MT 600 Datasheet

DOUBLE-PARAMETER CONTROL INSTRUMENTS FOR ULTRA-HIGH-PRECISION APPLICATIONS

General Information

MT 600 controllers have large high-contrast backlit graphic displays that change colour depending on the working condition of the device. The wall-mounted version features a new 240x128-pixel display which provides an effective simultaneous display of two measurements under examination through the use of large characters. A monochrome display with graphic icons shows simultaneous flashing values for measurements, output status, washing cycle, alarms and temperature readings with four different coloured backlights. Five quick control keys are used for instrument calibration, setup, advanced and view levels.

Enclosure box and multi power supply

Wall mounting: IP65-rated ABS plastic (full box) 220 x 144 x 122.5 mm.

Panel mounting: IP65-rated ABS plastic (front panel) 96 x 96 x 100 mm.

Universal power supply: 100÷240 Vac 50/60 Hz

Low power supply: 24÷48 Vdc or 24 Vac

Current outputs

4÷20 mA output current analogue signal; two independent programmable output measures with proportional routine regulation.

The MT 600 series allows the user to programme the outputs according to the parameters detected according to a PID (proportional integral derivative) algorithm, widely used in industrial applications for process control.

Relay Outputs

Four independent relays, two setpoint varieties (on/off and hysteresis), alarm configuration and probe washing routine setting by main menu. On/Off, Timed and Proportional (PWM) routine function setting.

Solid state relay (SSR)

Two frequency output signals with two independent setpoints, pulse numbers and propband setting.

Snail lock fixing system

Quick connection for panel mounting version.

Applications

- Wastewater treatment
- CIP
- Fish farming
- Drinking water
- Cooling towers
- Boilers
- Reverse osmosis
- Galvanic industry
- Irrigation

Technical data may be changed without notice.

Operating Specifications

pH/ORP Specifications	
Range ph	0 - 14.00pH
Range mV	- 2.000 to 2.000 mV
Resolution pH	0.01 pH
Accuracy pH	± 0.01 pH
Resolution mV	1 mV
Accuracy mV	± 1 mV
Input impedance	> 10^{12}
Insulation	Functional
Conductivity/Resistance Specifications	
Range with C 0.01 cm-1 / K 100 sensor	0.005 uS/cm to 200 uS/cm (5 K x cm to 200 MO x cm)
Range with C 0.10 cm-1 / K 10 sensor	0.05 uS/cm to 2 mS/cm (500 0 x cm to 20 MO x cm)
Range with C 0.20 cm-1/ K 5 sensor	0.1 uS/cm to 4 mS/cm (250 0 x cm to 10 M x cm)
Range with C 1.00 cm-1 / K 1 sensor	0.5 uS/cm to 20 mS/cm (50 0 x cm to 2 MO x cm)
Range with C 10.0 cm-1 / K 0.1 sensor	5 S/cm to 200 mS/cm (5 0 x cm to 200 Kg x cm)
Range with C 20.0 cm-1 / K 0.05 sensor	10 S/cm to 400 mS/cm (2.5 2 x cm to 100 K x cm)
Resolution cond/res	0.0001 / 0.001 / 0.01 / 0.1 / 1 (adjustable from menu)
Accuracy cond/res	± 2% on the measuring point
Maximum distance of the sensor	up to 50 m (up to 164 ft)
TDS range	0.3 to 2.0 ppm/uS
Insulation	Functional
mA Input Specifications	
Sensor type	Sensor with two or three wires
Sensor power supply 4/20mA 2 wires	24 Vdc ± 5%, max 30mA (*)
Short circuit protection	Active
Measure range	from 0 to 20 mA or from 4 to 20 mA
Error condition	NAMUR alarm: OFF, 3.6 mA, 22 mA
Resolution	1 µA
Accuracy	± 0,2 %
Isolation	Functional
Chlorine Amperometric Measure Specifications	
Sensor type	Chlorine amperometric probe
Measure range	0 – 5 ppm
Resolution	± 0.01 ppm
Accuracy	± 0.10 ppm
PT100/ PT1000 Specifications	
Temperature input	PT100/PT1000
PT100/PT1000 detection	Automatic
Error condition	Automatic detection of disconnected/damaged probe
Driving current	1 mA
Temperature measure range	–50.0 to 150.0 °C (–58.0 to 302.0 °F)
Sensor maximum distance	10 to 20 m (33 to 65 ft) depending on sensor
Temperature resolution	0.1 °C (°F)
Temperature accuracy	PT100: ± 0.5°C (± 0.9 °F) - PT1000: ± 0.2°C (± 0.4 °F)
Insulation	Functional

(*) DO NOT exceed the maximum allowable current limit. Risk of damaging the apparatus.

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Power Supply (version 100÷240 Vac)	
Electrical requirements	100 - 240 VAC ±10%, 8 W (note 1)
Frequency	50 - 60 Hz
Power supply fuse	Glass body 5x20mm T1.25AL250V
Short Circuit Protection	Active
Power Supply (version 24÷48 Vdc)	
Electrical requirements	24 - 48 Vdc, or 24Vac ±20%, 8 W (note 1)
Power supply fuse	Glass body 5x20mm T1.25AL250V
Short circuit protection	Active
Reverse polarity protection	Active
Relay Outputs	
RL1, RL2, RL3 and RL4	2-SPST mechanical 250 Vac/5A, 30 VCC/3 A
Relay RL1, RL2 configuration	Load activation
Relay RL3, RL4 configuration	Load activation, probe wash, alarm repetition
Cycle time	1 sec to 3600 sec
Delay time	1 sec to 3,600 sec
Test mode	ON, OFF
SSR Outputs (Solid State Relays)	
SSR1 and SSR2	2-SPST 60 V, max 100 mA, Bidirectional, NPN, PNP
Resistance in ON state	5 ohm max
Leakage current in OFF state	1 uA max
SSR1 and SSR2 configuration	Pulse output
Frequency range	0 - 400 pulse/min
Pulse duration	100 msec
Test mode	0 - 400 pulse/min
Outputs 4÷20 mA	
Analog output signals	2 outputs 4÷20 mA, galvanically isolated from one another and from the power supply.
Measure error	+/– 0,01 mA
Load	max. 800 Ω
Error condition	NAMUR Alarm: OFF, 3.6 mA, 22 mA
Test mode	3 to 23 mA
Digital Inputs	
REED digital Input	Input for dry contact 5 Vdc, max 6 mA
Communication Port	
RS485	RS485 Modbus protocol RTU/ASCII
Output 24 Vdc for Probes	
Voltage	24 Vdc ±5%, max. 250 mA (note 2)
Short circuit protection	Self-sesettable fuse
User Interface	
Connection terminals	Removable screw terminals AWG 14 < 2.5 mm2
Machine cycle time	ca. 1 s
Keyboard	5 tactile feedback keys
Display	Graphic LCD 128x128 or 240x128 pixels, FSTN, trans reflective
Display refresh	500 msec
Backlight	White, green, orange and red with energy saving function

(note 1) Only Instrument: 8W; Instrument + 1 probe: 10,5W; Instrument + 2 probes: 13,5W;
(note 2) DO NOT exceed the maximum allowable current limit. Risk of damaging the apparatus.

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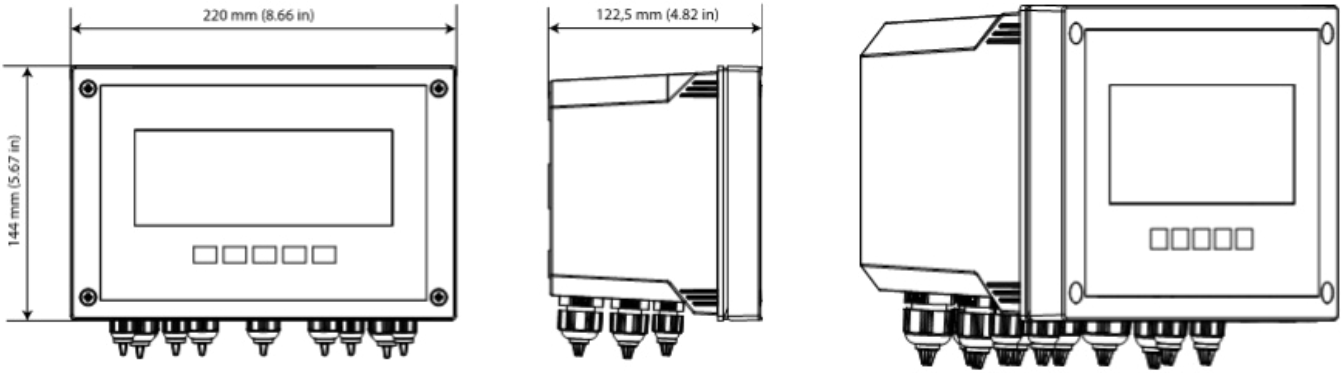
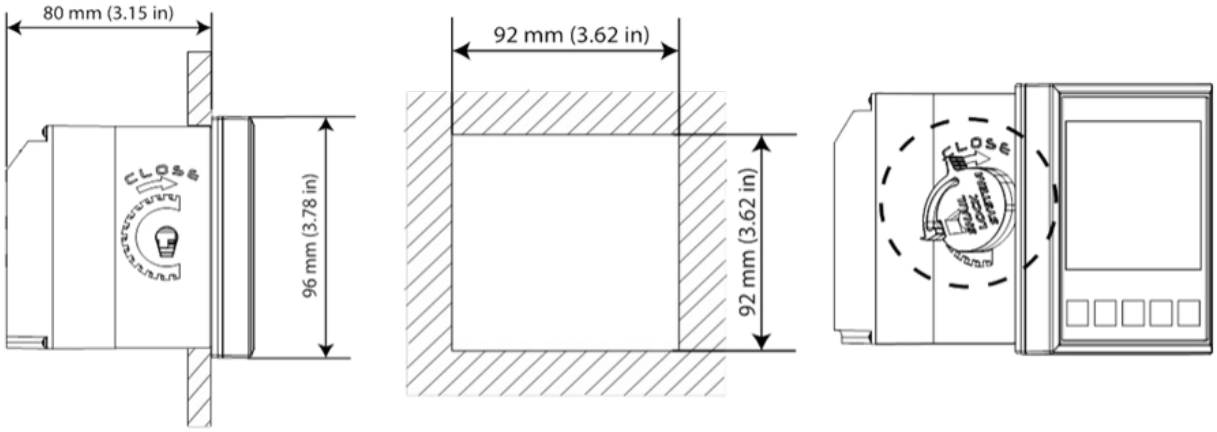
General arrangements drawing

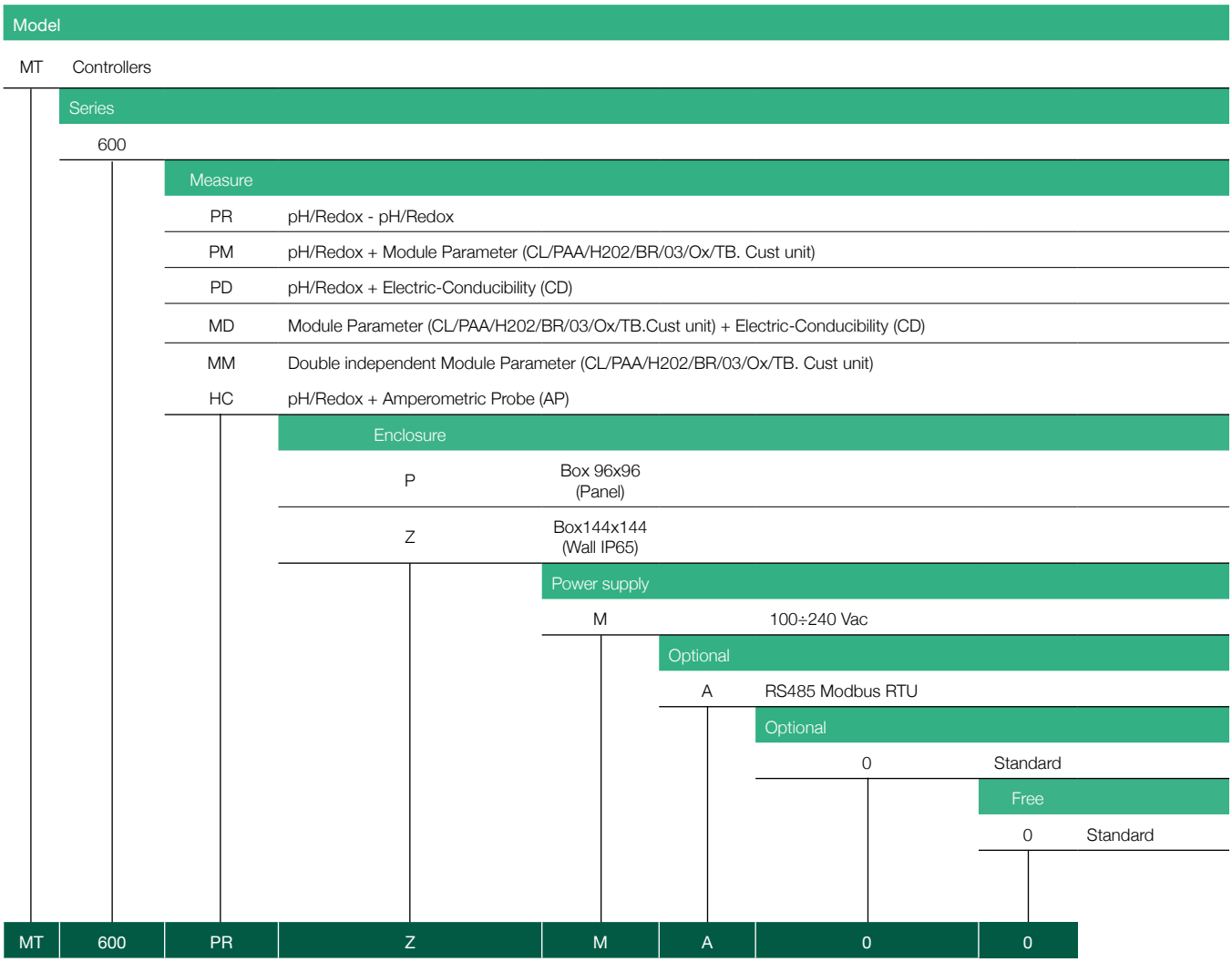


Wall mounting size (220x144x122.5 mm) - Dimensions and footprint for wall-mounted device.



Panel mounting size (96x96x100 mm) - Panel cutout and dimensions for snail lock system for panel-mounted device.

MT600 series key code



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