

## pH-4122.NP pH/ORP-meter industrial two channel for nuclear power plants



**PH-meter 4122.NP** is a two-channel analyzer consisting of one or two primary transducers (PT) and a measuring instrument (MI).

PT consists of an electronic unit and a pH electrode, which is fixed in the holder.

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).

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 fixed 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).

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 <sup>3</sup> 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

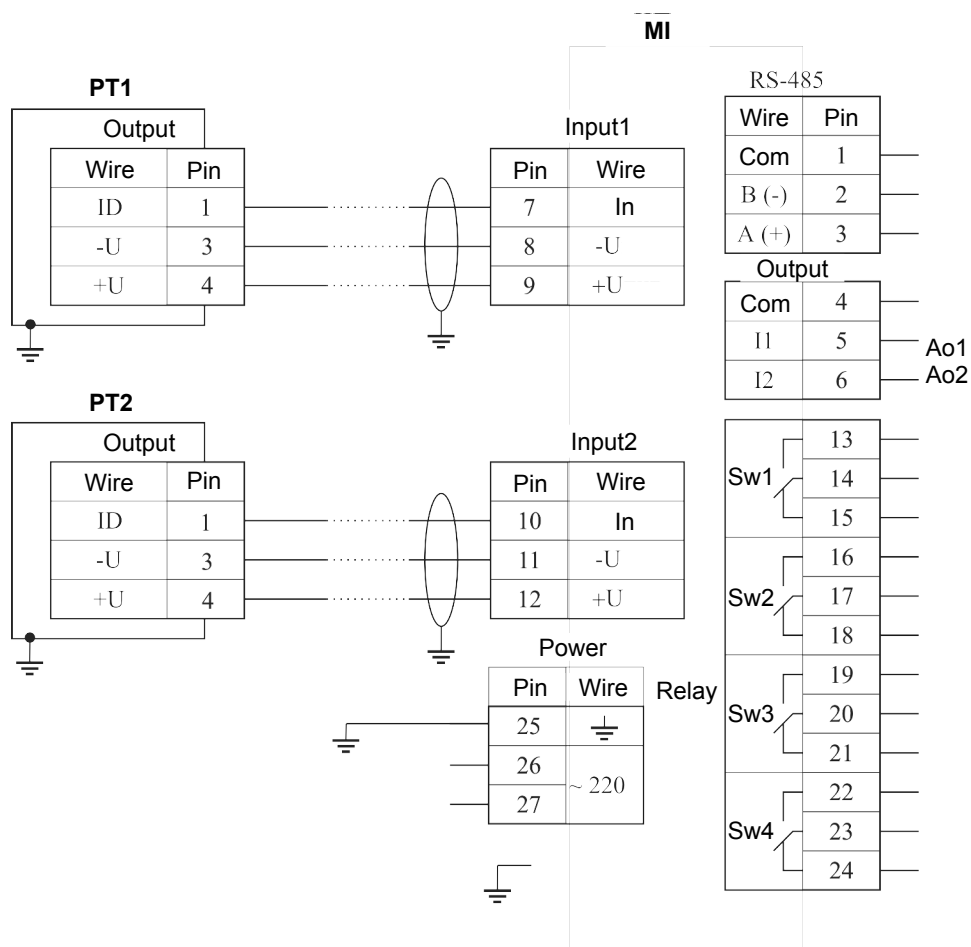
Measuring channels quantity	1, 2
Parameters being measured in every channel	pH and temperature
PT and MI connection line – three-wire	0.35mm <sup>2</sup>
Communication line length	max 600m
Indicator type	LCD
Output signals parameters:	
-two analog, programmable	(0..5), (0..20) or (4..20)mA
-one interface	RS-485, ModBus RTU data communications protocol
-four discrete	switching over dry contact, 240V, 3A
Setting Alarm range for pH and temperature	in the whole measuring range

**pH-meters > With active PT > pH-4122.NP**

Archive capacity (quantity of pH and temperature values pairs records).....	15872 points
Archiving time .....	from 4.4 hours to 55 days
Archiving interval.....	programmable from 1 sec to 5 min
Power supply .....	~(100..240)V, (50..60) Hz
Power consumption.....	max 15 VA
MI enclosure material - panel mount.....	aluminum alloy
MI enclosure material - wall mount.....	ABS plastic
Dust and water protection - PT, MI wall mount design.....	IP65
Dust and water protection - MI panel design.....	IP54 (only on the front panel)
Climatic version -PT.....	T=(-40..+50)°C
Climatic version -MI.....	T=(+5..+50)°C
Resistance to mechanical influences - PT.....	V2
Resistance to mechanical influences - MI.....	N2

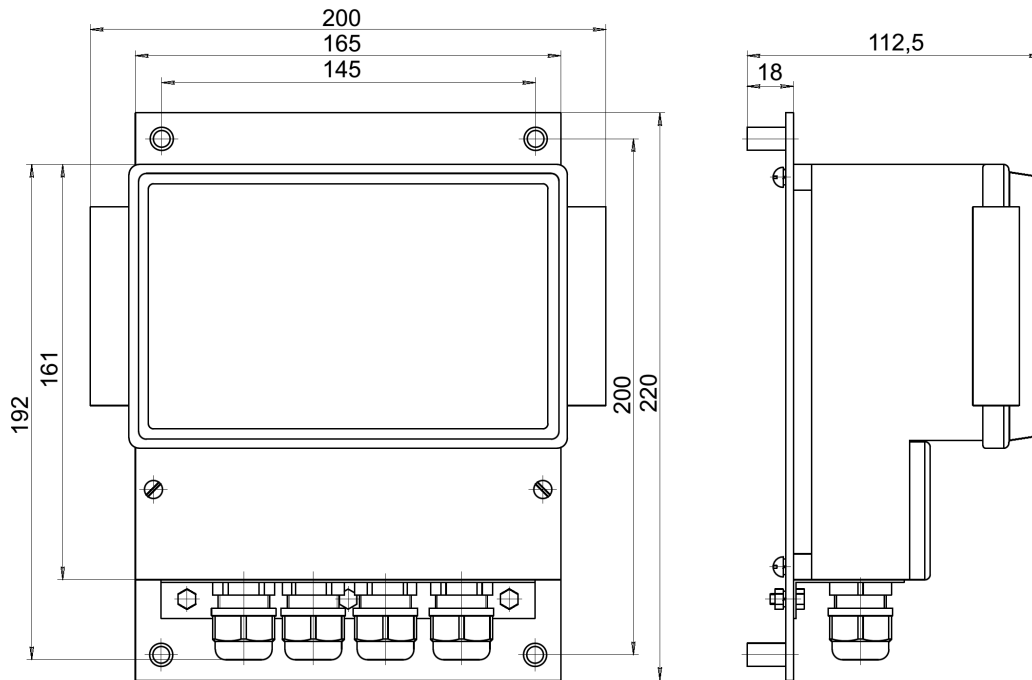
The measuring instrument has a double galvanic isolation between the input and the output.  
 At the request of the consumer, the manufacturer establishes a specific range of pH measurement.

**EXTERNAL WIRING**



**Figure 1. Connecting primary transducers to a measuring instrument**

## OVERALL AND MOUNTING DIMENSIONS



**Figure 2. Measuring instrument**

*The overall and mounting dimensions of the primary transducers are given in the description of pH-4101.  
The connection diagrams are given in the description of pH-4121.NP*

## 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.