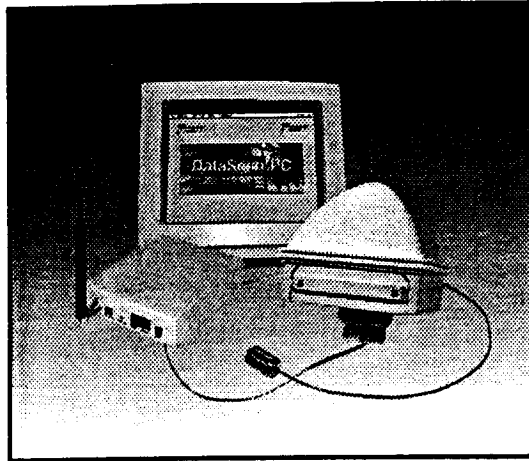


Barton®

TankScan™ TL10 Series Distributed Measurement System for Level Applications



Installation Manual

Version 99E20

ID#11675

5/1999

Preliminary Version

DRAFT

Introduction

The **TL10 Level System** has three main components: Monitor, Controller, and PC Software. The **Monitor** assembly includes the electronics housing (sensor/RF Transmitter), the "waveguide" probe, and the probe weight. The **Controller** includes the RF-Receiver/Modem, an Antenna, and an AC power adapter. The **Software** features/operation, and installation are covered in the manual included with the software.

System Installation Steps

- Install controller (distance & line-of-sight location predetermined).
- Install software on host PC
- Install monitor on the tank

Controller Installation

(Refer to drawing and **notice** on page 4)

- Place controller on stable flat surface or use optional stand.

To wall mount (antenna connector facing up or off to the left side), attach controller to wall, using (2) screws (not included).

Note: Controller must be within reach of the power source/outlet, phone jack (if used) and PC (if direct connection is used).

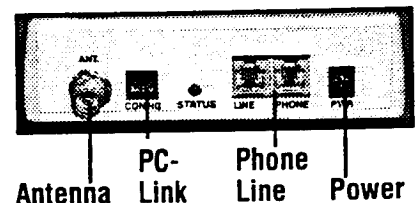
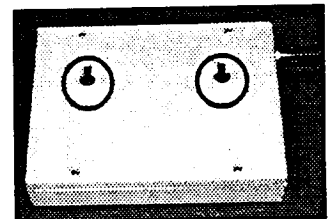
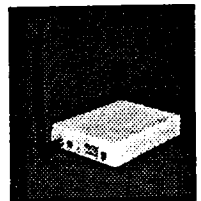
- Attach Antenna to controller (pointed upward).

Note: Antenna has left-handed thread connector.

- Connect Phone Line, using the supplied RJ11 cable. Plug one end into the controller and the other into the wall phone jack. If a phone is needed, plug it into the second RJ11 socket on the controller.

Note: RJ11 sockets are in parallel, either socket can be used.

- Plug in the Power Adapter (included). Plug the barrel-ended connector into controller and 3-prong plug into an **unswitched** AC outlet.



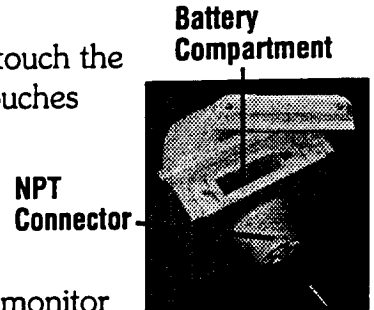
DataScan PC Software Installation

Refer to Section 2 of the DataScan PC User Manual for software installation instructions.

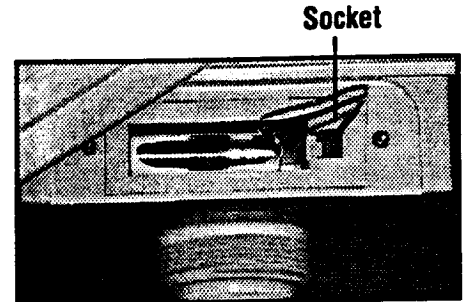
Monitor Installation

Precautions

- A. Ensure the bottom of the probe does not rest on the bottom of the tank. This causes the waveguide to become slack and causes measurement errors.
- B. For tanks with a riser, the waveguide must not touch the side of the riser. Points where the waveguide touches another object will cause false readings.



1. Install the monitor by screwing the bottom of the monitor into a 1-1/2 or 2 inch female NPT connection — handtighten only.
2. Install the included battery pack into the Monitor's battery compartment. Remove the compartment cover by unscrewing the (2) screws (using small bladed screwdriver). Insert the battery pack into the compartment and plug the keyed connector into the socket (on right). Finally, position the wires to prevent damage, then reattach the cover.



NOTE

As soon as the battery is connected, the monitor will take a measurement and transmit it to the controller. The default interval for measurements and transmission is 4 hours.

Technical Support/Warranty Service/Repair

In US: (626) 961-2547
In Canada: (403) 291-4814

Specifications

TL-10 Monitor (Sensor/Transmitter)

Measurement Method	Micropower Impulse Radar (MIR)
Measured Value	Level
Accuracy	$\pm 0.3"$ or 0.5% of active probe length (whichever is greater) ⁽¹⁾
Output	Transmits ID, level data, and internal diagnostics at preset intervals
Radio Communications	Transmits up to 500' (150 m), line-of-sight, at 916.5 MHz
Operating Temperature	-40°F/°C to +140°F (+85°C)

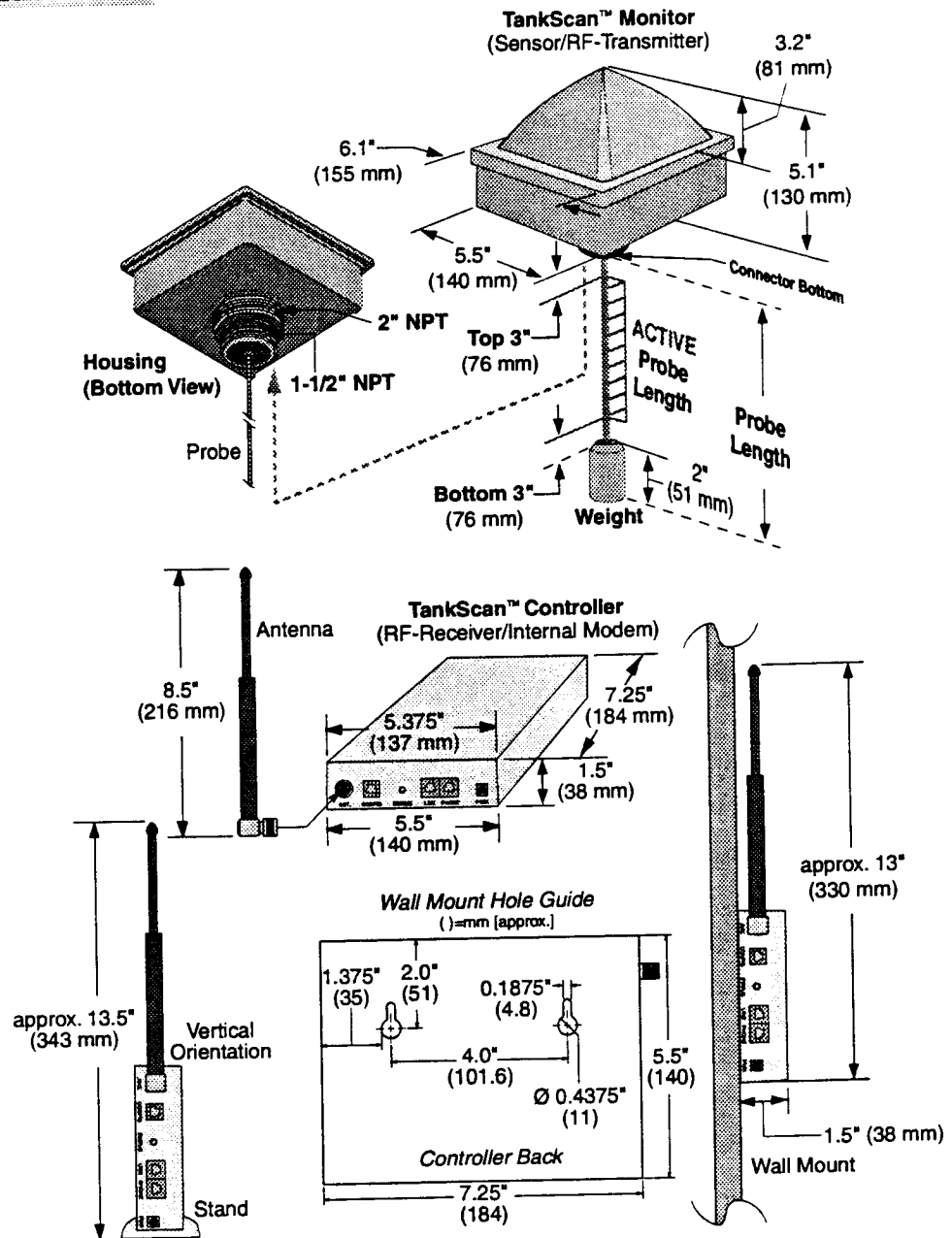
Power Requirements	Battery Pack [4-AA Alkaline] Typical Life: 2 yrs.@4 hr. transmit interval
Construction	Weatherproof, non-corrosive, NEMA-4/IP65 enclosure
Pressure Rating	15 PSI (1 bar) maximum
Construction Materials	Teflon/Brass or Teflon/SST, Plastic, and Epoxy
Approvals (pending)	Intrinsically Safe; CSA Class I, Div. 1, Groups C & D
Mounting	2 inch and 1-1/2 inch NPT (standard)
Shipping Weight (approx.)	Monitor and Probe — 2.4 lbs (1.1 kg)

Notes: (1) Measurement range (active probe length) does not include top 3" (75 mm) or bottom 3" (75 mm) above probe weight. See dimension drawing on back page.
(2) Probe length should be selected so no portion will contact the tank bottom.

TL-10 Controller (Receiver/Modem)

Operating Temperature	+32°F to +140°F (0°C to +85°C)
Enclosure	NEMA-1/IP30 - Indoor Use Only
Approval Rating	general purpose
Power Requirements	110 VAC (60 Hz)
Radio Communications	Internal receiver (for use with up to 6 monitors)
Phone Modem	Internal (calls host per schedule or alarm and accepts calls from host) Chip: Rockwell RC224ATLE Control: AT Command Interpreter Line Impedance: 600 Ohm, transformer coupled Dial Type: DTMP or Pulse Output Level: -7.2 dbm typical at 1336 Hz Current Consumption: 50 mA typical (Active); 150 µA typical (Standby) Baud Rate: 2400 (CCITT V.22bis); 1200 (CCITT V.22 or Bell 212A); 300 (Bell 103) For compliance and approval statements, see pages 6 and 7.
Data Storage	800 points/input
Host Software	Barton DataScan® PC or custom
Mounting	Tabletop or wall mount
Shipping Weight (approx.)	Controller, Antenna, & AC adapter 1.7 lbs (0.8 kg)

Dimensions



NOTICE

Do not install controller near any RF sources (TV, Radio, etc.). Interference from such devices may cause loss of operation, data loss, and/or controller malfunctions.

Product Warranty

A copy of Barton's standard product warranty is available upon request.

Replacement Parts List

Part Description

Part Number

Monitor

Battery Pack xxxxxxxxxxxxxxxxxxxx

Controller

AC Power Adapter xxxxxxxxxxxxxxxxxxxx

Antenna xxxxxxxxxxxxxxxxxxxx

Optional Stand xxxxxxxxxxxxxxxxxxxx

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COMPLIANCE STATEMENTS

FCC COMPLIANCE STATEMENTS

FCC PART 68 NOTICE

This equipment complies with FCC Part 68 rules. The FCC registration number and Ringer Equivalent Number (REN) are printed on a label attached to the circuit board near the top left corner. You must, upon request, provide this information to your telephone company.

The REN number is used to determine the maximum number of devices that may be connected to the phone line and still have all those devices ring when your number is called. To determine the number of devices that may be connected to your line, as determined by the REN, contact your local telephone company.

If your telephone equipment causes harm to the telephone network, the telephone company may discontinue your service temporarily. If possible, they will notify you in advance. If advanced notice is not practical, you will be notified as soon as possible. You will be informed of your right to file a complaint with the FCC.

If there is a problem with the telephone network, the telephone company may ask you to disconnect your equipment from the telephone line until the problem has been corrected or until it is determined that your equipment is not malfunctioning.

Your telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the proper functioning of your equipment. If they do, you will be notified in advance to give you an opportunity to maintain uninterrupted telephone service.

This equipment cannot be used on coin service provided by the telephone company. Connection to party lines is subject to state tariffs.

There are no user serviceable parts in this modem. If there is a problem or the modem needs to be repaired or serviced, return it to the company where it was originally purchased.

FCC applicable REN number is ~~(0.6B)~~ **PENDING**

FCC PART 15 NOTICE

This equipment has been tested and found to comply with the limits for Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause interference to radio communications. Operation of this equipment in a residential area is likely to cause interference, in which case, the user will be required to correct the interference at the user's expense.

The user is cautioned that changes and modifications made to this equipment without approval of the manufacturer could void the user's authority to operate this equipment.

WARRANTY AND REPAIR SERVICE IN THE USA:

Barton Instrument Systems
900 South Turnbull Canyon Road
City of Industry, CA 91745
(626) 961-2547

CANADIAN COMPLIANCE STATEMENTS

CANADIAN DEPARTMENT OF COMMUNICATIONS NOTICE

The Canadian Department of Communications (DOC) label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational, and safety requirements. The department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, make sure you are permitted to connect it to the facilities of the local telecommunications company. You must install the equipment using an acceptable method of connection. In some cases, you may also extend the company's inside wiring for single individual service by means of certified connector assembly (telephone extension cord). You should be aware, however, that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alterations made by a user to this equipment, or equipment malfunctions, may give the telephone communications company cause to request the user to disconnect the equipment.

For your own protection, make sure that the electrical ground connections of the power utility, telephone lines, and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

DOC applicable REN number is ~~(0.3)~~ **PENDING**

CAUTION

Do not attempt to make electrical ground connections yourself, contact the appropriate electrical inspection authority or an electrician.

NOTICE

The load number (LN) assigned to each terminal device denotes the percentage of the total load to be connected to the telephone loop used by the device, to prevent overloading. The termination on a loop may consist of any combination of devices, subject to the requirement that the total of the load numbers of all devices does not exceed 100.

EMISSION REQUIREMENT

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulation.

WARRANTY AND REPAIR SERVICE IN CANADA:

Barton Instrument Systems
3840 - 11A Street N.E.
Calgary, Alberta T2E 6M6
(403) 291-4814

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On the Web at www.barton-instruments.com

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