



μP

Indicator Transmitter Controller for pH, ORP, Conductivity, Oxygen, Turbidity, Chlorine, Chlorine Dioxide, Chlorites, Peracetic Acid, Ozone and other oxydising substances, Sulphites, Metabisulphites and other reducing substances

Microprocessor based instruments, fully programmable, for the analysis of many physico-chemical parameters. Instrument configuration is easily performed via display and keyboard and calibration is automatic. Measure and temperature are indicated on a 5 digit red LED display. The instrument includes a galvanically isolated analog output (4÷20 mA or 0÷10 V) and 4 digital outputs (from relay) that can be configured as NC or NO via software and can be programmed as low alarm, high alarm, alarm with hysteresis or windows alarm. Two digital inputs are available, one for digital hold of the measure, and one for the input of an external alarm (e.g. level switch, temperature switch etc.) The instrument is optionally available with cleaning sequence included. Typical use of these instruments is for on line measurements of various physico-chemical parameters.



Advantages

- **Direct input from electrochemical sensors and pertinent temperature sensor**
- **Automatic thermo compensation of the measure via software through specific algorithms**
- **Display indication of both analysis and temperature values**
- **Galvanically isolated analogue output**
- **4 digital outputs from relay, programmable**
- **2 digital inputs, programmable**
- **Capability to drive sensor cleaning through a relay; programmable cleaning sequence**
- **Advanced self-diagnostic features; sensor diagnostic capability**
- **Suitable for panel mounting and for outdoor installation (IP 65 protection degree)**
- **Great flexibility, can measure many other parameters besides the ones listed above**
- **Easy to use: menus and functionalities are the same for all the analysers of the family**



Operating principle and realization

The Series μP includes microprocessor based instruments for the analysis of pH, ORP, ISE, Conductivity, Turbidity, Dissolved Oxygen, Oxygen in Air, Oxidising Substances (e.g. Chlorine, Chlorine Dioxide, Chlorites, Ozone, Peracetic Acid, Permanganate, Bromine), Reducing Substances (e.g. Metabisulphites, Sulphites, Sulphur anhydride etc.) It can be directly connected to the sensor of one of the a.m. parameters and to the pertinent temperature sensing element. The measure is compensated for temperature variations, displayed in engineering units and retransmitted on a 4÷20 mA or 0÷10 V

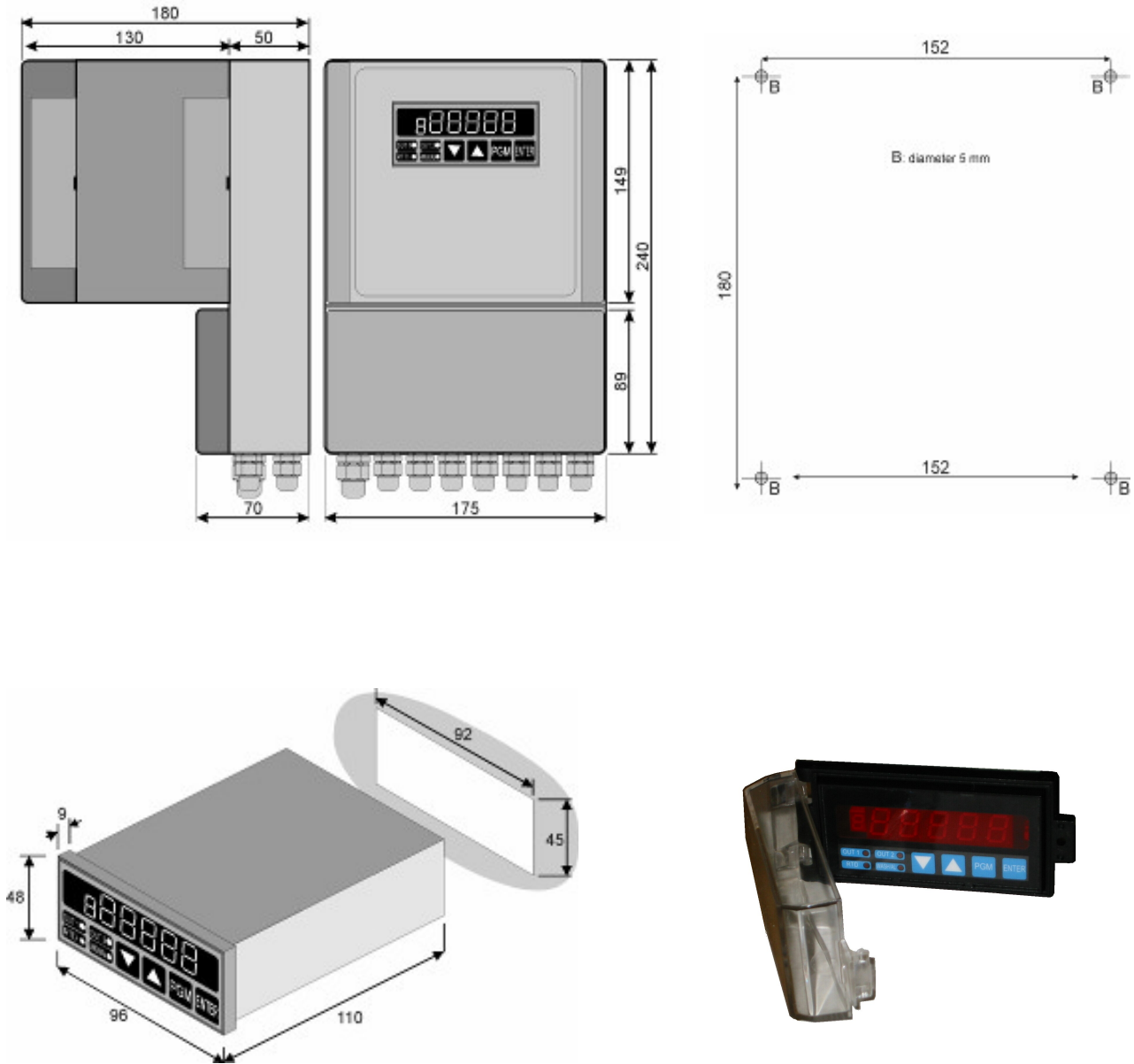
analogue output that can be freely associated to any interval inside the measuring range. The instrument provides 4 digital outputs that can be configured as NC or NO via software and can be programmed as low alarm, high alarm, alarm with hysteresis or windows alarm. The 4 digital outputs are from relays. Two digital inputs are available, one for digital hold of the measure, and one for the input of an external alarm (e.g. level switch, temperature switch etc.) The instrument is optionally available with cleaning sequence included: in this version it can drive the chemical cleaning of the sensor through a specific algorithm, with programmable timers, driving the detergent pump through R4 relay. The instrument is sturdy and compact and is available in the version for outdoor mounting, included in an IP65 housing, and for panel mounting included into a plastic case, 48 x 96 mm, IP 54 protection degree, and for panel mounting included into a plastic case, 48 x 96 mm, IP 54 protection degree, c/w a transparent front cover.

μP

Installation, Maintenance and Calibration

The instrument is supplied completely programmed according to customer specifications (if indicated in the order). Install the instrument and complete wirings according to instruction manuals, then power up and verify that the instrument configuration complies with process requirements. Now operate a calibration of the measuring chain.

The instrument does not require specific maintenance, it is only necessary to periodically check the calibration. The frequency of calibration check depends upon the kind of analysis operated and the process in which the instrument is installed.



Technical Specifications

Housing Mod.μPxxTxxxAxxx (panel mtg): Noryl, IP 54 protection, 48 x 96X100 mm. Inst.space: 45 x 92 mm
Housing Mod.μPxxTxxxBxxx (panel mtg), with transparent front cover:.....Noryl, IP 54 protection, 48 x 96X100 mm. Inst.space: 45 x 92 mm; polycarbonate transparent front cover
Housing Mod.μPxxTxxxCxxx (outdoor inst.): ABS, IP 65 prot.degree; dimensions 175x2400x180 (wxhxd) mm
Input signal:.....from sensor: pH, ORP, Conductivity, Turbidity, D.O., O₂, Cl₂, ClO₂, PAA, KMnO₄, Br₂,
.....S₂O₅²⁻, SO₂, SO₃²⁻, or other and from pertinent temperature sensor, Pt100.
Digital inputs:2, from NPN static contact or from voltage free contact, max.voltage 18 V; max. closure
.....current 4 mA; In standard functionality mode: IN1 : Digital hold of reading (freezing);
.....IN2: alarm from external equipment (level switch, pressure switch, temperature switch etc.).
.....If present, the alarm is locally indicated through LED "WASH/AL" flashing
Display:.....red LED, h 12.5 mm, 5 digit and algebraic sign, programmable decimal point, selectable range
Digital outputs:.....4 alarm set points, output from relays, SP, 3A – 250 V, resistive load.
.....The alarms can be configured as low alarm, high alarm, window alarm, alarm with hysteresis.
.....Each set-point has programmable differential. R4 relay, in Mod.μxxTxx2xxxx instruments,
.....including cleaning sequence, is used to drive detergent dosing pump for sensor chemical cleaning
Analogue output: proportional to analysis; 4÷20 mA or 0÷10 V through pertinent connection to terminal board.
.....4÷20 mA: max.load 500 Ω;
.....0÷10 V:load resistance must be ≥1 kΩ, max.current 10 mA. Galvanic isolated outputs.
.....Output signal can be freely associated to any interval inside the measuring range.
Analogue output accuracy and linearity:.....Accuracy: 0.01 %; Linearity: 0.0025 %
Measuring range (Where required, specify desired measuring range at order):
pH and pH(Sb):.....-1.00 ÷ +15.00 pH
ORP.....- 2000 ÷ +2000 mV
ISE.....- 2000 ÷ +2000 mV or 0÷9999 ppm
Conductivity:.....0.0÷20.0/0.0÷200.0/0.0÷2000.0 μS; 0.000÷20.000/0.00÷200.00/0.0÷2000.0 mS
Turbidity.....0.0 ÷ 2000.0 NTU
D.O:.....0.000÷20.000 ppm 0÷100% O₂
O₂ in air:.....0÷100% / O₂ 0÷21% O₂
Chlorine and Oxidising Substances:.....0÷2000 ppb / 0.00÷10.00 ppm / 0.0÷2000.0 ppm
Reducing substances:.....0.0÷2000 ppb / 0.00÷10.00 ppm / 0.0÷2000.0 ppm
Temperature.....0.0÷+99.9°C, resolution 0,1°C, accuracy ±0,1% f.s.
.....-50÷+300°C, resolution 1°C, accuracy ±0,5% f.s.
Other.....-99999 ÷ + 99999, with selectable decimal point.
Measure intervals associated to analogue output:
pH and pH(Sb):freely selectable inside the limits -1.00 and +15.00 pH
ORP:freely selectable inside the limits - 2000 and +2000 mV
ISE:freely selectable inside the limits - 2000 and +2000 mV or 0÷9999 ppm
Conductivity:.....freely selectable inside selected measuring range
.....(0.0÷20.0 / 0.0÷200.0 / 0.0÷2000.0 μS; 0.000÷20.000 / 0.00÷200.00 / 0.0÷2000.0 mS)
Turbidity: freely selectable inside the limits 0.0 and 2000.0 NTU
D.O..... freely selectable inside the limits 0.000÷20.000 ppm 0÷100% O₂
O₂ in air:.....freely selectable inside measuring range: 0÷100% / O₂ 0÷21% O₂
Cl₂ and Oxidizing Substances:freely select.inside meas.range (0÷2000 ppb, 0÷10 ppm, 0÷2000 ppm)
Reducing Substances: .freely selectable inside meas.range (0÷2000 ppb, 0÷10 ppm or 0÷2000 ppm)
Other:.....freely selectable inside the limits -99999 e + 99999
Integration (smoothing):programmable
Range of temperature compensation:.....-9.9°C to 99.9°C, 0.1°C resolution; -50°C to 300°C 1°C resolution
Power supply:Mod.μPxxT1xxxxxx : 24 Vac, ±10%, 50/60 Hz, maximum consumption 3.3 VA
.....Mod.μPxxT4xxxxxx : 24 Vdc, ±10%, maximum consumption 3.3 VA
.....Mod.μPxxT5xxxxxx : 115/230 Vac, ±10%, 50/60 Hz, maximum consumption 3.3 VA
Data storage:..... E²prom stores data also during power shut off
CE compliance:.....according to pertinent rules (93/68CEE – electromagnetic compatibility; low voltage)
Electrical classification:.....for safe area installation
Ambient temperature limits during operation:.....0 ÷ 50 °C
Storage temperature limits:.....0 ÷ 60 °C

Order code breakdown

	μP	xx	T	x	x	x	x	xx	x
Microprocessor based transmitter indicator	μP								
Measured parameter									
pH		01							
pH with antimony electrode (Sb)		02							
ORP		03							
Conductivity		04							
Turbidity		05							
Dissolved Oxygen (cell Mod.332I, 332C, 332P)		06							
Dissolved Oxygen (cell Mod.332B)		21							
Oxygen in air		66							
Chlorine		22							
Chlorine dioxide		23							
Ozone		24							
Peracetic acid		25							
Permanganate		26							
Bromine		27							
Oxidizing power		28							
Temperature		29							
Ion Selective Electrodes (ISE)		30							
Metabisulphites		33							
Hydrogen Peroxide		40							
Clorites		42							
Conductivity, toroidal cell		44							
Other		99							
Transmitter, fixed code			T						
Power Supply									
24 Vac 50/60 Hz									1
24 Vdc									4
115/230 Vac 50/60 Hz (Note 1)									5
Cell constant of the conductivity cell to be connected									
Standard (for all instruments except uP04)									A
Code not in use									B
Only for uP04: cell constant K = 0,1 cm									C
Only for uP04: cell constant K = 1 cm									D
Only for uP04: cell constant K = 10 cm									E
Only for uP04: cell constant K = 100 cm									F
Special execution									Z
Cleaning sequence									
Not included									1
Enabled									2
Housing									
IP 54 for panel mounting									A
IP 54 for panel mounting, c/w transparent front cover									B
IP 65 hosing for outdoor installation									C

Note 1: specify if required power supply is 115 VAC or 230 VAC at order.

	μP	xx	T	x	x	x	x	xx	x
Measuring Range									
Reserved								0	
pH with glass electrode, pH differential electrodes		0-14 pH						10	
pH with Antimony electrodes		0-14 pH						11	
ORP		-2000 mV - + 2000 mV						20	
Dissolved Oxygen		NOT IN USE						31	
		0-20 ppm						32	
		0-100%						33	
Oxygen in air		(Note 2) 0-100%						34	
		(Note 3) 0-21%						35	
Conductivity		0-20 uS						41	
		0-200 uS						42	
		0-2000 uS						43	
		0-20 mS						44	
		0-200 mS						45	
		0-2000 mS						46	
Reducing Substances		0-2000 ppb						51	
		0-10 ppm						52	
		0-2000 ppm						53	
Oxidising Substances		0-2000 ppb						61	
		0-10 ppm						62	
		0-2000 ppm						63	
Turbidity		0-2 NTU						71	
		0-20 NTU						72	
		0-200 NTU						73	
		0-2000 NTU						74	
Temperature		-50°C - + 300°C					80		
Other							99		
Temperature compensation range									
		-9.9°C to 99.9°C							A
		-50°C to 300°C							B

Note 2: in the range 0-100 % O₂ the value 100% corresponds to the normal concentration of oxygen in air, that is 21% O₂ on the total of the other gasses that compose the air.

Note 3: in the range 0-21 % O₂ the value 21% corresponds to the normal concentration of oxygen in air, that is 21% O₂ on the total of the other gasses that compose the air.

Accessories included in the supply

Support for panel mounting (only for μPxxTxxxAxxx and μPxxTxxxBxxx).

