DIGITRAK® FALCON® AND MARTIAL SUPERCORE TRANSMITTERS USER MANUAL

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This manual is available in French, by request.
Ce manuel est disponible en français, sur demande.

19625 62nd Ave S Suite B103 Kent, WA 98032 U.S.
dci@digital-control.com | digital - control.com
1.800.288.3610 | 1.425.251.0559

SECTION ONE: General system information and HDD history

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IMPORTANT SAFETY INFORMATION

The following warnings relate generally to the operation of DigiTrak locating systems. Always operate your DigiTrak locating system in accordance with the manual and be aware of interference that may affect efforts to retrieve accurate data with this locating system. Failure to do so can be hazardous. If you have any questions about the operation of the system, please contact DCI Customer Service for assistance.

Warning To prevent potentially dangerous conditions, all operators must read and understand the following safety precautions and warnings and must review this operator's manual completely before using the DigiTrak Locating System.

DigiTrak locating systems cannot be used to locate utilities. Failure to use the front and rear locate points technique described in this manual for locating the transmitter can lead to inaccurate locates.

Serious injury and death as well as substantial property damage can result if underground drilling equipment makes contact with an underground utility, including natural gas lines, high-voltage electrical cable, or other utilities.

DCI equipment is not explosion-proof and should never be used near flammable or explosive substances.

Work slowdowns and cost overruns can occur if drilling operators do not use the drilling or locating equipment correctly to obtain proper performance.

Directional drilling operators MUST at all times:

- Understand the safe and proper operation of drilling and locating equipment, including
    - proper grounding procedures and techniques for identifying and mitigating interference.
        - Ensure all underground utilities and all potential sources of interference have been
        - located, exposed, and accurately marked prior to drilling.
        - Wear protective safety clothing such as dielectric boots, gloves, hard hats, high-visibility
        - vests, and safety glasses.
        - Locate and track the transmitter in the drill head accurately and correctly during drilling.
        - Maintain a minimum distance of 8 in. from the front of the receiver to the user's torso to:
            - ensure compliance with RF exposure requirements.

- Comply with federal, state, and local governmental regulations (such as OSHA).
- Follow all other safety procedures.
- Remove the batteries from all system components during shipping and prolonged storage. Failure to do so may result in battery leakage, which may lead to risk of explosion, health risks, and/or damage.
- Store and transport batteries using a suitable protective case that will keep batteries safely isolated from one another. Failure to do so may result in short circuits, which may lead to hazardous conditions including fire. See Appendix A for important restrictions on shipping lithium ion batteries.

Use of this equipment is restricted to internal use at a construction site.

SPECIAL NOTES ABOUT INTERFERENCE

While DCI guidance systems provide you with technology to combat active interference (and passive interference, with the Sub-K Rebar transmitter), no guidance system is immune to all interference.

Interference can lead to inaccurate depth readings and/or interruption or loss of data. Never rely on data that does not display quickly and/or remain stable.

The Falcon frequency optimizer selects frequencies based on measured interference at a specific time and location.

Interference levels change with time and with even minor changes in location. The frequency optimizer is not a substitute for prudent operator judgment. If performance drops while drilling, consider switching to the other selected band (not available on the Falcon F1) or use Max Mode.

An A on the screen can indicate signal Attenuation due to the presence of excessive interference, which can make depth readings inaccurate. Attenuation is normal in shallow depths less than 8 ft (2.4 m). If the signal strength is also flashing; this indicates extreme interference. Depth and locate points may be compromised and the locator will not calibrate.

Interference is classified as either active (generating electro-magnetic signals) or passive (material that can conduct or block electro-magnetic signals). Sources of interference may include:

Active

- Traffic signal loops
- Buried dog fences
- Cathodic protection
- Radio communications
- Security systems
- Microwave towers
- Power, phone, fiber-trace and cable TV lines

Passive

- Metal pipes
- Rebar
- Trench plates
- Chain-link fences
- Vehicles
- Saltwater/salt domes
- Conductive earth, such as iron ore

If you have any questions about the operation of your guidance system, please contact DCI Customer Service for assistance.

HDD LOCATING HISTORY

Locating in the horizontal directional drilling (HDD) industry was initially based on locating a buried cable by sweeping the locator back and forth to find the highest signal strength (peak signal), indicating that the locator was over the cable. Unfortunately, this method did not always guarantee an accurate location of the cable, nor did it provide any depth information.

This “peak signal” method was adapted to HDD with the introduction of a transmitter that provides information on the position and depth of the drill head. However, this method is unreliable and inaccurate because the peak signal strength is not always directly above the transmitter housing.

In addition, peak signal locating doesn’t show where the drill tool is headed. Think of drilling like driving a car: it is more effective to look ahead through the windshield to see where you are going than to look down at the road through the floorboard to keep the car (drill tool) on the road (drill path).

YOUR DIGITRAK GUIDANCE SYSTEM

DigiTrak locators are part of the integrated Digital Guidance System. The system comes standard with a locator, a remote display, a transmitter, batteries, and a battery charger. Systems that use SuperCell-R batteries also require an exclusive charger.

You can purchase additional transmitters, batteries, chargers, and the R1 terrain mapper from your local dealer.

You can find a chart of the compatible transmitters in the "Compatible Transmitters" article of the DCI DigiGuide App.

1. Locator - The locator displays and interprets the information received from the transmitter in the drill housing.

2. Remote Display - A freestanding or drill-mounted, color touchscreen that displays the locator information and rod-by-rod drill information. A core suite of apps is included: LWD Live, Target Steering, Strip Chart, and Frequency Change.

3. Battery cables

4. Locator battery and charger

5. Transmitter - A transmitter generates a magnetic field detected by the Falcon locator. The transmitter must be paired and calibrated to the locator prior to use. The technical specifications in the DCI DigiGuide App list the compatible batteries for each model.

The manuals for the locators and Aurora display are available in the DCI DigiGuide App. Transmitter articles are included in the individual locator manuals in the Advanced chapters.

SECTION TWO: Falcon Locator Instructions

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LIST OF COMPATIBLE TRANSMITTERS

Product ID	Model No.	System	Battery	Length/ diameter	Weight	Electrical Ratings
FT+	RTP	F5+, F2+	RBP2v1	15”/1.25”	1.28 lb	5.5v – 18.0v / 4.0A Max
FTp+	RTP	F5+, F2+	RBP2v1	15”/1.25”	1.28 lb	5.5v – 18.0v / 4.0A Max
FT5XLp	BTPL	F5, F2	**	24”/1.25”	2.45lb	1.6V - 4.2V/1.75A Max
FT5Lp	BTPL	F5, F2	**	19"/1.25"	2.05lb	1.6V - 4.2V/1.75A Max
FT5p	BTP	F5, F2	**	15”/1.25”	1.7 lb	1.6V - 4.2V/1.75A Max
FTR5Lp	BTPL	F5, F2	**	19"/1.25"	2.05lb	1.6V - 4.2V/1.75A Max
FTR5p	BTP	F5, F2	**	15”/1.25”	1.7lb	1.6V - 4.2V/1.75A Max
FTRs	BTS	F5, F2	Li 123 cell	8”/1”	0.6lb	1.6V - 4.2V/0.4A Max
FTR5Xs	BTM	F5, F2	***	5.9”/.71”	0.2lb	1.0 -3.0v/400mA Max
FT2L+	BTWL.	F5, F2	**	19"/1.25"	2.05lb	1.6V - 4.2V/1.75A Max
FT2	BTW	F5, F2	**	15”/1.25”	1.7lb	1.6V - 4.2V/1.75A Max
FT2s	BTS	F5, F2	Li 123 cell	8”/1”	0.6lb	1.6V - 4.2V/0.4A Max
FT2Xs	BTM	F5, F2	***	5.9”/.71”	0.2lb	1.0 -3.0v/400mA Max
FT1	BTW	F1	**	15”/1.25”	1.7lbs	1.6V - 4.2V/0.4A Max
FT1s	BTS	F1	Li 123 cell	8”/1”	0.6lb	1.6V - 4.2V/0.4A Max
FT1Xs	BTM	F1	***	5.9”/.71”	0.2lb	1.0 -3.0v/400mA Max

See Article “DigiTrak SuperCell Li-Ion Rechargeable Battery Pack and Li Battery Charger for SuperCore Transmitter Models RTP”

****** Battery Type:

- DCI SuperCell – Double C-Cell size lithium non rechargeable 3.6v
- LiR 21700 5,000MaH – Li rechargeable 4.1v (requires a DCI FTA adapter and specific size 21700)
- Two alkaline C cell 1.5v

******* Battery Type:

- Lithium AA 1.5 v
- Alkaline AA cell
- NiMH AA

Local regulations may prohibit the sale of certain transmitter variants in your region. If you have questions on availability, please contact orders@digital-control.com or productcompliance@digital-control.com

TRANSMITTER SETUP WHEN USING A FALCON LOCATOR

STEP 1 OF 3

Things you should know

Your locating system can use different transmitters.

The transmitter selected on your locator must match the transmitter in use. See the "List of Compatible Transmitters".

> The transmitter and locator must have the same region designation number to communicate with each other and to comply with local operating requirements.

The circle is where you can find the transmitter's region and model number. The region number is inside the globe icon in front of the serial number.

STEP 2 OF 3

Your transmitter comes with one battery contact spring and one battery cap tool.

If you are using the Falcon Transmitter Adapter (FTA) with a battery, install a Lithium Rechargeable (LiR) battery into the adapter's positive terminal first. For more information on the FTA, see "Falcon Transmitter Adapter for V2 MultiPower "Blue" Transmitters".

> ⚠ Alkaline batteries are not sufficient for High Power Mode. The locator will display a warning.

Do not use a spring with a SuperCell, SuperCell-R, LiR, or FTA.

The transmitter is powered once batteries are inserted and the cap is installed.

> ⚠ Install transmitters into the drill housing as soon as possible after powering on. If you can't, unscrew the cap to power off the transmitter until you can install the transmitter into the drill housing.

SELECT/CHANGE TX TYPE

STEP 1 OF 5

Stuff You Should Know

Your locating system can use different transmitters.

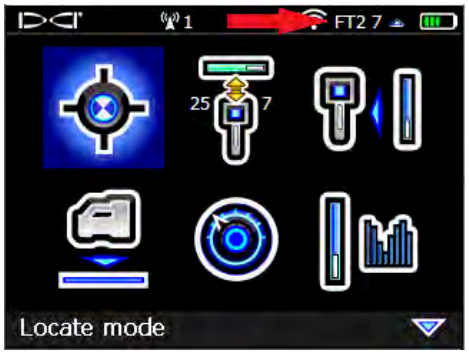
The transmitter selected on your locator must match the transmitter in use. See the "List of Compatible Transmitters".

> The transmitter and locator must have the same region designation number to communicate with each other and to comply with local operating requirements.

These arrows point to the two locations where you can find the transmitter's region and model number. The region number is inside the globe icon in front of the serial number.

STEP 2 OF 5

Main menu:



If they do not match, use the following process to change the transmitter selection on the locator.

STEP 3 OF 5

At the Main menu, select Transmitter selection.

STEP 4 OF 5

Select Transmitter selection (same name, different screen).

STEP 5 OF 5

Select your transmitter.

A transmitter must be paired and calibrated to the locator before it will provide data.

FIND BEST FREQUENCIES INTRO

Before scanning with the Frequency Optimizer (FO) you have three options to select which bands to pair with your transmitter.

Basic - Quick Scan Pair (QSP) – With fewer clicks, bypass the FO to scan and pair the pre-selected Up and Down bands for your region.

Advanced FO - Quick Pick – After scanning, use the two bands with the lowest noise indicated by the FO with white arrows.

Advanced FO - Manual Pick – After scanning, select one or both bands and assign them to up or down.

After using one of the Advanced methods to pick the bands, you will pair them with the transmitter and then calibrate.

Watch video on YouTube:
Scan Pick Pair - English (1:52 min)
https://youtu.be/pTEpehZ09A4

BASIC - QUICK SCAN PAIR

STEP 1 OF 7

Before You Start

Basic - Quick Scan Pair scans noise and selects the best frequencies for the preset Up and Down bands. These presets may not be the best bands for the jobsite.

Use *Advanced - Scan Pick Pair t*o view noise on all bands.

> To provide pitch information on your locators, enable full scale sensitive pitch (FSSP), see the article "Enable Full Scale Pitch Resolution" in the Advanced Topics Chapter.

STEP 2 OF 7

Ensure all transmitters are powered off or more than 100 ft (30.5 m) away from the locator.

Inspect the jobsite and move locator to active noise area of concern or deep part of bore - keep locator above and parallel to bore path.

STEP 3 OF 7

From the Main menu, select Quick Scan Pair.

Confirm the pre-selected bands and the power levels on the top box on the screen.

To change the pre-set bands and power levels, click the Quick Scan/Pair option (the gear icon).

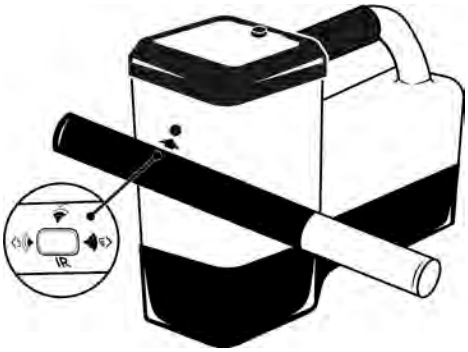
If you are using a Sub-k transmitter, QSP assigns a wideband frequency (7, 11, or 16) with Standard power to the Up band and a Sub-k band (0.3, 0.5, or 0.7) with Low power to the Down band.

STEP 4 OF 7

Insert batter(ies) positive terminal first and install the battery cap to power on the transmitter.

STEP 5 OF 7

Align the transmitter so its IR port is near and facing the round IR port on the front of the locator.



Falcon locators with programmable power mode override any other selection method when used with a V2 transmitter.

The Falcon SuperCore Transmitter does not have an IR dimple. The label points to the IR port on the end with the temperature dot and opposite of the clock indicator. When the transmitter is powered on, a light flashes at the IR port. Hold the flashing light near the IR port on the locator for pairing.

STEP 6 OF 7

Click Transmitter pairing request. 

STEP 7 OF 7

Confirm the pairing and power mode, and then click to continue to Calibration.

> Install transmitters into the drill housing as soon as possible after powering on. If you can't, unscrew the cap to power off the transmitter until you can install the transmitter into the drill housing.

CALIBRATE INTRO

Calibration is required any time you change your transmitter, locator, drill head, power setting, or perform a new frequency scan and then pair.

Calibrate both bands with the transmitter in the housing (flat on the ground in a low-noise, metal-free environment) immediately after pairing.

To calibrate any other time, from the Main menu select Calibration, then 1 pt calibration before continuing with the following steps.

Watch video on YouTube:
Calibrate Your DCI Transmitter and Locator (1:28 min)
https://youtu.be/j2c6FvpAa6k

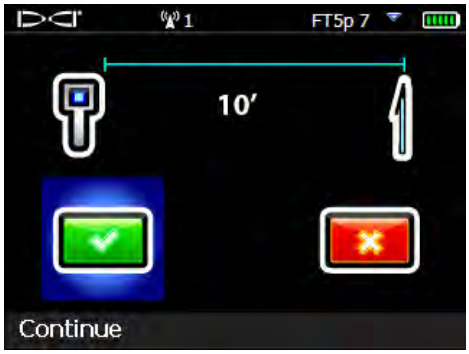
CALIBRATE - UP

STEP 1 OF 6

Install the powered-on transmitter in the drill head. Place the cover on, but don't fasten it yet.

STEP 2 OF 6

Using a tape measure, place the *near edge* of the locator parallel to and exactly 10 ft (3 m) from the *center of the transmitter.*



For accurate calibration, always use the center of the transmitter, not the drill head.

STEP 3 OF 6

Select **Continue** to calibrate the Active band.

If you are pairing both bands, the Up band is calibrated first.

STEP 4 OF 6

The locator beeps 3 times fast and displays a check mark after a successful calibration.

STEP 5 OF 6

Use the **Above Ground Range (AGR)** that displays next to check the accuracy of your calibration. Move the locator to at least two different distances (5 ft/1.5m and 15 ft/4.6 m) and verify distance readings match the measurement.

The locator assumes the transmitter pitch equals zero during the above ground range check. For accurate readings ensure the transmitter is approximately level.

STEP 6 OF 6

Click Cancel to exit to the Locate Mode screen where you will see clock, pitch, and signal strength.

CALIBRATE - CHANGE BANDS

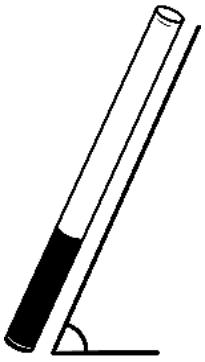
STEP 1 OF 5

To change the *transmitte*r to the Down Band, hold the Tx at the same (±2) general clock position (CP) for this whole procedure.

Hold transmitter powered on at level (0±10°) for at least five seconds.

STEP 2 OF 5

Tilt transmitter up at approximately +65° (almost vertical) for 10-18 seconds.



STEP 3 OF 5

Return to level for 10-18 seconds.

When the transmitters changes bands, data disappears from the locator.

You can also use the Power-on Method described in "Change Transmitter Band, Power-On Method" in the Advanced Topics chapter.

STEP 4 OF 5

To change the *locator* to the Down band, from the Locate Mode screen, hold toggle right to open Band Selection shortcut menu, and then select the desired Down band.

STEP 5 OF 5

Select **Locate Mode** and verify that you see the clock, pitch, and signal strength.

The red triangle in the roll indicator shows calibration is needed.

CALIBRATE - DOWN

STEP 1 OF 7

From the **Main** menu, select **Calibration**.

STEP 2 OF 7

Select **1 pt calibration**.

STEP 3 OF 7

Put the transmitter back in the drill head, put the cover back on, and ensure the *near edge* of the locator is still parallel to and exactly 10 ft (3 m) from the *center of the transmitter*.

> For accurate calibration, always use the center of the transmitter, not the drill head.

STEP 4 OF 7

Select **Continue** to calibrate the Down band.

The locator beeps three times and displays a check mark after a successful calibration.

STEP 5 OF 7

Use the **Above Ground Range (AGR)** that displays next to check the accuracy of your calibration. Move the locator to at least two different distances and verify distance readings match the measurement.

STEP 6 OF 7

Click **Cancel** to exit to the Locate Mode screen. Verify you see clock, pitch, and signal strength.

STEP 7 OF 7

Fasten the drill head cover properly before drilling.

LOCATING THE TRANSMITTER

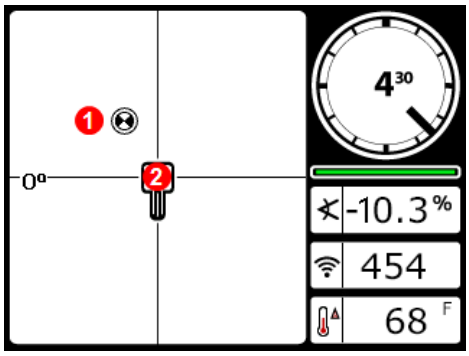
STEP 1 OF 12

Find the Rear Locate Point (RLP)

After the first rod has been drilled in, start at the entry point and face the direction of the bore.

STEP 2 OF 12

Using the **Locate Mode** screen, move the locator to put the ball in the box.



1. Ball
2. Box

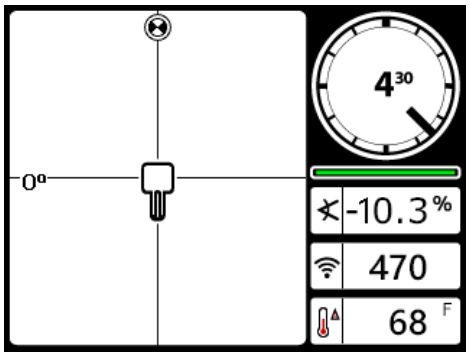
STEP 3 OF 12

Mark this position on the ground as the Rear Locate Point (RLP).

STEP 4 OF 12

Find the Front Locate Point (FLP)

Walk forward. As you pass the transmitter, the ball jumps to the top of the screen. You are now tracking the Front Locate Point (FLP).

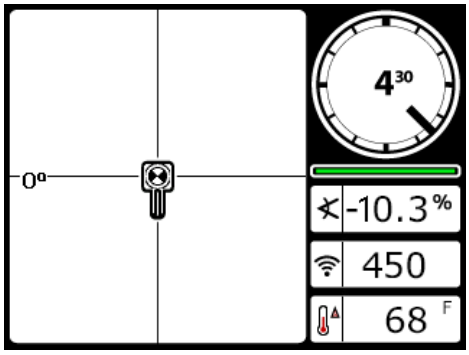


The signal strength increases as you move toward the transmitter and decreases as you move away from it.

An A near the roll indicator indicates signal Attenuation is in effect. If the signal strength is red and flashing, this indicates extreme interference.

STEP 5 OF 12

Move the locator to put the ball in the box.



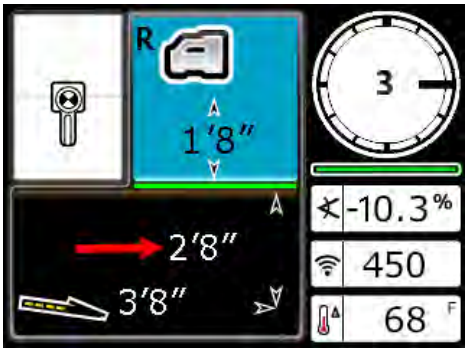
The locator can face toward or away from the drill as long as it is parallel to the direction of drilling.

STEP 6 OF 12

Mark this position on the ground as the Front Locate Point (FLP).

STEP 7 OF 12

Hold the trigger to show the **predicted depth *** of the transmitter at this location.



Hold the trigger for at least one second. The R indicates the signal is locked. The LL will not appear without the reference lock.

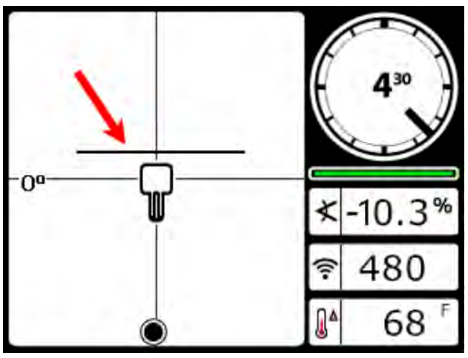
STEP 8 OF 12

Look back toward the RLP. The transmitter housing is positioned to travel toward you along the line connecting the RLP and FLP.

STEP 9 OF 12

Find the Locate Line (LL)

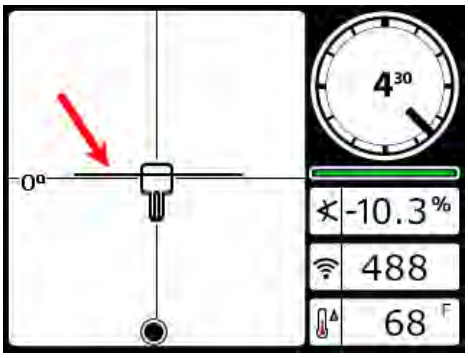
Walk back toward the RLP until the Locate Line (LL) appears.



If the LL does not appear, go to the FLP and hold the trigger to show the predicted depth until the R appears.

STEP 10 OF 12

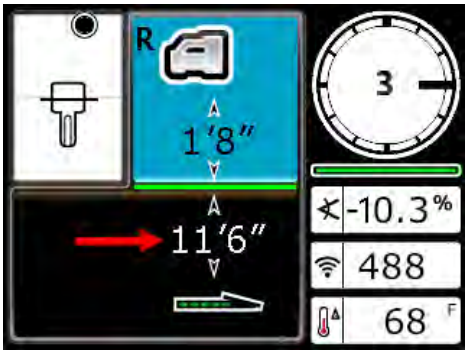
Ensure the locator is on the line connecting the two marked locate points. Position the locator so the LL passes through the center of the box. The transmitter housing should be beneath this point as long as the transmitter is relatively level (see "Steep and Deep" under Advanced Topics).



The locator can face toward or away from the drill as long as it is parallel to the direction of drilling.

STEP 11 OF 12

Hold the trigger to take a depth reading.



If the signal strength is red and flashing, this indicates extreme interference. If you hold the trigger for longer than five seconds, the locator will enter **Max Mode *** , which can help with unstable data caused by interference or extreme depths.

STEP 12 OF 12

Continue Locating as the Drill Head Moves

After the drill head moves forward another rod, find the new RLP, FLP, and then the LL.

If the new FLP is in line with the prior locate points (a straight bore line), it is unnecessary to find a new RLP. For a curved drill path, always identify both the FLP and RLP.

If you have a straight drill path but the FLP is to the left or right of the line projected from the previous locate points, this may indicate a drill head deflection or interference affecting the transmitter's signal.

CHANGE BANDS

STEP 1 OF 5

Stuff You Should Know

Switching bands on the transmitter may provide better data, better depth, and/or better locate results as interference conditions change.

> ⚠ Calibrate BOTH bands before drilling so you get accurate depth readings on both bands.

STEP 2 OF 5

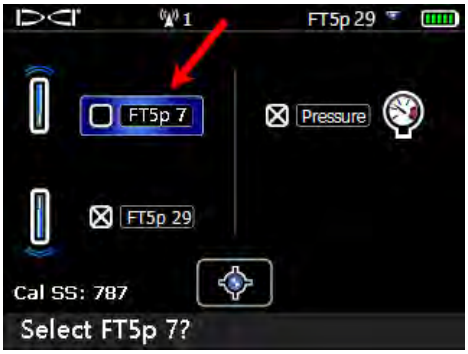
Observe signal strength drop after the drill operator completes a roll sequence to change bands.

STEP 3 OF 5

From the Locate Mode screen, hold toggle right to open the Band Selection shortcut menu.

STEP 4 OF 5

Toggle to and select the transmitter band without the X in the box (in this case, FT5p 7).



STEP 5 OF 5

Select Locate Mode.

TRANSMITTER AND BATTERY CARE

STEP 1 OF 6

Remove the transmitter from the drill head.

STEP 2 OF 6

Wipe the transmitter clean so dirt doesn't enter the battery compartment or accumulate on the battery cap threads.

STEP 3 OF 6

Remove the transmitter batteries to power it off.

> The transmitter records run-time for warranty purposes.

STEP 4 OF 6

Inspect the battery compartment, springs, cap, O-ring, battery adapter, and threads for debris. Clear any debris and replace the battery cap.

Use conductive lubricant on the threads if the battery cap is difficult to turn.

STEP 5 OF 6

Store batteries so they do not contact metallic objects or terminals of other batteries.

STEP 6 OF 6

Store the transmitter in the original system carry case where it will be safe from impact and excessive temperatures.

Storage and transportation temperature must remain within 40° to 149° F (-40 to 65 °C).

MISSING ROLL & PITCH DATA ON A FALCON LOCATOR

STEP 1 OF 5

Double-check that your transmitter is powered on

a. Roll the transmitter 180°. Transmitters will fall asleep after 15 minutes of inactivity.

b. If you do not have data and the transmitter is above ground, move the transmitter close to the locator.

If the signal strength increases try the next solution. If not, insert fresh batteries. Lithium batteries will show 100% up until they're nearly depleted.

STEP 2 OF 5

Make sure you have the correct frequency band selected

a. Start at the Locate Mode screen, hold the toggle to the right.

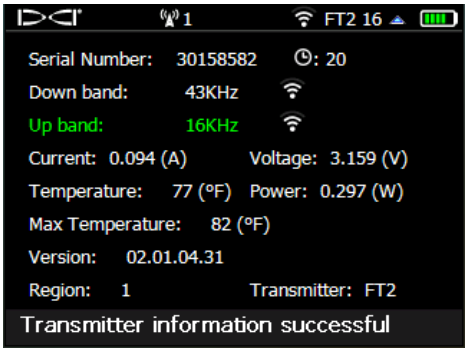
b. Toggle up to select whichever frequency is not currently in use (frequency without an 'x').

c. Click Locate Mode to return to the Locate Mode screen. If Roll/Pitch data appears, the transmitter was powered up in another frequency.

STEP 3 OF 5

Check that the Transmitter is working.

a. Check that you can view the transmitter info. If you can view data, the Tx is powered on, working, and can be paired. If you cannot view this screen, the transmitter may be damaged.



> The transmitter does not have to be paired to the locator to view the transmitter info.

b. In the Tx Info screen, verify that the locator is using the correct transmitter type (FT2, FT5, or FTR). If needed, change the transmitter type.

c. The Active band (Up or Down) appears green.

> For step-by-step instructions, search for "transmitter info" and "Change transmitter type."

STEP 4 OF 5

Re-Optimize and Pair your transmitter.

If you have a new transmitter, or locator, you must optimize, pair your frequencies, and recalibrate.

For step-by-step instructions, go to Find Best Frequencies in the Jobsite Setup chapter.

STEP 5 OF 5

If you still don't have roll and pitch data, call DCI for further troubleshooting.

CANNOT PAIR A TRANSMITTER

STEP 1 OF 6

Check that the correct transmitter is selected.

a. On the Main menu, select Transmitter Selection.

b. Select Transmitter and then select the transmitter model.

STEP 2 OF 6

The transmitter's model is etched on its battery compartment.

STEP 3 OF 6

Double-check that your transmitter is powered on.

a. Roll the transmitter. Transmitters will fall asleep after 15 minutes of inactivity.

b. If you do not have data and are above ground, insert fresh batteries. Lithium batteries will show 100% up until they're nearly depleted.

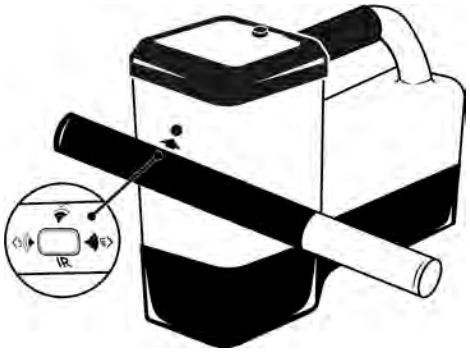
STEP 4 OF 6

Perform a Transmitter Information Request.

a. On the Main menu, select Transmitter Selection.

b. Select Transmitter Info.

c. Hold the flat section of your transmitter near the black IR port on your locator.



d. Click Transmitter Information Request.

Pay attention to battery voltage as yours may be low/dead. Lithium Rechargeable (LiR) battery should read between 4.2V and 4.0V, if new. SuperCell should read between 3.6V and 3.4V, if new. Alkalines should read between 3.2V and 3.0V, if new.

STEP 5 OF 6

Replace the batteries with recommended brands and perform another transmitter information request.

Recommended brands are two C-cell Energizer alkaline batteries, two 21700 LiR (rechargeable) batteries, or one DCI SuperCell lithium battery.

STEP 6 OF 6

If you are still unable to pair the transmitter, call DCI for further troubleshooting.

I AM NOT GETTING DATA BACK AT THE DRILL

STEP 1 OF 6

Verify that both units are set to the same telemetry channel.

Under the same locator icon on the Aurora you'll find a symbol that looks like a cell tower which represents four telemetry channels. These must be set to the same channel for the remote and the locator.

a. To change channels on your locator, toggle down into the main menu and select Settings.

b. Toggle to the telemetry icon and make sure the locator icon matches your remote.

STEP 2 OF 6

Verify that your display on the drill is set to the correct locator.

To change what locator your remote looks for click the main menu icon and then on the locator icon under Settings.

STEP 3 OF 6

Verify that your display on the drill and the locator are set to the same World Region.

You can change the World Region on the remote display, but not on the locator.

STEP 4 OF 6

Check any external antenna on the remote display for damage.

Ensure all internal pins are intact and clean with alcohol if connection points look dirty.

STEP 5 OF 6

If not already in use, a filtered antenna may be necessary to reduce the effects of interference in the area.

STEP 6 OF 6

Call DCI for further troubleshooting.

TARGET STEERING INTRODUCTION

The Target Steering guidance method allows the Falcon locator to be placed ahead of the drill head and used as a steering target.

Use it to distance the locator from rebar that is causing signal interference and to drill where walkover locating is not possible.

Target Steering is typically only used on a straight drill path under level ground, not a curved path, with terrain changes, or to correct a significantly off-course bore.

The maximum distance the locator can be placed ahead of the drill head for accurate up/down Target Steering is 35 ft (10.7 m).

Within this range, starting with the drill head approximately level, the maximum depth and pitch changes are approximately 4 ft (1.2 m) and 14%, respectively.

Beyond this distance, depth information becomes less accurate.

Data and left / right steering are usable for the entire range of the transmitter.

> Target Steering assumes that the locator is on the ground or at the height set with a TrakStand with HAG enabled. The locator ignores the handheld Height-Above-Ground (HAG) setting.

The Falcon Compact display does not support Target Steering.

TARGET STEERING

STEP 1 OF 7

Toggle up from the Locate Mode screen.

STEP 2 OF 7

The number on the screen shows the last **target depth *** set. If it matches your desired target depth, select the checkmark.

STEP 3 OF 7

To change the target depth shown, use the keypad.

If TrakStand HAG is enabled, but drilling shallower than 1.5 ft (0.5 m), adjust the TrakStand HAG height.

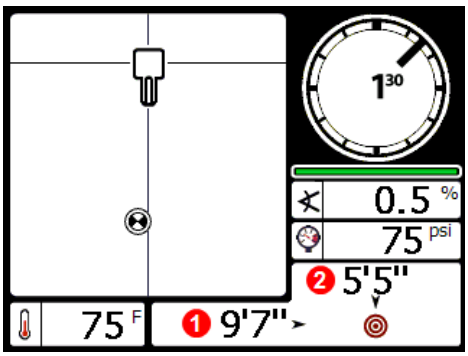
If using standard HAG and holding the locator to distance from rebar or drilling shallower than 1.5 ft (0.5 m), add the height to the target depth since standard HAG is ignored for Target Steering.

STEP 4 OF 7

Place the locator on the drill path with its battery compartment facing the drill head. Target Steering guides the transmitter to be inline with the locator's handle when it reaches the target beneath the locator. For accurate depth information, use the horizontal distance reading on the Target Steering display to ensure the locator is no more than 35 ft (10.7 m) in front of the transmitter.

If you go past 35 ft (10.7 m) do not rely on the depth and up/down steering information. Instead, monitor pitch data.

STEP 5 OF 7



1. Horizontal distance from transmitter to locator
2. Current transmitter depth below the plane of the locator

At this point, the drill rig operator uses the remote display to drill to the target.

STEP 6 OF 7

When the horizontal distance is almost the same as the current depth, move the locator farther out to continue Target Steering.

If the drill head passes this point, depth and horizontal distance values on the Aurora become invalid.

STEP 7 OF 7

From the Locate Mode screen, toggle down to turn off Target Steering.

GET TRANSMITTER INFO

STEP 1 OF 6

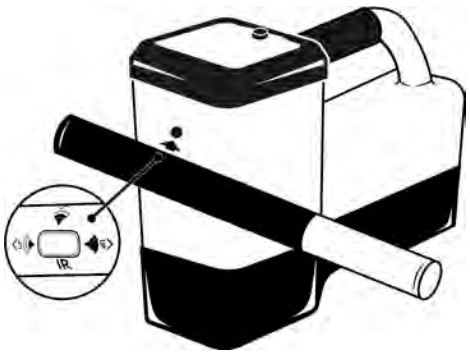
From the **Main** menu, select **Transmitter selection**.

STEP 2 OF 6

Select **Transmitter information**.

STEP 3 OF 6

Align the transmitter so its IR port is near and facing the round IR port on the front of the locator.



The transmitter does not need to be paired for the locator to read the transmitter info.

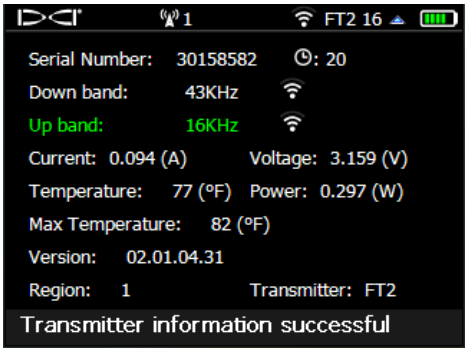
The Falcon SuperCore Transmitter does not have an IR dimple. The label points to the IR port on the end with the temperature dot and opposite of the clock indicator. When the transmitter is powered on, a light flashes at the IR port. Hold the flashing light near the IR port on the locator for pairing.

STEP 4 OF 6

Select Transmitter Information request.

STEP 5 OF 6

Use the Transmitter Info screen to check important information such as runtime hours for warranty coverage, current band (green), **operating current *** , **battery voltage *** , and max recorded temperature.



For Falcon SuperCore Transmitters, the locator type will be the last transmitter type selected. If the transmitter has never been paired before, the transmitter type will display as FT5 for Falcon F5+ locators and FT2 for Falcon F2+ locators..

STEP 6 OF 6

Click to return to the Main menu.

SECTION THREE: DigiTrak Martial locator Instructions

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LIST OF COMPATIBLE TRANSMITTERS FOR A DIGITRAK MARTIAL LOCATOR

Product ID	Model No.	System	Battery	Length/ diameter	Weight	Electrical Ratings
DT+	RTP	Martial SuperCore transmitter with pressure	RBP2v1	15”/1.25”	1.28 lb	5.5v – 18.0v / 4.0A Max
DTp+	RTP	Martial SuperCore Transmitter without pressure	RBP2v1	15”/1.25”	1.28 lb	5.5v – 18.0v / 4.0A Max

See Article “DigiTrak SuperCell Li-Ion Rechargeable Battery Pack and Li Battery Charger for SuperCore

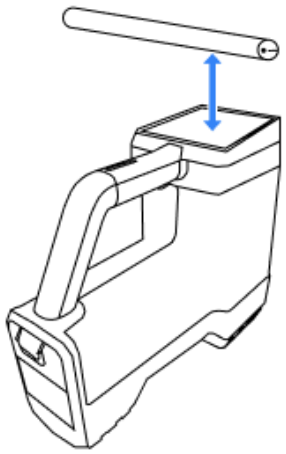
Local regulations may prohibit the sale of certain transmitter variants in your region. If you have questions on availability, please contact orders@digital-control.com or productcompliance@digital-control.com

SET UP A TRANSMITTER WITH DIGI-MATIC

STEP 1 OF 2

ADD AND PAIR A MARTIAL SUPERCORE TRANSMITTER TO A DIGI-MATIC

Power on your transmitter. Hold the end with the flashing light over the locator screen.



STEP 2 OF 2

Select the transmitter from the list. If other transmitters have been paired before, they will appear on the list.

After you see the confirmation message, click **Frequencies** to select bands and frequencies.

SELECTING FREQUENCIES WITH DIGI-MATIC

STEP 1 OF 6

Before You Start

After adding and pairing a transmitter, the DigiTrak Martial locator will walk you through choosing the best frequencies for the jobsite using our AI-assisted Digi-Matic with smart prompts and on-screen step-by-step instructions.

Using Digi-Matic you will:

1. Walk and scan the proposed bore path while the locator selects the best frequencies
2. Approve and assign the recommended frequencies to bands
3. Calibrate both bands of the transmitter at once
4. Start locating

For more details or the manual process, search the DCI DigiGuide App.

STEP 2 OF 6

On the Add transmitter screen, select DigiMatic to continue.

STEP 3 OF 6

If you are drilling under rebar or other sources of **passive interference *** , select Yes. If you select No, continue to the next step.

a. On the Digi-Matic screen, enter how far under the rebar you will be drilling.

b. Select A or B to use as the rebar frequency.

c. Click Save.

Rebar depth tone reduced the data range of the locator

STEP 4 OF 6

For the next step, you will walk the intended borepath with the locator held at your side like a suitcase. Digi-Matic will scan the environment and select a set of bands that DigiTrak's AI assist identifies as the best for the jobsite and conditions. For the best results, walk past any sources of **active interference *** .

When you are ready to scan the jobsite, select Ready to scan and start walking.

After you have walked the borepath, select Done waiting to review the frequenices selected and assign them.

If it takes you more than 15 minutes to walk the borepath, Digi-Matic will ask you if you are still walking.

STEP 5 OF 6

On the Review and confirm screen, blue bars indicate that the frequencies will reach the depth of your bore.

Select Load recommended, and then Confirm to load the selected frequencies to the Locate Mode screen.

Install transmitters into the drill housing as soon as possible after powering on. If you can't, unscrew the cap to power off the transmitter until you can install the transmitter into the drill housing.

To change the bore depth, select **Cancel** and then select **Discard**.

a. On the Frequencies screen, select **Bore Depth** and enter a new depth.

b. Select **Save**, and then select **New Frequencies** to return to the New Frequencies menu.

c. Select **Digi-Matic** to re-scan the borepath.

STEP 6 OF 6

To change the bore depth, select **Cancel** and then select **Discard**.

a. On the Frequencies screen, select **Bore Depth** and enter a new depth.

b. Select **Save**, and then select **New Frequencies** to return to the New Frequencies menu.

c. Select **Digi-Matic** to re-scan the borepath.

CALIBRATING A MARTIAL SUPERCORE TRANSMITTER

STEP 1 OF 8

Calibration is required any time you change your transmitter, locator, drill head, power setting, or perform a new frequency scan and then pair.

Calibrate both bands with the transmitter in the housing (flat on the ground in a low-noise, metal-free environment) immediately after pairing.

STEP 2 OF 8

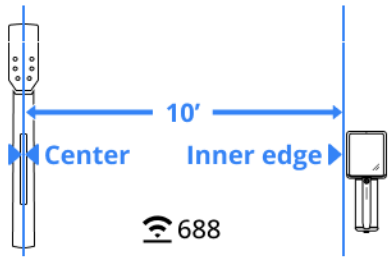
On the Frequencies menu, select Calibration.

STEP 3 OF 8

Install the powered-on transmitter in the drill head. Place the cover on, but don't fasten it yet.

STEP 4 OF 8

Using a tape measure, place the *near edge* of the locator parallel to and exactly 3m from the *center of the transmitter.*



For accurate calibration, always use the center of the transmitter, not the drill head.

STEP 5 OF 8

Select Calibrate now. The locator calibrates both A and B, and the potential rebar frequencies at the same time. When the first calibration is complete, the screen will display the frequency and the distance calibrated.

If the calibration fails, the message on the screen describes the problem and a potential solution. Make the suggested change and select Recalibrate to try again. If, after several attempts, you are still unable to calibrate, contact DCI Support.

STEP 6 OF 8

To validate the other frequency, select Switch Frequencies The bubble displays the other frequency and the distance.

STEP 7 OF 8

To validate the calibration at another distance, such as 5ft/1.5m, use a tape measure to move the locator to the new distance and confirm the reading is correct. Repeat for the other frequency.

After completing validation for both frequencies, you can start locating. Select Ready to locate.

STEP 8 OF 8

At any time, go to Calibration to view the details of the last calibration, run a standard calibration 3m.

Select Advanced options, to do an Above Ground Range (AGR) check, or a below ground calibration.

BASIC LOCATING STEPS ON A DIGITRAK MARTIAL LOCATOR

STEP 1 OF 5

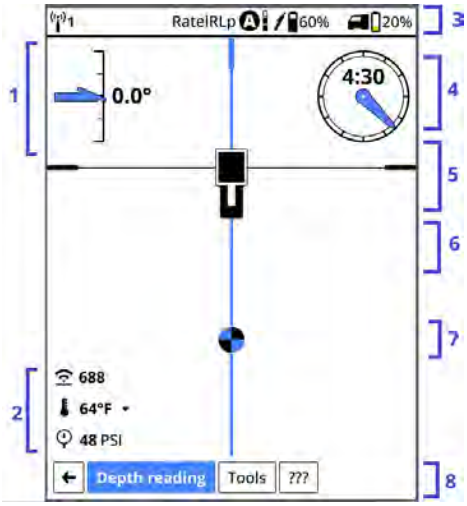
Before You Start

A DCI locator locates the transmitter by detecting three specific "locate points" in the transmitter's magnetic field. By identifying these three points, you can find the transmitter underground and know its depth and pitch.

STEP 2 OF 5

DCI's design uses a "locate point" in the transmitter signal. The Front Locate Point (FLP), which is out ahead of the transmitter, shows where the transmitter housing is heading.

DCI invented the *Ball-in-the-Box* user interface to make it quick and intuitive to find a locate point, speeding up drilling jobs: just move the locator so the ball moves into the box on the screen.

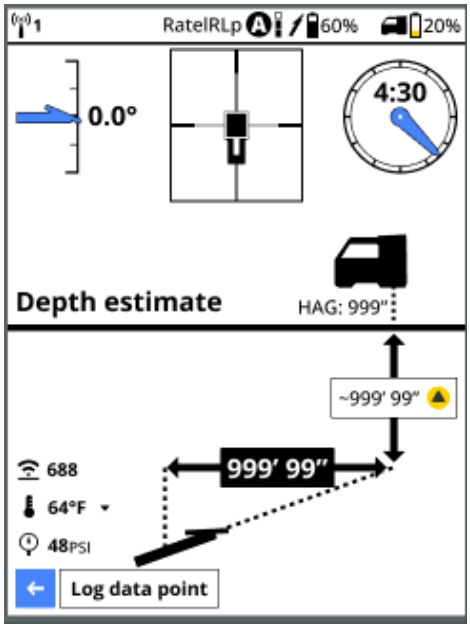


1. Pitch
2. transmitter info (signal strength, temperature, pressure)
3. Telemetry, Tx model, band, power mode, and battery life. Locator battery life.
4. Drill Housing clock (offset off)
5. Box target
6. lines
7. Ball
8. More features and get help.

Find the **Front Locate Point (FLP) *** and the **Rear Locate Point (RLP) *** by centering the target ball in the box. Mark the positions on the ground.

STEP 3 OF 5

At the FLP, hold trigger for predicted depth reading. The **Reference lock indicator R *** icon will appear. The **Locate Line (LL) *** may not appear if this step is skipped.



STEP 4 OF 5

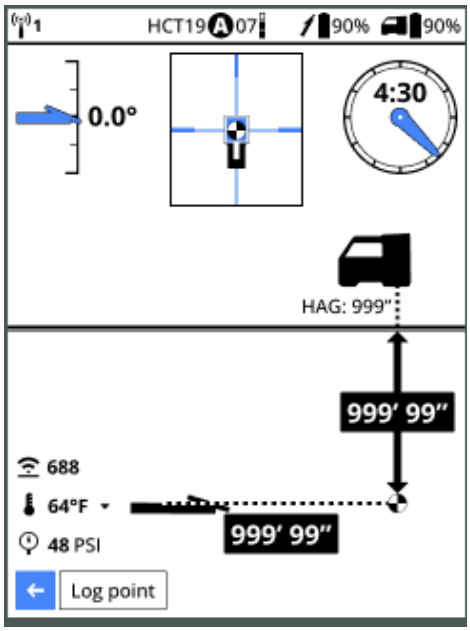
Find the LL by centering the line in the box between the FLP and RLP.

STEP 5 OF 5

View depth by holding the trigger at the LL on the line between the FLP and RLP.

To improve depth/data readings, hold the trigger five or more seconds to enable **Max Mode *** .

See the DCI DigiGuide App for more information. For a quick online tutorial, visit Digital Control on Youtube.



CHANGE THE LOCATOR AND TRANSMITTER BAND ABOVE GROUND

STEP 1 OF 4

Before You Start

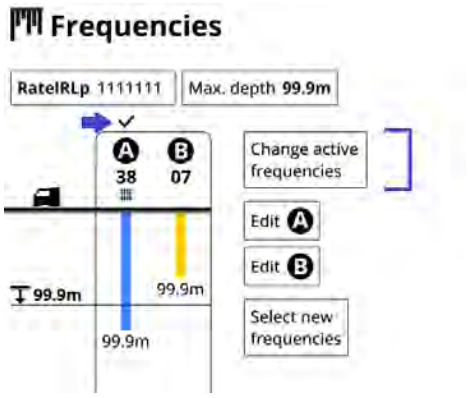
The DigiTrak Martial locator and the Martial SuperCore transmitter communicate via Bluetooth when both pieces of equipment are powered on and paired. The combined Bluetooth and transmitter icon displays on the locator's top status bar.

STEP 2 OF 4

From the **Home** screen, select **Jobsite setup**, and then **Frequencies**.

STEP 3 OF 4

On the **Frequencies** screen, select **Change active frequencies** to toggle between band **A** and band **B**.



STEP 4 OF 4

You can confirm the signal strength on the Locate Mode screen.

To go to the **Locate Mode** screen, click the **Jobsite setup** back button, and then **Home** screen back button, and then the **Locate Mode** button.

CHANGE THE ACTIVE FREQUENCY BELOW GROUND (10-2-7 RRS)

STEP 1 OF 6

Switching the active frequencies on the transmitter while it is below ground may provide better data, better depth, and/or better locate results as interference conditions change. You can also use this procedure if you are not seeing transmitter data on the locator or remote display.

> ⚠ Before you start, either disable Roll Offset or note the clock position of the Roll Offset before you begin this procedure.

STEP 2 OF 6

Position the transmitter at 10:00 (±1 clock position) and remain there for 10–18 seconds.

STEP 3 OF 6

Rotate the transmitter clockwise to its 2:00 position (±1 CP) within 10 seconds and remain there for 10–18 seconds.

STEP 4 OF 6

Rotate the transmitter clockwise to its 7:00 position (±1 CP) within 10 seconds and wait.

STEP 5 OF 6

When the procedure is finished, the transmitter changes frequencies, causing transmitter data to disappear on the locator screens. To view the transmitter data for the active frequency, change the band on the locator. See "Change the frequencies" article in the DigiGuide.

⚠ Data may not disappear on a remote display. Always rely on the locator operator to verify a band change.

STEP 6 OF 6

Change the active frequency band on the locator from the Locate Mode screen

a. Select **Tools**, and then **Change Active Frequency**. The active frequency has a checkmark.

b. Select the other band, and then select **Save**.

After saving the band, the status bar will display transmitter (A), the currently active band and power level (B), and the transmitter battery life.

Falcon Gang: Both selected frequencies (bands) were calibrated when the transmitter was added. However, if re-calibration is required, the locator will display a warning.

CHANGE MARTIAL SUPERCORE TRANSMITTER POWER MODE

STEP 1 OF 5

Before You Start

The Status Bar on the top of the screen displays the active transmitter's power mode.

1. Transmitter model
2. Transmitter active band
3. Transmitter power mode
4. Transmitter battery life

The power level affects the depth and range of the transmitter and the battery life.

Depth/data range by power level (1) (2)

- High: Up to 160 ft/200 ft (49 m/61 m)
- Standard: Up to125 ft/150 ft (38 m/45.7 m)
- Low: Up to 100 ft/125 ft (30 m/38 m)

(1) Data range is based on using Falcon Max Mode.

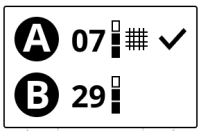
(2) Range figures based on SAE Standard J2520. Actual ranges and battery life will vary based on interference, transmitter housing, frequency, and other factors.

Battery life by power level and battery type

- High: up to10hrs
- Standard: up to 40hrs
- Low: up to 100hrs
- Sleep Mode: >1000hrs

STEP 2 OF 5

From the Home screen, select the transmitter information block.



STEP 3 OF 5

On the Frequencies screen, select the frequency that you want to change.

STEP 4 OF 5

On the Edit screen, select the new power level.

Use the live display to compare the power levels to your desired bore depth.

Select **Save** to continue.

STEP 5 OF 5

On the Change Power level screen, you have another chance to compare the current frequencies and power ranges with the new one you've selected.

Select **Load** and then **Confirm** to update the locator.

The status bar and other displays will be updated with the new power level.

GET TRANSMITTER INFORMATION ON A DIGITRAK MARTIAL LOCATOR

STEP 1 OF 4

You can view the active transmitter's model, active band and frequency, power mode level, and battery life from the Status bar on all of the main locator screens.

1. Transmitter model
2. Transmitter active band
3. Transmitter power mode
4. Transmitter battery life

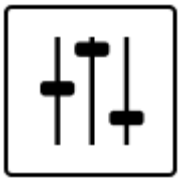
The Transmitter details pages provide additional information, such as run-time, warranty, software version, Bluetooth details, and warranty.

STEP 2 OF 4

From the Home screen, click Jobsite Setup, and then Transmitters.

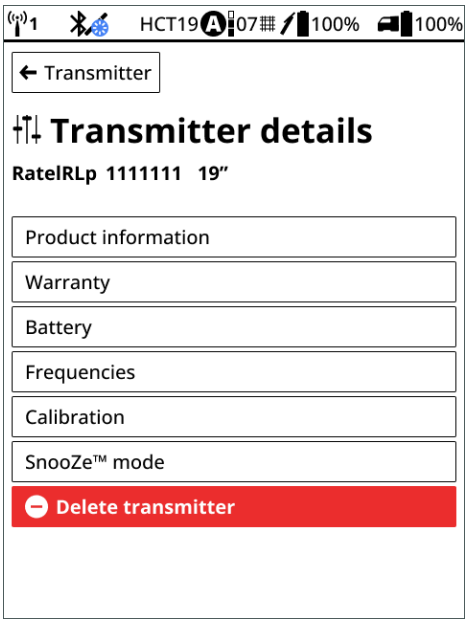
STEP 3 OF 4

In the transmitter list, select the Details icon beside the transmitter you want information about.



STEP 4 OF 4

On the Transmitter details menu, select the information you want to view for the active transmitter.



Falcon Gang - You have to pair a transmitter to view the transmitter info.

SECTION FOUR: Miscellaneous

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TRANSMITTER OVERHEAT INDICATOR (TEMP DOT)

DigiTrak transmitters (Tx), with the exception of DucTrak, have temperature overheat indicators (temp dot) on the front end cap.

> The SuperCell-R battery also has a temperature dot. The dot turns black at a lower temperature than the transmitter.

1. Black temp dot (voids warranty)
2. Normal white temp dot

The temp dot has an outer yellow ring with a temperature-sensitive 1/8" white dot in the center. If the center temp dot is black, the transmitter has been exposed to excessive heat and should no longer be used.

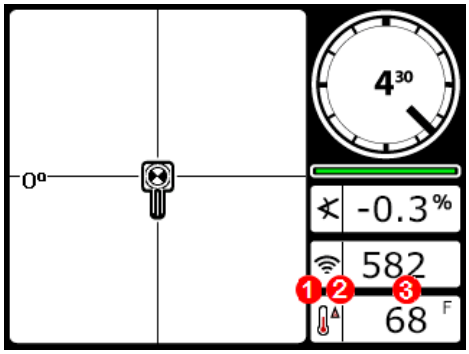
> The DCI Warranty does not cover any transmitter that has been overheated or had the temp dot removed.

> SuperCell-R batteries also has a temperature dot. The warranty will be canceled if the battery temperature rises above 180°F and the temperature dot on the battery turns black.

TX TRANSMITTER WARNINGS

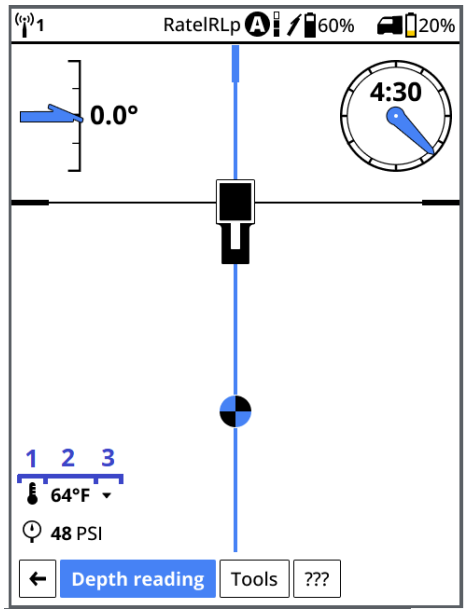
DigiTrak transmitters (Tx), with the exception of DucTrak, have an internal digital thermometer. The normal below ground temp range is 63° to 104° F. The Tx temperature displays on the bottom right of the locator screen and remote display screens.

Falcon F5+ Locate Mode Screen



1. Temperature status icon
2. Temp trend up/down arrows
3. Temperature

DigiTrak Martial Locate Mode



1. Temperature status icon
2. Temp trend up/down arrows
3. Temperature

Suspend drilling when temperatures increase rapidly. Temperatures above 111° F are not typical.

TX TEMPERATURE WARNING TONES TABLE - COMPLIANCE

Icon	Temperature	Warning Tones
	below 61°F	None.
	61°F-97°F	Double-beep sequence (beep-beep) for every 7°F increase in temperature
	104°F-111°F	Two double-beep sequences (beep-beep, beep-beep) for every 7°F increase in temperature. Action is required to cool the transmitter.
	118°F-113°F	Three double-beep sequences (beep-beep, beep-beep, beep-beep) for every 7°F increase in temperature. Cooling is critical to avoid inreversible damage.
 Flashing	140°F or above	Three double-beep sequences (beep-beep, beep-beep, beep-beep) for every 5 seconds on the remote display and every 20 seconds on the locator. This warning signifies dangerous drilling conditions; irreversible damage may have already been done to the transmitter.
	220°F	19-in and 15-inch transmitters - None. Transmitter overheat indicator (temp dot) turns black.

EQUIPMENT MAINTENANCE

- Turn off all equipment when not in use.
- Store the equipment in cases, away from extremes of heat, cold, and moisture. Test to confirm proper operation prior to use.
- Do not use household or commercial window cleaning products that include chemicals such as ammonia, alcohol, or any acidic liquid; these cleaners can contain microscopic abrasive granules that will damage the antireflective coating and may cause the display to spot.
- Clean equipment cases and housings using only a soft moist cloth and mild detergent.
- Do not steam clean or pressure wash
- Inspect the equipment daily and contact DCI if you see any damage or problems.
- Do not disassemble or attempt to repair the equipment.
- Do not store or ship this equipment with batteries inside. Always remove the batteries from the equipment before shipping or periods of non-use.
- The battery charger provided with your DigiTrak guidance system is designed with adequate safeguards to protect you from shock and other hazards when used as specified within this document. If you use the battery charger in a manner not specified by this document, the protection provided may be impaired. Do not attempt to disassemble the battery charger, it contains no user-serviceable parts. The battery charger shall not be installed into caravans, recreational vehicles, or similar vehicles.

GENERAL TRANSMITTER CARE INSTRUCTIONS

- Periodically clean the spring and threads inside the battery compartment as well as the spring and threads of the battery end cap to ensure a proper power connection with the batteries. Use an emery cloth or wire brush to remove any oxidation that has built up. Be careful not to damage the battery cap O-ring; remove it while cleaning if necessary. After cleaning, use a conductive lubricant on the battery cap threads to keep it from binding in the battery compartment.
- For better battery performance, all DCI battery-powered transmitters ship with both a special battery contact spring and a nickel-based anti-seize lubricant on the battery end cap to aid in electrical contact.

TRANSMITTER ENVIRONMENTAL REQUIREMENTS

Relative Humidity	< 100%
Operating Temperature	-4° to 140° F (-20° to 60°C)
System working altitude	up to 6562 feet (2000 meters).

Operation may be compromised if the equipment is subjected to conditions outside these specified limits.

TRANSMITTER DRILL HOUSING REQUIREMENTS

For maximum transmitter range and battery life, the slots in the drill head must meet minimum size requirements and be correctly positioned. DCI's transmitters require a minimum of three slots equally spaced around the circumference of the drill head. DCI transmitters fit standard housings but may require a battery cap adapter in some cases.

Measure slot lengths on the inside of the drill head; slots must be at least 1/16th inch (1.6mm) wide.

1. Battery cap
2. Slot position
3. Front end cap

A. Slot length

B. Slot position

C. Transmitter length

Transmitter	A Minimum	B Maximum	C Length	Diameter
24-in	18.0"	1.0"	24"	1.25"
19-in	13.0"	1.0"	19"	1.25"
15-in	9.0"	1.0"	15"	1.25"
8-in	4.0"	1.0"	8"	1.0"
6-in	3.9"	0.1"	5.9"	0.71"

While a Falcon transmitter is compatible with older housing slot dimensions, optimal performance requires the A and B measurements shown above.

STORAGE AND SHIPPING REQUIREMENTS

Temperature

Storage and transportation temperatures must remain within -40° to 149 °F (-40° to 65°C).

Shipping

Ship in original carrying case or packaging of sufficient durability to prevent mechanical shock to equipment during transportation. Approved for transportation by vehicle, boat, and aircraft.

STORAGE AND SHIPPING OF BATTERY PACKS

Remove the batteries from all system components during shipping and prolonged storage. Failure to do so may result in battery leakage, which may lead to risk of explosion, health risks, and/or damage.

Store and transport batteries using a suitable protective case that will keep batteries safely isolated from one another. Failure to do so may result in short circuits, which may lead to hazardous conditions including fire.

Lithium-ion batteries must be packaged and shipped by trained and certified personnel only. Never ship damaged batteries.

If you have any questions about the operation of your guidance system, please contact DCI Customer Service for assistance.

If you plan to store the battery packs for any period of time, please follow these guidelines:

- Store and transport batteries using a suitable protective case that will keep batteries safely isolated from one another. Failure to do so may result in short circuits which may lead to hazardous conditions including fire.
- Do not store the battery pack at temperatures greater than 113° F.
- Do not store the battery pack in a fully discharged state.
- Do not store the battery pack in the battery charger.
- Do not store multiple batteries together where their terminals or other loose conductive materials may contact one another and cause a short circuit.
- Never ship damaged batteries.
- If a lithium-ion battery pack will be stored for an extended period of time, pre-charge the battery to a charge level of 30% to 50% (two or three LEDs illuminated on the meter).
- Do not store the battery pack for more than one year unless it is periodically recharged to the 30% to 50% level.

EQUIPMENT AND BATTERY DISPOSAL

This symbol on equipment indicates that the equipment must not be disposed of with your other household waste.

Instead, it is your responsibility to dispose of such equipment at a designated collection point for the recycling of batteries or electrical and electronic equipment. If the equipment contains a banned substance, the label will show the pollutant (Cd = Cadmium; Hg = Mercury; Pb = Lead) near this symbol.

Before recycling, ensure batteries are discharged or the terminals are covered with adhesive tape to prevent shorting.

The separate collection and recycling of your waste equipment at the time of disposal will help conserve natural resources and ensure it is recycled in a manner that protects human health and the environment.

For more information about where you can drop off your waste equipment for recycling, please contact your local city office, your household waste disposal service, or the shop where you purchased the equipment.

Ce symbole figurant sur l'équipement indique qu'il ne faut pas le jeter avec les ordures ménagères.

Il vous incombe en effet d'éliminer ce type d'équipement en l'amenant à un site de récupération désigné pour le recyclage des batteries/piles ou d'appareils électriques et électroniques. Si le matériel contient une substance interdite, l'étiquette indiquera le polluant (Cd = cadmium ; Hg = mercure ; Pb = plomb) à côté de ce symbole. Avant de recycler les batteries, assurez-vous qu'elles sont déchargées ou que les bornes sont recouvertes d'un ruban adhésif pour éviter les courts-circuits. La collecte séparée et le recyclage de votre matériel usagé au moment de l'élimination permettront de conserver les ressources naturelles et de veiller à un recyclage en bonne et due forme, qui protège la santé humaine et l'environnement. Pour plus d'informations sur les sites où vous pouvez déposer votre matériel usagé à recycler, veuillez contacter les autorités municipales, votre service d'élimination des déchets ménagers ou le lieu d'achat du matériel.

SECTION FIVE: Batteries and Charger Technical Specifications and Warnings

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DIGITRAK SUPERCELL-R BATTERY PACK AND CHARGER KIT FOR SUPERCORE TXS

DigiTrak SR-40 SuperCell-R Li-Ion Rechargeable Battery Pack and Li Charger Kit for DigiTrak SuperCore Transmitter Model RTP

The DigiTrak SuperCell-R battery and Li Charger are **exclusively compatible** with SuperCore transmitters (model RTP, all variants) **and cannot be used in other DigiTrak transmitters**.

Name	Model	Operational Voltage	Operational Current	System Compatibility
DigiTrak SR-40 SuperCell-R Li-Ion Rechargeable Battery Pack	RBP2v1	7.2 VDC	5330 mAh/ 38.38 Wh	DigiTrak SuperCore Transmitters, Model RTP (FTp+, FT+, DT1-M)
DigiTrak Li Battery Charger*	RBC1	Input 90-264 VAC	21W max	

*Cradle is model RBC1, with Mascot brand LiCh2.5 Charger Brick, model 3546LI

Environmental Requirements

	Relative Humidity	Operating Temperature
DigiTrak SR-40 SuperCell-R Li-Ion Rechargeable Battery Pack	<90%	0 to 45 °C
DigiTrak Li Battery Charger	<90%	-25 to 40°C

SECTION SIX: Advanced Topics

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SLEEP AND SNOOZE MODES SAVE BATTERY LIFE

STEP 1 OF 6

Before You Start

All DCI transmitters have a standard Sleep mode to save battery life when the transmitter is not being actively used.

In addition to the standard Sleep mode, some DCI transmitters have an additional SnooZe mode that mutes the signal to help extend battery life when the transmitter is down-hole and actively drilling.

Sleep mode versus SnooZe mode

Sleep mode: If the transmitter does not rotate (less than 5°) for more than 15 minutes, it will go into Sleep mode with no signal to save battery life. When the transmitter is rotated the transmitter "wakes up"

SnooZe mode: When SnooZe mode is enabled, you can use a roll sequence, the transmitter signal can be turned off down-hole and turned back on with another roll sequence as needed. This is in addition to Sleep mode. SnooZe mode can extend battery life up to 65+ days for wireline projects that require walkover capability on demand. Not all transmitters support SnooZe mode.

Look for the SnooZe logo etched on a Falcon transmitter or check the transmitter's technical specifications in the DCI DigiGuide App.

STEP 2 OF 6

ENABLE SNOOZE MODE

Enable SnooZe mode for Falcon V2 Transmitters

After the initial transmitter setup and calibration, enable SnooZe mode by executing a repeating roll sequence four times (**RRS4 ***) either manually or assisted by the remote display XR App.

On the first **RRS4 *** , SnooZe mode is activated with the signal muted.

Enable SnooZe mode for Falcon SuperCore Transmitters and Martial SuperCore transmitters

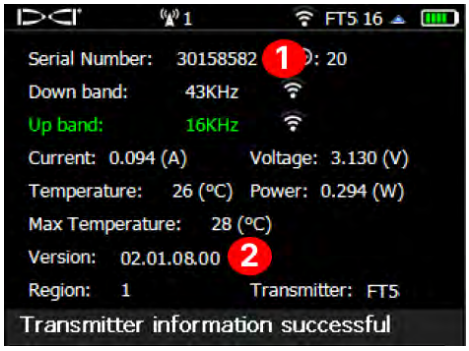
Power on the transmitter with the battery end facing up to activate SnooZe mode with the signal muted. Continue with transmitter setup and calibration, and install the transmitter in the drill housing.

> ⚠ After SnooZe mode is enabled, the transmitter will be in the power-saving SnooZe Stand-by mode with the signal muted. A wakeup roll will not restart the signal.

STEP 3 OF 6

CONFIRM SNOOZE MODE

Use the transmitter's serial number (SN) on the Transmitter Info Request screen to confirm if SnooZe mode is enabled before it is placed in the housing and downhole.



1. Tx serial number (SN)

- First number is a 3 – Standard transmitter mode
- First number is a 4 – SnooZe mode enabled with a signal
- First number is a 5 – SnooZe mode enabled with no signal

2. The software version

STEP 4 OF 6

SLEEP MODE WITH SNOOZE ENABLED

To unmute the transmitter signal while in SnooZe mode, perform an **RRS4 *** .

After 15 minutes of no rotation, the transmitter will go to sleep. Use a wake-up roll to regain the signal.

Up to 45 minutes in Sleep mode (no rotation for 60 minutes), use a standard wake-up roll to regain the signal.

After 60 minutes in Sleep mode, the transmitter returns to SnooZe mode with a muted signal. To unmute the signal, use a wakeup roll followed by an RRS4 sequence.

STEP 5 OF 6

MUTE AND UNMUTE THE TRANSMITTER SIGNAL IN SNOOZE

MODE

Unmute signal

SnooZe mode is enabled on standby with a signal. You can mute the signal with an **RSS4 *** sequence, and then unmute it with another RSS4 sequence. Every RSS4 switches between mute signal and unmute signal.

> ⚠ When SnooZe mode is enabled with muted signal, you cannot use any change band methods, such as 10-2-7, RRS3, tilt-method, or battery orientation powerup.

STEP 6 OF 6

DISABLE SNOOZE

Disable SnooZe mode for Falcon V2 Transmitters

An **RRS4 *** does not disable SnooZe mode. To disable SnooZe mode, do one of the following:

- Power on the transmitter while holding it vertically (±25°) with the end cap either up or down. Depending on the end cap's direction, the transmitter will also be changed to the up or down band.

- OR -

- Pair the transmitter with a locator after changing frequencies, bands, power level, or FSSP mode.

If you disable SnooZe mode, the transmitter functions as a normal transmitter with standard **Sleep mode *** .

Disable SnooZe mode for Falcon SuperCore Transmitters

An RRS4 sequence does not disable SnooZe mode. To disable SnooZe mode, do one of the following:

- Power on the transmitter while holding it vertically (±25°) with the end cap facing down. This does not affect the selected transmitter band or power level.

- OR -

- Pair the transmitter with a locator after changing frequencies, bands, power level, or FSSP mode.

WAKE UP A TRANSMITTER WITH A WAKE-UP ROLL

STEP 1 OF 3

Before You Start

All DCI transmitters have a standard Sleep mode to save battery life when the transmitter is not being actively used.

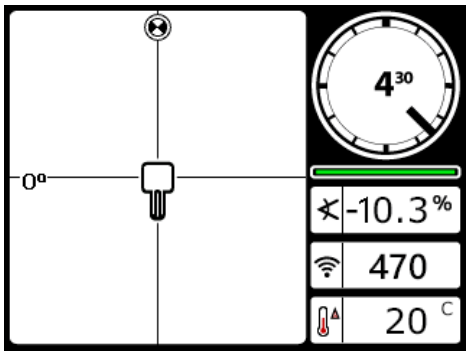
STEP 2 OF 3

To wake up a Falcon transmitter

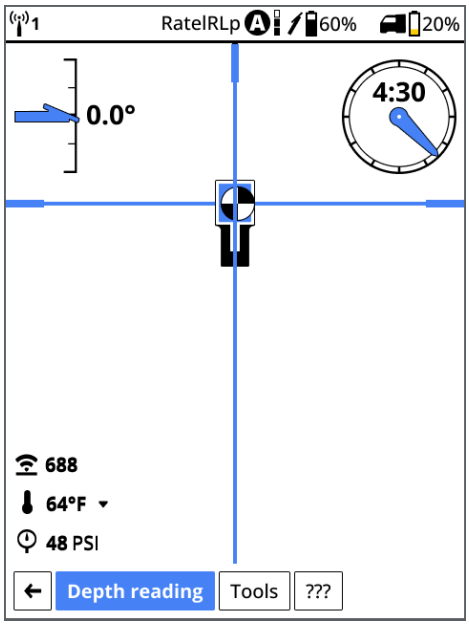
Quickly rotate the drill head at least one full rotation (360°).

STEP 3 OF 3

Check the Locate Mode screen. The transmitter should be sending a single.



Falcon F5+ Locate Mode screen



DigiTrak Martial Locate Mode screen

RRS4 - TURN ON AND OFF SNOOZE MODE

STEP 1 OF 3

Before You Start

The Repeated Roll Sequence 4 (RRS4) turns the SnooZe mode on and off. The sequence can be completed manually or assisted by the Aurora Display's XR App.

Execute a wakeup roll to verify that the transmitter is not in Sleep mode.

1. Make a reference mark on the drill string at the current clock position.
2. Slowly rotate the drill head for 10-15 seconds, and then stop at a new clock position (1/4 rotation/ 90°).

Check if there is a signal on the locator. If not, perform the RRS4 sequence to turn the signal on.

> Look for the SnooZe logo etched on the transmitter or check the transmitter's technical specifications in the Reference chapter.

STEP 2 OF 3

Start the RRS4 roll sequence.

1. Hold the transmitter stationary for at least 40 seconds. Make a reference mark at the new clock position.
2. Complete one full clockwise rotation (±2 clock position) of the reference mark within 30 seconds, then hold clock position for 15 seconds (± 5 seconds).
3. Repeat the rotation three more times, for a total of four rotations (RRS4).

STEP 3 OF 3

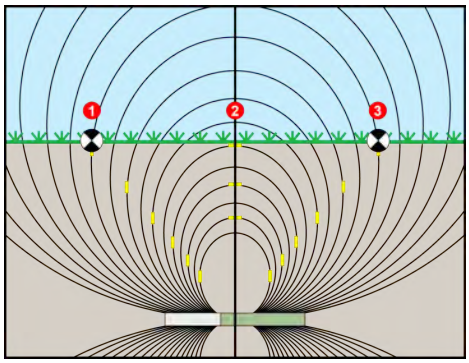
After the fourth rotation, hold clock position for 60 seconds.

> ⚠ Count rotations carefully. If there is a signal, three rotations will cause a band change. To confirm the mode change was successful, on the locator check both the Up and Down band. For more information, search the DCI DigiGuide App.

STEEP AND DEEP

When a transmitter is level (zero pitch) underground:

- the locate points (FLP and RLP) are at equal distances from the transmitter
- depth displayed on the locator is the actual depth, and
- the Locate Line (LL) indicates a position above the transmitter.



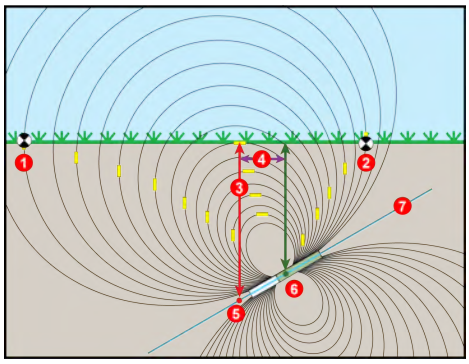
1. RLP
2. LL
3. FLP

When the transmitter is pitched up or down, the transmitter signal field also tilts.

When the transmitter is pitched down (negative pitch), the locate line on the screen reflects a future position of the transmitter, assuming the transmitter stays on the same trajectory (projected depth).

When the transmitter is pitched up (positive pitch, shown below), the locate line on the screen reflects a position behind the transmitter.

The depth reading on the locator is based on the projected depth point, which is not the same as the actual depth of the transmitter.



1. RLP
2. FLP
3. LL
4. Fore/aft offset
5. Projected depth
6. Transmitter at positive pitch
7. 30% (17°)

The differences in position and depth between the projected depth point and the actual location of the transmitter can be relatively small at low pitch and/or shallow depth.

When drilling at a steep pitch and/or significant depth, the differences are greater.

For example, if the transmitter is at a -30% pitch and a 33'1" (10.1 m) depth, the locator depth reading will be 35' (10.7 m) (just under 6% difference from actual depth) and the locate line will be 6'6" (2 m) ahead of the transmitter.

You can use the pitch and the projected depth reading on your locator to determine the actual depth and the position (fore/aft) of the locate line:

Actual Depth

Pitch → / Displayed Depth ↓	±10% (5.7°)	±20% (11°)	±30% (17°)
15′	14′ 11″	14′ 7″	14′ 2″
25′	24′ 10″	24′ 4″	23′ 7″
35′	34′ 9″	34′ 1″	33′ 1″
45′	44′ 8″	43′ 10″	42′ 6″

Fore/Aft Offset

Pitch → / Displayed Depth ↓	±10% (5.7°)	±20% (11°)	±30% (17°)
15′	1′ 0″	1′ 11″	2′ 9″
25′	1′ 8″	3′ 3″	4′ 8″
35′	2′ 4″	4′ 6″	6′ 6″
45′	3′ 0″	5′ 10″	8′ 4″

For a given pitch, you can calculate actual or projected depth:

Pitch →	±10% (5.7°)	±20% (11°)	±30% (17°)
From Actual to Projected Depth	1.007	1.026	1.059
From Projected to Actual Depth	0.993	0.974	0.944

MAX MODE

STEP 1 OF 4

Before You Get Started

Max Mode can stabilize roll/pitch data and depth readings when drilling at the transmitter's range limit due to extreme depth or interference, which will vary by jobsite. Use when the roll/pitch update meter shows low signal level or data is unstable.

The drill head must be stationary when taking readings using Max Mode. If the drill head is moving, data readings will not be accurate.

STEP 2 OF 4

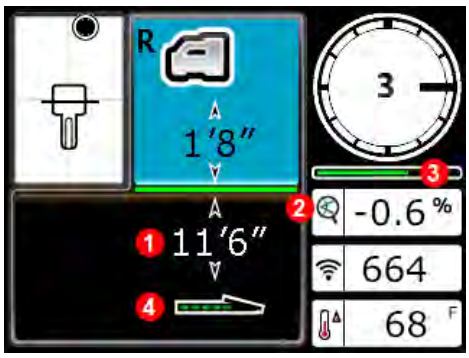
At the Locate Mode screen, hold the trigger for longer than five seconds to enter Max Mode.

STEP 3 OF 4

Continue holding the trigger until depth and data stabilize.

If the Max Mode timer fills up before depth and data stabilize, move to a different location near the drill head and hold to restart.

The timer bar will turn green as data is confirmed.



1. Depth
2. Max Mode icon
3. Max Mode timer
4. Transmitter battery strength

STEP 4 OF 4

Take two more Max Mode readings. All three readings must be consistent.

> ⚠ If the readings are not consistent, change the band and try again. If the readings continue to be inconsistent, turn the locator off and then on again. If the issue continues, contact DCI Customer Support.

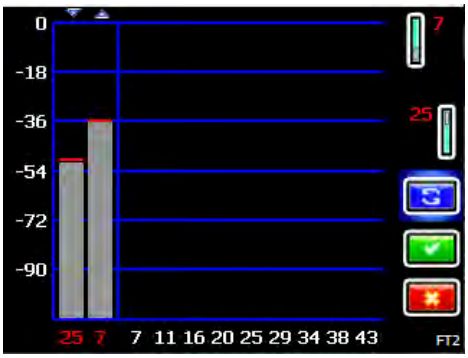
CHANGE V2 TX POWER MODE

STEP 1 OF 9

From the Main menu, go to Transmitter Selection.

STEP 2 OF 9

Select **Frequency Optimization**. The Frequency Optimizer displays the two currently selected bands.



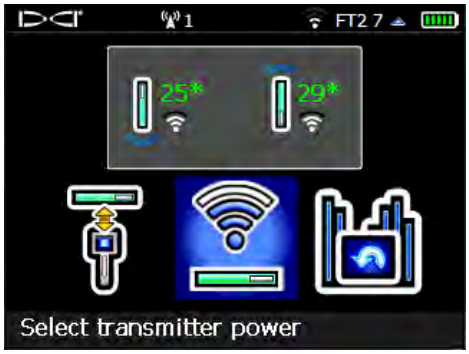
STEP 3 OF 9

To skip rescanning and use the current bands, on the Frequency Optimizer, click **Pair**.

The Up and Down bands will not change. If you also want to change one or both bands, select the Rescan icon.

STEP 4 OF 9

Select **Transmitter Power**.



Falcon locators with programmable power mode override any other selection method when used with a V2 transmitter. Use the locator to change the power mode.

STEP 5 OF 9

Toggle to the band (Up or Down) that you want to change, and then click to select.

High Power requires Lithium-ion batteries.

STEP 6 OF 9

Toggle up or down to toggle through the High, Standard, and Low power modes, and then click to select the new power level.

For High power mode, Lithium-ion batteries are recommended.

For V1 transmitters and FTR transmitters, High power is ignored and the transmitter will pair at Standard power.

STEP 7 OF 9

Select **Confirm**.

STEP 8 OF 9

Select **Transmitter Pairing request**.

If FSSP is enabled, the Pairing icon includes the pitch symbol.

STEP 9 OF 9

Continue to pair and then calibrate the transmitter.

For step-by-step instructions, see the articles, "Advanced FO - Pair" and "Calibrate Intro" in the Jobsite Setup chapter.

After changing the power level, you must re-pair the transmitter and then perform a 1 PT Calibration for each band changed. For step-by-step instructions, see the articles "Advanced FO - Pair" and "Calibrate Intro" in the Jobsite Setup chapter.

FALCON TRANSMITTER ADAPTER FOR V2 MULTIPOWER "BLUE" TRANSMITTERS

FTA2 Falcon Transmitter Adapter is designed specifically for a single 21700 LiR (Lithium Rechargeable) battery with built-in protection. Falcon transmitter runtime estimates are based on use of a 5,000 mAh battery with a max 4.2 volts. This adapter incorporates a lockout and is designed to fit the Blue DCI Falcon Transmitters.

The FTA is not compatible with Falcon transmitters with green tubes.

For a 21700 battery, insert the positive terminal first.

Battery Life

19-Inch Blue V2 MultiPower Transmitters

- High power: 8 hours
- Standard power: 18 hours
- Low power: 44 hours

15-inch Blue V2 MultiPower Transmitters

- High power: 8 hours
- Standard power: 30 hours
- Low power: 60 hours

Lithium Rechargeable (LiR) battery life is based on 21700 battery with 5000 mAh rating with a max 4.2 volts.

For more information on MultiPower transmitters, see "V2 Transmitters MultiPower Mode Introduction."

DCI suggests the following top tier manufacturers for LiR batteries. Diameter should not exceed 22mm with a length of 75.5mm +/-1mm. Other LiR models may not fit or be as likely to survive the rigors of HDD.

Recommended Manufacturers

Klarus Part number: 21GT-50

Fenix Part number: ARB-L21-5000

Acebeam Part number: IMR21700NP-510A

SECTION SEVEN: Regulatory

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FCC COMPLIANCE STATEMENT

FCC Compliance Statement

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device might not cause harmful interference, and (2) this device must accept any interference received, including interference that might cause undesired operation.

DCI is responsible for FCC compliance in the United States. Changes or modifications to any DCI equipment not expressly approved and carried out by DCI will void the user's Limited Warranty and the FCC's authorization to operate the equipment.

The RTP Transmitter contains the following:
Laird Bluetooth 5.1 Data Module, Model BL653
FCC 1D SQGBL653 1 ISED 1D 3147A-BL653
For manufacture's module certifications, visit https://www.ezurio.com/

ISED Canada Compliance Statement

This device complies with Innovation, Science and Economic Development Canada's licence-exempt RSS. Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

CAN ICES-3 (A)/NMB-3(A)

DigiTrak Locators are classified as Class 2 radio equipment per the Radio Equipment Directive 2014/53/EU and may not be legal to operate or may require a user license to operate in some countries. For a list of restrictions, please send a request to productcompliance@digital-control.com.

Déclaration de conformité FCC

Cet appareil est conforme à la partie 15 des règles FCC. Son fonctionnement est soumis aux deux conditions suivantes : (1) cet appareil ne doit pas causer d'interférences nuisibles, et (2) cet appareil doit accepter toute interférence reçue, y compris les interférences pouvant entraîner un fonctionnement indésirable.

DCI est responsable de la conformité FCC aux États-Unis. Toute modification apportée à un équipement DCI qui n'a pas été expressément approuvée et effectuée par DCI annulera la garantie limitée de l'utilisateur et l'autorisation de la FCC d'utiliser l'équipement.

L'émetteur RTP contient les éléments suivants :
Module de données Bluetooth 5.1 Laird, modèle BL653
FCC 1D SQGBL653 1 ISED 1D 3147A-BL653
Pour obtenir les certifications des modules du fabricant, consultez le site https://www.ezurio.com/.

Déclaration de conformité ISED Canada

Cet appareil est conforme aux RSS exemptés de licence d'Innovation, Sciences et Développement économique Canada. Son fonctionnement est soumis aux deux conditions suivantes :

1. Cet appareil ne doit pas causer d'interférences.
2. Cet appareil doit accepter toute interférence, y compris les interférences pouvant entraîner un fonctionnement indésirable de l'appareil.

CAN ICES-3 (A)/NMB-3(A)

Les localisateurs DigiTrak sont classés comme des équipements radio de classe 2 conformément à la directive 2014/53/UE relative aux équipements radio
et leur utilisation peut être illégale ou nécessiter une licence d'utilisation dans certains pays. Pour obtenir la liste des restrictions, veuillez envoyer une demande à productcompliance@digital-control.com.

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This device meets the requirements outlined in Radiocommunications (Short Range Devices) Standard 2014.

Cet appareil est conforme aux exigences énoncées dans la norme 2014 sur les radiocommunications (appareils à courte portée).

Contact

DCI USA

DCI@digital-control.com

US & CANADA

1.800.288.3610

INTERNATIONAL

1.425.251.0559

DCI Australia

DCI.Australia@digital-control.com

AUSTRALIA

+61.7.5531.4283

INTERNATIONAL

+61.7.5531.2617

DCI China

DCI.China@digital-control.com

CHINA

400-100-8708

INTERNATIONAL

+86.21.6432.5186

DCI Europe

DCI.Europe@digital-control.com

EUROPE

+49.9391.810.6100

INTERNATIONAL

+49.9391.810.6109

DCI India

DCI.India@digital-control.com

INDIA

+91.11.4507.0444

INTERNATIONAL

+91.11.4507.0440

DCI Philippines

DCI.Philippines@digital-control.com

PHILIPPINES

(02)79802647

INTERNATIONAL

+632-79802647