

TOUCH1 series is a multifunction system with touch screen display, **single parameters controller** and a management control system. TOUCH1 series : the featured functions make it the most versatile controller unit on the market. The touch screen and an internal timer allows the operator to allocate each auxiliary output according to the system requirements thus creating a full customization.

MEASURING PARAMETERS: Free (residual) and Total chlorine; pH, RX (ORP); Conductivity EC (μS); Bromine; Ozone; Chlorine Dioxide; Peracetic acid; Chlorites.



TOUCH 4 = 7" screen



TOUCH 1, 2, 3 = 4.3" screen

MAIN FEATURES OVERVIEW

- Touch screen 4.3" display controller;
- Simultaneous measurements of chemical parameters, temperature, flow status;
- Graphic icons and messages for Errors, Alarms, Outputs-Inputs status;
- Scrolling parameter and alpha-numerical selection by touch screen;
- Possibility to expand relay outputs to control other remote equipment;
- ON-OFF and Timed pulses (PWM) modes; PH priority (except single unit);
- Relays outputs activations by timer control or by measurements settings;
- Auxiliary outputs for driving remote equipment or open chlorine cell cleaning;
- Aux programming of time, daily and weekly operations;
- Timer to Start-up and End unit operations;
- mA outputs, adjustable settings and galvanic isolation; aux or dosing functions;
- Max dosing time safety function: dosing pump maximum dosage time out;
- Hysteresis, Max/min Alarm, Overdosing function, Start-up delay, Delay set point;
- Universal power supply 100÷250 Vac (upon request 12÷24 Vdc-Vac);
- Real time clock configurable to drive controller functions and outputs;
- Level control for external chemical tanks (according to parameters);
- Proximity switch functions;
- Manual and Automatic temperature, programmable settings;
- Temperature set point and output relay (when using temperature sensor);
- Suitable for PT100 temperature sensors;
- Basic / Expert programming menu;
- Graphic charts visualization and data logger download;
- Standard Ethernet (LAN) connection, Modbus TCP + data logger;
- FWT SmartApp® software included

The terms mentioned have the following meanings:

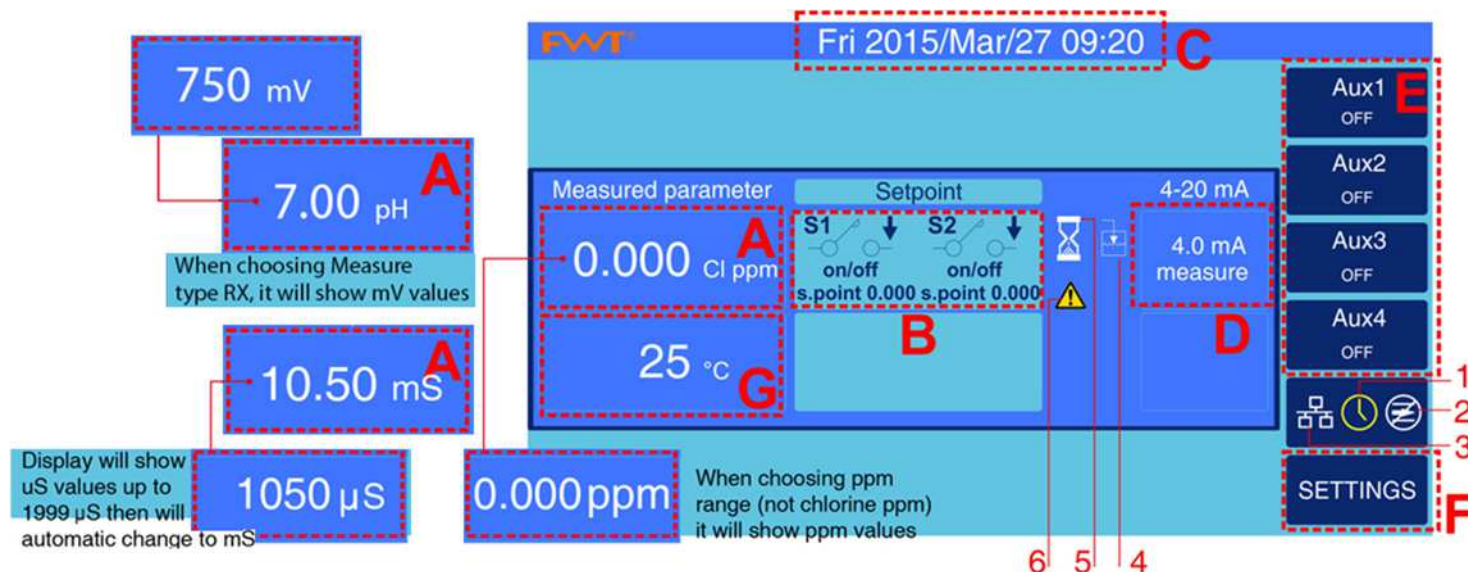
RX = Redox (ORP) **CL = free or total chlorine** **PPM = measuring parameters with ppm value** **EC = conductivity**

TOUCH SERIES RELEVANT FEATURES OVERVIEW

- Auxiliary functions drive remote equipment via relay outputs by means of a timer programming, allowing the user to choose the exact time, date, week, and time duration the equipment must operate; AUX1 output can be also set for a cleaning program of Open Chlorine cell; AUX4 offers a programmable temperature set point function;
- PH measurements can be changed to RX just changing the parameter during programming and using RX electrode;
- Chlorine measurements features 4 chlorine ranges suitable for Membrane type chlorine sensors 2 Cl ppm, 5 Cl ppm, 20 Cl ppm, and for open type chlorine cell range 10 Cl ppm; range 20 Cl ppm for Total chlorine;
- Conductivity measurements are shown in Siemens features K factor ranges (Cell Constant) selectable by the operator: ranges K1 20.000 μS ; K 5 up to 2.000 μS . Upon request ranges K 0,1 up to 50.000 μS (latter with graphite EC probe);
- PPM measurements suitable for Membrane type sensors for various ranges: 2 ppm, 20 ppm, 200 ppm, 2.000 ppm, Measurements: Chlorine Dioxide, Bromine, Ozone, Peracetic Acid, and all parameters measured in ppm.;
- ETHERNET / RS485 connection through LAN network to pc or Mac, smartphone or tablet with FWT SmartApp® software included in the controller. The unit will send an email when reaching alarm, overdosing and Max dosing settings.

BENEFITS: the above feature allow dealers to stock one type of controller (according parameter) thus reducing stock value or saving time and money when placing orders to manufacturer. Touch screen is widely used by all, a friendly user menu programming, almost self-explanatory and the elegant wide display allows easy vision. Different models are available each featuring different functions to ensure a high level of measurement accuracy and safety.

TOUCH SCREEN DISPLAY



IMPORTANT NOTE: in alternative of touching with the hand, for a more efficient touch functionality we suggest also to use a pen or a pencil to touch the display, do NOT use a sharp object.

- A:** touch this area to enter the calibration and measure functions menu of selected parameter;
 - B:** touch this area to enter the setpoint menu;
 - C:** touch this area to change the current date and time
 - D:** touch this area to enter the 4-20mA menu (only in expert menu)
 - E:** touch this area to enter the Auxiliary outputs menu
 - F:** touch this area to enter the main settings menu
 - G:** touch this area to enter the temperature settings menu: expert menu both Manual and Automatic compensation
 - 1:** this icon informs that the controller is working through a programmed time slot with AUX function
 - 2:** this icon informs about a lack of flow
 - 3:** this icon informs about a network connection
 - 4:** this icon informs that the level of the chemical in the tank is low
 - 5:** this icon informs about Overdosing and Alarms activated functions
- Once into any programming, touching **ESC** goes back one step, touching **HOME** goes to Main display.

SUMMARY CHARACTERISTICS TOUCH1

Measuring parameters	1
Screen size	4.3"
Output relays	7
Set points	2
Temperature*	PT100
mA output	1
Real clock timer	✓
Auxiliary Outputs	4
Alarm relay	✓
Level control	1

Flow sensor function	✓
On-Off mode	✓
PWM mode (timed pulses adjustable)	✓
Over dosage alarm	✓
Max Dosing Time function	✓
RS485 Modbus protocol	✓
FWT SmartApp® software	✓
ETHERNET connection	✓
ETHERNET USB port IP65	✓
In / Out expansion board	Optional

* Temperature: available setpoint function in place of one Auxiliary output

PROGRAMMING MENU

Programming Mode	
<input checked="" type="radio"/>	Basic
<input type="radio"/>	Expert
OK	

FWT controllers feature two programming menus:

- Basic menu with simplified functions;
- Expert: complete programming including functions for more refined control and results.

SELECTING MEASURING PARAMETER PH or RX (ORP)

Meter 1: Measure Type	
<input checked="" type="radio"/>	pH
<input type="radio"/>	Rx
OK	

Measuring parameter can be changed from PH to RX and consequently changing display and measurement data and programming parameter settings.

SELECTING CHLORINE or PPM MEASURING RANGE

Meter 2: Measure Type	
<input checked="" type="radio"/>	Cl 0-2 ppm
<input type="radio"/>	Cl 0-20 ppm
<input type="radio"/>	Cl 0-200 ppm
<input type="radio"/>	CLC 10 ppm
<input type="radio"/>	0-2 ppm
<input type="radio"/>	0-20 ppm
<input type="radio"/>	0-200 ppm
<input type="radio"/>	0-2000 ppm
OK	

TOUCH series chlorine or ppm measurements controller is set as for various ranges of sensors:

- **Chlorine** Cl 0÷2 Cl ppm **default**
Other chlorine ranges: 0÷5 Cl ppm; 0÷20 Cl ppm (latter both Free and Total)
- **Open chlorine cell (CLC3 model)** range CLC 0-10 ppm
- **PPM** sensor range 0-20 ppm; range 0-2 ppm; range 0-200 ppm; range 0-2000 ppm

SELECTING EC CONDUCTIVITY CELL CONSTANT RANGE

Meter 3 : EC probe K factor			
1	2	3	DEL
4	5	6	CLEAR
7	8	9	ESC
:	0		SET

Electro Conductivity EC measurements are shown in Siemens features **K** factor ranges (Cell Constant) selectable by the operator: ranges K1 20.000 µS; K 5 up to 2.000 µS. Upon request ranges K 0,1 up to 50.000 µS (latter with graphite EC probe)

AUX (AUXILIARY) OUTPUTS

AUX function make this controller a very versatile management unit not only to measure chemical-physical parameters but also for other functions related to the systems where is installed such as flocculants dosing pumps, open solenoid valves, irrigation systems, other devices connected to the main system.

AUX1 output can be set to control a remote equipment or Open Chlorine cell (FWT series CLC) cleaning program;

AUX4 output can be set to control a remote equipment or a programmable temperature set point function.

Expert Menu	
←	Aux1 Program 1
Edit	
⌂	ESC

Program 1: duration			
1	2	3	DEL
4	5	6	CLEAR
7	8	9	ESC
.	0		SET

Operator can also program the working days and exact time of the unit operations via Start/Stop programming.

REMOTE CONTROL FEATURES

TOUCH4 series is suitable for remote control by RS485 expansion board with Modbus protocol using FWT SmartApp® software thus downloading of recorded events from pc, smartphone or tablet.

ETHERNET connection allows the operator to connect to the unit via pc, smartphone or tablets and change programming and settings using FWT SmartApp® software. Unit will signal once reaching alarm level, overdosing settings or Max dosing pump time out.



WIFI connection, through LAN network, allows the operator to control in real time TOUCH series operations via Internet by pc, smartphone or tablet. A self-explanatory program allows changing settings and programming. Unit will send an email once reaching alarm levels, overdosing point or Max dosing time. For Wifi connection, the operator must have a Wifi / USB adapter, which can be provided by FWT on request.



Example of remote control screen visualization through FWT SmartApp® software

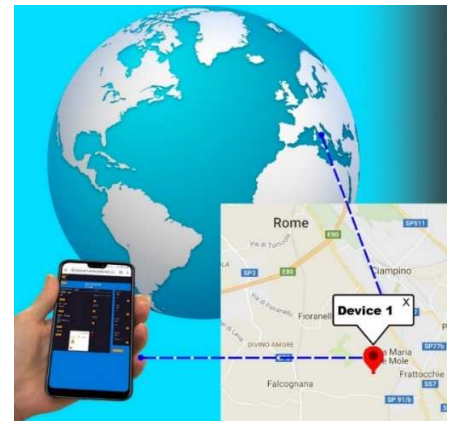
The screenshot displays the FWT SmartApp interface with the following data:

Measured parameters	Setpoint	4÷20	AUX1
7.80 pH [Edit]	S1 selected setpoint 7.40 ON-OFF Max Alarm [Edit]	Measure 4.0 mA [Edit]	Plant1 [Edit]
650 mV Redox [Edit]	S2 selected setpoint 7.20 ON-OFF [Edit]		AUX2 Basin EV [Edit]
0.50 Cl ppm Chlorine [Edit]	S3 selected setpoint 725 PWM [Edit]	Measure 4.0 mA [Edit]	AUX3 Plant2 [Edit]
25 °C [Edit]	S4 selected setpoint 1.00 ON-OFF Overdosing [Edit]	Dosing setpoint 1.00 Cl ppm [Edit]	AUX4 Temperature [Edit]
	STemp selected setpoint 25 ON-OFF [Edit]		Main Settings

FWT “CLOUD” SYSTEM

FWT features a useful service which will allow the customers to monitor and control from anywhere in the world the controllers installed in any place in the world: FWT “CLOUD” SYSTEM. This platform, installed in FWT own server, will enable the user in charge with servicing the plant, to remote control and monitor FWT instrument operations: the user, in possess of the controller authentication certificate, will create a free internet account in FWT server: user will access its own personal area. The platform will show a geographical map (which can be zoomed at like) pointing out all the registered controllers the user has installed in the area; once identified the controller to monitor, the user will log in the controller software (FWT SmartApp®) allowing the visualization of the current measurements and have the possibility to modify all the main parameters.

FWT “CLOUD” SYSTEM is available for those controller that feature RS485 Modbus protocol, Ethernet connection, FWT SmartApp® software



CONTROLLER TECHNICAL CHARACTERISTICS

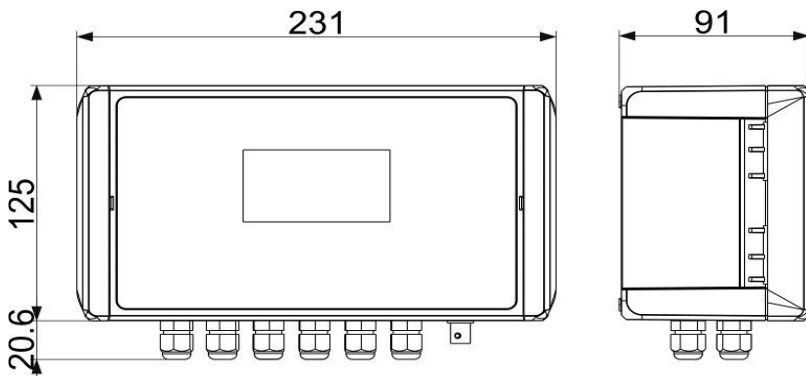
Measuring range PH:	<ul style="list-style-type: none"> ▪ 0 pH 14 pH (0.....100 °C) ▪ Resolution ± 0.01 pH ▪ Accuracy 0.5% of input range ▪ Input $> 10^{12}$ Ohm ▪ Zero: $\pm 10\%$ adjustment range from calibration point ▪ Gain calibration: $\pm 15\%$ electrode adjustment gain ▪ Hysteresis: 0.05 pH (programmable) ▪ PWM / timed pulses activating point: 1.50 pH or 150mV (programmable)
Measuring range RX (ORP):	<ul style="list-style-type: none"> ▪ - 1500 mV +1500 mV ▪ Input resistance $> 10^{12}$ Ohm ▪ Resolution ± 1 mV ▪ Accuracy 0.5% of input range ▪ Input $> 10^{12}$ Ohm ▪ Input resistance $> 10^{12}$ Ohm ▪ Hysteresis: 10 mV (programmable) ▪ PWM / timed pulses activating point: 150 mV (programmable)
Measuring range Chlorine range ppm (free or total) or PPM, Membrane type sensor:	<p>Dynamic measuring range input ± 2500 mV (it reaches ± 2995 mV)</p> <ul style="list-style-type: none"> ▪ 0÷2 ppm=Resolution 0.001 Hysteresis=0.005 PWM point=0.050 ppm ▪ 0÷20/10 ppm=Resolution 0.01 Hysteresis= 0.05 PWM point=0.50 ppm ▪ 0÷200 ppm=Resolution 0.1 ppm Hysteresis= 0.5 PWM point=5 ppm
Measuring range Chlorine range ppm (free), Amperometric Open Cell type:	<ul style="list-style-type: none"> ▪ 0÷10 ppm (Open type sensor or cell) / Resolution 0.10 ppm ▪ range 0÷10 ppm = Hysteresis / PWM point = 0.50 ppm
Conductivity EC Measuring range and K factor (cell constant):	<ul style="list-style-type: none"> ▪ K 1 ranges up to 20.00 mS / Hysteresis / PWM point = 500 μS Resolution 10 μS ▪ K 5 ranges up to 2.000 μS / Hysteresis / PWM point = 50 μS Resolution 1 μS ▪ K10 ranges up to 200 μS / Hysteresis / PWM point = 0,50 μS Resolution 0,1 μS ▪ K 0.1 ranges up to 50.00 mS / Hysteresis / PWM point = 5000 μS Resolution 1000 μS (only with graphite sensor electrodes)
Temperature setting:	<p>Manual or automatic compensation (latter combined temperature probe PT100)</p> <ul style="list-style-type: none"> ▪ Resolution 0.1% °C ▪ Accuracy: $\pm 0.5\%$ °C
Temperature probe range:	<ul style="list-style-type: none"> ▪ - 20100°C ▪ Resolution 0.1% °C ▪ Accuracy: $\pm 0.5\%$ °C
Power supply:	<p>Universal power supply 100÷250Vac / 5W at 240Vac Upon request power supply 9÷36 Vdc / 9÷24 Vac</p>
Microprocessor technology:	SMD components mounting, digital controls keypad 6 key
Linearity, Stability Reproducibility:	± 0.5 % under standard conditions
Display:	back-lit TOUCH SCREEN resistive display 4.3"
Delay on Set-point:	Delay time relay activation, programmable for each set-point (999 sec.)
Start-up Delay:	Delay time relay when switching ON the unit, programmable
Power consumption = Nominal current:	230Vac 9,8W 45mA ▪ 24Vac-dc 9,8W 408mA ▪ 12Vdc 9,8W 816mA
Internal electrical protection:	power supplier guarantees electrical protection (instead of fuse)
Level / Remote relay control	Chemical additive level (level switch not included) output voltage +5Vdc

Outputs:	Signal for chlorine sensor	1W a 12V = 80mA, available for sensor running approx. 50mA
	Unit load:	Resistive load 5A at 230Vac / Inductive load 0.5A at 230Vac
	Insulation voltage relay output:	> 3000Vac
	Relay contact lifespan:	≥ 5x10 ⁴ switching operations (5A at 230Vac)
Unit Working temperature:	Ideal working temperature 5°C÷40°C, withstand 0°C÷45°C	
Environmental Conditions:	Possibly dry environment, altitude up to 2000m, Relative humidity 80% for temperatures up to 31°C decreasing linearly to 50% relative humidity at 40°C. Pollution degree 2.	
Noise Level:	Irrelevant	

Outputs:	Output RELAY 1 (set-point 1):	PH or RX (Orp) / Free or Total chlorine or PPM or Conductivity measurements ON-OFF/ PWM mode voltage free contact, relay 5Amax 230Vac
	Output RELAY 2 (set-point 2):	PH or RX (Orp) / Free or Total chlorine or PPM or EC Conductivity measurements ON-OFF/ PWM mode voltage free contact, relay 5Amax 230Vac
	Output RELAY 3 (AUX):	AUXILIARY ON-OFF remote equipment or cleaning cell free contact 5Amax 230Vac
	Output RELAY 4 (AUX):	AUXILIARY ON-OFF remote equipment free contact 5Amax 230Vac
	Output RELAY 5 (AUX):	AUXILIARY ON-OFF remote equipment free contact 5Amax 230Vac
	Output RELAY 6 (AUX):	AUXIL. ON-OFF remote equipment or temp. setpoint free contact 5Amax 230Vac
	Output RELAY 7 (ALARM):	ALARM contact voltage free 5Amax 230Vac
	FLUX sensor (proximity switch):	It blocks output operations in case of no flow into the sensor cell
0/4...20 mA1:	Adjustable (500 Ω max input impedance), with galvanic separation. Related to PH or RX or Free / Total chlorine or PPM or Conductivity measurements	

Ethernet/RS485:	FWT Smartapp® software and Data Logger
	ETHERNET / RS485 connection INTERNAL module + micro SD memory card 16 GB
	Ethernet connection by RJ45 IP68 connector

UPON REQUEST:	FWT Smartapp "CLOUD" for remote control via the "Internet" through FWT server RS485/USB cable (to connect TOUCH unit to a pc via RS485 protocol)
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Net weight: 1530 gr
Gross weight: 1730 gr

Enclosure:	Material – Protection TOUCH1	Plastic ABS-V0 fire-proof-IP66, hinged front panel with safe lock
	Front controls	Polycarbonate adhesive
	Working temperature	0÷50°C
	ETHERNET / USB port	IP65 Polypropylene