



TECHNICAL DATA

Level Gauge

PPI 100



CHARACTERISTICS:

- Level measurements of corrosive and aggressive media (liquids)
- Output: current loop 4 - 20mA
- Stainless steel housing
- Compact and robust construction
- Vented connection cable, polyethene coated, reinforced with kevlar strands
- Great measuring accuracy
- Easy assembly

APPLICATIONS:

The measurement of level in:

- Reservoirs, tanks (waterworks, industry)
- Drill-holes for drinking water
- Pools
- Rivers, lakes
- Industrial containers
- Pipeline systems



The PPI 100 level gauge is an immersible meter that is designed to measure the level of various liquids. The probe is simply lowered to the bottom of the tank. The special construction of the vented connection cable enables the outside air (atmospheric pressure) to influence the input of the sensor located inside the probe. The second input is over a membrane influenced by the pressure increased by the depth of the liquid. The pressure difference results in a change of the output signal of the meter, which is a current of 4 ... 20mA. By measuring the current in the current loop we can determine the precise level of the liquid inside the container.

The housing and the membrane of the meter are made of stainless steel which is resistant to corrosive media. The sensor and the electronics are integrated which increases the accuracy, time stability and resistance to vibrations. The meter is fed remotely (over the current loop).

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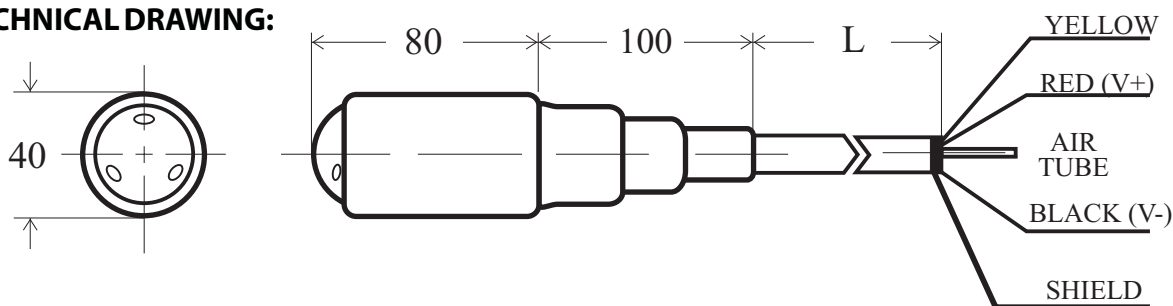
**info@eltratec.com
www.eltratec.com**



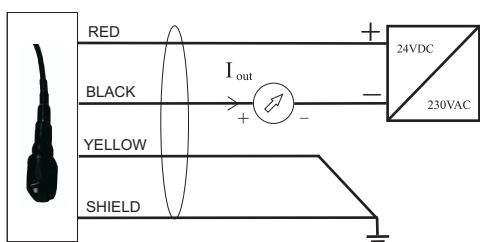
SPECIFICATIONS:

- Power supply: 9 ... 27VDC (reverse polarity protection) through the current loop
- Measuring range: on order (up to 300m)
- Pressure load: max. 300%
- Output signal: current 4 ... 20mA
- Max. resistance of the current loop (at 24VDC feeding): 750 W
- Temperature of the media: 0 ... +70C
- Accuracy (nonlinearity and hysteresis): max. 0,2% of the measuring range (typical 0,1%)
- Surrounding temperature influence: < 0,1%/10°K
- Time stability: max. 0,2%/year
- Operating temperature: max. 70 °C
- Protection level: IP 68
- Housing diameter: 40 mm
- Sensor membrane material: stainless steel 1.4435
- Connection cable: polyethene coat, vented air tube, kevlar fibers (self-carrying synthetic fibers), length on order up to 300m

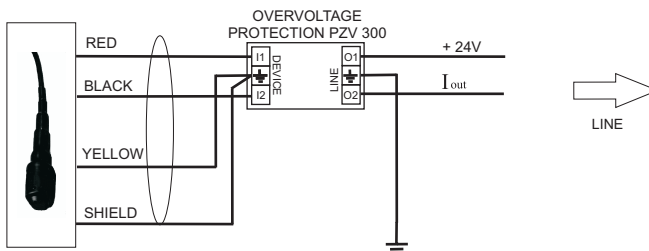
TECHNICAL DRAWING:



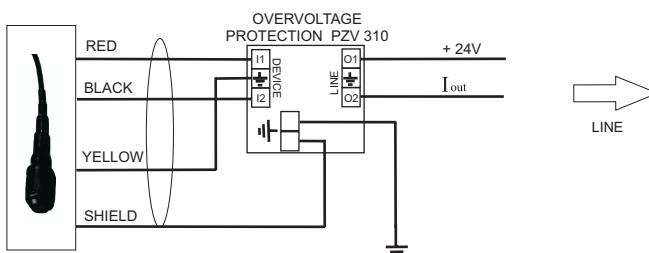
El. connection of the meter:



Example of overvoltage protection for teh gauge:



With a longer wire current loop or in surroundings with potential atmospheric unloading and other over voltages an over-voltage protection (PZV 300 or PZV 310) must be built into the current loop.



Ohm charge of the current loop:

The maximum resistance in the current loop can be calculated with the formula

$$R_z = (U - 9) / 0,020 \text{ (Ohm)}$$

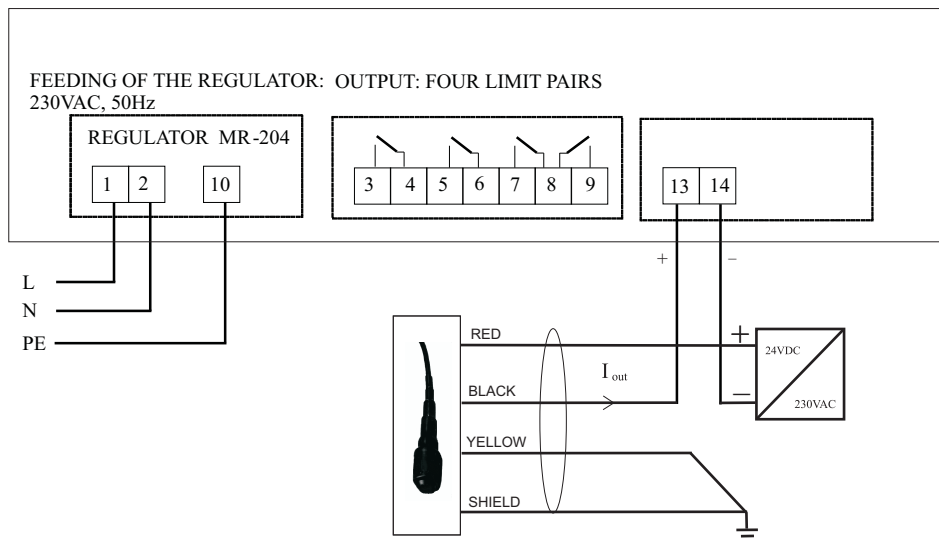
R_z ... maximum resistance of the current loop

U ... feeding voltage of the meter (V)

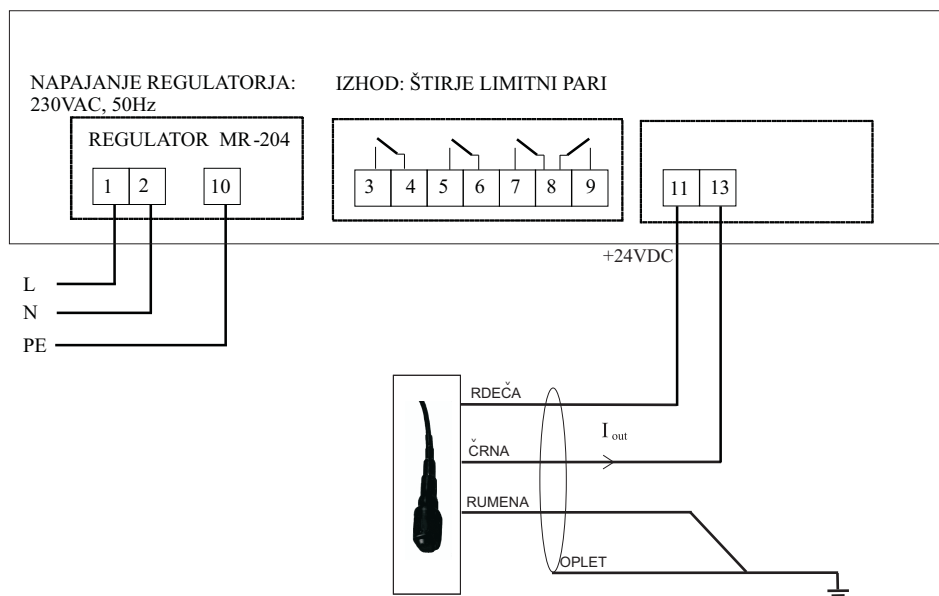
We can see from the formula that the maximum resistance of the current loop with a 24VDC feeding is up to 750 Ohm. If we cross the maximum value the measuring mistake is increased. In the case we want a higher Ohm charge of the current loop we increase the feeding voltage (up to 27VDC) or we mount an additional measuring converter (4-20mA/4-20mA).



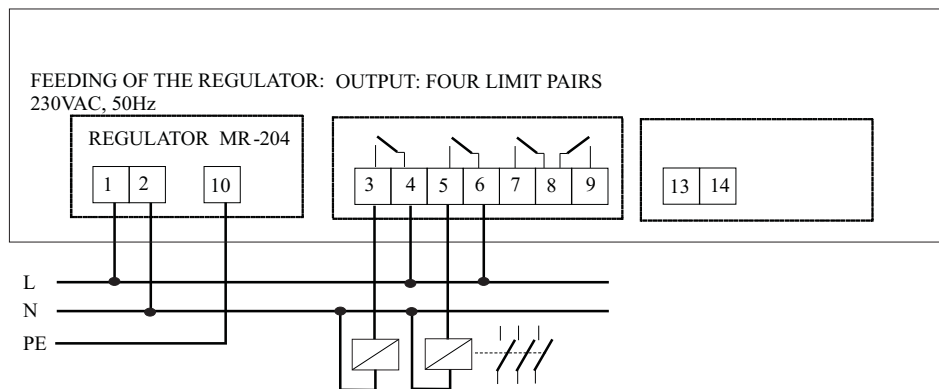
APPLICATION:
connection of the meter
to a MR 204 regulator (the
current loop is fed from
an outside source
24VDC)



APPLICATION:
connection of the meter
to a MR 204 regulator (the
current loop is fed trough
the regulator)



APPLICATION:
controlling two pumps
(use of two limit pairs) -
we add two external
contactors

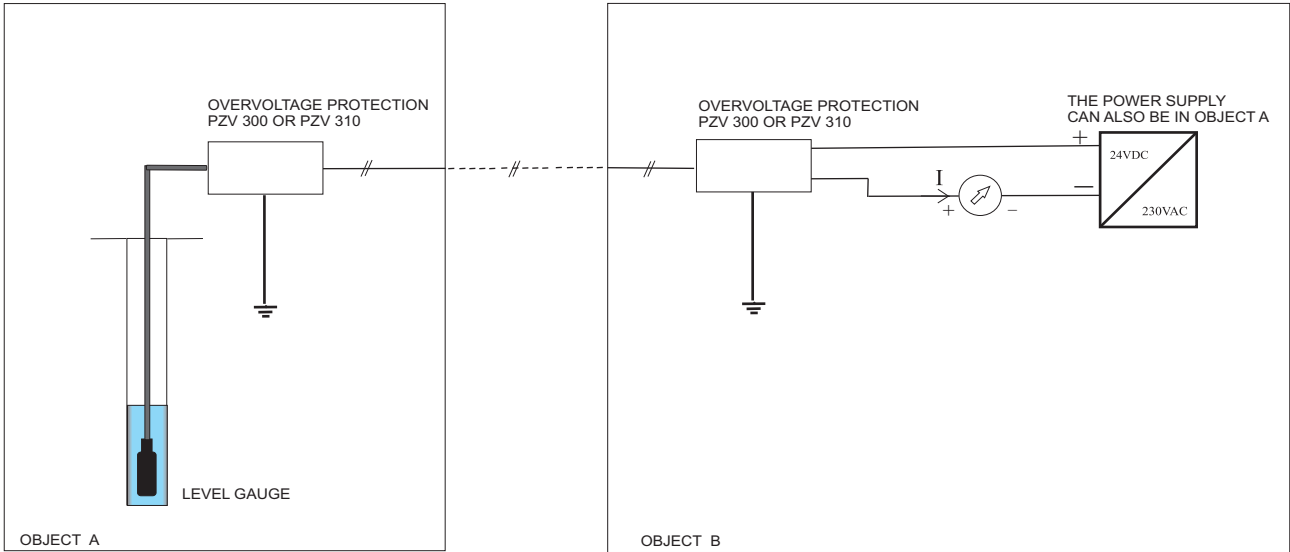


Control examples:

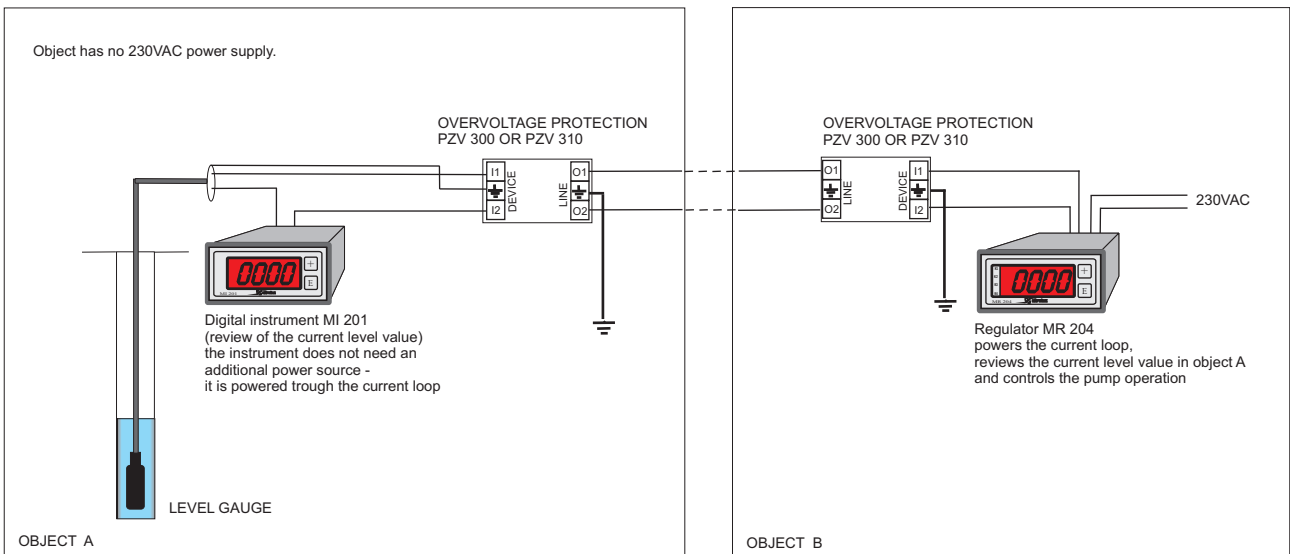
- control of a single pump (level regulation in a reservoir – at a lower level the pump is switched on and at a higher level it is switched off.
- control of two or more pumps (by setting more switch-on and switch-off levels we can control the operation of pump regarding the level, the lower the level the more pumps are switched on)
- pump control (operating level) and dry-run protection (setting of a limit pair that protects the pump from dry-run)
- control of the pump to two different levels(day – lower level setting and night – higher level setting: we use two limit pairs;a switch watch sets either the day limit pair or the night limit pair)



APPLIICATION: level measurement and data transfer over a longer wire current loop (e.g. connection between two objects; reservoir - pumping station)



APPLICATION: level measurement in the reservoir and review of the current level value on a digital instrument (object A). Object A has no power supply 230VAC. The data is transferred to object B where a regulator is reviewing the current level value, feeding the current loop (at the same time also the meter) in object A and controlling the pump according to the preset level limit values. It is also possible to feed the meter over the digital instrument in object A or over an external power supply. In this case the feeding over the current loop from object B is not allowed (the current loop must be fed only from one source otherwise we get a double voltage which results in an el. damage of the meter).



PPI 100 - xxx - xxx - x

0 ... without factory measuring protocol

1 ... with factory measuring protocol

Connection cable length (m)

Measuring range (m)

Example:

PPI 100 - 005 - 010 - 0 (measuring range 0 - 5m, cable length 10m, without measuring protocol)

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