

# In-Situ RDO Pro Dissolved Oxygen Sensor

## Sensor Interface Manual



# Table of Contents

<b>Overview .....</b>	<b>1</b>
<b>Installation .....</b>	<b>2</b>
<b>Connecting to an iSIC Data Logger .....</b>	<b>2</b>
<b>Computer Interface .....</b>	<b>4</b>

**Revision:** 02      **Revision Code:** 20A10

## Overview

The In-Situ RDO Pro Dissolved Oxygen sensor measures dissolved oxygen (DO) using the principle of dynamic luminescence quenching. The RDO sensor employs lifetime-based optical fluorescence technology to provide an extremely stable, accurate, low-maintenance DO sensor.

The sensor is designed for quick and easy connection to data loggers with a wide 9.6 to 16 VDC input power range along with the option for SDI-12, Modbus RS485 or 4-20 mA interfaces. SDI-12 is recommended for connection to NexSens iSIC (intelligent sensor interface and control) data loggers.



**Figure 1:** In-Situ RDO pro optical dissolved oxygen sensor

## Installation

Follow the manufacturer's recommendation for setting up the sensor and installing the sensor cap. After installation the sensor must be kept in a moist environment. Install the storage cup with a small amount of water to keep the sensor moist and provide added protection during transport and setup.

The RDO Pro is designed to fit in 2 inch or larger deployment pipes or can be mooring deployed under data buoys. Additionally an internal 1¼ NPT (National Pipe Thread) supports "end of pipe" deployments. For accurate readings it is best to fully submerge the sensor.

## Connecting to an iSIC Data Logger

To wire the sensor 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.

### **NOTE**

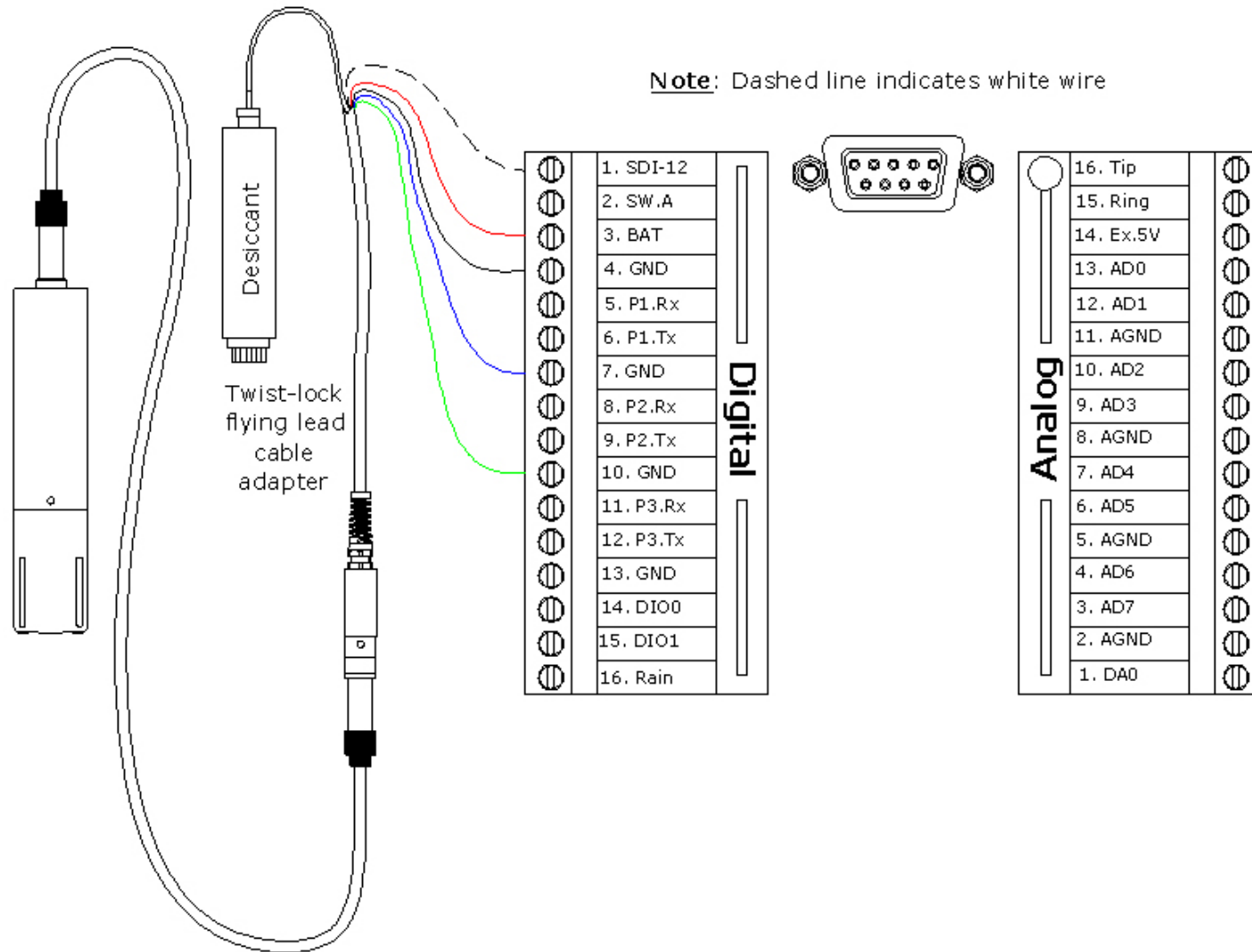
**An In-Situ twist-lock to flying lead adapter cable is required for wiring RDO pro sensors instruments directly to the iSIC data logger.**



**Figure 2:** Unplug the green terminal strip from the data logger before wiring the sensor

For connecting two RDO pro sensors to the same data logger, use the same pins on the iSIC terminal strip. However, attaching more than two instruments to the same terminals may be cumbersome. Consider a junction box for signal splitting if this is the case.

**CONNECTING TO AN ISIC DATA LOGGER**



**Figure 3:** Physical wiring of a In-Situ RDO pro to an iSIC data logger

**Table 1:** Table for wiring an In-Situ RDO pro to an iSIC data logger

<b>Digital</b>		<b>Analog</b>	
<b>1. SDI-12</b>	White (SDI-12)	<b>16. Tip</b>	-
<b>2. SW.A</b>	-	<b>15. Ring</b>	-
<b>3. BAT</b>	Red (EXT PWR)	<b>14. Ex.5V</b>	-
<b>4. GND</b>	Black (GND/RETURN)	<b>13. AD0</b>	-
<b>5. P1.Rx</b>	-	<b>12. AD1</b>	-
<b>6. P1.Tx</b>	-	<b>11. AGND</b>	-
<b>7. GND</b>	Blue (RS-485 +)	<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>	Green (RS-485 -)	<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>	-

**Notes:**

- The outboard desiccant is not required for use with the RDO pro and can be removed from the flying lead adapter if desired.

## 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.



1415 Research Park Drive  
Beavercreek, OH 45432  
937-426-2703  
[www.NexSens.com](http://www.NexSens.com)