

Measuring and Monitoring Relays

Level Monitor



ENW-E12

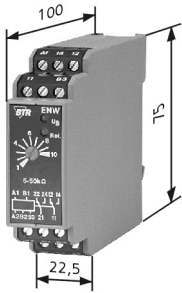
230 V AC / 24 V AC - 2 changeover contacts

- connection of up to three submersible electrodes
- selectable response sensibility
- LED indication

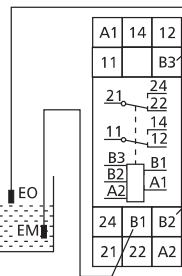
Part Numbers

110 308 05	230 V AC
110 308 10	24 V AC

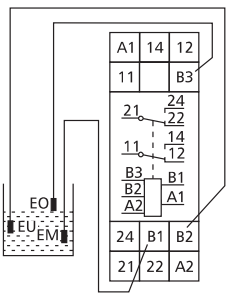
Housing Dimensions



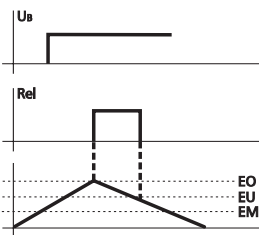
Wiring with 2 Electrodes or Leakage Sensor LKS1



Wiring - 3 electrodes



Function Diagram



Accessories

Submersible Electrode	110 324
Leakage Sensor	110 329
Technical Data see page 31.	

Description

The fluid level indicator is used for level or leakage monitoring of all conductive, inflammable media. The response level is selected by a proportional potentiometer.

Functional Description

In the monitoring mode the instrument operates with an electrode (EO) and the earth terminal (EM), e. g. to signal minimum or maximum levels to protect submerged pumps from overflowing or running dry. If the surface of the fluid is subject to disturbance a second electrode is recommended (EU).

As a two-level controller the instrument controls pumps or valves with the electrodes EO, EU and the earth terminal EM to fill or empty containers automatically. A container wall, being conductive to the liquid media, may also be used as earth terminal.

As soon as the upper electrode EO is wetted by the rising level of the conductive medium excitation current is running from the EO electrode through the media to the earth terminal and the monitor is switched on. By means of an auxiliary switch the lower electrode EU is connected in parallel so that the monitor is only de-energized when the fluid level is releasing not only the upper but also the lower electrode.

The operating status of the output relay is indicated by LED.

Technical Data

Input

nominal voltage U_N	230 V AC, 24 V AC
power consumption	2 VA
operating voltage range	0.9 ... 1.1 x U_N
release voltage	$\geq 0.15 U_N$
frequency range	50 ... 60 Hz
duty cycle	100 %
electrode voltage	12 V AC
response sensibility	5 k Ω ... 50 k Ω selectable
release time t_r	about 20 ms
recovery time t_w	≥ 250 ms
control contact	≥ 20 ms
minimum turn-on time	≥ 20 ms
repeat accuracy	$\leq \pm 0.01$ %
voltage sensibility	-
temperature sensibility	$\leq \pm 0.1$ %/K
operating temperature range	-20 °C ... +55 °C
storage temperature range	-20 °C ... +70 °C

Output

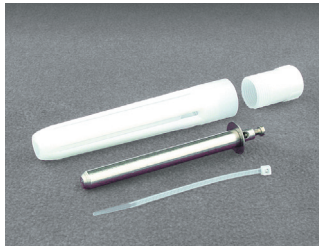
output contact	2 changeover contacts
contact material	AgNi
switching voltage max.	250 V
continuous current max.	6 A
current over both contacts	max. 8 A
making/breaking capacity	230 V~ 6 A AC1, 230 V~ 3 A AC3, 230 V- 0,12 A, 60 V- 0.6 A, 24 V- 3 A 12 V- 4 A DC1 6 A
contact fuse	6 A
mechanical endurance	3×10^7 switching cycles
electrical endurance	2×10^5 switching cycles
permissible switching frequency	600 switching cycles/h
isolation per VDE 0110	
rated voltage	250 V AC/DC
overvoltage category	III
pollution degree	2
test voltage (coil/contact)	2000 V, 50 Hz 1 min
EMC test	emission per EN 50 081 T1 interference immunity per EN 50 082 T2

Housing

type of protection (EN 60529)	housing IP50, terminal blocks IP20
wire cross section	2.5 mm ²
mounting position	any
colour	green
weight	300 g
housing dimensions WxHxL	22.5 x 75 x 100 mm
modular	without spacing

Part Numbers

110 324	Submersible Electrode TE
110 329	Leakage Sensor LKS1



Submersible Electrode TE1

Description

Single pole submersible electrode made of stainless steel in a plastic housing. Used for level monitoring of conductive liquids.

Contents of packing

- 1 x submersible electrode
- 1 x protective tube
- 1 x cable tie for strain relief

Housing Dimensions



Technical Data

Wire	H 07 RN-F 1.5 mm ²
Submersible electrode	stainless steel, material number 1.4104 (C12CrMoS12)
Dimensions	diameter 23 mm, length 130 mm

Leakage Sensor LKS 1

Description

Leakage sensors are connected to level monitors such as the ENW-E12, to detect conductive liquids in case of pipe bursts for example.

A current linkage develops if an electrically conductive liquid (e.g. water) arrives between the two electrodes and this releases an alarm at the connected level monitor.

Use

Monitoring of

- water
- liquids not hazardous to waters
- not explosive liquids

Mounting

- Mount at the lowest point.
- Do not mount the sensor in walkable areas (risk of stumbling).
- Mount the sensor with the electrodes showing downwards.
- Adjust the sensitivity at the level monitor, e.g. ENW-E12.

Notes

- When fastening the screw pay attention not to damage the sensor.
- Do the fastening so that the sensor may not be overturned by outside influences.
- Clean thoroughly and dry the sensor and the cable as well as the surrounding area after each alarm.
If mechanical damage is stated at the sensor or the cable, the sensor has to be replaced by a new one.

Technical Data

Material	Electrodes: stainless steel per material no. 1.4571 Housing: plastic material, casted PC
Termination cable	PVC (two conductors), 3 m
Fixing	stainless steel countersunk screw dia. max. 4 mm (recommended)
Temperature range	-20 to +50 °C, dry surrounding area
Packing	plastic bag
Maintenance	min. 1 x year



Bottom side with two
stainless steel electrodes