



## Touchscreen Controllers for Smart MODBUS RTU pH, ORP, Dissolved Oxygen (D.O.), Ion Selective ( ISE) & Conductivity (EC) Sensors

Feature or Functionality	Dual (2) Channel Smart Controller Package	Three (3) Channel <sup>1</sup> Smart Controller Package	Six (6) Channel Smart Controller Package
Interface (HMI)	4.3 Inch Color Touchscreen 3.70" X 2.10" 480 X 272 pixels	7.0 Inch Color Touchscreen 6.11" X 3.42" with 800 X 480 pixels	
Installation Styles	NEMA 4X Assembly with Clear Hinged Latched Protective Door for Touchscreen HMI Package is Ready for Wall or Pipe Mounting in the Field as supplied with support for securing with padlock		
CSA/UL Approvals	Class I, Division II for PLC Non-Hazardous Only for HMI	Suitable for use in Class I, Division II Hazardous Locations for both Touchscreen HMI & PLC	
Calibration Methods	Windows Software / Handheld Battery Powered Communicator / PLC Touchscreen Interface Auto-buffer calibration mode on PLC Touchscreen with 1.68, 4.00, 6.86, 7.00, 9.18, 10.00, 12.45 pH buffers supported Separate slope for acid conditions (pH <7) and alkaline conditions (pH >7) supported for all calibration methods		
Power Options	PS1 85-264 VAC   PS4 9-36 VDC	PS1 85-264 VAC   PS2 18-75 VDC	PS3 9.5-18VDC   PS4 9-36 VDC
Max Number of HiQDT Sensors	2 each Single Parameter or 1 each Dual Parameter	3 each Single Parameter or 1 each Dual + 1 each Single Parameter	6 each Single Parameter or 3 each Dual Parameter
Max Power	970mA @ 24VDC	1135mA @ 24VDC	1440mA @ 24VDC
Analog Outputs	2 each Scalable 4-20mA (500 Ω) or 0-10 VDC Software Selectable <sup>2</sup>	6 each Isolated 4-20mA (Max 500 Ω) or 0-10 VDC Outputs (Software Selectable) Scaling for each Analog Output is adjustable from HMI <sup>3</sup>	
Digital Output	MODBUS TCP Slave (a.k.a. MODBUS over ethernet) with registers to access all information that is shown on HMI		
Programmable Contact Relays	4 each SPST Max 2A at 230VAC or 30VDC <sup>4</sup>	6 each SPST Max 2A at 230VAC or 30VDC <sup>4</sup>	18 each Isolated SPST Max 2A at 230VAC or 30VDC <sup>4</sup>
Trend Graphs	Process & temp values for last 8 hours of each channel. For conductivity sensors computed units of PSU (salinity) & TDS or resistivity MegaOhms (MΩ) also shown. Dissolved oxygen shows both ppm & percent (%) saturation units.		
Datalogging	Process Values, Temp & raw mV logged every 30 seconds (with onscreen trending graph); Analytic & Calibration Info logged every 30 minutes. <b>Remote access to logged data over FTP.</b> Capacity 16GB for 2 channel; 32GB for 3/6 channel		
Email Notifications	Email sent to user defined list when high/low relay triggered from max/min setpoint for process value or temperature Diagnostic system warnings such as communication lost with sensor will also trigger email notification		
Remote Access Capabilities	<b>ALL</b> functionality is available remotely over ethernet with VNC & FTP using secure <b>Maple Systems EasyAccess 2.0</b> Supported Remote Platforms Include: Microsoft Windows PC as well as Android & iOS Smartphones & Tablets		
Typical Installation Type 1	Single (1) parameter measurement at Single (1) installation where both process value and temperature value is to be sent via analog output	Triple (3) parameter measurement at Single (1) installation point where both process & temperature values needs to be sent via analog output from all three of the connected sensors	Six (6) parameter measurement at Single (1) installation point where only the process value need to be sent via analog output from all six of the connected sensors
Typical Installation Type 2	Dual (2) parameter measurement at Single (1) installation where only the process values from each sensor needs to be sent via analog outputs	Single (1) parameter measurement at Three (3) installation points where both process & temperature values need to be sent via analog output from all three of the connected sensors	Dual (2) parameter measurement at Three (3) installation points where only the process value need to be sent via analog output from all six of the connected sensors

1. Three (3) channel can be upgraded to six (6) channel configuration. Controller must be shipped to factory to perform this upgrade.
2. Dual (2) channel controller sends sensor 1 process value on analog output 1 & sensor 1 temperature value on analog output 2. If sensor 2 is connected then output 2 can be selected to be either the process value from sensor 2 or temperature value from sensor 1.
3. Triple (3) channel controller sends both the process value and temperature value from each connected sensor on 6 analog outputs.
  - a. The six (6) channel controller can ONLY sends the process value from each connected sensor on the 6 analog outputs.
4. If a higher amperage rating is required than what is specified please use an ice cube relay that suitable for amperage required and area rating where it is to be installed. Two independently programmable relays are assigned to each measurement channel.

Last Revised August 2, 2021

## Selected Photos of Six (6) Channel Touchscreen Controller for HiQDT RS-485 MODBUS RTU Smart Digital Sensors



Six (6) channel HiQDT-CTRL-6CH controller shown with 4 each smart RS485 MODBUS RTU pH sensors connected (two top ports are unused). Controller is NEMA 4X when the door is latched. Hot swappable sensors with plug & play snap connectors are NEMA 6P rated when interfaced. The 3 & 6 channel controllers with 7.0" touchscreen are available in configurations that are suitable for hazardous Class I, Division II locations.



Clear hinged latched door provides outstanding protection for advanced touchscreen HMI from environment as part of NEMA 4X rated assembly. To access internal components of controller simply remove two top screws & open with pull handle. One left are 6 each NEMA 6P rated female snap panel mount connectors for plug & play smart digital sensors and 5 each cable glands while on right are 9 each cable glands (all factory installed).

## Selected Screenshots of Touchscreen Controller (1 of 2)

Main display for the six channel controller. Other screens is obtained through the main menu. Status updates, alarms & alerts are scrolled across top of screen.

Default screen for three channel controller. Selected analytical details about sensors is shown in the main display only on the three channel controllers.

Main menu highlights major tasks & functionality. Additional submenus will load as appropriate to further navigate each of the available features & options.

Universal controller supports setting any measurement type for any channel. Channels can be added or removed at will using hot-swap plug & play sensors.

Sensor calibrations for each channel are displayed & datalogged including time since each calibration was last performed to facilitate best practice maintenance.

Analytic info for each sensor shown for each channel & datalogged to give details about not only process values but the sensor used for the measurements.

Trending graph shows last 8 hours of proces & temp values for each channel. Unlimited datalogging capacity w/ 32GB storage, remotely accessible via FTP.

Auto buffer pH sensor calibrations with support for 7.00/6.86 buffers for A.P. (Offset); 4.00/1.68 buffers for acid slope & 10.00/9.18/12.45 for alkaline slope

## Selected Screenshots of Touchscreen Controller (2 of 2)

**Analog Output Status** Back

**Configure Analog Output Channel**  
**Scale Analog Outputs**

	Value	Sensor	Type	Output Value	Output Type
Ch1:	12.42	pH		18.20	mA
Ch2:	76.00	COND	ms	10.08	mA
Ch3:	0.06	COND	us	13.68	mA
Ch4:	7.82	D.O.	ppm	10.26	mA
Ch5:	15231.88	plON-	15231.88 ppm	13.75	mA
Ch6:	265.60	ORP		12.50	mA

For six channel controllers there is one analog output for each sensor. Analog outputs are isolated and on-screen selectable as 4-20mA or 0-10VDC.

**Analog Output Status** Back

**Configure Analog Output Channel**  
**Scale Analog Outputs**

	Value	Sensor	Type	Output Value	Output Type
Ch1:	12.42	pH		13.68	mA
Ch2:	73.68	COND	ms	15.79	mA
Ch3:	0.06	COND	us	13.60	mA
Ch1:	25.40	Temperature		12.13	mA
Ch2:	26.20	Temperature		12.38	mA
Ch3:	26.20	Temperature		12.38	mA

For three channel controller there is one analog output for the process value and one analog output for temperature value obtained for each measurement type.

**Scale Analog Outputs** Back

Select Working Channel: [ 5 ]

**Update Scaling**

Channel	Sensor	H	L
Channel 1	pH	14.00	0.00
Channel 2	COND mS	200.00	0.00
Channel 3	COND	0.10	0.00
Channel 4	D.O.	20.00	0.00
Channel 5	plON-	25000.00	0.00
Channel 6	ORP	500.00	0.00

Each analog output fully scalable in engineered units. For EC sensors units available are mS/uS or PSU or TDS or else MegaOhm (MΩ) resistivity.

**Scale Analog Outputs** Back

Select Working Channel: [ 3 ]

**Update Scaling**

Channel	Sensor	H	L
Channel 1	pH	14.00	10.00
Channel 2	COND mS	100.00	0.00
Channel 3	COND	0.10	0.00
Channel 1 Temp	Temperature	50.00	0.00
Channel 2 Temp	Temperature	50.00	0.00
Channel 3 Temp	Temperature	50.00	0.00

Update Scaling On Working Channel 4      Update Scaling On Working Channel 5      Update Scaling On Working Channel 6

Each temperature output channel is associated with a specific sensor input channel and scaled as desired along with the process value for that sensor.

**Set Output Alarm Limits** Back

Channel	Sensor	H	L	Delay Time
Channel 1	pH	14.00	10.00	0
Channel 2	COND mS	100.00	5.00	0
Channel 3	COND us	0.10	0.00	0
Channel 4	D.O.	15.00	8.00	0
Channel 5	plON-	15000.00	5000.00	0
Channel 6	ORP	200.00	50.00	0

High & Low relay setpoints for process value from each channel with time delay.

**Set Temperature Alarm Limits** Back

Channel	Sensor	H	L	Delay Time
Channel 1	pH	50.00	0.00	0
Channel 2	COND	50.00	0.00	0
Channel 3	COND	50.00	0.00	0
Channel 4	D.O.	50.00	0.00	0
Channel 5	plON-	50.00	0.00	0
Channel 6	ORP	50.00	0.00	0

High & Low relay setpoints for temp value from each channel with time delay.

**Relay Event Status** Back

Date	Time	Event Type	Ack. Time
07/11/19	13:40	Ch6 High Event	13:46 3
07/11/19	13:45	Ch5 Low Event	13:46 2
07/11/19	13:45	Ch5 High Event	13:46 3
07/11/19	14:02	Channel #2 has lost 10:26	4
07/11/19	14:02	Channel #2 has lost 10:26	5
07/11/19	14:03	Channel #2 has lost 10:26	6
07/11/19	15:18	Channel #1 has lost 10:26	3
07/12/19	08:26	Ch1 Low Event	10:26 9
07/12/19	10:22	Ch3 High Event	10:26 10
07/12/19	10:22	Ch5 Low Event	10:26 3

**Acknowledge Alarm**

All relay events are displayed & logged as well as logging for all process values.

**Add E-mail User** Back

Contact Name | Mail Address

Groups: A B C D E F G H

Command:

Other functions: \_\_\_\_\_

Name: \_\_\_\_\_

e-Mail: \_\_\_\_\_

Result: \_\_\_\_\_

Along with full secure remote access email notifications are sent for each event.

## Selected Photos of Dual Channel Touchscreen Controller for HiQDT RS-485 MODBUS RTU Smart Digital Sensors



The dual channel HiQDT-CTRL-2CH controller is shown above with 2 each HiQDT smart digital RS485 MODBUS RTU pH sensors connected. Controller is NEMA 4X when the door is latched. Hot swappable sensors with plug & play snap connectors are NEMA 6P rated when interfaced..



Clear Hinged Latched Protective Door provides outstanding NEMA 4X protection for touchscreen HMI from environment. In order to access the internal components of controller simply remove the two far right screws and open with the pull handle.

Last Revised August 2, 2021