

## MetriNet Multi-Parameter Monitoring

A quantity of \_\_\_\_\_ MetriNet systems shall be supplied for the purpose of monitoring water quality parameters and collecting data at remote locations. Data shall be transmitted to a data storage site (cloud site) at intervals programmed by the user. If remote transmission is not needed, data may be collected manually using the internal SD card.

Each MetriNet system shall consist of a controller and between one and eight sensing nodes (M-Node). Each M-Node is a complete sensor and Modbus transmitter housed in a miniaturized body. The M-Nodes plug directly into the MetriNet bus system and are powered directly from the communications bus. M-Nodes may be added or removed as needed and removal of a node will not affect system measurements. All bus connectors shall be rated IP-67 suitable for short-term submerged operation.

Controllers may be connected with up to 8 M-Nodes. Currently available M-Nodes are as follows. Specify the parameters required for each system from this list.

<u>Parameter</u>	<u>Range</u>	<u>Resolution</u>
Free Chlorine	0-5.00 ppm	0.01 ppm
Combined Chlorine	0-5.00 ppm	0.01 ppm
Total Chlorine	0-5.00 ppm	0.01 ppm
Turbidity	0-40.00 NTU	0.01 NTU
pH	2-12 pH	0.01 pH
Conductivity	0-2000 $\mu$ S	1 $\mu$ S
ORP	0-1000 mV	1 mV
Dissolved Oxygen	0-20.00 ppm	0.01 ppm
Fluoride	0.1-10.00 ppm	0.01 ppm
Dissolved Ozone	0-5.00 ppm	0.01 ppm
Chlorine Dioxide	0-5.00 ppm	0.01 ppm
Peracetic Acid	0-200 ppm	0.10 ppm
Hydrogen Peroxide	0-20.00 ppm	0.01 ppm
Pressure	0-300 PSIG	1 PSIG
4E Conductivity	0-2000 mS	1 $\mu$ S

MetriNet systems supplied shall contain the following functions required for measuring and logging data.

1. Display measurements from up to 8 M-Node sensor inputs.
  2. Store data for each node at user defined intervals from 0.1-60 minutes with capacity for 300K values, or over 6 months of data for 8 sensors at 15-minute intervals.
  3. Store all data in non-volatile RAM with the ability to write all stored data to an internal SD card to provide data backup in the event of communication problems
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4. Provide an internal GPS chip so that the user can automatically identify the exact location of an installation.
5. Controllers shall contain a 3G modem with SIM card installed unless otherwise specified.
6. Each M-Node shall contain internal storage of calibration constants, alarm settings, and calibration interval timer. Nodes may be calibrated remotely and substituted into operating systems to minimize field calibration.
7. Provide modular flowcells for each M-Node that easily clip together. Flow systems shall contain a fixed flow regulator controlling water flow to 0.2 LPM with inlet pressures from 1-50 PSIG without adjustment.
8. Provide a power supply suitable for the installation location. Power options shall be either 1) battery enclosure for 8 D-cell alkaline batteries, 2) battery enclosure for 4 D-cell lithium batteries, or 100-240 VAC to 12 VDC power supply. Specify type required.

OPTION:

9. To simplify installation, provide each MetriNet system factory mounted on a plate suitable for wall mounting. The assembly shall include the controller, all required M-Nodes, flowcells, power supply, and interconnect bus bar.

**The complete MetriNet system shall be Analytical Technology, Inc. model Q52 or approved equal.**

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