Monitoring Relays
Pump alternating
Type DLA73

- **Pump alternating relay for 2 pumps**
- **Output: 3 x 5 A SPST relay**
- **For mounting on DIN-rail in accordance with DIN/EN 50 022**
- **35.5 mm DIN-rail housing**
- **LED indication for relay and power supply ON**
- **Galvanically separated power supply**
- **Built-in delay for the second pump in case of simultaneous activation is required**
- **Built-in function for automatic rotation of the pumps**
- **Alarm relay output managed by one indipendent input contact**

Product Description

DLA73 is relay made to alternate 2 pumps in a multiple pump system. In case of need (i.e.: overflow) the second pump can be activated together with the first one. The unit actives the third output relay (i.e.: for alarm signal) by closing one indipendent input contact.
In case more than one pump is required to start at the same time, the pumps start 10 s after the previous to avoid big inrush current.

The LED indicates the state of the alarm and the output relay.

35.5 mm wide housing suitable both for back and front panel mounting.

Ordering Key

DLA 73 T B23 2P

- **Housing**
- **Function**
- **Type**
- **Item number**
- **Output**
- **Power supply**
- **Number of pumps**

Type Selection

Mounting	Output	Function	Supply: 24/48 VAC	Supply: 115/230 VAC
DIN-rail	3 x SPST	For two pumps	**DLA 73 T B48 2P**	**DLA 73 T B23 2P**

Input Specifications

Contact input	Terminals
Normal mode	
ON/OFF 1 pump	C, S1
ON/OFF 2 pumps	C, S2
ON/OFF 3rd SPST output (15-38)	C, S3
Full mode	
ON 1 pump	C, S1
ON 2 pumps	C, S2
ON/OFF 3rd SPST output (15-38)	C, S3
OFF all pumps	C, S4
Disabled	> 10 kΩ
Enabled	< 1 kΩ
Voltage	< 25 V
Current	< 2 mA
Empting mode	N.O. contacts
Filling mode	N.C. contacts

Output Specifications

Output		3 x SPST NO relay
Rated insulation voltage		250 VAC
Contact ratings ($AgSnO_2$)		μ
Resistive loads	AC 1	5 A @ 250 VAC
	DC 12	5 A @ 24 VDC
Small inductive loads	AC 15	1.5 A @ 250 VAC
	DC 13	1.5 A @ 24 VDC
Mechanical life		≥ 30 x 10^6 operations
Electrical life		≥ 10^5 operations (at 5 A, 250 V, cos φ = 1)
Operating frequency		≤ 7200 operations/h
Dielectric strength		
Dielectric voltage		2 kVAC (rms)
Rated impulse withstand volt.		4 kV (1.2/50 μs)

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Supply Specifications

Power supply	Overvoltage cat. III
Rated operational voltage through terminals:	(IEC 60664, IEC 60038)
A1, A2 or A3, A2	
B48:	24/48 VAC ± 15% 45 to 65 Hz, insulated
B23:	115/230 VAC ± 15% 45 to 65 Hz, insulated
Dielectric voltage	
Supply to input	4 kV (1.2/50 µs)
Supply to output	4 kV (1.2/50 µs)
Input to output	4 kV (1.2/50 µs)
Rated operational power	
AC	3 VA

General Specifications

Reaction time	
Closing input	< 100 ms
Opening input	< 100 ms
Minimum delay to activate the rescue pump	10 s
First pump activated after power up	Random
Continous working time to activate the rotation pumps	6 h ± 10%

General Specifications (cont.)

Indication for	
Power supply ON	LED, green, steady
One pump ON	as above, flashing 1 Hz
Two pumps ON	as above, flashing 2 Hz
	Note: if more than one pump is active, the indication refers to the pump started last.
Environment	(EN 60529)
Degree of protection	IP 20
Pollution degree	3
Operating temperature	-20 to 60°C, R.H. < 95%
Storage temperature	-30 to 80°C, R.H. < 95%
Housing	
Dimensions	35.5 x 81 x 67.2 mm
Material	PA66 or Noryl
Weight	Approx. 135 g
Screw terminals	
Tightening torque	Max. 0.5 Nm acc. to IEC 60947
Product standard	EN 60255-6
Approvals	UL, CSA
CE Marking	L.V. Directive 2006/95/EC EMC Directive 2004/108/EC
EMC	
Immunity	According to EN 60255-26 According to EN 61000-6-2
Emissions	According to EN 60255-26 According to EN 61000-6-3

Mode of Operation

DLA73 is made for pumping systems where 2 pumps are in parallel. It lets the pumps work alternatively, allowing more pumps to work togheter in case of need.

Example 1
(Emptying a basin, normal mode)
As soon as the liquid reaches switch S1 one pump starts. As soon as S1 switches back the pump stops. When switch S1 is activated again the other pump starts allowing uniform wear and tear of all the pumps. If switch S2 is activated both pumps start (2 pumps running at the same time). When S2 switches back the pump running since most time stops.
As soon as switch S3 (used as high level control in this example) is activated, the 3th output relay (15-38) reacts immediately to send an alarm signal (i.e.: by a siren).
As soon as S3 switches back, the alarm stops.

Example 2
(Emptying a basin, full mode)
As soon as the liquid reaches switch S1 one pump starts. When it drops below switch S4 it stops. If switch S1 is triggered again the other pump starts. If switch S2 is activated both pumps start (rescue function).
As soon as switch S3 (used as high level control in this example) is activated, the 3th output relay (15-38) reacts immediately to send an alarm signal (i.e.: by a siren).
As soon as S3 switches back, the alarm stops.
The only switch to stop all the pumps active at a certain time is S4.

Note 1
As soon as DLA73 is supplied and then S1 or S2 is switched, the device activates at random one of the two pumps.

Note 2
If the system is continuously working with only one pump, after working for 6 hours, DLA73 stops the pump and the second one automatically starts.
This rotation is repeated every 6 hours of single and continuative work of a pump.

Note 3
In case the task is to fill a basin, all the switches are reversed in the basin itself (except for switch S3).

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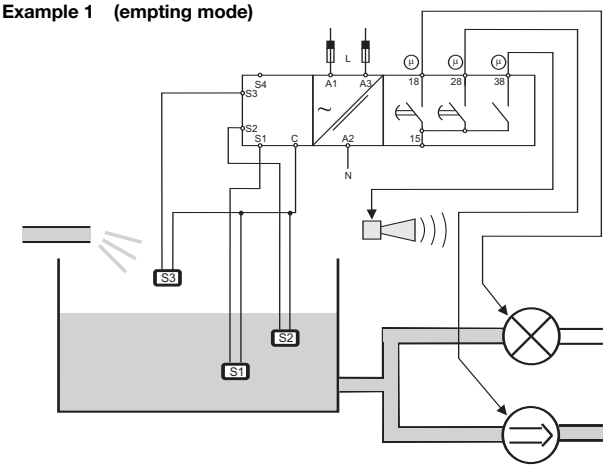
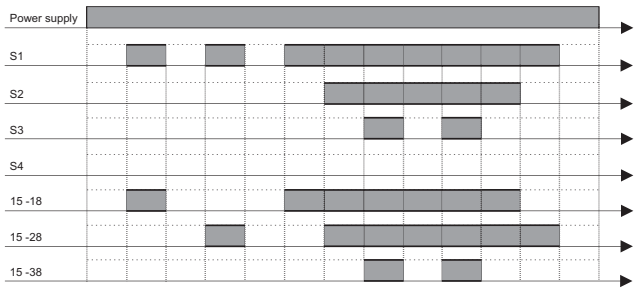
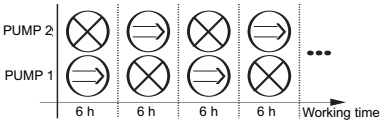
Operation Diagrams

Example 1 (empting mode)

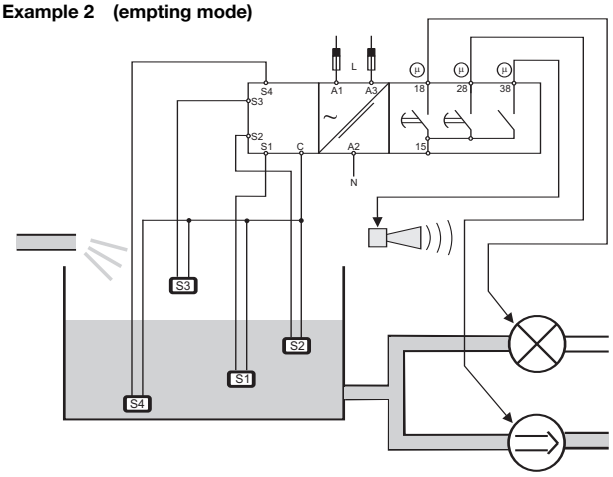


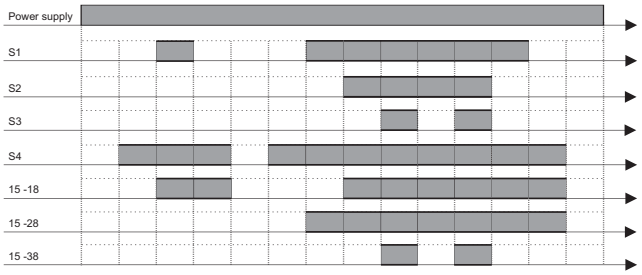


Automatic rotation function

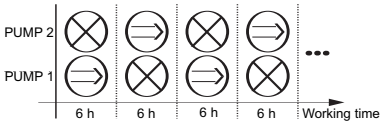


Example 2 (empting mode)

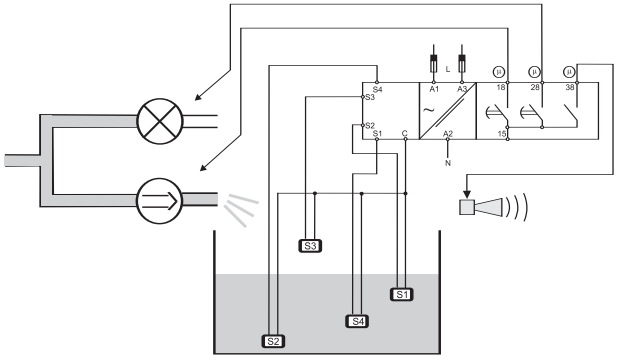


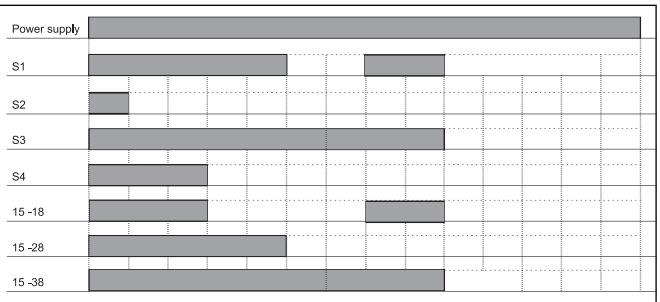


Automatic rotation function

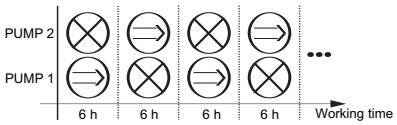


Example 3 (filling mode)

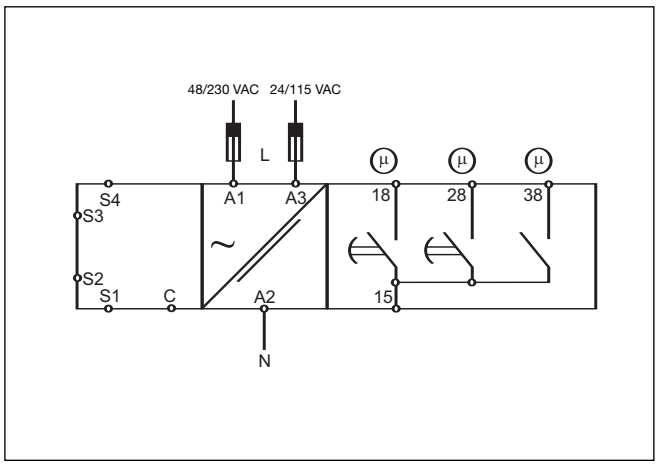




Automatic rotation function



Wiring Diagrams



Dimensions