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PNWB

LEVEL CONTROL OF TWO PUMPS

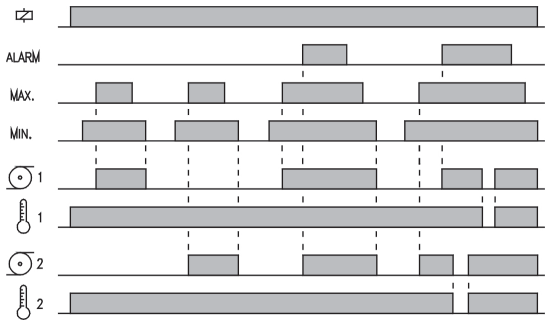
Function	Alternative control of two pumps. Selection modes: Stop - automatic - manual.
Operating principle	**Switches in 0 position:** No operation is possible. **Switches in MAN position (push-button):** The relay related to each switch remains operated whenever the switch is pushed, with independece of the state of the level. **Switches in AUTO position:** When the liquid reaches the maximum level, relay 1 operates and releases when the liquid goes under the minimum level. If while relay 1 is operated the liquid reaches the alarm level, relay 2 operates and both relays release when the liquid goes under the minimum level. Relays 1 and 2 operate alternatively each time that the liquid reaches the maximum level. If one of the switches goes to the 0 position, the alternate cycle is cancelled, and only operates the relay related to the switch in the AUTO position. **Switches in MAN or AUTO position:** If the external thermal protector (safety device) detects a failure, whichever operation of the related relay is switched off and no-one operation is possible, the alternate cycle is cancelled and only operates the relay related to the thermal protector which did not detect the failure. See more operating possibilities in the next page
Sensors	Any level sensor with potential free contacts.
Contacts	Two relays SPST NO (8 A).
Indications leds	Power on (green) - Relays on (red) - Levels (yellow) - Safety devices (red)

Reference

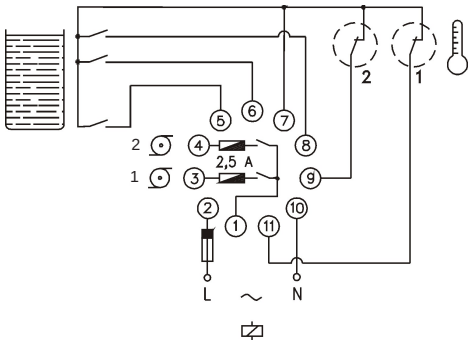
HOUSING		FUNCTION		OUTPUT		SUPPLY	
P	Plug-in	**NW**	Double level	**B**	2 SPST NO	**024**	24 VAC
						048	48 VAC
						110	110..125 VAC
						230	220..240 VAC
						400	380..415 VAC

To compose the reference, select one option of each column. Example: **PNVB 048**

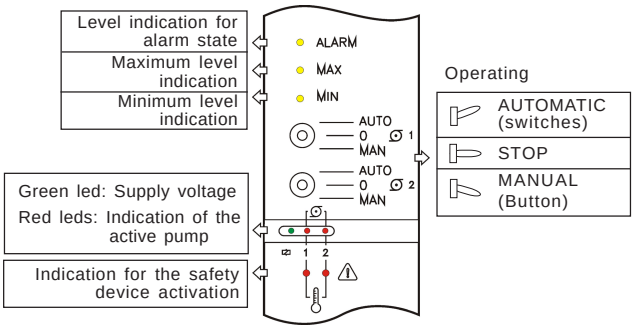
Operating diagram



Adjustment buttons



Connection diagram



Operating exceptions

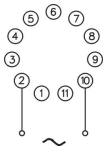
There are some exceptions to the normal operating mode. Basically, they consist in the following ones:

- Pumps work in manual mode although level is under minimum.
- If any electrode fails during operation, the pumps work until the level goes below the deeper electrode which doesn't fail.

The complete set of exceptions are stated in the following true table. The "X" means that the pump works or not depending on the alternative cycle.
The signs "0»1" or "1»0" mean a change of state during a certain operation.

Pos	MIN	MAX	ALARM	TERMIC PROTEC.		AUTO		MANUAL	
				1	2	RELAY 1	RELAY 2	RELAY 1	RELAY 2
1	0	0	0	1	1	0	0	1	1
2	1	0	0	1	1	0	0	1	1
3	0	1	0	1	1	X	X	1	1
4	1	1	0	1	1	X	X	1	1
5	0	0	1	1	1	1	1	1	1
6	1	0	1	1	1	1	1	1	1
7	0	1	1	1	1	1	1	1	1
8	1	1	1	1	1	X	X	1	1
9	0	0	0	0	0	0	0	0	0
10	1	0	0	0	0	0	0	0	0
11	0	1	0	0	0	0	0	0	0
12	1	1	0	0	0	0	0	0	0
13	0	0	1	0	0	0	0	0	0
14	1	0	1	0	0	0	0	0	0
15	0	1	1	0	0	0	0	0	0
16	1	1	1	0	0	0	0	0	0
17	1	1	0	1»0	1	1»0	0»1	-	-
18	1	1	0	1	1»0	0»1	1»0	-	-

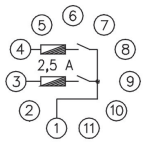
Supply

	AC PNWB
	
Galvanic isolation	Yes
Frequency	50 / 60 Hz
Operating margins	±10..-15%
Positive	-
Protected polarity	-

Constructive and anviromental data

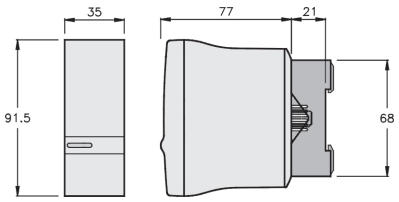
	PNWB
Voltage phase-neutral	300 V
Overvoltage category	III
Rated impulse voltage	4 kV
Pollution degree	2
Protection	IP 20 B
Approximate weight	250 g
Storage temperature	-50..+85ºC
Operating temperature	-20..+50ºC
Humidity	30..85% HR
Housing	Cycoloy - Light grey
Socket	Lexan - Light grey
Visor leds	Lexan - Transparent
Button, terminal block, clip	Technyl - Dark blue
Pins of the socket	Nickel-plated brass
Pins of the terminal block	-
Approvals	Designed and manufactured under EEC standards. Electromagnetic compatibility , directives 89/366/EEC and 92/31/EEC. Electric safety, directive 73/23/EEC. Plastics: UL 91 V0

Output relays

		PNWB 
Resistive load	AC	8 A / 250 V
	DC	0,25 A / 200 V 8 A / 24 V
Inductive load	AC	2,5 A / 250 V
	DC	4 A / 24 V
Mechanical life		> 30 x 10^6 operations
Max. switching rate, mech.		72.000 operations / hour
Electrical life at full load		360 operations / hour
Contact material		AgNi 90/10
Maximum voltage		440 VAC
Operating voltage		250 VAC
Volt. between changeovers		2500 VAC
Voltage between contacts		1000 VAC
Voltage coil/contact		5000 VAC
Distance coil/contact		10 mm
Isolation resistance		> 10^4 MΩ

Dimensions

PNWB



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