

**Information Sheet**

Catalog No. 0052510

**USB TROLL<sup>®</sup> COM  
DIRECT CONNECT****APPLICATION**

Communication interface between a Level TROLL, Aqua TROLL, or MP TROLL 9500 and a desktop/laptop computer running Microsoft<sup>®</sup> Windows<sup>®</sup> 2000 or higher. Includes external power jack and vent with replaceable membrane. Connects directly to the instrument for indoor use while programming/downloading the device.

**PHYSICAL DESCRIPTION**

Materials Delrin<sup>®</sup>, nylon, Viton<sup>®</sup>, polyurethane  
Environmental rating Not designed for submersion  
Dimensions 3.2 cm (1.25 in) O.D., 16.3 cm (6.4 in) long, including strain relief

**Input**

Level TROLL, Aqua TROLL: RS485 Modbus  
MP TROLL 9500: RS485

Output USB Type A

DC power jack 2.5 mm

Compatible DC power plug 5.5 mm O.D., 2.1 mm I.D., center positive

**External power input**

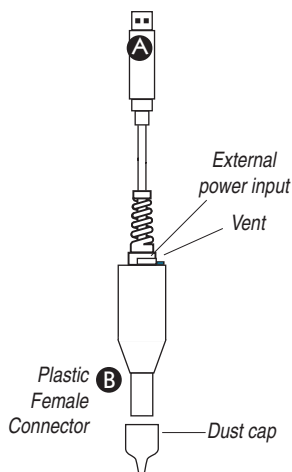
Level TROLL, Aqua TROLL: 8 to 36 VDC

MP TROLL 9500: 16 VDC Maximum

Cable Black polyurethane, 91 cm (3 ft) long

Operating temperature -20°C to 50°C (-4°F to 122°F)

Storage temperature -20°C to 80°C (-4°F to 176°F)

**A CONNECTIONS**

**B** Connects to a USB port

Female connector mates directly with the instrument back end

**INSTALLATION—HARDWARE**

Attach via snap-on connection to the TROLL back end

### INSTALLATION—USB SOFTWARE

1. Install the latest Win-Situ® software from the In-Situ CD or website to a desktop/laptop computer running Microsoft Windows 2000 or higher.
  - Win-Situ 5, version 5.6 or higher for a Level TROLL or Aqua TROLL,
  - Win-Situ 4, version 4.57.4 or higher for a Multi-Parameter TROLL 9500

When asked, select the option "Install USB TROLL Com Drivers." Two drivers will be loaded to your hard drive, one for the USB TROLL Com, one for the USB TROLL Com serial port.

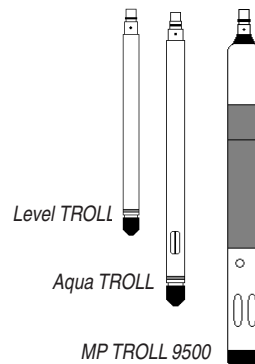
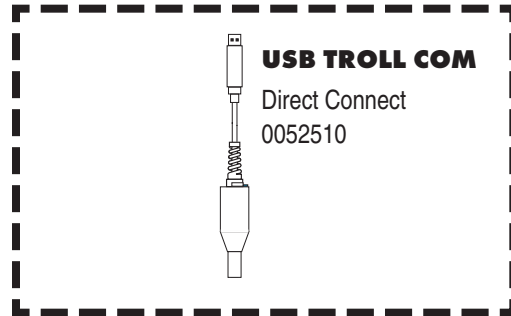


*TIP: Be sure to install USB TROLL Com drivers when installing Win-Situ.*

2. After installation, plug the USB TROLL Com into a USB port on your computer.
  - Windows 2000, Windows Vista: When new hardware is detected, the drivers are installed automatically.
  - Windows XP: Follow the instructions in the Found New Hardware Wizard. Select the option "Install software automatically."
3. After installation, check as follows to find which COM port the USB drivers are using:
  - Windows 2000, Windows XP: Control Panel > System > Hardware tab > Device Manager > Ports. Click the plus sign to display the ports.
  - Windows Vista: Control Panel > System > Device Manager (Administrator permission required) > Ports. Click the plus sign to display the ports.



*Remember the port number. You will need it when connecting to the instrument in Win-Situ.*



### GUIDELINES AND PRECAUTIONS

- **DO NOT SUBMERGE.**
- Operating system requirements for Win-Situ and USB TROLL Com drivers: Windows 2000 Professional SP4 or higher, Windows XP Professional SP2 or higher, or Windows Vista SP1 or higher.



**CAUTION: DO NOT EXCEED 16V EXTERNAL POWER FOR AN MP TROLL 9500.** Use a converter that supplies 16V or less.



**1 800 446 7488**

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**Information Sheet**
**Catalog No. 0052500**

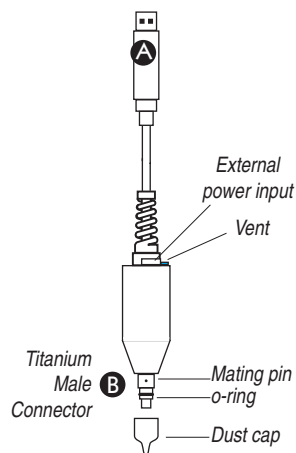
# USB TROLL® COM CABLE CONNECT

**APPLICATION**

Communication interface between a Level TROLL, Aqua TROLL, or MP TROLL 9500 and a desktop/laptop computer running Microsoft® Windows® 2000 or higher. Includes external power jack and vent with replaceable membrane. Connects to the instrument's RuggedCable™ via locking Twist-Lock connector, fully waterproof.

**PHYSICAL DESCRIPTION**

Materials	Titanium, nylon, Viton®, polyurethane
Environmental rating	IP67 (3 meters for 30 minutes), up to the computer connector
Dimensions	3.2 cm (1.25 in) O.D., 15.2 cm (6 in) long, including strain relief
Input	
Level TROLL, Aqua TROLL:	RS485 Modbus
MP TROLL 9500:	RS485
Output	USB Type A
DC power jack	2.5 mm
Compatible DC power plug	5.5 mm O.D., 2.1 mm I.D., center positive
External power input	
Level TROLL, Aqua TROLL:	8 to 36 VDC
MP TROLL 9500:	16 VDC Maximum
Cable	Black polyurethane, 91 cm (3 ft) long
Operating temperature	-20°C to 50°C (-4°F to 122°F)
Storage temperature	-20°C to 80°C (-4°F to 176°F)


**A CONNECTIONS**
**B** Connects to a USB port

Male connector mates with the Twist-Lock connector on the instrument cable

**INSTALLATION—HARDWARE**

Attach to the Twist-Lock connector on the TROLL's RuggedCable



**TIP:** Attaching cables or accessories is a simple matter of mating the Twist-Lock connectors. This is easy after you've done it once or twice. For detailed steps and photographs, see the product Quick Start Guide, or the Operator's Manual.

### INSTALLATION—USB SOFTWARE

1. Install the latest Win-Situ® software from the In-Situ CD or website to a desktop/laptop computer running Microsoft Windows 2000 or higher.
  - Win-Situ 5, version 5.6 or higher for a Level TROLL or Aqua TROLL
  - Win-Situ 4, version 4.57.4 or higher for a Multi-Parameter TROLL 9500

When asked, select the option "Install USB TROLL Com Drivers." Two drivers will be loaded to your hard drive, one for the USB TROLL Com, one for the USB TROLL Com serial port.



*TIP: Be sure to install USB TROLL Com drivers when installing Win-Situ.*

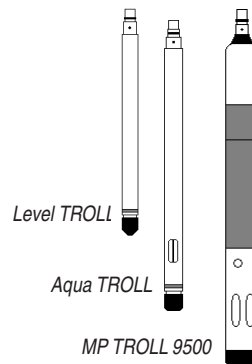
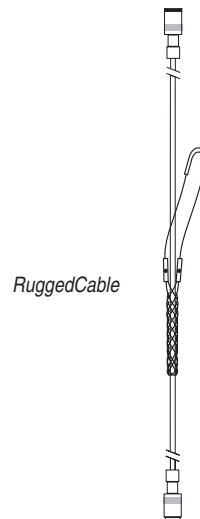
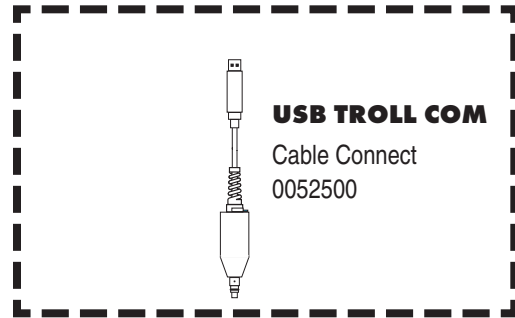
2. After installation, plug the USB TROLL Com into a USB port on your computer.
  - Windows 2000, Windows Vista: When new hardware is detected, the drivers are installed automatically.
  - Windows XP: Follow the instructions in the Found New Hardware Wizard. Select the option "Install software automatically."
3. After installation, check as follows to find which COM port the USB drivers are using:
  - Windows 2000, Windows XP: Control Panel > System > Hardware tab > Device Manager > Ports. Click the plus sign to display the ports.
  - Windows Vista: Control Panel > System > Device Manager (Administrator permission required) > Ports. Click the plus sign to display the ports.



*Remember the port number. You will need it when connecting to the instrument in Win-Situ.*

### GUIDELINES AND PRECAUTIONS

- **The computer connector is not waterproof.**
- Soft dust caps protect the connectors during shipping. Keep the caps to protect the connector pins and o-ring when they are not mated.
- Operating system requirements for Win-Situ and USB TROLL Com drivers: Windows 2000 Professional SP4 or higher, Windows XP Professional SP2 or higher, or Windows Vista SP1 or higher.



**CAUTION: DO NOT EXCEED 16V EXTERNAL POWER FOR AN MP TROLL 9500.** Use a converter that supplies 16V or less.



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**Information Sheet**
**Catalog No. 0056150**

# RS232 TROLL<sup>®</sup> COM DIRECT CONNECT

**APPLICATION**

Communication interface between a Level TROLL, Aqua TROLL, or MP TROLL 9500 and a desktop/laptop computer or RuggedReader<sup>®</sup> handheld; includes RS485-RS232 converter, external power jack, and vent with replaceable membrane. Connects directly to the instrument for indoor use while programming/downloading the device.

**PHYSICAL DESCRIPTION**

Materials Delrin<sup>®</sup>, nylon, Viton<sup>®</sup>, polyurethane  
 Environmental rating Not designed for submersion  
 Dimensions 3.2 cm (1.25 in) O.D., 16.3 cm (6.4 in) long , including strain relief

**Input**

Level TROLL, Aqua TROLL: RS485 Modbus  
 MP TROLL 9500: RS485

**Output**

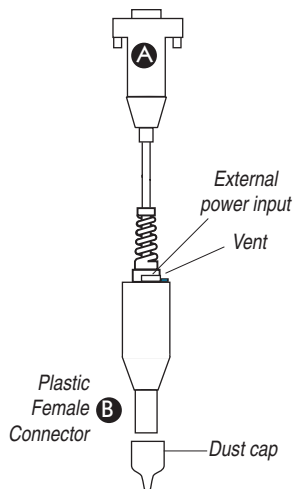
DC power jack 2.5 mm  
 Compatible DC power plug 5.5 mm O.D., 2.1 mm I.D., center positive

**External power input**

Level TROLL, Aqua TROLL: 8 to 36 VDC  
 MP TROLL 9500: 16 VDC Maximum

**Cable**

Operating temperature -20°C to 50°C (-4°F to 122°F)  
 Storage temperature -20°C to 80°C (-4°F to 176°F)


**A CONNECTIONS**

- B** Connects to a 9-pin RS232 serial port  
 Female connector mates directly with the instrument back end

**INSTALLATION**

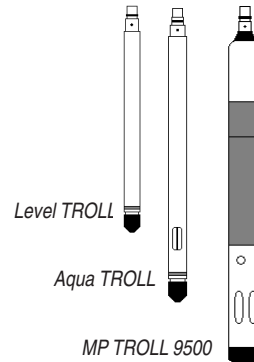
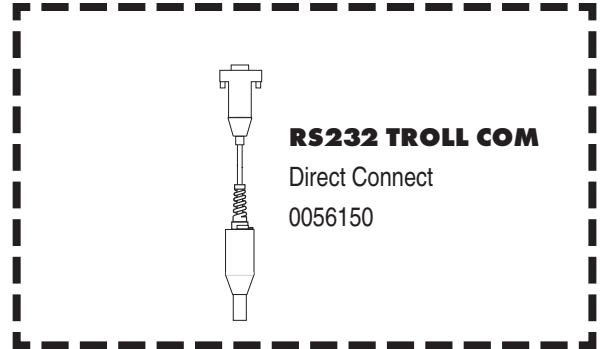
Attach via snap-on connection to the TROLL back end

**GUIDELINES AND PRECAUTIONS**

- DO NOT SUBMERGE.



**CAUTION: DO NOT EXCEED 16V EXTERNAL POWER FOR AN MP TROLL 9500.** Use a converter that supplies 16V or less.



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**Information Sheet**
**Catalog No. 0056140**

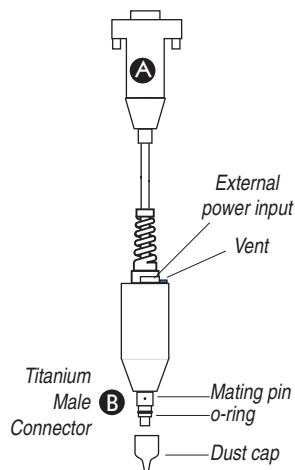
# RS232 TROLL® COM CABLE CONNECT

**APPLICATION**

Communication interface between a Level TROLL, Aqua TROLL, or MP TROLL 9500 and a desktop/laptop computer or RuggedReader® handheld PDA; includes RS485-RS232 converter, external power jack, and vent with replaceable membrane. Connects to the instrument's RuggedCable™ via locking Twist-Lock connector, fully waterproof.

**PHYSICAL DESCRIPTION**

Materials	Titanium, nylon, Viton®, polyurethane
Environmental rating	IP67 (3 meters for 30 minutes), up to the computer connector
Dimensions	3.2 cm (1.25 in) O.D., 15.2 cm (6 in) long, including strain relief
Input	
Level TROLL, Aqua TROLL:	RS485 Modbus
MP TROLL 9500:	RS485
Output	RS232
DC power jack	2.5 mm
Compatible DC power plug	5.5 mm O.D., 2.1 mm I.D., center positive
External power input	
Level TROLL, Aqua TROLL:	8 to 36 VDC
MP TROLL 9500:	16 VDC Maximum
Cable	Black polyurethane, 91 cm (3 ft) long
Operating temperature	-20°C to 50°C (-4°F to 122°F)
Storage temperature	-20°C to 80°C (-4°F to 176°F)


**A CONNECTIONS**
**B** Connects to a 9-pin RS232 serial port

Male connector mates with the Twist-Lock connector on the instrument cable

**INSTALLATION**

Attach to the Twist-Lock connector on the TROLL's RuggedCable



**TIP:** Attaching cables or accessories is a simple matter of mating the Twist-Lock connectors. This is easy after you've done it once or twice. For detailed steps and photographs, see the product Quick Start Guide, or the Operator's Manual.

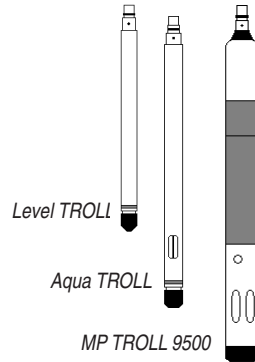
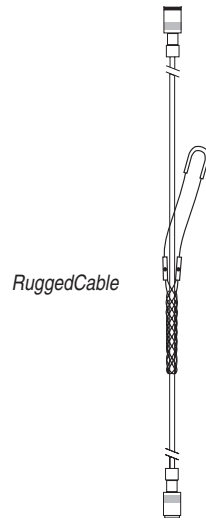
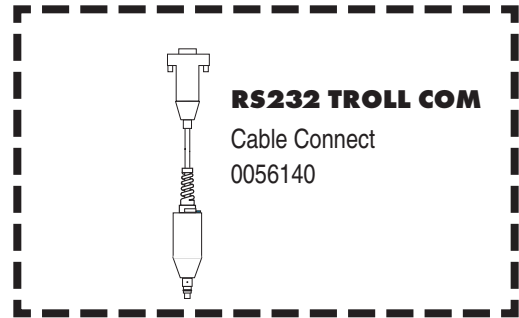
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**GUIDELINES AND PRECAUTIONS**

- The computer connector is not waterproof.
- Soft dust caps protect the connectors during shipping. Keep the caps to protect the connector pins and o-ring when they are not mated.



**CAUTION: DO NOT EXCEED 16V EXTERNAL POWER FOR AN MP TROLL 9500.** Use a converter that supplies 16V or less.



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