

Quick Start Guide

Level TROLL® 400, 500, 700, and 700H



In order to deploy the instrument, complete the following steps.

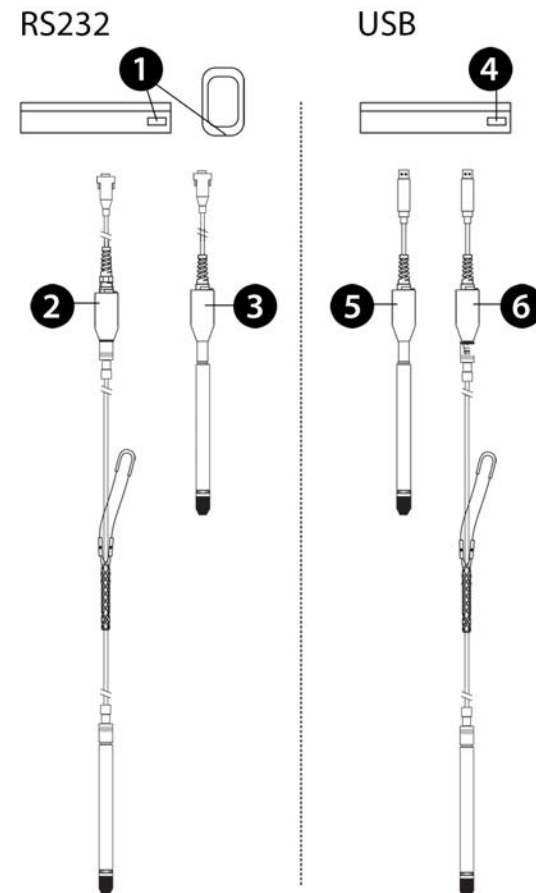
- Connect the instrument to a computer or RuggedReader.
- Connect the instrument to the software and set up a site and a data log.
- Install the instrument in the water. (If you are using a level reference set it at this time.)
- Verify the installation position then disconnect the instrument from the computer or RuggedReader.
- Secure the cable and install the desiccant.

Select a TROLL Com Communication Device

The subsequent figure shows the function and connection features of the TROLL Com Communication Device models.

- A Direct-Connect TROLL Com might be preferred for programming an instrument that will be deployed on a suspension cable.
- A RuggedCable System and a Cable-Connect TROLL Com are required if you intend to communicate with the instrument while it is deployed. However, you can program the instrument with any TROLL Com.

- A serial (RS232) TROLL Com is required for use with a RuggedReader Handheld PC.



1	Serial port on a PC/laptop and RuggedReader Handheld PC
2	Cable-Connect TROLL Com Communication Device, serial connection, for field use
3	Direct-Connect TROLL Com Communication Device, serial connection, programming only, not submersible
4	USB port on a PC/laptop
5	Direct-Connect TROLL Com Communication Device, USB connection, programming only, not submersible
6	Cable-Connect TROLL Com Communication Device, USB connection, for field use

Connecting the RuggedCable System

Connect the Instrument to the RuggedCable System

1. Remove the protective caps from the instrument and cable. Ensure that the O-ring on the instrument connection is clean.
2. Locate the flat side of each connector and notice the pins on the instrument connector and the slots on the cable connector.



3. Slide back the sleeve on the cable connector.



4. Position the instrument and cable flat edges so they will connect properly. Insert the instrument connector firmly into the cable connector.



5. Slide the cable sleeve toward the instrument until the pin on the instrument fits into the hole in the slot on the cable connector.



6. Hold the textured section of the sleeve in one hand and the instrument in the other. Push and twist until you hear a click. The click ensures the cable and instrument are securely attached.



Connect TROLL Com Communication Device to the RuggedCable System

1. If a desiccant is present, remove the desiccant from the cable. Hold the textured section of the cable connector in one hand and the desiccant in the other. Twist in opposite directions to unlock the desiccant from the cable.



2. Position the TROLL Com and the cable flat edges so they will connect properly. Insert the TROLL Com connector firmly into the cable connector.



3. Hold the textured section of the sleeve in one hand and the TROLL Com in the other. Push and twist until you hear a click. The click ensures the cable and TROLL Com are securely attached.

Field Deployment

Program the Instrument

In order to set up a log or download data, you must connect the instrument to a computer running Win-Situ 5 Software, or a RuggedReader Handheld PC running Win-Situ Mobile. Refer to the Win-Situ 5 or Win-Situ Mobile section. See page 2.

Position the Instrument

Place the instrument at the desired depth. Position the instrument below the lowest anticipated water level, but not so low that the pressure sensor range might be exceeded at the highest anticipated water level. Refer to the tables below to determine usable depth.



A BaroTROLL Instrument can be deployed with a non-vented instrument to compensate level data for changes in atmospheric pressure. Make sure the clocks on both instruments are synchronized, and install the BaroTROLL in a location that will never be submerged in water.

Non-Vented Level TROLL Instrument				
Range	Effective Range		Usable Depth	
	PSIA	kPA	Meters	Feet
30	15.5	106.9	11	35
100	85.5	589.5	60	197
300	285.5	1968	200	658
500	485.5	3347	341	1120
1000	985.5	6795	693	2273

* Effective range for psia sensors is limited by an estimated 14.5 PSI atmospheric pressure at sea level.

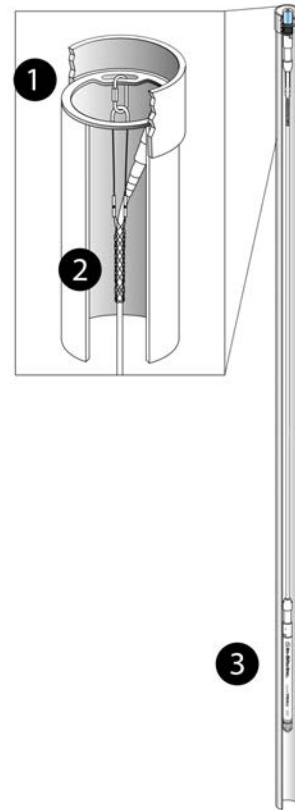
Vented Level TROLL Instrument			
Range	Usable Depth		
	PSIG	kPA	Feet
5	34.5	3.5	11.5
15	103.4	11	35
30	206.8	21	69
100	689.5	70	231
300	2068	210	692
500	3447	351	1153

Verify Instrument Depth

After you have installed the instrument, it is possible to connect the instrument to a computer or RuggedReader, open the software, and take a reading to verify the installation position. If the reading confirms that the instrument is in the correct position, you can secure it as described below.

During log setup there was an option to "Remind Me Later" for setting a level reference. If you set the log to remind you later, ensure that the instrument is submerged and set the level reference when prompted.

Secure the Cable



- | | |
|---|------------------------------|
| 1 | Well Dock Installation Ring |
| 2 | Kellems Grip |
| 3 | Instrument Installed in Well |

Desiccant

Desiccant protects electronics from condensation, which can cause irreparable damage and loss of data. Indicating desiccant changes from blue to pink as it becomes saturated with moisture.



*Desiccant stages (from left)
New, nearly expired (replace now), expired*

It is **extremely important** to use a properly-sized desiccant for your deployment and to **change desiccant often**. Desiccant should be changed before the entire volume has turned pink, and you should use enough

desiccant to effectively keep cables, instruments, and electrical boards dry until your next scheduled maintenance. Desiccant life span is dependent on site conditions.

Installing Desiccant with Twist-Lock Connectors

1. Remove the protective dust cap from the bottom of the desiccant pack, if applicable.
2. Remove expiring desiccant (if present) from the cable by grasping the textured section of the cable connector in one hand and the desiccant in the other. Twist in opposite directions to unlock the desiccant from the cable.
3. Attach the new desiccant pack to the twist-lock connector on the cable.



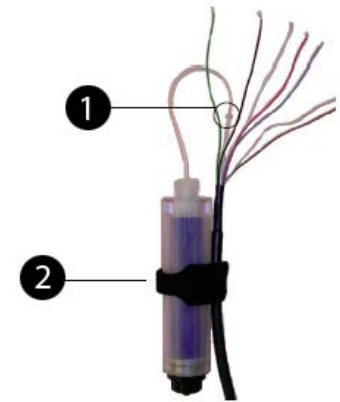
Installing Outboard Desiccant

Vented cable must be installed with outboard desiccant to protect the cable and instrument electronics from condensation in high-humidity environments.

The desiccant can be removed from the vent tube, if necessary, to trim the conductor wires. However, you must reinstall the desiccant after trimming and connecting the wires.

1. Cut off the knot at the bottom of the vent tube extension.
2. Firmly attach the vent tube extension to the cable vent tube. Cover at least 6.4 mm (0.25 in.) of the cable vent tube for a secure attachment.

3. Use the attached hook-and-loop strap to secure the desiccant to the cable, below the stripped wires.
4. Remove the red dust cap from the black nylon cap to allow air to reach the cable's vent tube.



- | | |
|---|--|
| 1 | Outboard desiccant is attached to the cable vent tube. |
| 2 | Desiccant is secured to the cable with a strap. |

Safety

The instrument complies with all applicable directives required by CE and the FCC and is found to comply with EN 61326, ICES-003, and FCC Part 15 specifications. Declarations of conformity may be found in the Operator's Manual.

Win-Situ 5 Software

Use Win-Situ 5 with a laptop or a PC and the Aqua TROLL, Level TROLL and Rugged TROLL Instruments. To learn more about Win-Situ 5, refer to the **Help** menu. Training videos are available on the In-Situ Inc. website www.in-situ.com under Tech Resources.

Install Win-Situ 5


Insert the software CD that came with your product or download Win-Situ 5 from the In-Situ website at www.in-situ.com/software. Follow the on-screen prompts of the Installation Wizard to complete installation.


IMPORTANT: Install COM drivers when prompted.

Connecting an Instrument to the Software

When you open Win-Situ 5 Software, you are asked if you want to connect to your device. Click **Yes**. Synchronize the

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instrument clock to the PC clock. 

Parameters and measurements are displayed in light gray on the home screen if a connection is established. Click the **Play** button  to view live readings.

The software displays an error message if a connection cannot be established.

Selecting the Correct COM Port

If you are using a USB TROLL Com, select the correct COM port by following the steps below. If you are using a serial TROLL Com, the Win-Situ Software should default to the correct COM port, which is usually COM 1.

Steps for Windows 8 systems.

1. Right-click the **Start** screen.
2. Select **All Apps**.
3. Click **Control Panel**.
4. Open the **Device Manager**.

5. Click the arrow next to **Ports (Com and LPT)**, and locate the USB Serial Port listing. The number listed next to this entry is your COM port address.

Steps for Windows 7 systems.

1. Minimize the Win-Situ Software.
2. Click the Windows Start button, and open the **Control Panel**.
3. Click **Hardware and Sound**, and open the **Device Manager**.
4. Click the arrow next to **Ports (COM and LPT)**, and locate the USB Serial Port listing. The number listed next to this entry is your COM port address.

Steps for Windows XP systems.

1. Minimize the Win-Situ Software.
2. Click the Windows Start button, and open the **Control Panel**.
3. Double-click the **System** icon. Click the **Hardware** tab, and open the **Device Manager**.

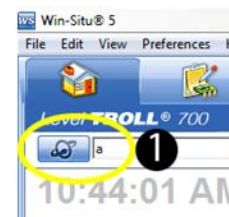
4. Click the plus sign next to **Ports (COM and LPT)**, and locate the USB Serial Port listing. The number listed next to this entry is your COM port address.

The following steps apply for all Windows operating systems.

1. Once you have determined the correct COM port address in your operating system, reopen Win-Situ 5 Software.
2. Close any open windows in Win-Situ Software.
3. Click **Preferences**.
4. Click **Comm Settings**, and then click the **Port Number** menu.
5. Scroll down to find the correct COM port address. Click the **check mark** to accept the changes.
6. Click the yellow **Connect** button in the lower right corner to establish a connection to the instrument.

Set Up a Data Site

1. Click the **Site** button.



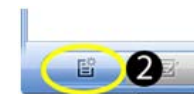
2. Select either **Default Site** or click the **New** button to set up a custom site.
3. Enter a **Site Name**. Entering coordinates and uploading a picture are optional.
4. Click the **check mark** to save the data site.

Set up a Data Log

1. Click the **Logging** tab.



2. Click the **New** button.



3. Select your site, and name the new log.
4. Select the parameters you intend to monitor. You can rearrange their order and select different units.
5. Select a logging method appropriate for your deployment.
6. Configure the logging method.
7. Select a start condition.

When an instrument is deployed on a wire, rather than a cable, you will not be able to communicate with it after installation. Select a Scheduled start if you are deploying an instrument on a wire.

8. Select a level reference type.
9. Configure the level reference. Select "Set First Logged Reading To" if you are using a scheduled start, or "Remind Me to Set Reference Later" if you are using a manual start and are NOT deploying the instrument on a wire.

IMPORTANT: Your instrument **MUST** be installed in its final location to set the level reference correctly. If you are setting up a data log before installing your instrument in its final location, you will need to select either "Set First Logged Reading To" or "Remind Me to Set Reference Later."

10. Enter a specific gravity value for the deployment.
11. The software displays a summary. Review your selections carefully before clicking the check mark.
12. Start the log. A Scheduled Start log will start automatically at its programmed time. To start a Manual log, go to the Logging tab, highlight the log name, and tap the **Start** button.



Real-Time Data Readings

To view real-time data readings, click the **Start** button on the **Home** screen. The parameter readings will turn black and update periodically. Click the **Start** button again to stop reading in real time.

IMPORTANT: You cannot create a new log if you have real-time readings enabled.

Downloading Data to a PC

This procedure copies the data log from the instrument to a PC. It does not remove the data log from the instrument. After a log is downloaded, it can be exported to a CSV file format that can be used by spreadsheet programs. The time shown in the log name is the time the log was downloaded.

1. With an instrument connected, select the **Logging** tab .
2. Select the log you intend to download.
3. Choose a Running, Suspended, Stopped, or Deleted log.
4. Click the **Download**  button.
5. In the next screen, select one of the three download options.

- All data
- New data (data logged since the last download)
- Time interval to download

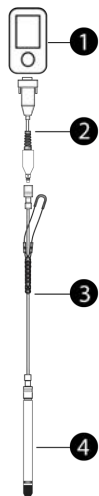
✓ New data is downloaded by default to a new log file. To append new data to the last download of this log, be sure the option "Append logs on download" is selected in the **General Settings** dialog (**Preferences > General Settings**).

- The log is copied to the connected PC into your Win-Situ working directory folder. View or change the working directory using **File > Settings**.
- At the end of the download, Win-Situ gives you the option of viewing the data.
 - Select **Yes** and the log is displayed in the **Data** screen.
 - Select **No** and the **Logging** screen appears. You can view the data at any time by selecting it in the **Data** tab.

Win-Situ Mobile Software

Use Win-Situ Mobile with a RuggedReader Handheld PC and Aqua TROLL, Level TROLL, and Rugged TROLL Instruments. Training videos are available on the In-Situ Inc. website www.in-situ.com under Tech Resources.

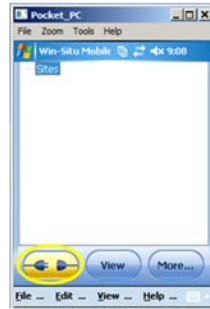
Connect an Instrument to the Rugged Reader Serial Port



1. Rugged Reader
2. Communication Cable
3. RuggedCable System
4. In-Situ instrument

Connect to the Software

With an instrument connected, tap the **Start** button on the RuggedReader. Tap Win-Situ Mobile. Tap the **Connect** button, and tap the **check mark**.



Set up a Data Site

1. Tap the **Sites** button. Select an existing site or tap the **New** button to create a new site.



2. Enter information on the subsequent screens and continue by tapping the **right arrow** button. Tap the **check mark** button when finished.

Set up a Data Log

1. Tap the **View** menu and select **Logging**.



2. Tap the **More** button, and then tap the **New** button.



3. Add the log name and tap the right arrow button.
4. Select the parameters you want.
5. Rearrange parameter order if desired. Tap **Edit** to change units.
6. Select a logging method appropriate for your deployment.
7. Configure the logging method.
8. Select a start condition.

✓ When an instrument is deployed on a wire, rather than a cable, you will not be able to communicate with it after installation. Select a Scheduled start if you are deploying the instrument on a wire.

9. Select log wrap condition.
10. Select a level reference type.
11. Enter a specific gravity value for the deployment.
12. Configure the level reference. Your instrument MUST be installed in its final location to set the level reference correctly. If you are setting up a data log before installing your instrument in its final location, you will need to select either "Set First Logged Reading To" or "Remind Me to Set Reference Later".

✓ Select "Set First Logged Reading To" if you are using a scheduled start, or "Remind Me to Set Reference Later" if you are using a manual start and are NOT deploying the instrument on a wire.

13. The software displays a summary. Look over your selections carefully before clicking the **check mark**.
14. Start the log. A Scheduled Start log will start automatically at its programmed time. To start a Manual

log, go to the **Logging** tab, highlight the log name, and tap the **Start** button.

View or Download the Log

1. To download data, tap the **Logging** tab, and tap the **Download** button. Select the desired download options and tap the check mark when finished.
2. To view the data, tap the **View** button. Use the View drop-down menu to select the data channel you want to view. Select the date and time interval you want and tap the **check mark**.



Stop a Log

After you stop a log you cannot restart it.

1. To permanently stop a log that has no scheduled stop, go to the **Logging** tab, and select the log.
2. Tap the **More** button, and then tap the **Stop** button.
3. Make sure that you download the data after you stop a log.

Drop the Connection and Exit Win-Situ Mobile Software

Prior to physically disconnecting the RuggedReader from the communication cable, tap the **Connect** button. The button changes from blue to yellow and appears disconnected.

To exit Win-Situ Mobile Software, tap the **File** menu and select **Exit**.