

Eclipse i-Series #9300i-MB

NEW!



The Intelligent Solution for Water Distribution Systems™
ECLIPSE
i series





Intelligent Turn-Key
Wall-Mounted
Monitoring Station
Installed into Existing
Infrastructure

Features

- 1/4" Compression Inlet
- Programmable Logic Controller (PLC)
 - SCADA compatible via Modbus, Modbus IP, DF1, Profibus, CANopen, or custom serial / Ethernet protocols
- Two micro-SD cards and standard SD adapters
- Amperometric Chlorine Sensor (no reagents required) and temperature sensor
- Scalable to house up to 7 additional sensors (not including pressure)
- Easily mountable to any wall right out of the box (pump stations, booster stations, etc.)
- 120VAC line power required
- Sampling point bibb

Touch-Screen PLC with App*

| | | |
|-----------------------------|---|----------------------|
| Valve: Closed | ECLIPSE™ <i>i series</i> | 05/31/18 09:18:29 |
| 9300i- 24- 1XX- XXX- XXX- 3 | | |
| Cmb Cl: | 0002.44 | PPM |
| Samp. Time: 01.00.00 | | |
| DESIRED LEVELS: | ACTIVE READINGS: | |
| Cl: 01.50 PPM | Temp: 84.27 F | |
| | Pres: 000.0 PSI | |
| Menu |  F1-LOCK READING  F2-SWITCH SENSOR | |

| Local Control | | | |
|---|---------------|-------------------------------------|-------------|
| Blow-Off | CLOSED | Sampling | OPEN |
| CLOSE | OPEN | CLOSE | OPEN |
| CYCLE HYDRANT | | STOP HYDRANT | |
| Time Left in Cycle: 01.00.00 HH:MM:SS | | Current Reading 02.39 PPM | |

Features

- Human Machine Interface (HMI)
- Monitor water quality live on the free downloadable app for smartphones and tablets
- Remotely control monitoring station by phone or tablet (i.e. open/close valves, etc.)

*Requires PLC upgrade and RV50 Wireless Gateway Package

Additional Available Sensors

- Free, Combined or Total Chlorine
- Turbidity
- Conductivity
- ORP
- Dissolved O₂
- pH
- Pressure
- Fluoride
- Etc.

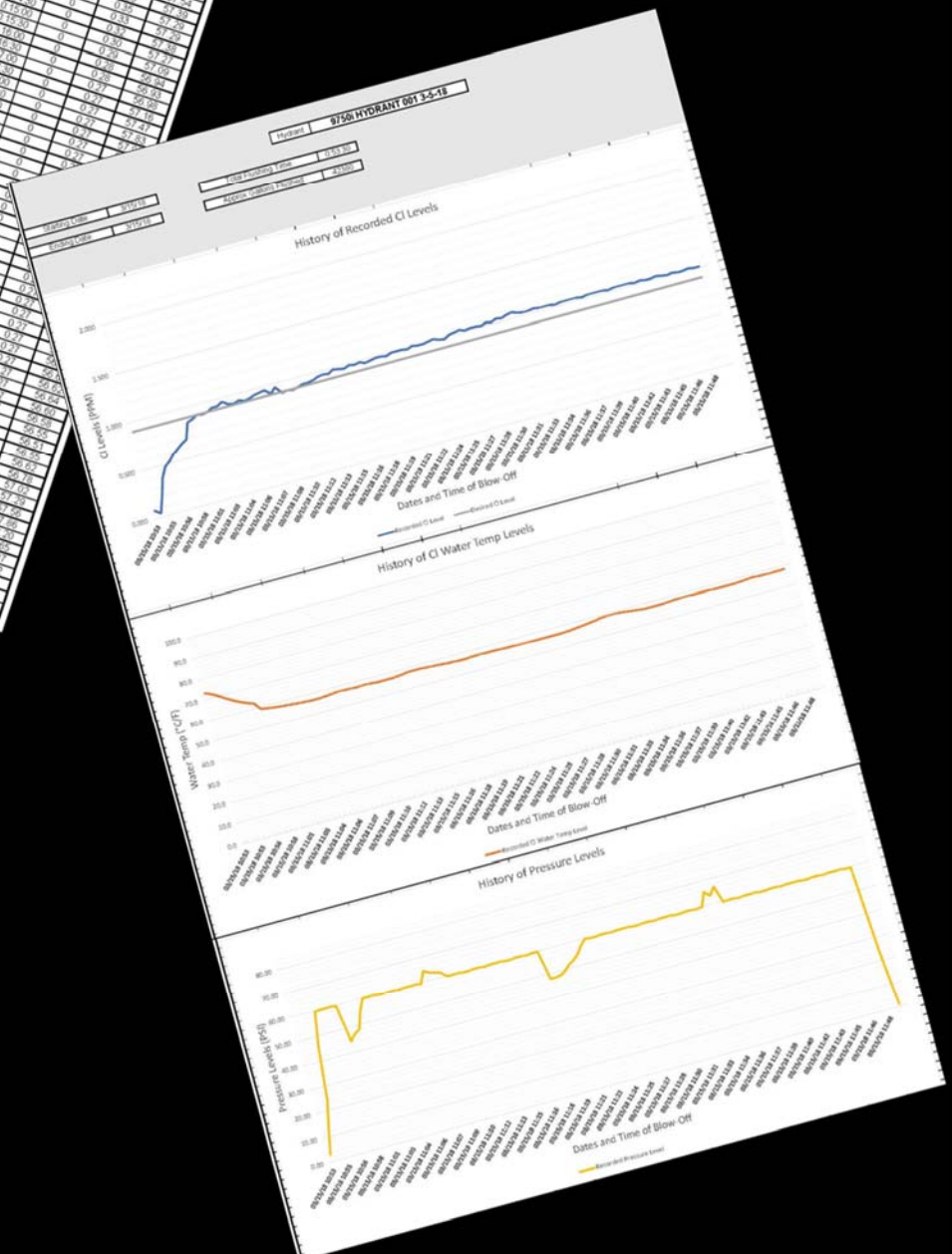


The Eclipse i-Series #9300i-MB automatically captures and records all water quality data. Data can be easily retrieved and imported into pre-formatted Excel worksheets.

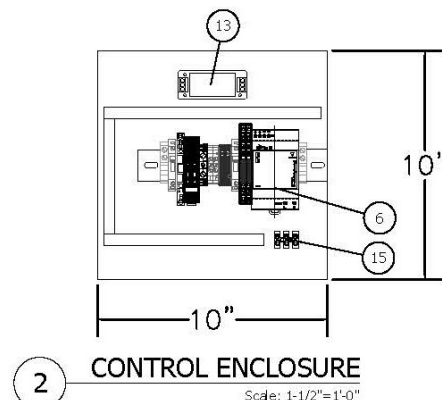
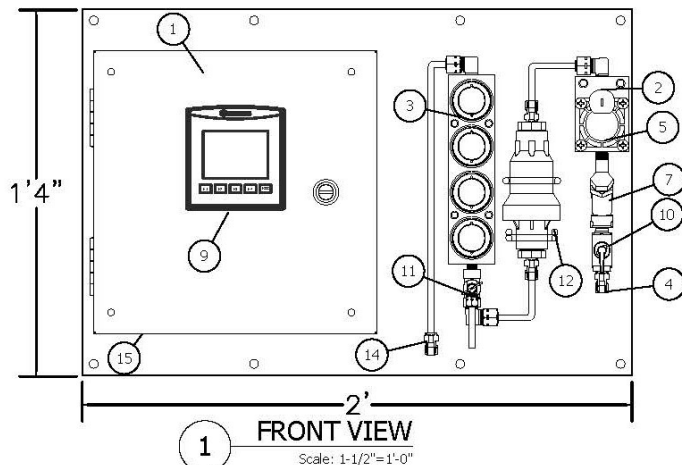
Analysis Table

Reports display all water quality activity for each installed sensor in both table and graphic formats.

| 9750i HYDRANT 001 3-5-18 | | | | | | | | | |
|--------------------------|----------|-------------------------|------------------------|----------------|---------------|---------------|------------------|----------------------|-------------------|
| Date | Blow-Off | Recorded CI Level (PPM) | Desired CI Level (PPM) | Pressure (PSI) | CI Water Temp | CI Temp Units | Elapsed Run Time | Approx. Val. Flushed | Turb. Level (NTU) |
| 03/15/18 10:53 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 10:54 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 10:55 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 10:56 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 10:57 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 10:58 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 10:59 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:00 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:01 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:02 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:03 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:04 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:05 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:06 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:07 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:08 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:09 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:10 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:11 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:12 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:13 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:14 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:15 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:16 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:17 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:18 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:19 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:20 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:21 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:22 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:23 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:24 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:25 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:26 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:27 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:28 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:29 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:30 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:31 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:32 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:33 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:34 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:35 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:36 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:37 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:38 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:39 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:40 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:41 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:42 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:43 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:44 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:45 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:46 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:47 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:48 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:49 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:50 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:51 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:52 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:53 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:54 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:55 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:56 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:57 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:58 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 11:59 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |
| 03/15/18 12:00 | | 0.04 | 0.05 | 130 | 73.00 | F | 0:00:00 | 0 | 0.04 |



9300i-MB Intelligent Water Quality Station



| ITEM | ITEM / DESCRIPTION |
|------|-------------------------------------|
| 1 | CONTROL ENCLOSURE |
| 2 | DC LATCHING SOLENOID |
| 3 | NODE BASED FLOWCELL |
| 4 | 1/4" COMP INLET |
| 5 | SAMPLING VALVE |
| 6 | DC POWER SUPPLY |
| 7 | Y-STRAINER |
| 8 | WALL MOUNT (RECYCLED PLASTIC) |
| 9 | PROGRAMMABLE LOGIC CONTROLLER (PLC) |
| 10 | PVC BALL VALVE |
| 11 | SAMPLING POINT |
| 12 | PVC PRESSURE REGULATING VALVE (PRV) |
| 13 | DC TO DC REGULATOR |
| 14 | 1/4" COPPER DRAIN |
| 15 | 120 VAC HOOKUP |

Intelligent sampling device shall be installed in the following locations:

A 1/4" brass compression inlet shall connect to a 1/4" PVC ball valve controlling the flow of water through the sampling assembly. A Y-strainer shall be located immediately after the PVC ball valve for maintenance purposes. From the Y-strainer, a sampling valve shall be included to control the flow of water thru the *Intelligent Water Quality Station* (IWQS) with the extension and retraction of a DC latching solenoid. The solenoid shall have no loose parts when removed from the valve. The sampling valve shall control the flow of water for the sample stream to a PVC pressure regulating valve (PRV) a node based flowcell that can house up to 4 sensors. This sensor will be directly connected to a serial hub on the side of the enclosure and then connect to the PLC. These sensors will communicate to the PLC via RS485 serial communication. From this flowcell, the water will plumb away from the unit through 1/4" copper tubing and be at the customers discretion as to how they want the water to drain. The sample used for water quality monitoring shall not be altered by adding any chemicals or reagents to the sample stream.

The IWQS shall use a Unitronics PLC. PLC shall have the ability to locally log water quality parameters into local data tables (viewable at the site) and/or a removable micro SD card in a .CSV file (removable and viewable in Excel).

The sampling equipment and the communication electronics shall be enclosed in a lockable control enclosure preventing any tampering with the electronics. The unit shall be mounted to the wall in an area that is enclosed and heated so that the water lines may not freeze. Mounting hardware will not be included. To power the device a 120 VAC source will need to be provided by the customer. Final power input to be further coordinated between customer and manufacturer with the analyzer, sensors, PLC, and the necessary controls for the solenoid, being powered from this connection.

Unit model # shall be 9300i-MB as manufactured by Kupferle Foundry Company, St. Louis MO, or approved equal.

NOTES:

- WIRES ARE NOT SHOWN FOR CLARITY
- DEPTH OF MOUNTING BOARD IS APPROXIMATELY 8"

ALL SENSOR OPTIONS:

| FREE CHLORINE | TOTAL CHLORINE |
|-------------------|------------------|
| COMBINED CHLORINE | pH |
| TURBIDITY | ORP |
| CONDUCTIVITY | DISSOLVED OXYGEN |
| FLUORIDE | DISSOLVED OZONE |
| CL DIOXIDE | PERACETIC ACID |
| HYDROGEN PEROXIDE | PRESSURE |

| GENERAL SENSOR SPECIFICATIONS: | |
|-----------------------------------|--|
| VOLTAGE | BUS POWERED (5 VDC) |
| COMMUNICATIONS | SERIAL 485 |
| CONNECTIONS | MB-5 IP67/68 |
| CHLORINE SENSOR SPECIFICATIONS: | |
| MEASURING RANGE | 0.00 to 4.00 PPM (FREE & COMBINED) 0.00 to 5.00 PPM (TOTAL) |
| WETTED MATERIALS | PVC, TEFLON, VITON, EDPM, RYTON® |
| RESOLUTION | 0.01 PPM |
| POWER | 40mW |
| WATER TEMPERATURE SPECIFICATIONS: | |
| MEASURING RANGE | 23 to 131°F |
| TEMPERATURE INPUT | PT100 RTD W/ AUTOMATIC COMPENSATION |

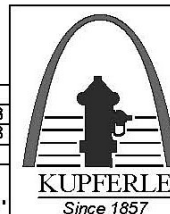
| ELECTRICAL SPECIFICATIONS: | |
|------------------------------|--|
| VOLTAGE | 120 VAC |
| MAX POWER CONSUMPTION | 30 WATTS @ 24 VDC |
| POWER SUPPLY SPECIFICATIONS: | |
| SUPPLY VOLTAGE | 100-240 VAC |
| INPUT FREQUENCY | 47-63 Hz |
| INPUT CURRENT | TYP. - 1.06 A, MAX. - 1.5 A |
| HOLD-UP TIME | V1 = 115 VAC - 20 ms V1 = 230 VAC - 30 ms |
| EFFICIENCY | 89% |
| OUTPUT VOLTAGE | 24 V |
| RATED CONTINUOUS LOADING | 2.5 A @ 24 VDC |
| MAX POWER | 30 WATTS |
| PLC SPECIFICATIONS: | |
| VOLTAGE | 20.4 - 28.8 VDC |
| POWER CONSUMPTION | 215 mA @ 24VDC |
| INPUTS | (10) 120 VAC |
| ANALOG INPUTS | (2) : 10-BIT RESOLUTION, 4-20 mA |
| OUTPUTS | (6) INDIVIDUALLY ISOLATED RELAY |
| COMMUNICATIONS | RS-232 OR RS-485 PORT AND ETHERNET/IP |
| OTHER SPECIFICATIONS: | |
| MAX PRESSURE | <100 PSI |
| APPROX. FLOW RATE | ADJUSTABLE UP TO ~3 GPH |
| WEIGHT | ~28 lbs. |

| | |
|----------|----------------------|
| DD/MM/YY | ISSUED FOR REFERENCE |
| DATE | STATUS / REVISION |

9300i-MB-Modbus Node Spec

| | INITIALS | DATE |
|----------|----------|----------|
| DRAWN | JRG | 06/05/18 |
| APPROVED | JRG | 06/05/18 |
| MODIFIED | | |

SCALE
1-1/2"=1'



2511 NORTH 9TH STREET
ST. LOUIS, MO 63102
1-800-231-3990
FAX 314-231-2820
www.hydrants.com

SHEET 1 OF 1