.
Included in the package.

Float switch for liquid foodstuff and potable water.
Suitable for swimming pools with high levels of chlorine,
or in salt-water pools with high levels of salinity. Supplied
with counterweight.

Made from non-toxic materials suitable for permanent
immersion in drinking water.

Ideal for: - aqueducts

This version permits use in water with:

Sodium Chloride - Salt Water: max 50%

Sodium Hydrate - Caustic Soda: max 40%

Sodium Hypochlorite - Bleach: max 15%

- Emptying or filling functions
- Cable length 5 m, 10 m, 15 m or 20 m

CE UK CA ACS

Type 72.A1.1.000.xx02

Contact configuration	1 CO (SPDT)
Rated current resistive load (inductive load)	10 A (8 A)
Rated voltage	250 V AC
Protection degree	IP 68
Max liquid temperature	+45 °C
Max pressure	10 BAR
Cable material	Cable and plastics ACS certified for alimentary uses
Body material	Polypropylene

Product code	Description
72.A1.1.000.0502	Float switch, cable length 5 m, ACS
72.A1.1.000.1002	Float switch, cable length 10 m, ACS
72.A1.1.000.1502	Float switch, cable length 15 m, ACS
72.A1.1.000.2002	Float switch, cable length 20 m, ACS

Float switches

Float switch for black water

Type 72.B1



Float switch for black water systems, drainage plants and pumping stations.
Supplied with fixing kit.

- 10 A (resistive load), 8 A (inductive load)
- Emptying or filling functions
- Cable length 5 m, 10 m, 15 m or 20 m



Type 72.B1.1.000.xx01

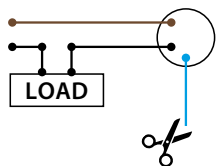
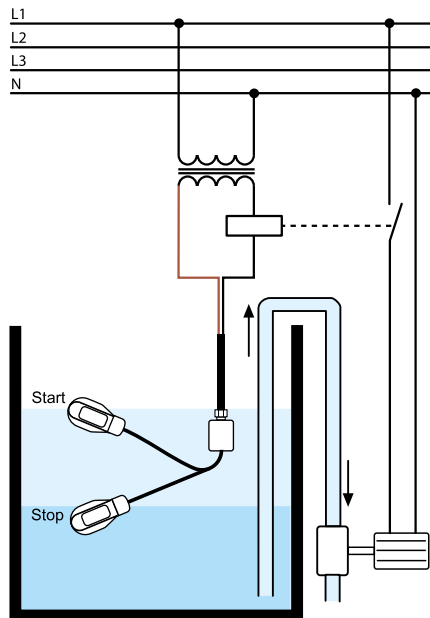
Contact configuration	1 CO (SPDT)
Rated current resistive load (inductive load)	10 A (8 A)
Rated voltage	250 V AC
Protection degree	IP 68
Max liquid temperature	+45 °C
Max pressure	10 BAR
Cable material	H05 RN F
Body material	Polypropylene

Product code	Description
72.B1.1.000.0501	Float switch, cable length 5 m, H05 RN F
72.B1.1.000.1001	Float switch, cable length 10 m, H05 RN F
72.B1.1.000.1501	Float switch, cable length 15 m, H05 RN F
72.B1.1.000.2001	Float switch, cable length 20 m, H05 RN F

Examples of applications (Types 72.A1 and 72.B1)

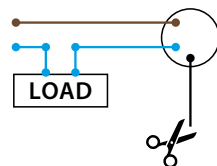
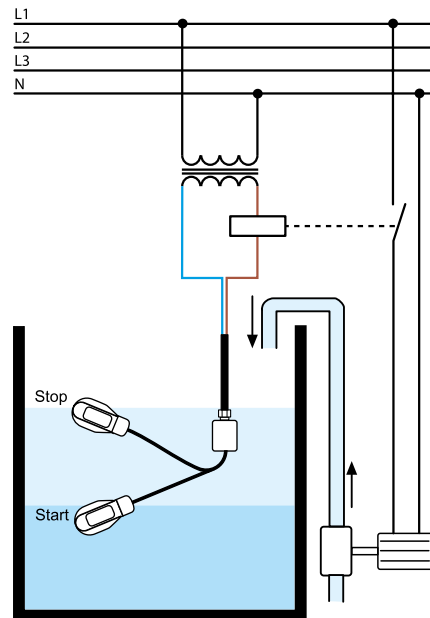
Type 72.A1

Emptying function



When black and brown wires are used, the circuit opens when the float is down and closes when the float is up. In this case the blue wire must be insulated.

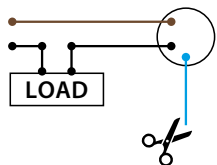
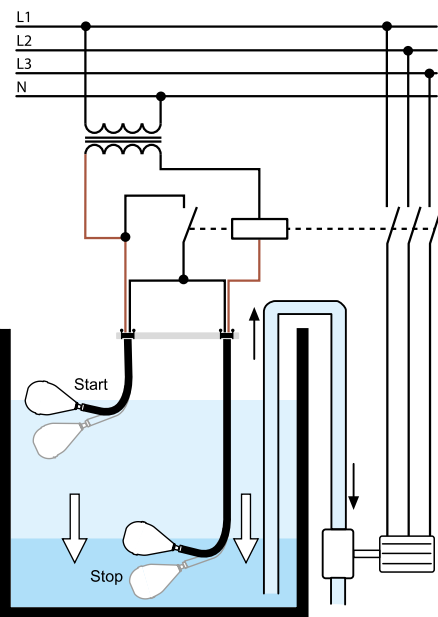
Filling function



When brown and blue wires are used, the circuit opens when the float is up and closes when the float is down. In this case the black wire must be insulated.

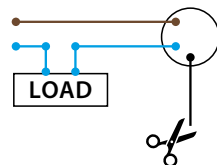
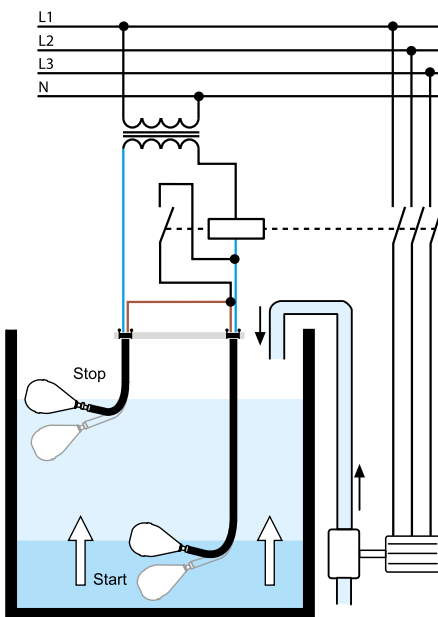
Type 72.B1

Emptying function



When black and brown wires are used, the circuit opens when the float is down and closes when the float is up. In this case the blue wire must be insulated.

Filling function



When brown and blue wires are used, the circuit opens when the float is up and closes when the float is down. In this case the black wire must be insulated.

Float switches

Space-saving float switch

Type 72.C1



Suitable for all those situations where the lack of space precludes the use of a normal float switch.

Applications:

- Immersion pump
 - Pumping tanks
 - Lifting systems
 - Clean or waste water wells
 - Clean, cloudy, industrial and chemical waters
- Magnetic opening and closing contact
 - Particularly suitable for clean water emptying and filling applications



Type 72.C1.0.000.0201

Contact configuration	1 CO (SPDT)
Rated current resistive load (inductive load)	10 A (8 A)
Rated voltage	250 V AC
Minimum switching load	1200 mW (12 V / 100 mA)
Breaking capacity DC1	6 A - 30 V DC
Protection degree	IP 68
Max liquid temperature	+50 °C
Level adjustment range	6...12 cm
Cable length	2 m
Cable material	H07 RN F
Body material	Polypropylene



Mounting bracket and clamps to simplify wall or pipe installation.

Example of application **Functions**



Emptying: when black and brown wires are used, the circuit opens when float is down and closes when the float is up.

Note: the blue/grey wire must be insulated.

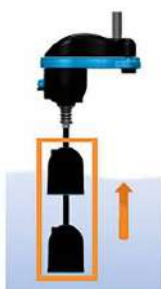
Filling: when black and blue/grey wires are used, the circuit closes when float is down and opens when the float is up.

Note: the brown wire must be insulated.

N.B: The grounding wire is always yellow and green.



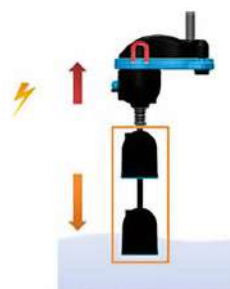
The tank fills



The water reaches the max level and it raises the whole floating body



High level starts the pump and the tank drains



The water reaches the minimum level and the weight of the floating body disengages the magnet



Low level stops the pump

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