

TRAXALL

Multi-frequency Magnetic Pipeline Pig Location and Tracking System
Models 620 & 501/500

USER GUIDE



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TRAXALL, FieldLink, and Configurator products are covered under United States Patents. The TRAXALL family of transmitters is covered under United States Patent No. 9172406.



WARNING



Any operation involving work on pipelines containing gases or liquids under pressure is potentially hazardous. It is necessary, therefore, to follow correct procedures in the use of this equipment to maintain a safe working environment.

No person should use this equipment unless fully aware of potential hazards of working with pressurized pipelines and trained in the procedures stated in this manual.

The purchaser of this equipment is responsible for the training and competence of operators and the manner in which it is used.

Contact CDI immediately should any difficulty arise in the use of this equipment.

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OVERVIEW

Features and Capabilities

The TRAXALL 620 and 501/500 are CDI's latest pig locating and tracking receivers.

Useful new features include:

- Multi-frequency transmitter detection capability*
- Eight sensitivity levels for walking, stationary, & pinpointing applications
- Ports for optional external antenna and remote flasher**

These features will be explained as you read through the GETTING STARTED and OPERATION sections of this user guide.

* TRAXALL 620

** TRAXALL 620 & 501

The TRAXALL 620 and 501/500 are identical in design, function, and operation, differing only in frequency range and available options.

Because of the similarities of these models, this User Guide will generally refer to and show the TRAXALL 620.

TRAXALL 620

- Multi-frequency transmitter detection
- Eight sensitivity levels
- External antenna and passage indication output ports

TRAXALL 501

- Single-frequency (22 Hz) transmitter detection
- Eight sensitivity levels
- External antenna and passage indication output ports

TRAXALL 500

- Single-frequency (22 Hz) transmitter detection
- Eight sensitivity levels

Devices Supported by TRAXALL

Multi-frequency Transmitters

The TRAXALL 620 can simultaneously separate and identify up to three transmitter frequencies. Transmission pulse rate of each color-coded CDI X-Series transmitter can be customized with CDI's special *FieldLink Configurator* application.



Single-frequency ("Legacy") Transmitters

CDI T-series single-frequency (22 Hz) transmitters are available in various sizes, pressure ranges, and pulse rates.



Inline Inspection (ILI) Tool Transmitters

ILI transmitters are similar in performance and function to the T-series transmitters, but in lieu of pressure housings, are designed to work in conjunction with MFL pigs.



WARNING



Always use caution when opening any CDI transmitter that has been in a pressurized environment.

It is possible for pressurized liquid or gas to leak into a transmitter and remain there even after the transmitter has been removed from the pipeline.

Always point the transmitter away from yourself or others when opening a cover or end cap.

Components



Components

Transmitter Sensor

Internal antenna coil for detecting electromagnetic transmitter signals. Can be supplemented by a remote antenna.

Remote Antenna Port

An optional external antenna with a 6-meter [19.6 ft] cable may be connected for situations where the TRAXALL 620 cannot be practically located near a pig passage (for example, an underwater pipeline).

Controls and indicators

Everything you need to operate the TRAXALL 620 is right here. (See following pages.)

Handle

The lightweight TRAXALL 620 is easily carried. It may also be placed on or near a pipeline to function as a stationary signaling device.

Battery Compartment

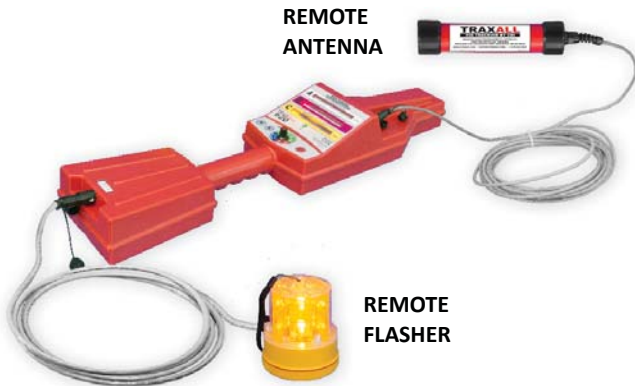
The TRAXALL 620 holds six AA-Cell alkaline batteries. Three lithium batteries can be substituted for extreme cold-weather operation.

Serial Number

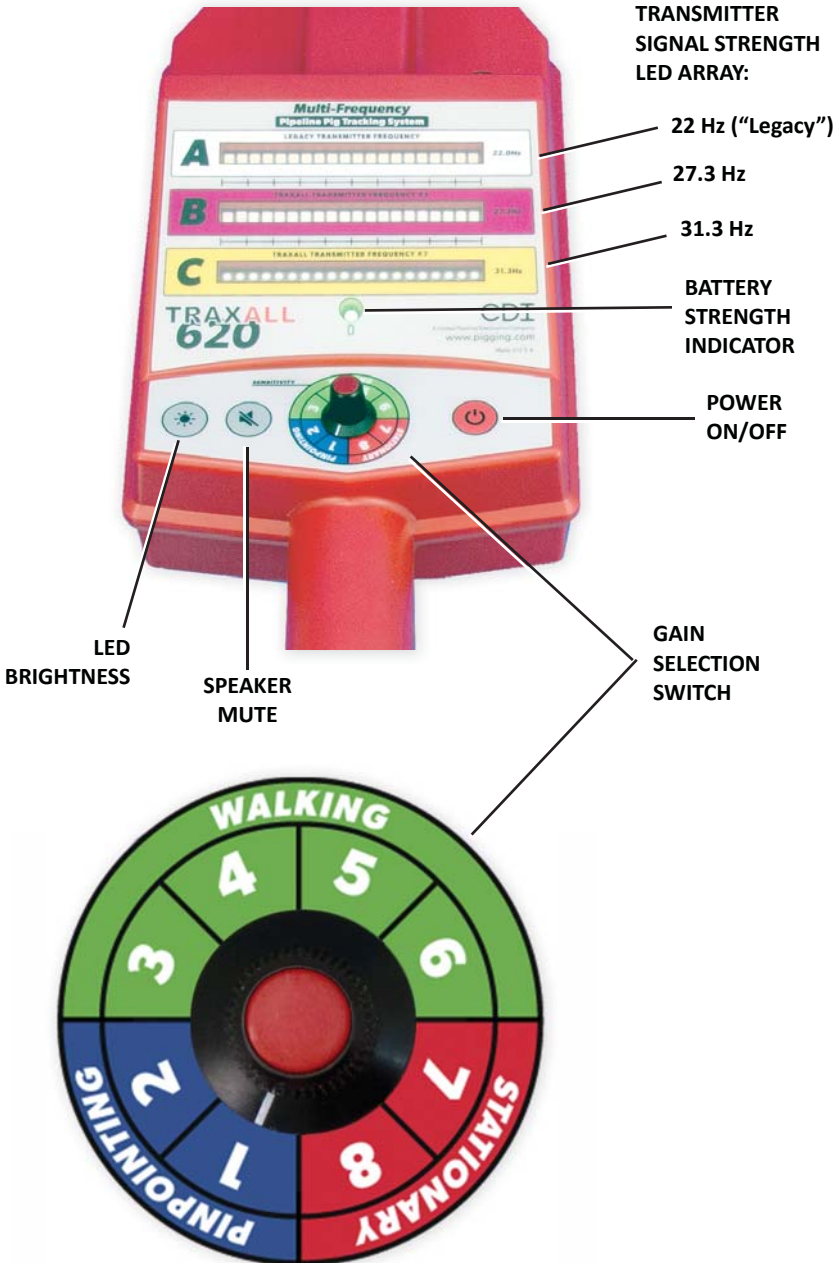
For reference when communicating with CDI about your TRAXALL.

Passage Indication Output Port

Devices such as the optional external flasher shown here or the LineStat event notification radio system (see pg. 29) may be connected to signal an unmanned passage.



Controls and Indicators



Controls and Indicators

LED ARRAY

Three scrolling LED rows indicate transmitter signal strength. Row A is dedicated to the industry-standard 22 Hz (“Legacy”) frequency and thus can monitor nearly any transmitter system regardless of manufacturer.

Rows B and C indicate signals from CDI’s exclusive X-Series programmable transmitters. Row B is for a CDI 27.3 Hz transmitter frequency and Row C is for a CDI 31.3 Hz transmitter.

LEDs will light across the row(s) in progression from left to right as a detected signal strength increases.

Battery Strength Indicator

The Traxall 620 can operate for up to 60 hours on six alkaline AA-Cell batteries. Three lithium batteries can be used for extreme cold-weather configuration in temperatures as low as -40°C.

Green indicates normal (ready) state, amber indicates low charge, and red indicates batteries are below their serviceable limit and should be replaced.

Power ON/OFF

Depress button for 3–5 seconds to power up the TRAXALL receiver (same to power down).

Gain Selection Switch

Eight sensitivity settings are neatly divided and labeled with their recommended use: PINPOINTING (low sensitivity), WALKING (medium sensitivity), and STATIONARY (high sensitivity).

Speaker Mute

On/Off pushbutton mutes speaker.

LED Brightness

Pushbutton increases brightness of last LED.

Speaker Mute and LED Brightness buttons will also reset the Passage Indicator Output Port when held down together for 3–5 seconds.



GETTING STARTED

Unpacking

The TRAXALL is shipped preassembled. It is only necessary to insert the batteries (included).



Install Batteries

Open the TRAXALL battery compartment with phillips screwdriver (included).



Insert six AA-cell alkaline batteries (also included). Observe battery polarity as shown on receptacle. Check seal for deformation, cracks, tears, or foreign objects. Replace cover. Tighten screws carefully and evenly to maintain a weatherproof seal. **DO NOT OVERTIGHTEN.**



Startup

Hold down the Power button about 3–5 seconds.

The LED array will momentarily light up. A steady green battery light indicates ready (full charge) state.



OPERATION

Your TRAXALL 620 can be used for locating (Pinpointing or Walking a pipeline) or in a Stationary mode to confirm a passage.

Application: Passage Detection

Setting: 7–8

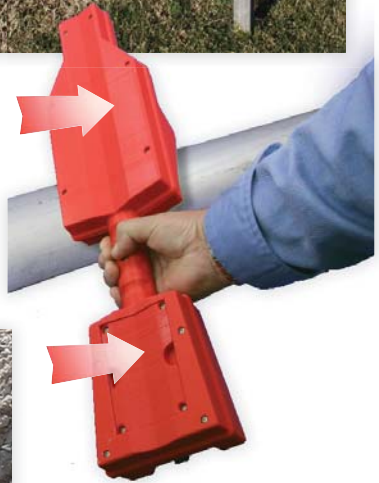
Use your TRAXALL to detect passage of a moving pig, or to confirm that a pig has arrived at a pig trap or cleared a valve.



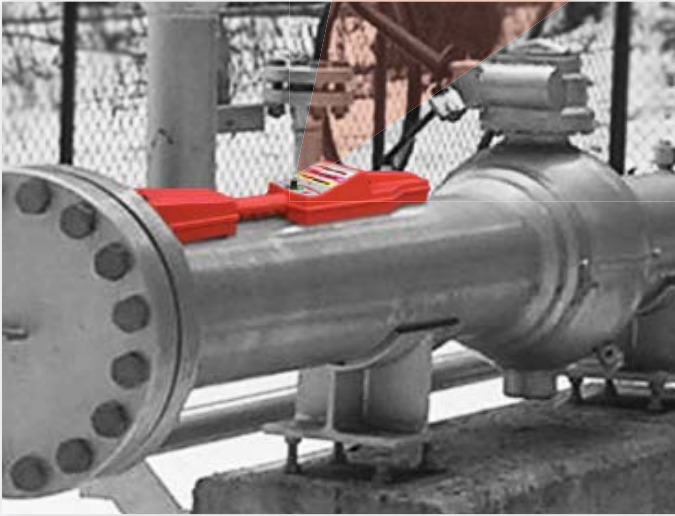
Align the TRAXALL along and as close to pipeline as shown.



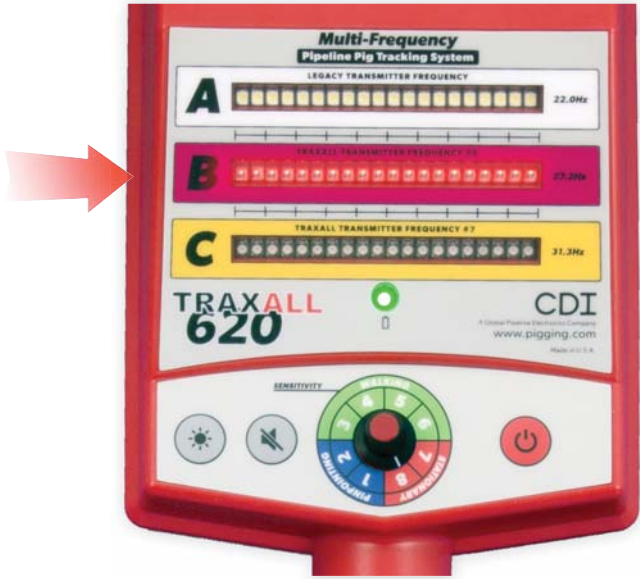
The TRAXALL may be positioned directly onto an exposed pipeline. (Note molded shape on case bottom to aid alignment.)



The TRAXALL can be positioned at a Pig Trap to confirm arrival or behind a valve to confirm clearance.



Once a passage has been detected, the LED array will light up. Here, the TRAXALL 620 indicates a pig configured with a 27.3 Hz transmitter has arrived.



Application: “Leapfrogging”

Setting: 7–8

Leapfrogging is a common method of determining the vicinity of a pipeline pig. This is done by setting up the TRAXALL at a point along a pipeline, noting a passage, and then moving the system – or deploying additional TRAXALL units – a predetermined distance downline where the process is repeated.



Should an anticipated passage *not* occur, it is a simple matter of walking the system back to the last known passage location (see next section). Establish leapfrog points as close together as possible to minimize backtracking distance.

Application: Locating

Setting: 3–6

Once you have a general idea where along a pipeline a pig may be located, set the Gain Selection Switch to “Walking” (3–6) and traverse along the pipeline starting from the pig’s last known position. Keep the TRAXALL parallel to the pipeline while monitoring the LED display.



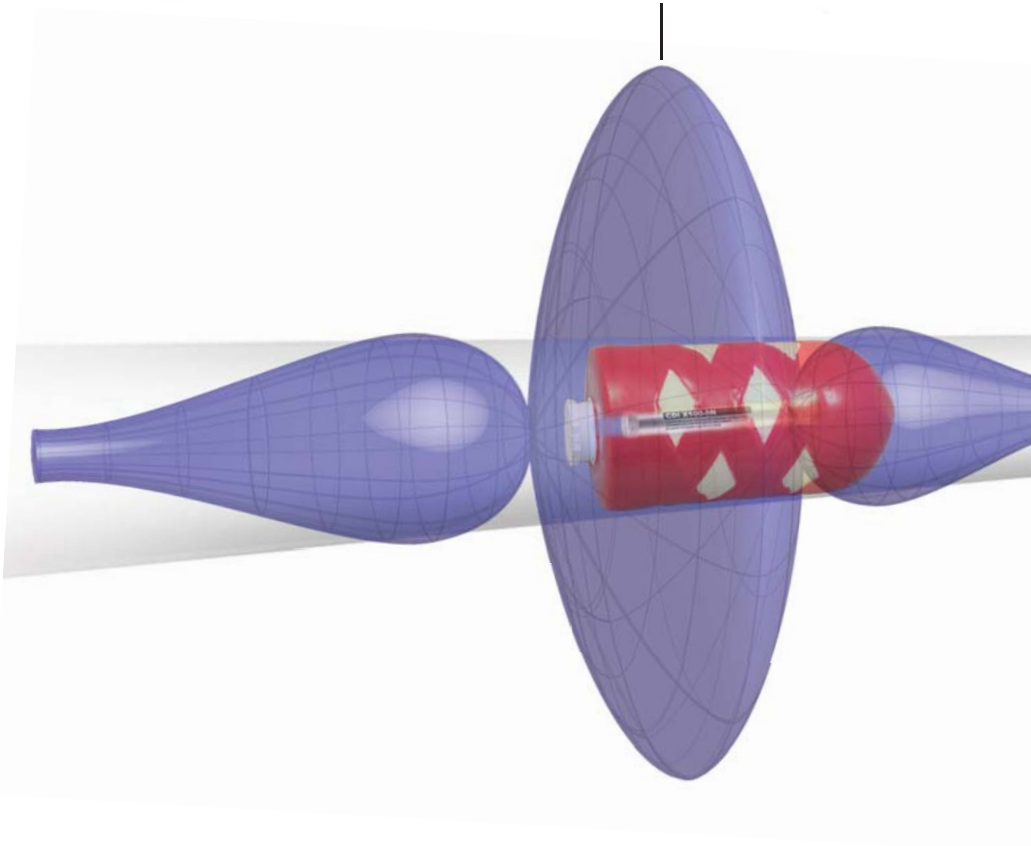
Here, the operator is approaching three pigs in close proximity to each other and configured with active transmitters. LED arrays are independent of each other and each will light up according to relative signal strength as approached.

Here, LED row C indicates a 31.3 Hz signal peak is very close. Turning sensitivity level down at this point will increase accuracy.



Whether detecting a passage, tracking, or locating, you are looking for the maximum (peak) wave of a transmitter signal.

This is a 3-D representation of how TRAXALL “sees” an electromagnetic field when the antenna coil is parallel to an active transmitter:



Application: Pinpointing

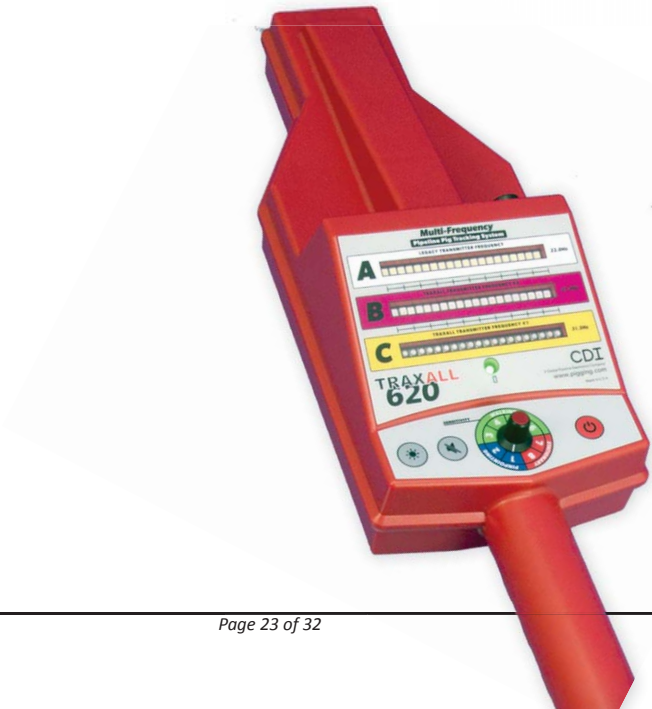
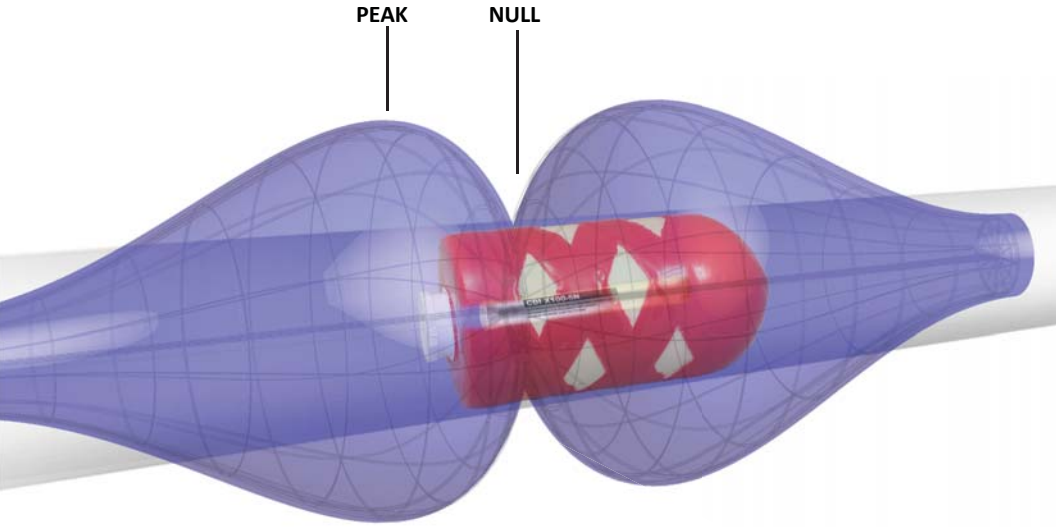
Setting: 1-2

Once a pig has been found, use the pinpointing feature for a precise location. Set the Gain Selection Switch to “Pinpointing” (1-2) and hold TRAXALL perpendicular to the pipeline.



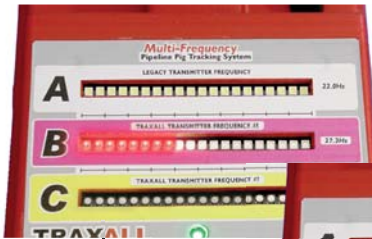
Pinpointing differs from tracking/locating in that you are looking for the minimum (null) of a transmitter signal rather than a peak.

This is a 3-D representation of how TRAXALL “sees” an electromagnetic field when the antenna coil is perpendicular to an active transmitter:



As you move the antenna closer to the pig, the signal strength increases until you reach the peak, then drops to little or no signal as you approach the signal null point.

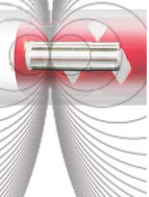
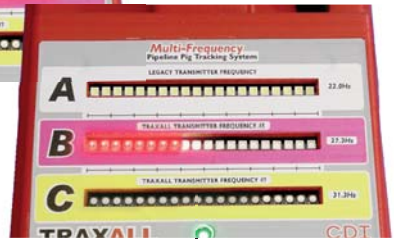
APPROACHING PEAK



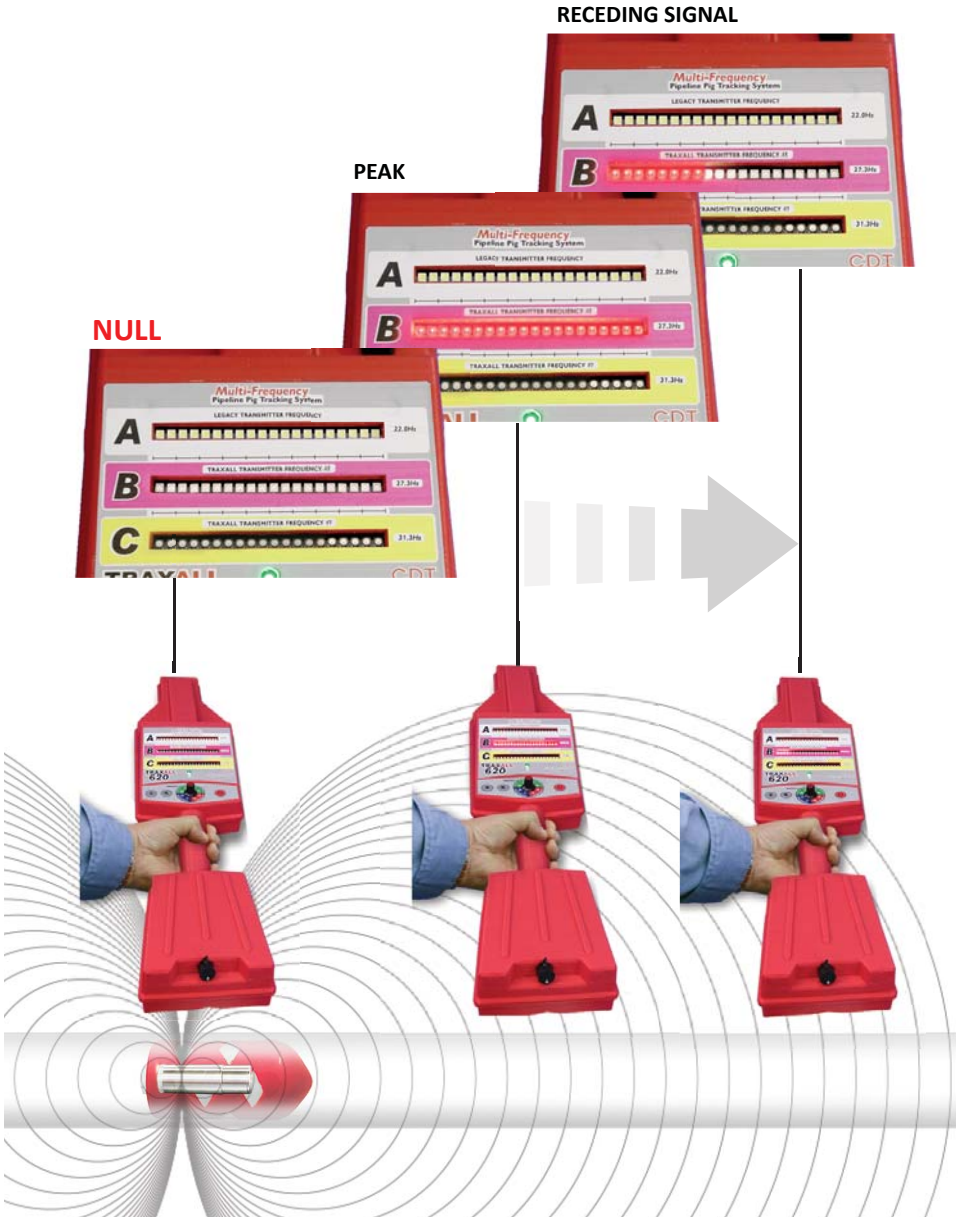
PEAK



APPROACHING NULL



At the null point you are directly over the pig. Move the antenna back an inch or two, and the signal strength will rise (depending on gain setting). Move farther away and the signal will disappear altogether.



Remote Flasher

The Remote Flasher is useful for at-a-glance passage confirmation where an unmanned passage must be monitored.

When the 15 ft [4.5 m] cable is attached, the flasher is automatically activated when a transmitter is detected.



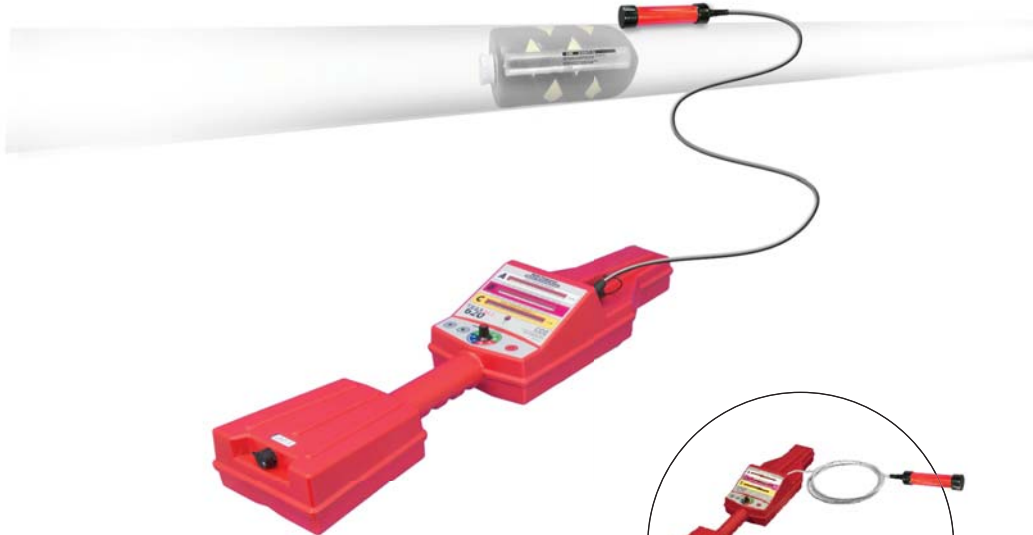
The flasher will remain active until LED activity is cleared (pg. 11).

Remote Antenna

The water-tight Remote Antenna is ideal for tracking and locating over a submerged or limited-access pipeline. You can also monitor a passage from the shelter of a vehicle during inclement weather.



The TRAXALL internal antenna is automatically bypassed when the remote antenna's easily-attached 20 ft [6 m] cable is connected.



The remote flasher and antenna may be used at the same time if desired.



CDI X-Series Transmitters

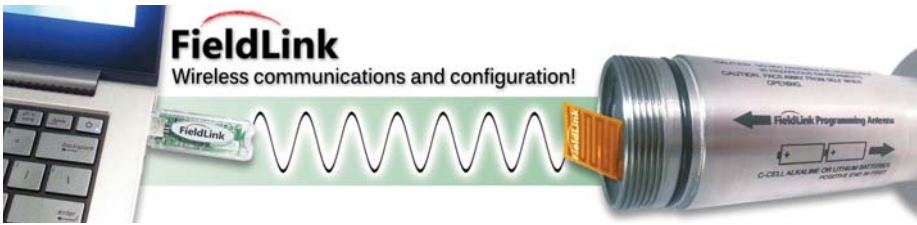
CDI X-100, X-200, X-300, and X-400 TRAXALL-compatible Transmitters offer both programmable frequency and power control through CDI's proprietary FieldLink wireless communications system.



Frequency Control allows the operator to configure the transmitter to one of TRAXALL's colored frequencies, or the 22 Hz legacy frequency for backward compatibility with CDI's CD42 receiver or competitive receivers.

Power Control allows the operator to directly manage a trade-off between transmitter range vs. battery life. For example, you can set output power to maximum for short runs/long range, or reduce output power for long runs/long battery life.

FieldLink is CDI's proprietary wireless communications network. Each X-Series transmitter comes with a built-in radio frequency antenna. By connecting a supplied radio frequency USB key, any Windows PC or laptop can be used to configure a transmitter.



TRAXALL LineStat

CDI's LineStat radio system provides your TRAXALL 620 or 501 with the ability to autonomously monitor pig passages and send remote notifications as emails or text messages.



LineStat requires no cellular telephone network, and functions anywhere in the world. Retrofitting your TRAXALL 620/501 requires only a subscription to LineStat service and a conversion kit (both available through your CDI distributor)

WARRANTY

All equipment sold by Control Devices, Incorporated (CDI) is warranted for a period of one (1) year from the date of shipment to Purchaser, providing the instrument or equipment has not been modified, abused, or used for purposes which it was not designed for.

Batteries, probes, leads, magnets, and other consumables subject to wear are not covered by this warranty. CDI will repair or replace faulty equipment during the warranty period when the cause is a defect arising from faulty design, materials or workmanship.

Making a Warranty Claim

Equipment being considered for warranty repair, or a representative sample thereof, must be returned to CDI at the Purchaser's expense. The equipment must be accompanied by the Purchaser's written order* describing the defect(s) and authorizing CDI to invoice the Purchaser for any charges not covered by the warranty.

Upon receipt of the equipment and Purchase Order, CDI will examine the equipment and make a determination of the nature and cause of the defect. If the defect is not covered by the warranty, CDI will quote to Purchaser the cost for replacement or repair equipment, and will not proceed until Purchaser delivers a written acceptance of the quotation.

During the one year warranty, CDI will bear the cost to return units repaired under the warranty back to the Purchaser's domestic premises. CDI will return units to foreign countries at Purchaser's expense.

* Contact CDI at 1-918-258-6068 (worldwide), ext 143
for *CDI RMA Form FM-03-0089*

Care and Maintenance

Equipment designed by CDI is protected against the environment in which it is intended to operate. Much of the equipment is designed for prolonged use in the field without any special maintenance other than routine battery replacements. It is the Purchaser's responsibility to insure that proper precautions are taken during installation and operation so that weather seals are in place, routine maintenance occurs, etc. Failure to perform these operations nullifies this warranty.

CDI equipment should only be operated by qualified personnel who are familiar with any and all manuals and procedures for said equipment's operation.

Service and Repairs

Cost for repairs not covered by the warranty or carried out after the warranty period has expired will be charged at the current hourly or set service rate, plus the cost of materials, upon approval by Purchaser.

Equipment for repair must be sent at the Purchaser's expense and be accompanied by the Purchaser's written order describing the defect and authorizing CDI to invoice the Purchaser for labor, materials and return delivery cost.

No service or repair will be undertaken until an approved written order is received from the Purchaser.

Operating equipment while in a damaged condition nullifies this warranty.

ABOUT CDI

CDI is a family-owned and operated business located in Broken Arrow, Oklahoma, just 12 miles from downtown Tulsa. Incorporated in 1982, CDI has proudly been manufacturing products in the United States for more than 32 years. CDI currently employs 45 people in the areas of electronics and mechanical design, software and firmware programming, electronics manufacture, machining, and more.

All CDI products are designed and built completely in-house utilizing an on-premises machine shop boasting six fully-automated CNC machines as well as full-time electronics assembly personnel.

