
# pH-4121.NP
# pH/ORP-meter industrial for nuclear power stations

**PH-meter 4121.NP** is a one-channel pH-meter consisting of a sensor with primary transducer (PT) and a measuring instrument (MI).

PT electronic unit enclosure is made of stainless steel, which enables to make its processing with decontamination fluids.

pH-meters for NPP are designed in two versions:

1. monoblock ( PT electronic unit is mounted on the holder)

2. separate – for use in the radiation zone ( PT electronic unit is mounted separately from the holder up to 20 meters in a protected room. PH-electrode is connected to the PT with a special connector with a cable. This allows to provide a quick replacement of the sensor in the rooms with a nuclear radiation).

The pH-meter for NPP is designed for use in severe environmental conditions, namely on seismic resistance, climatic conditions, radiation resistance, difficult situation for electromagnetic compatibility (EMC).

Areas of application: nuclear power, as well as other industries where super reliable measurement of the activity of hydrogen ions (pH) in harsh operating conditions is required.

PH-meters for NPP can be used complete with a hydraulic panel HP-4122 to provide a control of highly demineralized water.

## BASIC TECHNICAL SPECIFICATION AND PARAMETERS

### PRIMARY TRANSDUCER

pH measuring range ..... 0...14
ORP measuring range ..... (-1500...1500) mV
Basic absolute error value limit of
measuring pH complete with a combination electrode pH/ORP ..... ± 0,05 pH / ± **5** mV
Operating temperature measuring range ..... look section Electrodes: Combined pH and ORP
Basic accuracy of measuring temperature..... ±0..5°C
Operating pressure range ..... look section Electrodes: Combined pH and ORP
Thermal compensation modes ..... automatic, manual
Climatic version ..... T=(-40..+50)°C
Dust and water protection ..... IP65
Resistance to mechanical influences ..... V2
Resistance to seismic influences ..... II (NP-026-04 Rus)
Resistance to radiation:
- absorbed dose rate of the pH- ORP- electrodes ..... max $5,0*10^3$ Gy
- The electronic block of PT is resistant to the effect of the integral absorbed dose of ionizing radiation ..... max 150 Gy

Enclosure material:
- D, I type (for pH-4121.E-Ex) ..... aluminum alloy
- S type ..... stainless steel SS316

Weight ..... max 2 kg

### MEASURING INSTRUMENT

Indicator ..... LED four-digit seven segment
Indicator color ..... green or red
Parameters to be displayed ..... pH, temperature
Output signal ..... (0..5) or (4..20)mA
Input signal (output signal from PT) ..... digital impulse torque
Communication line between PT and MI is three-wire, a wire cross-section is ..... at least 0.35mm2
Communication line length ..... max 600m
Power supply voltage ..... ~ (100...240) V, (50...60) Hz
Power consumption ..... max 15 VA

Material of housing ..... aluminium alloy
MI climatic version ..... (+5..+50) °C
Resistance to mechanical influences ..... N2
Weight ..... max 0,7 kg

*The measuring instrument has a double galvanic isolation between the input and the output.*
*At the request of the consumer, the manufacturer sets a specific measuring range for Ph.*

## EXTERNAL WIRING

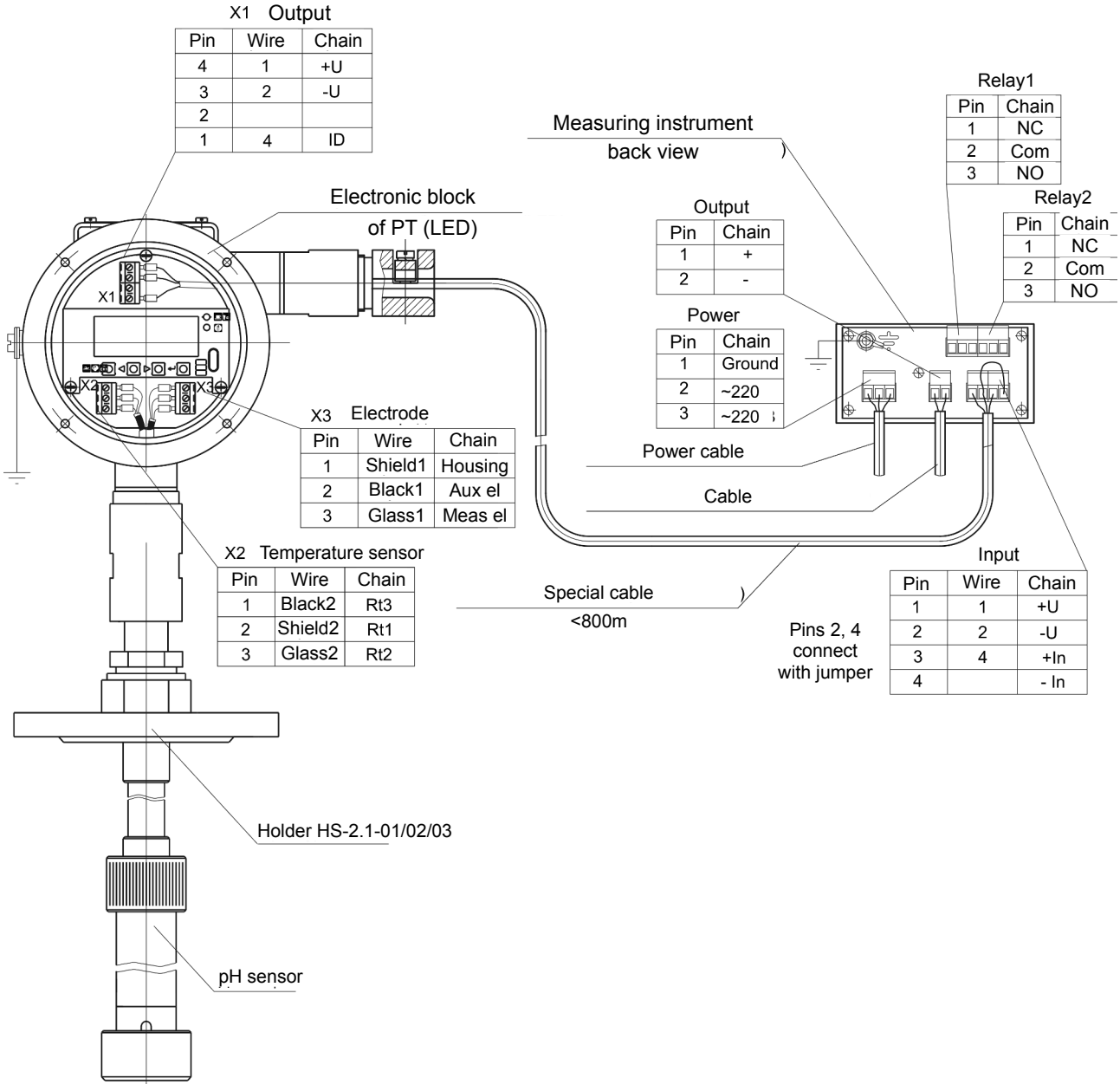


**Figure 1. Scheme of cable connections pH-meter pH-4121.NP with monoblock PT**

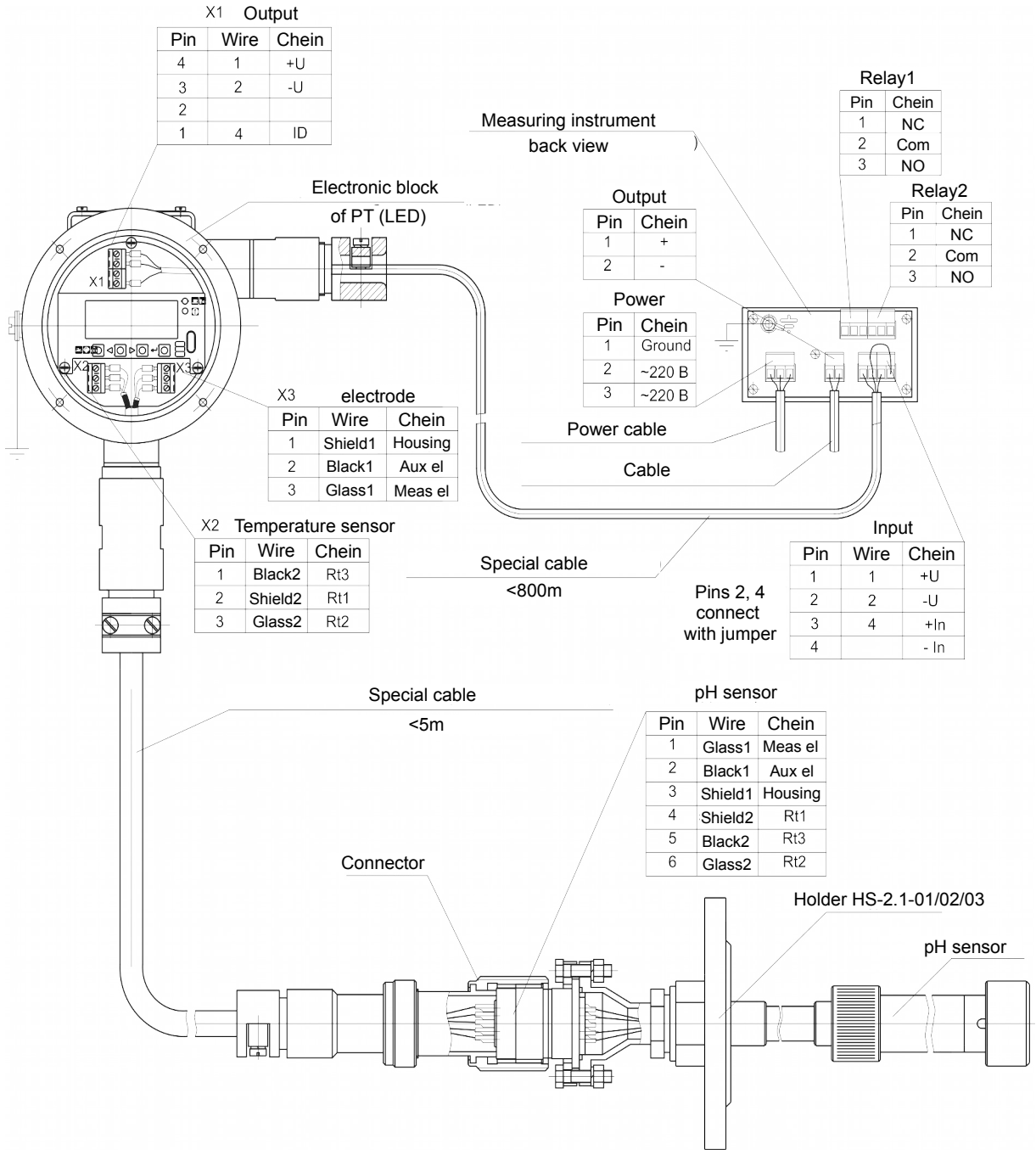


**Figure 2. Schem of cable connections of pH-meter pH-4121.NP with a split electronic unit and the holder of a pH electrode (MI with a relay)**

## OVERALL AND MOUNTING DIMENSIONS

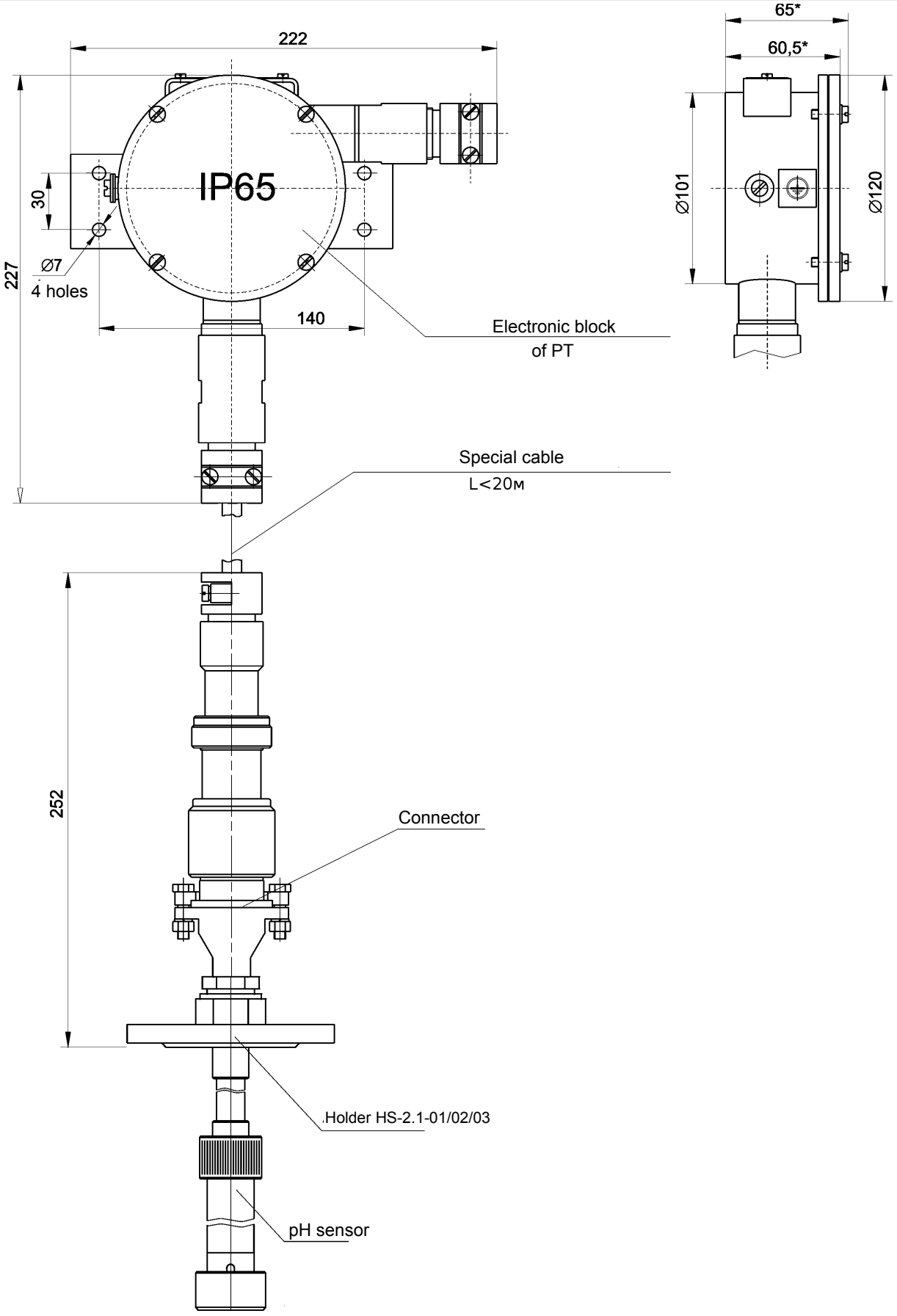


**Figure 3. Overall and mounting dimensions of the primary transducer**

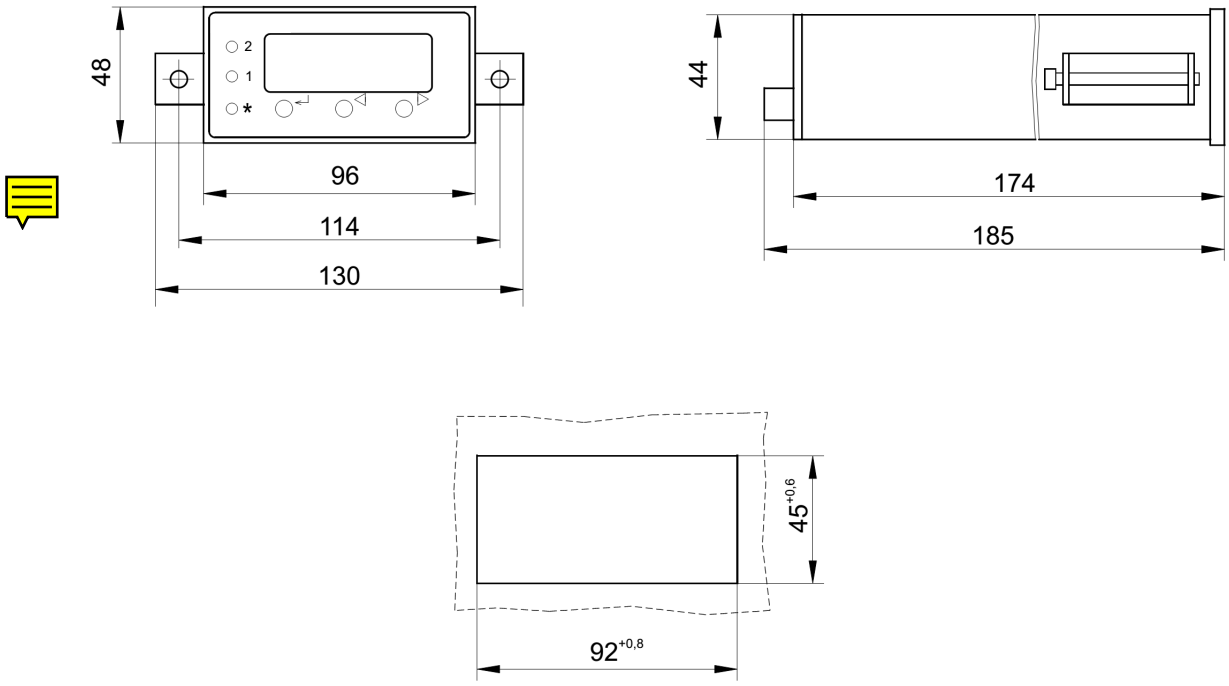


**Figure 4. Measuring instrument**

## ORDER REFERENCE CODE

To place an order, use the order reference in the description of pH-4101 and the questionnaire.

## ACCESSORIES

- combination electrode (see section **"Combination pH and ORP electrodes»**);
- holders for pH-electrodes installation (see section **"Holders for sensors"**);
- pH-metric cable.