Реле для проводящих жидкостей серии SNZA

Tecfluid

TRIPLE LEVEL CONTROL FOR SNZA SERIES CONDUCTIVE LIQUIDS

Benefits

· Simple, reliable and economical
· 3 independent level controls
· Independent settings for each relay output
· Maximum-minimum function or by level points
· Adjustable delay from level to detection: 0-10 s
· Power supply VAC or VCC, VAC/VCC

Apps

· Control of 3 separate levels, from the same tank or not
· Level control, maximum and minimum alarm
· Multiple application possibilities

Functioning

Maximum and minimum level control :
Only for relays R1 and R2: relays R1 and R2 are activated when the liquid level reaches the maximum level electrodes (respectively Y1m and Y2m) and are deactivated when the liquid level is below the minimum level electrodes (respectively Y1m and Y2m).

Level point control :
For all relays: the relays R1, R2 and R3 are activated when the liquid level reaches the electrodes Y1m, Y2m and Y3 respectively and are deactivated when the liquid level is below.
The Y1m and Y2m electrodes are not used for this function.

Technical data

LED indication: Voltage present: Green
                       Relay On: Red (one LED for each relay)

Sensitivity: Adjustable from 1...100 KΩ (1000 µs...10 µs)

Probe voltage: 24 VAC
Probe current: 4mA (short-circuited)

Characteristics of the probe cable

Normally 1 ... 2.5 mm cables are used₂with good insulation and unshielded. In some installations, when the power line and the probe are parallel in the same tube and with long distances, it is recommended to use a shielded cable, connecting the braid to the common terminal of the probes, corresponding to the reference (mass). The resistance between the cables and ground must be at least 200 KOhms. The probes must be specifically protected when there are frequency variations in the installation.

Logincommon electrode

Conductive tanks : The tank can be used as a common electrode by connecting a cable from the tank to the Z1 terminal. Do not use the electrical ground cable for this.

Non-conductive tanks : You must install an additional electrode connected to the Z1 terminal which must be located at the lowest possible point in order to ensure that it is always in contact with the liquid.

In all cases : Duringthat needcontrol two or three separate tanks, an electrode must be installed in each tank. The cable for each electrode must come from the tankupto terminal Z1.

Probe cable length:No particular specification. For longer distances, you can use the "Calibration" option to compensate for the capacitor effect existing in the cables.

Housing	Function	Exit	Tension		Range	
S Area	Triple level	A 1+1+1 NO	**724**	24 VDC (not isolated)	100	10KΩ..100KΩ
			024	24 VAC		
			048	48VAC		
			110	110..125VAC		
			230	220..230 VAC		
			400	380..415 VAC		
			901	15..70 VAC/DC		
			902	60..240 VAC/DC		

Commissioning and adjustment

Before starting to work with the SNZA relay, it must be adjusted to obtain proper operation. The settings can be changed if needed. Please note that the behavior of the relay can be influenced if adjustments are made while the electrodes are in contact with the liquid or not. Make sure the option selector is in the right place. When you switch to another option, the LED® flashes. When placed in the correct position, the LED® indicates the status of the option.

Relay selection : The options of each of the three relays must be adjusted separately. Use this button to select the relay that will be adjusted.

Selection of options :Use this button to select and adjust options in accordance with the instructions below.

Options marked with**e**can modify the state of the relay contact outputs, which could cause undesirable effects in the event that it is a device that is connected.

eDefault values : The SNZA relay is set in the factory with values   that can be used in a large number of applications.
Follow the instructions in "Advanced Settings" on page 4 to restore factory settings.

eCalibration : Use this option when the electrode cables are long.
No need to use this option if the behavior of the SNZA is correct with the standard configuration. This option must be performed with the electrodes "at thefree air", i.e. with the cables connected to the corresponding terminals, but without being in contact with the liquid.

When you press the PROG button the LEDs®light up.Hold down the key until the LED turns off (3 seconds) and wait until the calculations are complete.
Then the LEDs®light upand the SNZAifcalibrates to required parameters.
This option can be used as often as desired.

eSensitivity : By accessing this option, the LED® emits as many flashes as the value of the sensitivity which is between 0 and 9. Each time the PROG button is pressed, the sensitivity value increases by 1, except if the value is 9, then it changes to 0. If you press for more than 3 seconds, the sensitivity sensitivity value is set to 0.

See the table on page 3 for the correspondence of each digit with its ohmic value.

eFunction (relay R1-R2): Max-Min control: ON LED®, level point control: OFF LED®
This option can only be used on relays 1 and 2. When accessing this option, the LED® indicates the current status of the adjustment. Each time you use the PROG button, the opposite function to the one set up so far is activated.
If you access this option with relay 3 selected, the LED® continues to flash.

erelay contact (relay R1-R2-R3): relay NO: LED ® OFF; NC relay: LED® Power.
When accessing this option, the LED® indicates the current status of the adjustment. Each time the PROG button is pressed, the state of the relay contacts is changed.

Timeout : This option works only on relays 1 and 2if theyare configured with the "Control by level point" function. On the other hand, it always affects relay 3.
By accessing this option, the LED® emits as many flashes as the number of seconds Corresponding to the timer setting, between 0 and 9 seconds.

Each time the PROG button is pressed, the value increases by 1 second, unless the value is 9, then it increases to 0.
If you press for more than 3 seconds, the time value changes to 0.
If you want to adjust the time of relays 1 and 2 which are configured with the "Max-Min Control" function, the LED® continues to flash.

Market : normal working mode

Sensitivity	Detected	Not detected
0	1	2
1	6	12
2	12	24
3	17	34
4	23	46
5	28	56
6	34	œ
7	39	78
8	45	90
9	50	100

Advanced Features: Data Recovery

The SNZA relay is provided with two predefined programs which contain a set of parameters which can be retrieved at any time.
Recovering these settings means overwriting some settings of the current relay outputs. Before resetting one of the two programs, see in the table below the effects that can occur as the sequence of impulseson the PROG button and the information provided by the LED®.

Program	Description	Selection options	Action on the PROG key	R1 R2 R3	R1 R2 R3	R1 R2 R3		R1 R2 R3	R1 R2 R3
STANDARD	Restores the values by default applied from manner independent every relay. Select relay Before perform the operation.		Pulse longer than 3 seconds The operation is executed when the LED® turns off.	X	5	X			1
FACTORY	Resets The settings factory applied from manner simultaneous to three relay, position independent of the relay selection.		Two short pulses followed by a pulse longer than 3 seconds. The operation is executed when the LED® turns off.	X	5	R1 R2 MAX MIN	R3 X		1

(X: no impact for this option, stays in the same state)

Advanced features:user setup

The SNZA relay can memorize the settings made for a particular application and retrieve them if necessary. This option can be useful in case of unwanted manipulationof the'equipment to reset the installation.
The user program contains no data whenthat it is delivered,thus retrieving previously unstored user settings has no effect.
Recovering these settings means overwriting some of the current settings. To be applied simultaneously to the three relays, whatever the position of the selection relay.
Before resetting the user program, see in the table below the effects that can occur such as the sequenceof impulseson the PROG button and the information provided by the LED®.

| Program	Description	Selection options	Action on the PROG key
USER	Keep the values that currently exist for each option		Pulses longer than 3 seconds until LED® lights up intermittently. Within 10 seconds, release and press again for more than 3 seconds. The operation is executed when the LEDs® remain lit
	Get the latest values stored in the user program		A short pulse followed by a pulse longer than 3 seconds. The operation is executed when the indicator turns off.

Generic connection diagram
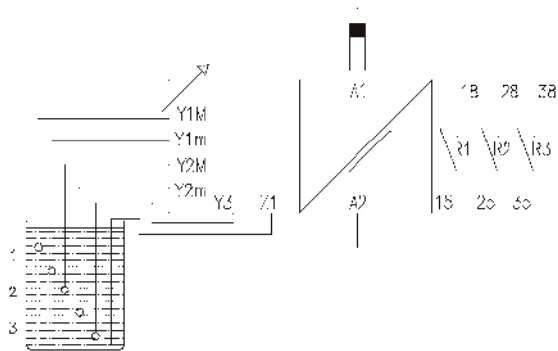
The SNZA relayhas a large number of possible connections. For example:
- Two minimum / maximum controls in the same tank (one for normal operation and the other for safety), and an additional alarm.

- Control of two pumps starting at different levelsand stoppingat the same point.

- Minimum / maximum control and two alarms, one for overfilling and another for under-draining.

Indication of 3 independent level points
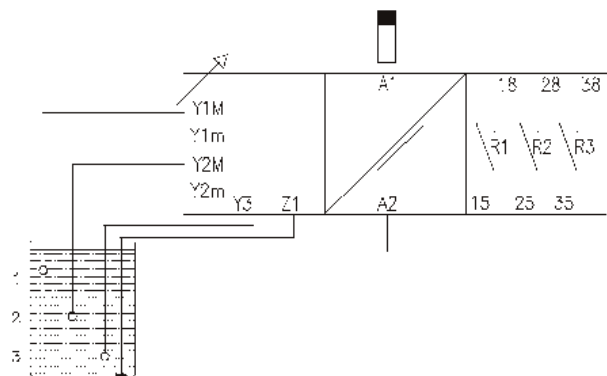
Relays R1, R2 and R3 are activated when the liquid level comes into contact with electrodes Y1m, Y2m and Y3 respectively. The relays are deactivated when the liquid drops below each of the electrodes.

Control of 3 independent tanks
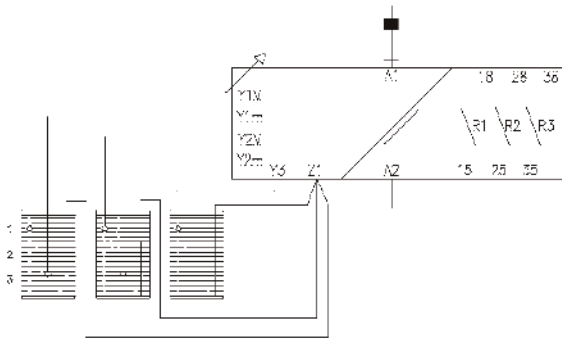
The Y1 line controls the maximum/minimum level of the D1 tank. The same for line Y2 and tank D2. Line Y3 controls a single level in tank D3. For this application it is very important to install an independent electrode as a reference (common) from each tankupto terminal Z1.

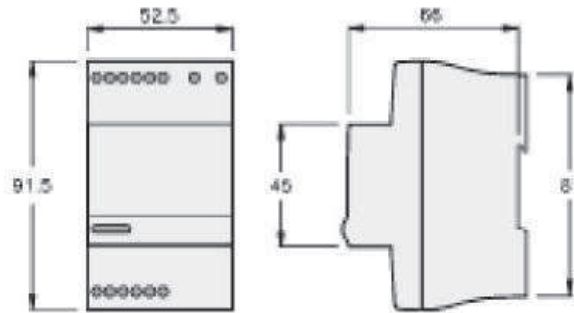## Control of 5 independent level points
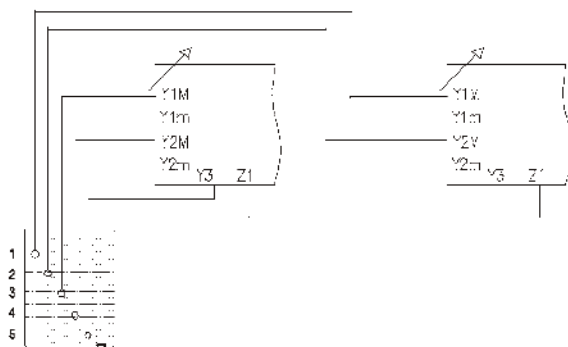
In this application, the reference electrode (common) can be the same to be connected to the Z1 terminals when the SNZA controls the same tank.
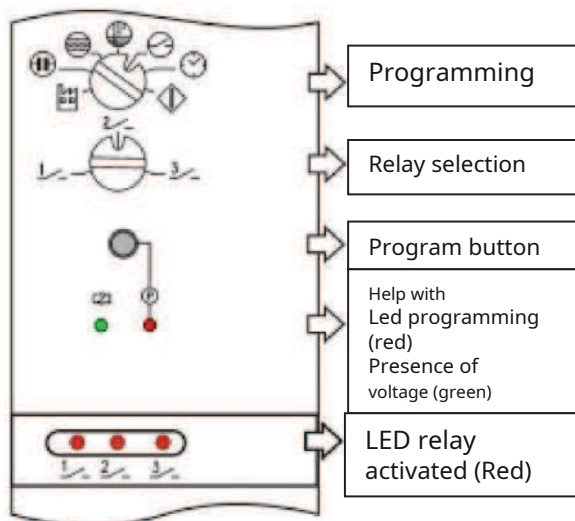
Technical data

	SNZA
Neutral phase voltage	300V
Overvoltage category	III
Impulse voltage	4kV
pollution degree	2
Degree of protection	IP20
Approximate weight	270g
Storage temperature	- 50...+85°C
Temp. Operating	- 20...+50°C
Humidity	30...85% RH
Housing	Cycoloy, light gray
Base	-
LED viewfinder	Lexan, Clear
Buttons, terminals and base	Technyl, dark blue
Basic terminal blocks	-
Screw terminals	Brass

Designed and manufactured according to EEC standards.
Electromagnetic compatibility, directives 9/366/CEE and 92/31/CEE.
Electrical safety, directive 73/23/CEE.
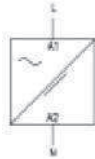Plastic UL 94 V0

Dimensions

Setting and signaling buttons

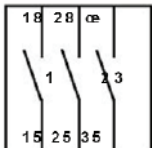|	
⇨	Programming
⇨	Relay selection
⇨	Program button
⇨	Help with Led programming (red) Presence of voltage (green)
⇨	LED relay activated (Red)

Programming : Default parameters, calibration of cables with probes, sensitivity, functions, relay outputs, time delay.
Work mode.

Supply voltage

	AC	CC	AC-DC
Galvanic isolation	Yes	No	XX9: Yes
Frequency	50-60Hz	-	-
Work margins	±10%..-15%	±10%	-
Positive	-	Terminal A1	Terminal A1
Protected polarity	-	Yes	Yes
Boot time	-	250ms	-
Consumption	1.6VA	1.2W	1.6W

Output relay

		SNZA
resistive load	AC	8A / 250V
	CC	0.25A / 200V 8A / 24V
Inductive load	AC	2.5A / 250V
	CC	4A / 24V
Mechanical life		$> 30 \times 10^6$ operations
Max. mechanical operation		72,000 operations / hour
Electrical life at full load		360 operations / hour
Contact material		AgNi 90/10
Max voltage		440VAC
Operating voltage		250VAC
Voltage between inverters		2500VAC
Voltage between contacts		1000VAC
Coil/contact voltage		5000VAC
Coil/contact distance		10mm
Insulation resistance		$> 10^4 M\Omega$

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The art of measuring

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