

AquaPro Multi-Input Intelligent Process Analyzer

Accurate, user-friendly, in-line monitoring

Thermo Scientific AquaPro Multi-Input Intelligent Process Analyzer

The Thermo Scientific™ AquaPro™ Multi-Input Intelligent Process Analyzer provides accurate, user-friendly in-line monitoring of process applications — from power generation to municipal water and wastewater.

The AquaPro Multi-Input Intelligent Process Analyzer is far more than a 4-wire multiinput meter. It is a sophisticated and highly flexible analysis platform for a wide range of process applications.

With up to four inputs or parameters, a userfriendly interface and easy-to-use menus in seven languages, the AquaPro meets the needs of complex process operations worldwide.

Markets

- Power Generation
- Pulp and Paper
- Bottled/Municipal Water
- Wastewater
- Process Water
- Industrial Water



Applications

- High-purity applications to wastewater effluent
- Rugged industrial environments
- Process optimization and control applications

Advantages

- Large color display
- Up to four sensor inputs
- Up to eight current outputs
- Up to six alarm/control relays
- Multiple digital communication protocols
- Broad sensor compatibility
- Seven user-selectable languages



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Detailed process information at a glance

Displaying the status of up to four parameters simultaneously, AquaPro Multi-Input Intelligent Process Analyzer provides a complete picture of process status on a single instrument. This multi-channel capability reduces both the number of meters required and the time required for installation, maintenance and upgrades.

The analyzer has a large 4.3" (109.22 mm) backlit color display that leads the industry in visibility and ease of use. Color error-warning flags are visible in any lighting conditions.

The unit is built for the realities of utility and industrial operations. With a UV-resistant polycarbonate material case and NEMA 4X, IP66 waterproof rating, the analyzer can be pipe-, panel-, or wall-mounted in the most punishing work environments and the built-in USB data port makes it simple to download measurement data or upload new software in the field or on the factory floor.

An analyzer for today and tomorrow

Users select from seven languages — English, Spanish, French, German, Italian, Portuguese, and Chinese — and configure the analyzer via clear, plain-language menus. Operation is straightforward and intuitive for all parameters — from basic pH measurements to complex free chlorine.

AquaPro Multi-Input Intelligent Process Analyzer provides simple interface to PLC, SCADA and other PC-based control systems and compatibility with all current industry data communication protocols — MODBUS™ RTU over RS485 or RS232, DeviceNet™, Ethernet/IP, Modbus TCP, and CANopen™. It can be easily updated to support any future protocols using our unique modular design.

The analyzer is fully compatible with a wide range of liquid analytical sensors — both analog and digital — allowing measurement of many parameters, including:

- pH/ORP
- Conductivity (including resistivity, concentration, salinity and TDS)
- Dissolved oxygen
- Dissolved ozone
- Free chlorine
- Turbidity
- Suspended solids

Growing with you

The AquaPro Multi-Input Intelligent Process Analyzer is designed for today's most diverse process analysis tasks. With its modular design, it is also designed to grow and adapt as needs evolve:

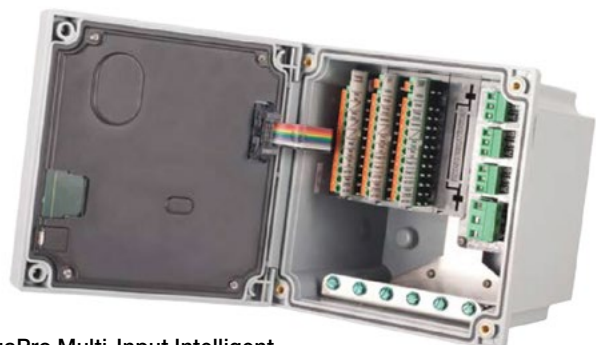
Additional capacity: With up to four sensors — analog or digital — per instrument, users can monitor more parameters by simply adding plug-and-play cards.

Field-configurable upgrades: Using the USB data port, new firmware can be quickly installed via removable digital storage media. This means new features and capabilities without changing hardware.

Quick configuration: The configuration of an existing unit can be easily saved and copied to a newly installed unit using removable USB data storage media.

Flexible communication: Supporting all major communication protocols, the analyzer can be used with a wide range of data systems for different applications.

Local languages: With seven user-selectable languages, the analyzer is ready to go wherever new facilities go online.

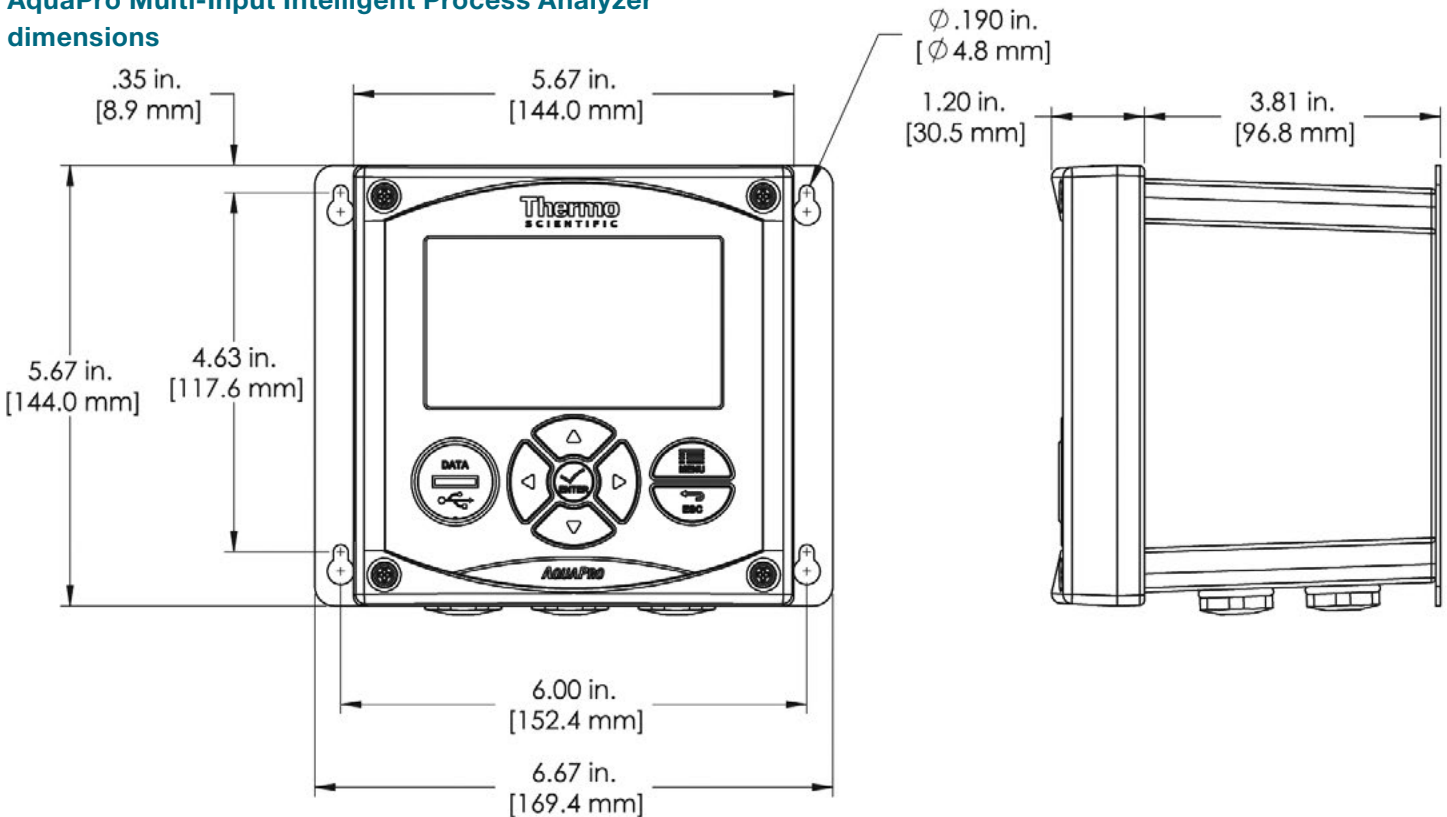


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Product specifications

1. The analyzer is modularly designed system capable of up to four measurement parameters with either analog or digital sensors.
2. The analyzer is a microprocessor-based system.
3. The analyzer has a 4.3 inch (109.22 mm) 24bit full color backlit display.
4. Enclosure is ½ DIN format and NEMA4X and IP66 rated.
5. The analyzer is wall, pipe or panel mountable.
6. The analyzer is available in either 100-230 VAC or 24 VDC.
7. The analyzer has two 0/4-20 analog outputs per channel (max of 8).
8. The analyzer must be able to accept either DataStick digital sensors or industry standard analog sensors for pH, conductivity (2 electrode and toroidal), dissolved oxygen, ORP, and ozone in all 4 channels.
9. The analyzer has optional communications modules for MODBUS 232, MODBUS RTU, Ethernet IP TCP/IP, DeviceNet, and CANopen.
10. The analyzer is capable of up to seven different languages.
11. The analyzer must be capable of logging 1,000 data points at adjustable times and must be in a standard comma delimited file extractable through the front USB port.
12. The analyzer must be able to update system firmware through the front panel and internal USB ports.
13. System configuration must be able to store, transfer and update through front panel USB port.
14. The analyzer shall be a AquaPro Multi-Input Intelligent Process Analyzer.

AquaPro Multi-Input Intelligent Process Analyzer dimensions



Product specifications - configurable analyzer platform (1 to 4 sensors): pH, ORP, conductivity, dissolved oxygen, ozone, turbidity, free chlorine, and suspended solids

Functions and features

- 1 to 4 sensors for optimal cost per measurement point.
- Temperature measurement for all sensors (standard).
- NEMA 4X enclosure for indoor/outdoor use.
- Wall, Pipe and ½ DIN panel mounting options.
- Very readable large color graphics display.
- Math functions for % rejection, % pass and others.
- Data and event Logs for 4 channels for 30 days (std).
- Front panel USB port for easy data log extraction, quick system configuration, field software upgrades.
- Calibration, system setup, diagnostics and service menus.
- Two 4-to-20 mA loop outputs per sensor (up to 8).
- Three form C relays for alarm, control and wash (std).
- Option for total of six form C relays when up to three sensors are used.
- Digital protocol options for remote measurement, calibration, setup and diagnostics: MODBUS, DeviceNet, Ethernet/IP.
- Six cable ports for standard conduit and cordgrip fittings.

Mounting options

- Wall Mount with Quick Disconnect mounting plate.
- ½ DIN Panel Mount.
- Pipe/hand rail mount (vertical and horizontal).

Interface

- Display: 4.3 Inch (109.22 mm) Color graphics with high contrast.
- Keypad: 7 Key menu navigation.

Environmental conditions

- Ambient operating temperature range: -20 to 60°C
- Ambient storage temperature range: -20 to 70°C
- Maximum Relative humidity: 95% non-condensing
- Meets NEMA 4X requirements for outdoor use.
- Meets CE requirements for professional use.

Interchangeable modules

Function cards can be reconfigured in the field

Slot 1: pH, ORP, Conductivity, DO, Ozone, Turbidity, Chlorine, SS

Slot 2: pH, ORP, Conductivity, DO, Ozone, Turbidity, Chlorine, SS

Slot 3: pH, ORP, Conductivity, DO, Ozone, Turbidity, Chlorine, SS

Slot 4: pH, ORP, Conductivity, DO, Ozone, Turbidity, Chlorine, SS, Host Comms, 3 Optional relays.

4 to 20 Milliamp current loops

- Two isolated current loops per sensor (standard).
- Setup as 0 / 4-to-20 mA.
- 0.01mA resolution.
- Each output assignable to sensor, temperature or math.
- Loop power provided by AquaPro.

Relays

- Three form C relays (standard): 5A, 250 volt.
- Three form C relays (optional): 5A, 250 volt.
- Normally open and normally closed contacts.
- Assignable to any measurement, temperature or math function in the system.
- Setup functions include: alarm, control and timer.

Digital protocol options to Hhost

- MODBUS RTU
- DeviceNet
- Ethernet/IP
- CANopen

Power supply

- AC power option: 100 to 240 VAC, 50/60Hz, 0.4A max @ 25°C.
- DC power option: 24 VDC.

Approvals

- CE: Low Voltage Directive, EMC Directive, RoHS Directive
- UL: cULus
UL: Haz Loc Class 1 Div 2, Groups A,B,C,D (USA and Canada)

Analyzer Performance Data

Table 1. Standard inputs for sensors with DC signals

Measurement	Range	Resolution	Electrical accuracy	Units
pH	0 to 14 pH	0.01 pH	0.1 mV	pH
ORP	-2000 to +2000mV	1mV	0.1 mV	mV
Dissolved oxygen	40 ppm	0.1ppm	0.1 mV	ppm
Ozone	0-10ppm	0.01ppm	0.1 mV	ppm
Temperature**	-5 to 200°C	0.1°C	0.1°C	°C, °F

Table 2. Standard inputs for conductivity sensors

Measurement	Range	Resolution	Electrical accuracy	Units
Toroidal	0 to 2 S/cm	1 uS/cm	1 uS/cm	uS/cm, M Ω *cm, ppm, %
1.0 Cell	0 to 2000 uS/cm	0.1 uS/cm	0.5 uS/cm	uS/cm, M Ω *cm, ppm, %
0.1 Cell	0 to 500 uS/cm	0.01 uS/cm	0.1 uS/cm	uS/cm, M Ω *cm, ppm, %
0.05 Cell	0 to 100 uS/cm	0.01 uS/cm	0.05 uS/cm	uS/cm, M Ω *cm, ppm, %
0.01 Cell	0 to 20 uS/cm	0.001 uS/cm	0.005 uS/cm	uS/cm, M Ω *cm, ppm, %
Temperature**	-5 to 200°C		0.1°C	°C, °F

Table 3. Standard inputs for digital sensors

Measurement	Range	Resolution	Units
pH	0 to 14 pH	0.01 pH	pH
ORP	-2000 to +2000mV	1mV	mV
Toroidal	0 to 20 ppm	1 uS/cm	uS/cm, M Ω *cm, ppm, %
1.0 Cell	0 to 2000 uS/cm	0.1 uS/cm	uS/cm, M Ω *cm, ppm, %
0.1 Cell	0 to 500 uS/cm	0.01 uS/cm	uS/cm, M Ω *cm, ppm, %
0.05 Cell	0 to 20 uS/cm	0.01 uS/cm	uS/cm, M Ω *cm, ppm, %
0.01 Cell	0 to 10 uS/cm	0.001 uS/cm	uS/cm, M Ω *cm, ppm, %
Low turbidity	0 to 100 NTU	0.001 NTU	NTU
High turbidity	0 to 4000 NTU	0.1 NTU	NTU
DO (ppm)	0 to 40 ppm	0.1ppm	PPM
DO (ppb)	0 to 20 ppm	0.001ppm	PPB, PPM
Ozone	0 to 10 ppm	0.1ppm	PPM
Free chlorine	0 to 10 ppm	0.1ppm	PPM
Suspended solids	0 to 20,000 ppm	1ppm	PPM, %
Temperature	-5 to 200°C	0.1°C	°C, °F

**PT1000 temperature elements are standard on all Thermo Scientific branded process analytical sensors. Accuracy and resolution of other temperature elements (EG: PT100) will vary. Signal accuracy is based on external digital measurement system.

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Global support

With experience that comes from supporting our customers for over 35 years throughout the world, our water quality specialists and customer support teams offer a quick, thorough and professional response to any problem encountered.

Focus on user benefits

We work closely with you to define your needs, and ensure you are using the monitor in a way that helps improve your bottom line. For more information, contact your local water quality specialists or visit: thermofisher.com/water

Ordering information

AquaPro parameter cards

Description	Cat. No.
AquaPro pH card	AP01PH
AquaPro ORP card	AP02ORP
AquaPro contacting conductivity card	AP03CC
AquaPro toroidal conductivity card	AP04TR
AquaPro dissolved oxygen card	AP05DO
AquaPro ozone card	AP06OZ
AquaPro RDO pro (optical) dissolved oxygen card	AP07RDO
AquaPro DataStick Digital Input Card	AP08DS
AquaPro MODBUS 232 communications card	AP0AMB232
AquaPro MODBUS RTU communications card	AP0BMBRTU
AquaPro ethernet communications card	APOCETH
AquaPro DeviceNET communications card	AP0DDEN
AquaPro CANopen communications card	APOECAN
AquaPro relay expansion card	APOGREXC

AquaPro accessories

Description	Cat. No.
AquaPro PANEL mount kit	AP0PANKT
AquaPro PIPE mount kit	AP0PIPKT
AquaPro PG NPT adapter	AP0ADPG
AquaPro set OF 6 cable glands	AP0GLND



Ordering information

AquaPro controller cards

Description	Cat. No.
Aquapro controller with 1 pH card, 24 VDC	AP1XXXJ
Aquapro controller with 1 pH card, 90 -240 VAC	AP1XXXK
Aquapro controller with 1 ORP card, 24 VDC	AP2XXXJ
Aquapro controller with 1 ORP card, 90 -240 VAC	AP2XXXK
Aquapro controller with 1 conductivity card, 24 VDC	AP3XXXJ
Aquapro controller with 1 conductivity card, 90 -240 VAC	AP3XXXK
Aquapro controller with 1 torodial conductivity card, 24 VDC	AP4XXXJ
Aquapro controller with 1 torodial conductivity card, 90 -240 VAC	AP4XXXK
Aquapro controller with 1 dissolved oxygen (ppm) card, 24 VDC	AP5XXXJ
Aquapro controller with 1 dissolved oxygen (ppm) card, 90 -240 VAC	AP5XXXK
Aquapro controller with 1 Ozone card, 24 VDC	AP6XXXJ
Aquapro controller with 1 Ozone card, 90 -240 VAC	AP6XXXK
Aquapro controller with 1 RDO Pro™ dissolved oxygen card, 24 VDC	AP7XXXJ
Aquapro controller with 1 RDO Pro™ dissolved oxygen card, 90 -240 VAC	AP7XXXK
Aquapro controller with 1 Datastick card, 24 VDC	AP8XXXJ
Aquapro controller with 1 Datastick card, 90 -240 VAC	AP8XXXK
AquaPro base unit with no card, 24 VAC	AP0BASAC
AquaPro base unit with no card, 90 -240 VDC	AP0BASDC

Find out more at thermofisher.com/water