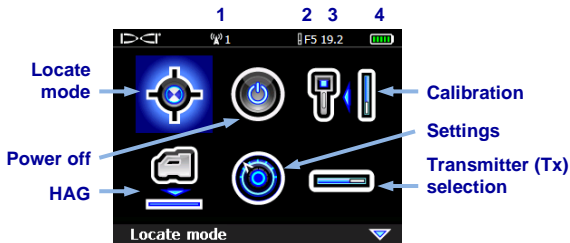①

Power On Receiver

1. Install battery pack and hold trigger for one second.
2. Click trigger to acknowledge the warning screen.
3. Note number in globe icon on startup screen.
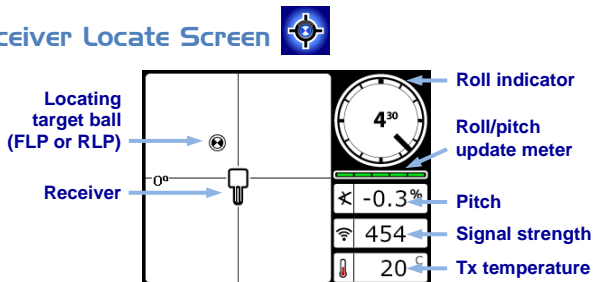4. Click trigger to open Main menu (or toggle down at the Locate screen).

Toggle

Trigger

Battery & S/N

Receiver Main Menu

Locate mode

Power off

HAG

Calibration

Settings

Transmitter (Tx) selection

1   **2 3**   **4**

Locate mode

| 1. Telemetry channel | 3. Tx frequency |
| 2. Tx type | 4. Battery strength |

Toggle to menu options and click trigger to select; ▽ indicates a second page. Use Locate mode for locating.

Receiver Locate Screen ⊕

Locating target ball (FLP or RLP)

Receiver

Roll indicator

Roll/pitch update meter

Pitch

Signal strength

Tx temperature

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Transmitter Selection Menu and Batteries

1. Ensure number in globe icon on transmitter matches that on the receiver startup screen.

2. Install batteries. Dual-frequency transmitter batteries must be loaded with transmitter in proper orientation (pointing up or down) to set the desired frequency.

3. Use Transmitter Selection option on Main menu to select transmitter type and frequency.
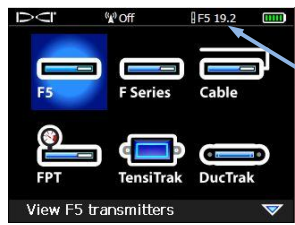

Current transmitter type (F5) and frequency (19.2) are shown at the top

Transmitter Selection Menu

Calibration Menu

Only calibrate with transmitter in housing and in an interference-free environment. Verify calibration daily.

1. Place transmitter in housing on level ground 3 m from receiver (measure from inside edge of receiver as shown).

2. Record signal strength.

3. Select 1-pt calibration from calibration menu and follow the instructions.
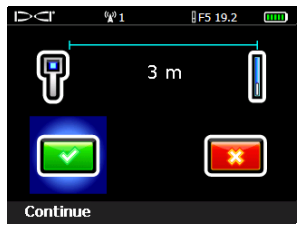
4. Verify calibration by moving the receiver ±1.5 m, then holding the trigger to take a depth/distance reading.

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Settings Menu

Use the Settings menu to set the time zone, language, depth units, pitch units, telemetry channel, and other units as needed to the desired settings. Set the remote display to match receiver settings.

Height-Above-Ground (HAG) Menu

Use the HAG menu to set the distance from the bottom of the receiver to the ground while holding the receiver. With the HAG set, you can take accurate below-ground depth measurements without placing the receiver on the ground. HAG resets to Off when the F5 receiver powers off.

Background Interference Check

At the Locate screen or in Interference Noise Check mode (under Diagnostics) with no active transmitters in range, walk the bore path while checking for background noise. Mark areas with increased background noise (red flags used below).
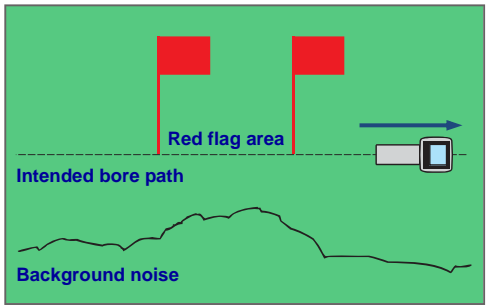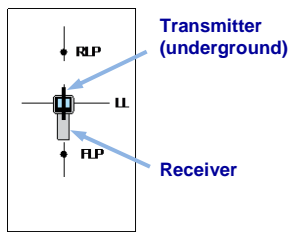

One-Person Background Signal Strength Check

Conduct this check for all transmitters/frequencies you have available (up to five), then use the one with the lowest ambient interference level (signal noise). When drilling, the signal from the transmitter must be at least 150 points above the ambient noise level. Where noise is excessive, data signal may be temporarily random or unavailable.
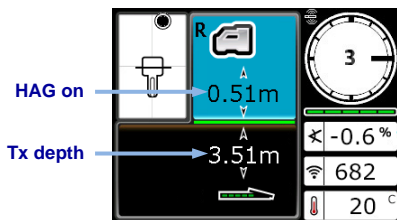
Bird's-Eye View on Locate Screen

LL (transmitter)

Box (receiver)

Transmitter (underground)

Receiver

RLP

LL

FLP

0°

4³⁰

-0.3%

664

20 °C
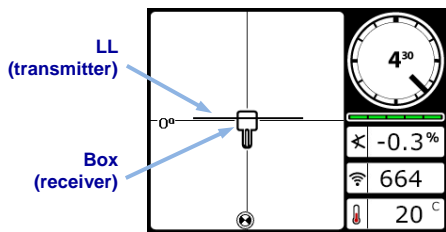
Receiver Locate Screen (Line-in-the-box at LL)

Actual Position of Receiver and Transmitter

Depth and Predicted Depth Readings

HAG on

Tx depth

R

0.51m

3.51m

3

-0.6%

682

20 °C

Trigger held at LL

Depth Screen (Line-in-the-Box at LL)

HAG off

Predicted depth of Tx

Horizontal distance between transmitter and FLP

R

0.81m

1.12m

3

-0.6%

582

20 °C

Pitch
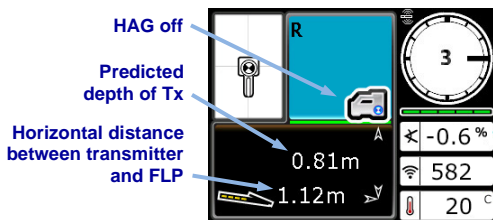
Trigger held at FLP

**Predicted Depth Screen (*Ball-in-the-Box*™ at FLP only)**

Basic Locating Instructions

1. Find FLP and RLP by centering the target ball in the box.
2. At FLP, hold trigger for predicted depth reading.
3. Find LL by centering the line in the box between FLP and RLP (see Locate screen on page 4).
4. View depth by holding trigger at LL.

Transmitter Signal Field Geometry

» Level Transmitter

Side view

LL: Locate Line

RLP: Rear Locate Point

FLP: Front Locate Point

70°
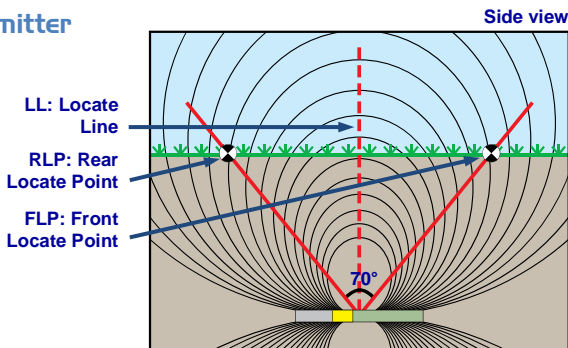
» Pitched Transmitter

LL

RLP   FLP

Bird's-eye view

Drill rig
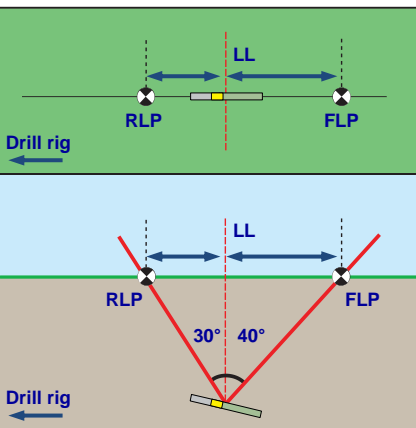
FLP and RLP are not equidistant from the LL when the transmitter is pitched.

Side view

LL

RLP   FLP

30° 40°

Drill rig

Changing Transmitter Frequency or Mode

For models with dual frequencies or XRange®

Install transmitter (Tx) batteries with opposite end of Tx pointing up to select high frequency or down for lower frequency.

1. Disable Roll Offset (if enabled).
2. Change Tx frequency or turn XRange mode on/off:

   Above Ground (Pre-Bore) Tilt Method:

   - **Frequency Change:** Let Tx sit at level (0±10°) for at least five seconds (sec.), tilt Tx up at approx. +65° for 10–18 sec., then return to level for 10–18 sec., maintaining ±2 clock positions (CP) during this sequence.
   - **XRange Mode On/Off:** Same as above, but use approx. -65° pitch and maintain constant 12 o'clock CP.

   Below Ground (Mid-Bore) Methods:

   - **Frequency Change 10-2-7**: Roll the Tx clockwise (CW) to a CP of 10±1 and wait 10–18 sec., slowly roll CW to CP 2±1 and wait 10-18 sec., and slowly roll CW to CP 7±1. Tx changes frequency within 20 sec.
   - **Frequency Change RRS**[1]: Remain at any CP for at least 40 sec to clear timers. Complete one full CW rotation (±2 CP) within 1–30 sec., wait 10-18 sec, and repeat twice for a total of three rotations (RRS3). Tx changes frequency within 60 sec.
   - **XRange Mode On/Off RRS**[1]: Same as frequency change RRS above but a total of four rotations (RRS4).

3. At the Locate screen, hold toggle right to open the Tx Shortcut menu.
4. Select appropriate Tx frequency and toggle XRange on/off, then select ⬦ to return to the Locate screen.
5. Re-enable Roll Offset if applicable.
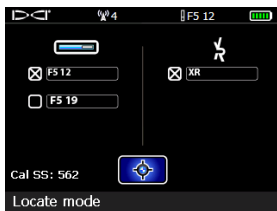
Tx Shortcut Menu Shown with 12/19 kHz transmitter

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[1] Repeating Roll Sequence is available on select transmitters s/n 30070000 and above.

Fluid pressure data from an FPT transmitter and audio are not supported in XRange® (XR) mode; monitor temperature visually.

XRange Real-Time Method

The receiver is using this method when you have selected the XR check box and "XR" displays on the top right of the Locate screen (see next image). Locate as you normally would.

Transmitter data will update less frequently on the receiver and remote display as XRange works to overcome interference. Always use this method first before trying XRange Max.

XRange Max Method

The drill head must be stationary when using XRange Max, which helps stabilize fluctuating XRange roll/pitch data. If the Real-time method did not produce data, the Max method will not either.

1. Hold the trigger at the Locate screen to take a depth reading.

2. As the XRange Max **reading counter** increases, the receiver takes multiple data readings to determine a roll/pitch value. Greater interference or deeper bores will require a higher number of readings.
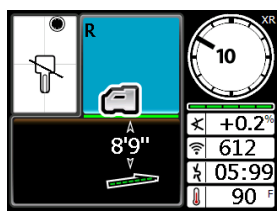
3. When the roll and pitch data display is steady, and before the reading counter reaches 99 and restarts, note the data and release the trigger.

At a count of 99, XRange Max deletes all current readings, resets the counter, and starts taking new readings; this is the same as releasing and holding the trigger to start a new XRange Max reading. Holding the trigger beyond a count of 99 does not increase the reliability of the current reading.

Take **three** XRange Max readings; all three readings must be identical and stabilize within 10 counts. See F5 System Supplement A for additional important information on using XRange in high-interference environments.

Power On Remote Display

1. Install the battery pack or connect to a DC power source.
2. Connect the antenna.
3. Press **Execute** for two seconds; display enters the **Remote Mode** locating screen.
4. Press the Down arrow to access the Main menu.

Arrow buttons

Execute button

F Series Display (FSD)

Remote Display Main Menu

Remote mode

Power off

Settings
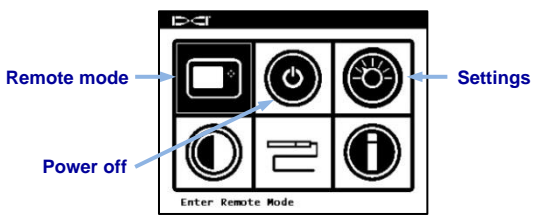
Enter Remote Mode

Use the arrow buttons to highlight menu options and **Execute** to select. Use **Remote Mode** during drilling.

Use the **Settings** menu to set items such as telemetry channel and display units to match those on receiver.

Remote Mode Locating Screen

Tx pitch

Tx roll

Tx temp.

Telemetry update meter

Battery strength

Telemetry channel

Tx battery strength
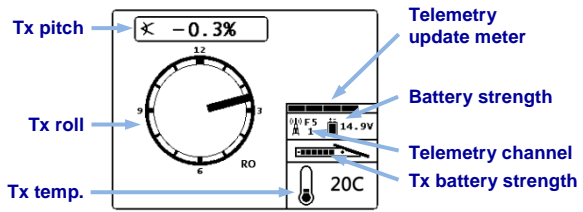
For other DigiTrak displays, see separate manual or Quick Start Guide.

Watch our DigiTrak Training Videos at
http://www.youtube.com/dcikent