

# YSI 6-Series Sondes

## Sensor Interface Manual

600DW-B

600LS

600OMS V2

600R

600XL

600XLM



600XLM V2

6600 V2

6600EDS V2

6820 V2

6920 V2

6920DW

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## Overview

YSI 6-series sondes multi-parameter water quality sensor platforms can be used for long-term monitoring or profiling applications.

V2 6-series sondes include optical ports for connection to optical sensors. These sensors each include a self-cleaning wiper for harsh fouling environments and make measurements based on specific wavelengths of light rather than using traditional voltage methods.

The following sensor options are available in various combinations depending on the model of sonde.

- Temperature
- Conductivity
- pH
- ORP
- Ammonium
- Nitrate
- Chloride
- Depth
- Dissolved oxygen
- Optical dissolved oxygen
- Turbidity
- Blue-green algae
- Rhodamine WT
- Chlorophyll

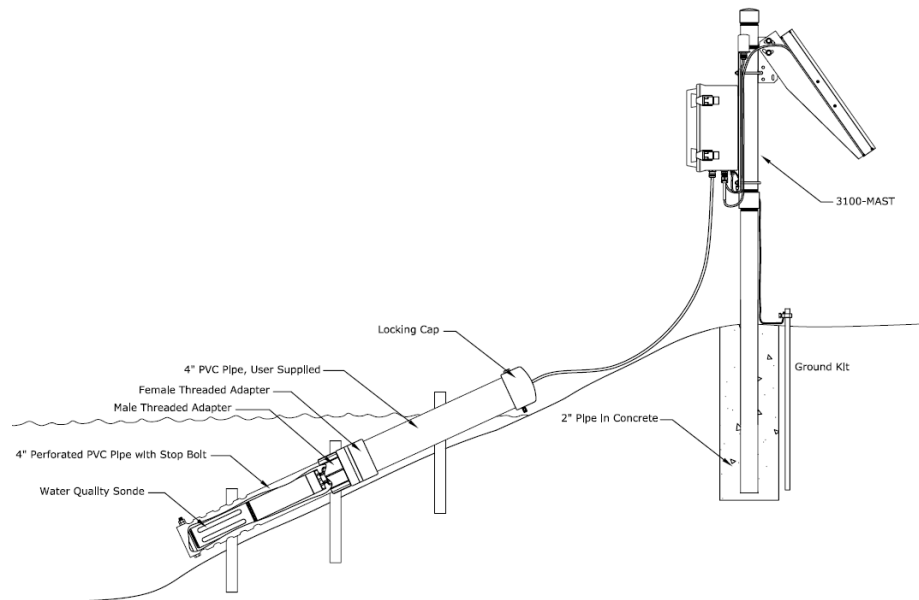


**Figure 1:** YSI 6920 V2-2 water quality sonde with sensors

## Installation

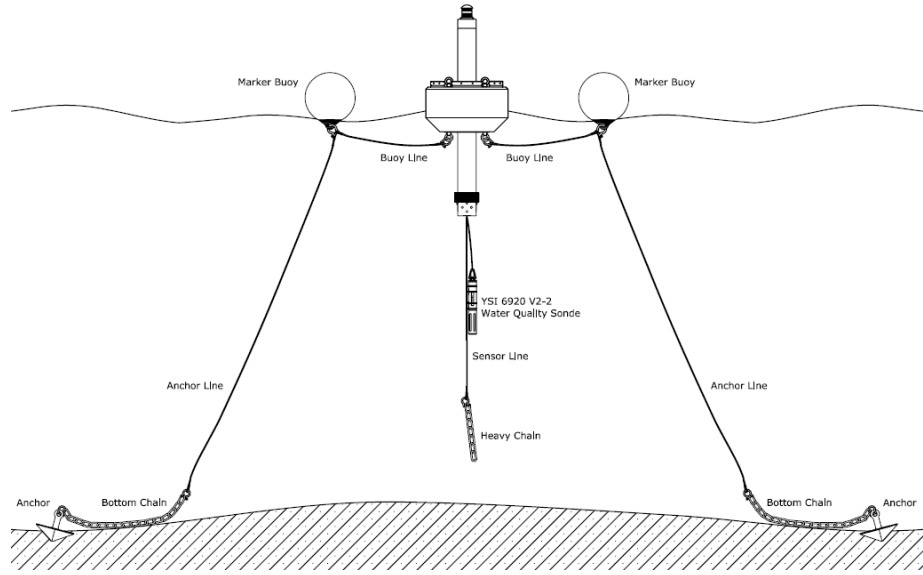
When purchased with a NexSens integrated system, YSI 6-series sondes are factory assembled and calibrated to manufacturer specifications.

600 series sondes are designed to fit in 2 inch or larger deployment pipes. 6820, 6920, and 6600 series sondes are designed to fit in 4 inch or larger deployment pipes. A typical NexSens water quality station with an iSIC data logger and a YSI sonde housed in a deployment pipe is shown in Figure 2.



**Figure 2:** Typical water quality station that includes a YSI water quality sonde, PVC deployment pipe, and 3100-MAST cellular telemetry system with cellular iSIC data logger, solar panel, and cellular antenna

Any of the 6-series sondes can also easily be mooring deployed under NexSens data buoys. A typical buoy-based water quality monitoring system is depicted in Figure 3.



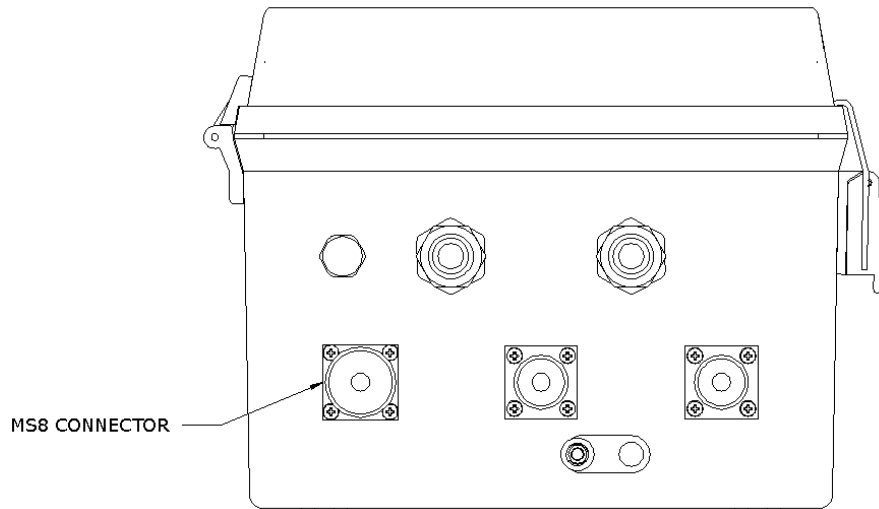
**Figure 3:** Typical water quality monitoring system that includes a YSI 6920 V2-2 sonde, MB-300 data buoy with solar power, SDL500 data logger, and 2-point mooring system

## Connecting to an iSIC Data Logger

NexSens iSIC data loggers are designed for quick and easy connection to YSI sonde field cables. The MS8 port on the iSIC enclosure (see Figure 4) provides a pluggable connection that accommodates the male MS8 connector on 6-series sonde cables.

### **NOTE**

The MS8 connector uses port P0 for RS-232 serial communication with YSI sondes. This information is required during the initial system programming with iChart software.



**Figure 4:** iSIC data logger enclosure (bottom view)

**NOTE**

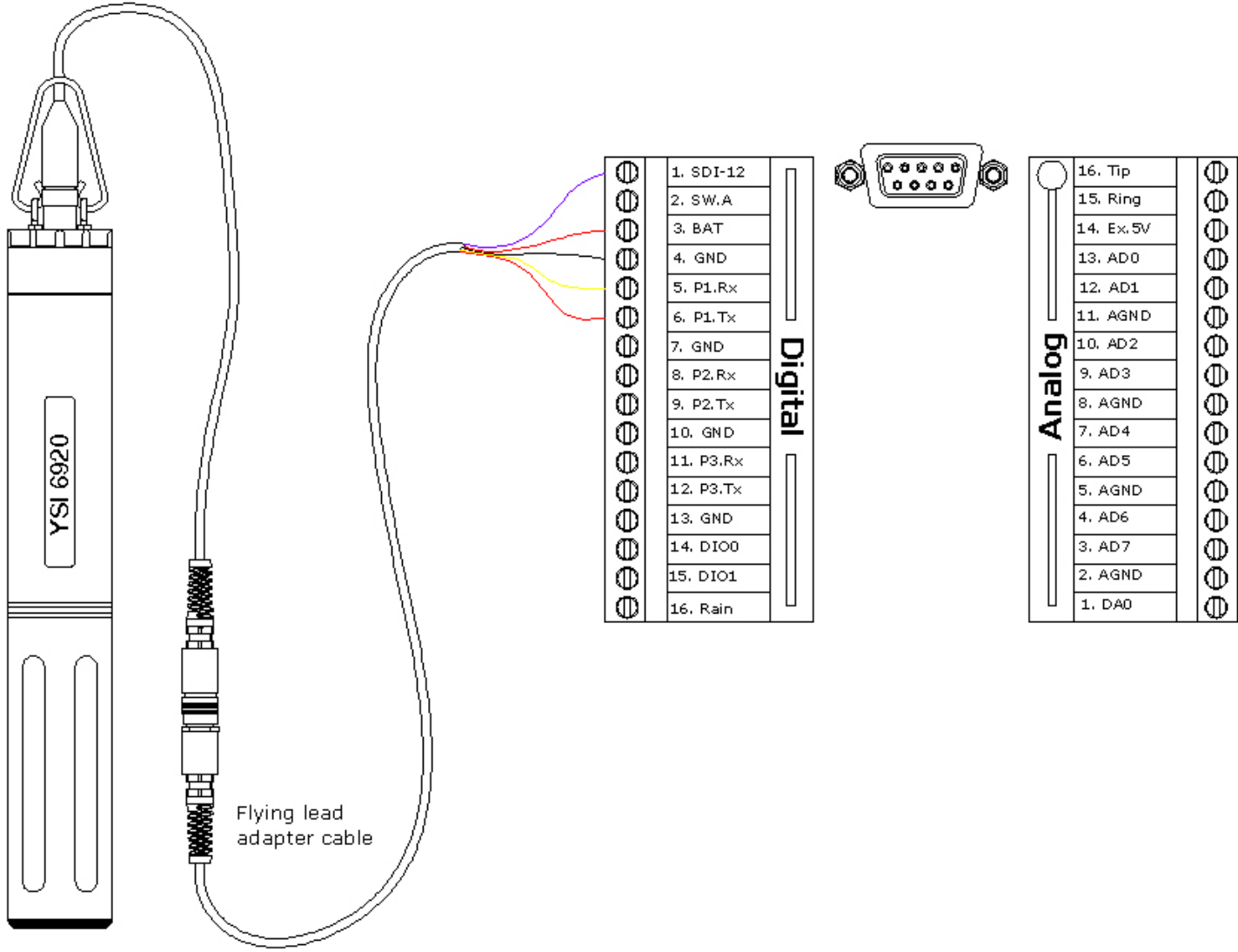
A YSI flying lead adapter cable is required for wiring YSI 6-series sondes directly to the iSIC data logger.

Additionally, sondes can be wired directly to the iSIC terminal strips within the enclosure. To wire a sonde into the iSIC, route the cable and wires through a gland fitting installed in the enclosure, and then unplug the green terminal strip from the data logger before securing individual wires according to the wiring diagram below. Avoid clamping on wire insulation.



**Figure 5:** Unplug the green terminal strip from the data logger before wiring the sensor

When connecting two sondes to the same iSIC data logger terminal strip, the same power, ground, and SDI-12 pins can be used. However, because RS-232 is not a multi-drop bus, only one sensor can be connected to each serial communication port (P0, P1, and P2) on the data logger. The physical wiring below shows a sonde connected to port P1.



**Figure 6:** Physical wiring of a YSI 6920 sonde to an iSIC data logger

**Table 1:** Table for wiring a YSI 6-series sonde to an iSIC data logger

**NOTE**  
**P2. Rx and P2.Tx must be used in place of P1.Rx and P1.Tx when wiring two sondes to the iSIC terminal strip.**

| Digital          |                    | Analog           |   |
|------------------|--------------------|------------------|---|
| <b>1. SDI-12</b> | Purple (SDI-12)    | <b>16. Tip</b>   | - |
| <b>2. SW.A</b>   | -                  | <b>15. Ring</b>  | - |
| <b>3. BAT</b>    | Red (+12 VDC)      | <b>14. Ex.5V</b> | - |
| <b>4. GND</b>    | Black (GND)        | <b>13. AD0</b>   | - |
| <b>5. P1.Rx</b>  | Yellow (RS-232 Tx) | <b>12. AD1</b>   | - |
| <b>6. P1.Tx</b>  | Orange (RS-232 Rx) | <b>11. AGND</b>  | - |
| <b>7. GND</b>    | -                  | <b>10. AD2</b>   | - |
| <b>8. P2.Rx</b>  | -                  | <b>9. AD3</b>    | - |
| <b>9. P2.Tx</b>  | -                  | <b>8. AGND</b>   | - |
| <b>10. GND</b>   | -                  | <b>7. AD4</b>    | - |
| <b>11. P3.Rx</b> | -                  | <b>6. AD5</b>    | - |
| <b>12. P3.Tx</b> | -                  | <b>5. AGND</b>   | - |
| <b>13. GND</b>   | -                  | <b>4. AD6</b>    | - |
| <b>14. DIO0</b>  | -                  | <b>3. AD7</b>    | - |
| <b>15. DIO1</b>  | -                  | <b>2. AGND</b>   | - |
| <b>16. Rain</b>  | -                  | <b>1. DA0</b>    | - |

## Computer Interface

iChart software is used to set up the iSIC data logger, as well as to acquire and process data. Launch the software and select **File | New Project**. Follow the Setup Device Wizard to create a project file. Additional information is available in the iChart manual.



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