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DO-100.47E

# INDICATION AND CONTROL OF pH INDUSTRIAL pH METER

## 9403T-R1 SERIES DO, DO 9785T, 9765T DO

These transmitters convert the signal from a pH electrode into an analog signal  $4 \div 20\text{mA}$ .  
If it is connected Pt100 temperature sensor signal can be compensated.

The keyboard and LCD display allow calibration and set the levels of relays.

The input and output are galvanically isolated.

DO 9403T and DO 9765T-R1 models have a degree of protection IP64 and are for mounting on wall.  
DO 9785T model is for panel mounting and the degree of protection IP54



## MODELS AVAILABLE

| MODEL       | POWER SUPPLY |            | RANGE<br>pH | COMPENS.<br>TEMPERATURE | DIMENSIONS    | OUTPUT |
|-------------|--------------|------------|-------------|-------------------------|---------------|--------|
|             | Active       | Passive    |             |                         |               |        |
| DO 9403T-R1 | 24Vac        | 11,5÷40Vdc | 0÷14        | 0+100°C                 | 120x80x58 mm  | 4÷20mA |
| DO 9785T    | 24Vac        | 10÷35Vdc   | 0÷14        | -50+199°C               | 96x96x126 mm  | 4÷20mA |
| DO 9765T    | 24Vac        | 10÷35Vdc   | 0÷14        | -50+199°C               | 120x122x56 mm | 4÷20mA |

Working temperature of the electronics  $0 \div 50^\circ\text{C}$

Accuracy  $^\circ\text{C}$  Input  $\pm 1$  digit  $\pm 0,01\%$  pH/ $^\circ\text{C}$  Output 0,5% reading.  $\pm 0,02\text{mA}$

On the last page details the pH and ORP electrodes are available for these instruments

## AVAILABLE ACCESSORIES

CP 5 Extension cable. Connector S/wire - TERMINAL BOARD.)  
CP5/10 Extension cable L=10m. Connector BNC/S7.  
CP5S Extension cable L=5m. Connector BNC/S7.  
CP5S/10 Extension cable L=10m. Connector BNC/S7.

HD 8642 Buffer solution 4.01 pH.  
HD 8672 Buffer solution 6,86 pH  
HD 8692 Buffer solution 9,18 pH.  
HD R220 Buffer solution Redox 220 mV  
HD R468 Buffer solution Redox 468 mV

Pt 100 temperature probes

# **TECHNICAL CHARACTERISTICS DO 9403 TR1**

|                                       |                       |                                                                              |
|---------------------------------------|-----------------------|------------------------------------------------------------------------------|
| Combined electrode input              | PH                    | -1,00 ... 15 pH (-500 ... 500mV)                                             |
|                                       | ORP                   | -1999 ... 1999 mV                                                            |
|                                       | Input impedance       | > 10Mohm                                                                     |
|                                       | Cable length          | < 50 m screened (about. 5nF)                                                 |
|                                       | Accuracy              | 0.1% of reading $\pm 1$ digit $\pm 0.01\%$ of pH per °C of temperature drift |
| Temperature Input                     | PT100 2/4 wires       | -50 ... 199,9 °C                                                             |
|                                       | Transducer energizing | 0,5 mA dc                                                                    |
|                                       | Cable length          | >10 m. unscreened<br><20 m. screened (about. 2 nF)                           |
|                                       | Accuracy              | 0,2 °C $\pm 1\%$ of reading $\pm 2$ digits $\pm 0,01$ °C/°C                  |
| pH electrode temperature compensating | Automatic             | According to Nerst                                                           |
| Current output                        | 4,00 ... 20,00        | Programmable and proportional to the pH or mV value                          |
|                                       | Accuracy              | 0,5 % de la lectura $\pm 0,02$ mA                                            |
|                                       | Insulation            | 2500 V ca 1 minute.                                                          |
| Relay output                          | A and B               | Bistable, contact 3 A/230 Vac free potential                                 |
| Power supply                          | Active                | 24 or 230 Vac -15/+10% 1 VA, 48...62 Hz, see fig. 1                          |
|                                       | Passive               | 4÷20 mA, 2 wire configuration, 10÷35 V, see fig. 2                           |
| Temperature                           | Operative             | 0 ... 50 °C                                                                  |
|                                       | Storage               | -20 ... 70 °C no condensation                                                |
| Case                                  | Dimensions            | 120 x 80 x 56 mm.                                                            |
|                                       | Protection class      | IP64                                                                         |

Fig. 1 - Active transmitter

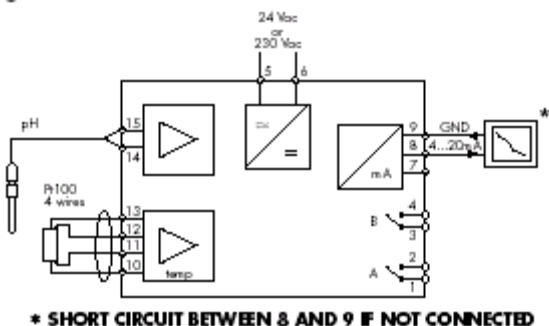


Fig. 2 - Passive transmitter

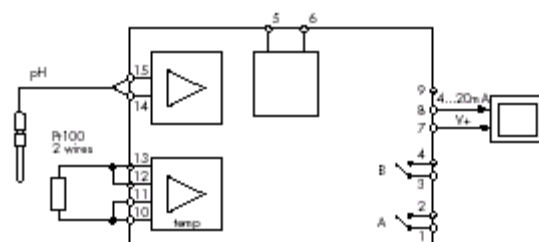


Fig. 3

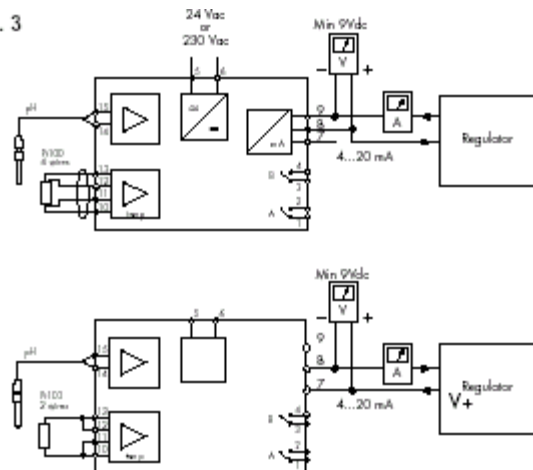
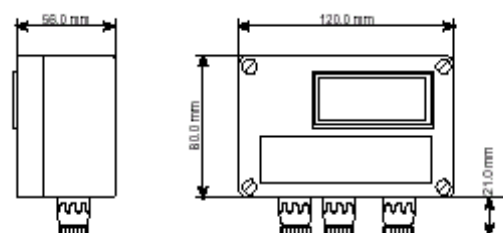
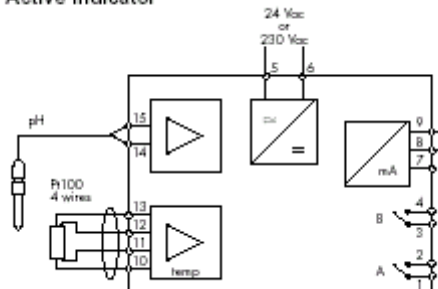


Fig. 4 - Active indicator



DO 9403T-R1

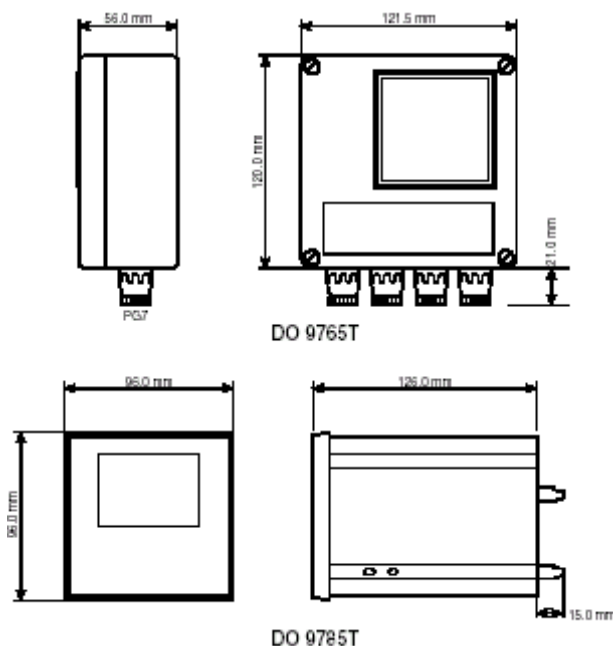
## DO 9765T AND DO 9785T pH TRANSMITTERS

DO 9785T/DO 9765T pH transmitters convert the output of a pH electrode, with temperature compensation, into a signal at  $4 \pm 20$  mA. The pH electrode input circuit is galvanically insulated against the  $4 \pm 20$  mA output signal.

An LCD indicator allows viewing of the process signal value and of the various parameters.

The accurate design and choice of components make the instrument precise and reliable for a long working life.

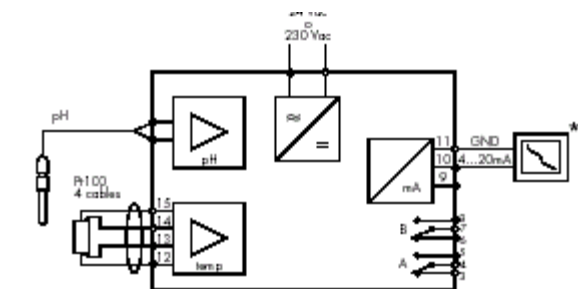
The instrument works in conjunction with a pH electrode or Redox and a temperature probe (Pt 100 sensor, 100  $\Omega$  at 0°C).



### TECHNICAL CHARACTERISTICS

|                                       |                       |                                                                              |
|---------------------------------------|-----------------------|------------------------------------------------------------------------------|
| Combined electrode input              | PH                    | -1,00 ... 15 pH (-500 ... 500mV)                                             |
|                                       | ORP                   | -1999 ... 1999 mV                                                            |
|                                       | Input impedance       | > 10Mohm                                                                     |
|                                       | Cable length          | < 50 m screened (about. 5nF)                                                 |
|                                       | Accuracy              | 0.1% of reading $\pm 1$ digit $\pm 0.01\%$ of pH per °C of temperature drift |
| Temperature Input                     | PT100 2/4 wires       | -50 ... 199,9 °C                                                             |
|                                       | Transducer energizing | 0,5 mA dc                                                                    |
|                                       | Cable length          | >10 m. unscreened<br><20 m. screened (about. 2 nF)                           |
|                                       | Accuracy              | 0,2 °C $\pm 1\%$ of reading $\pm 2$ digits $\pm 0,01$ °C/°C                  |
| pH electrode temperature compensating | Automatic             | According to Nerst                                                           |
|                                       | Manual                | -50°C÷200°C                                                                  |
| Current output                        | 4,00 ... 20,00        | Programmable and proportional to the pH or mV value                          |
|                                       | Accuracy              | 0,5 % de la lectura $\pm 0,02$ mA                                            |
|                                       | Insulation            | 2500 V ca 1 minute.                                                          |
| Relay output                          | A and B               | A and B                                                                      |
|                                       |                       |                                                                              |
| Power supply                          | Passive               | 4÷20 mA, 2 wire configuration, 10÷35 V, see fig. 2                           |
|                                       | Active                | 24 or 230 Vac -15/+10% 1 VA, 48...62 Hz, see fig. 1                          |
|                                       |                       |                                                                              |
| DO 9765T Model                        | External dimensions   | 120x122x56 mm (wall mounting)                                                |
|                                       | Protection class      | IP64                                                                         |
|                                       |                       |                                                                              |
| DO 9785T Model                        | External dimensions   | 96x96x126 mm (panel mountig)                                                 |
|                                       | Protection class      | IP54                                                                         |
|                                       |                       |                                                                              |

B



\* SHORT CIRCUIT BETWEEN 10 AND 11  
Fig. 1

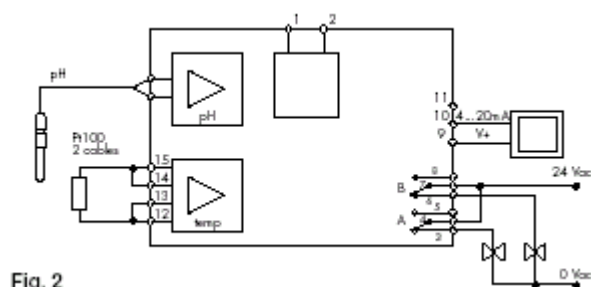


Fig. 2

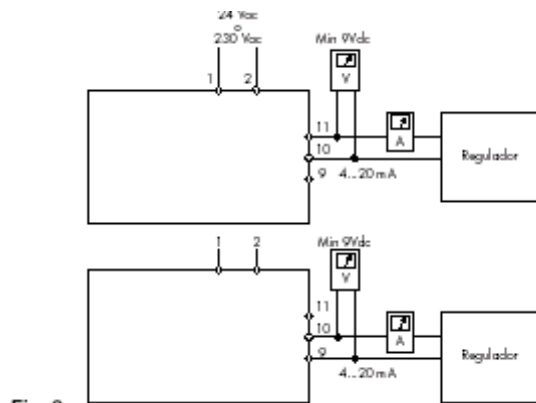


Fig. 3

## INDUSTRIAL ELECTRODES pH

|                                                              |  |
|--------------------------------------------------------------|--|
| <b>KPI 10</b><br><b>KPI 12 Redox</b><br>0...14 pH 0...130 °C |  |
| <b>KPI 11</b><br><b>KPI 13 Redox</b><br>0...14 pH 0...100 °C |  |
| <b>KPI GB 210</b><br>0...14 pH 0...135 °C                    |  |

### KPI 10

Combined industrial electrode, S7 PG13.5 connector, refillable, glass body, Ag/AgCl sat, KCl Ø12x120 mm, temperature 0÷130°C, ceramic junction..

### KPI 12 Redox

Platinum electrode for Redox measurement, S7 PG13.5 connector, pressure 6 bar..

### KPI 11

Combined industrial electrode, S7 ¾" NPT connector, refillable, Rytron body, Ag/AgCl sat, KCl, temperature 0÷100°C, ceramic junction..

### KPI 13 Redox

Platinum electrode for Redox measurement, Rytron body, S7 ¾" NPT connector, Ag/AgCl sat, KCl.

### KPI GB 210

Electrode for biotechnology, S7 PG13.5 connector, glass body, Ø12x210 mm, temperature 0÷135°C, max 10 bar.

