

DigiTRAK[®] **FBC**

F Series™ Battery Charger

Operator's Manual

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Trademarks

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Patents

U.S. and foreign patents apply to the product covered by this manual. For details, please visit www.DigiTrak.com/patents.

Limited Warranty

All products manufactured and sold by Digital Control Incorporated (DCI) are subject to the terms of a Limited Warranty. A copy of the Limited Warranty is included at the end of this manual; it can also be obtained by contacting DCI Customer Service, 425-251-0559 or 800-288-3610, or on DCI's website, www.DigiTrak.com.

Important Notice

All statements, technical information, and recommendations related to DCI products are based on information believed to be reliable. However, DCI does not warrant or guarantee the accuracy or completeness of such information. Before using any DCI product, the user should determine the suitability of the product for its intended use. All statements herein refer to DCI products as delivered by DCI for use with horizontal directional drilling in the ordinary course, and do not apply to any user customizations, third party applications developed for Aurora, third-party products, or any usage of the DCI product outside of the ordinary course. Nothing herein shall constitute a warranty by DCI nor will anything herein be deemed to modify the terms of DCI's existing Limited Warranty applicable to all DCI products. DCI may update or correct the information in this manual from time to time. You may find the most recent version of this manual on DCI's website, www.DigiTrak.com. Under **Service & Support**, click **Documentation** and select from the **Manuals** drop-down menu.

Compliance Statement

This equipment complies with Part 15 of the Rules of the FCC and with Industry Canada license-exempt RSS standards and with Australia Class License 2000 for LIPD (low interference potential devices). Operation is subject to the following two conditions: (1) this equipment may not cause harmful interference, and (2) this equipment must accept any interference received, including interference that may cause undesired operation. DCI is responsible for FCC compliance in the United States: Digital Control Incorporated, 19625 62nd Ave S, Suite B103, Kent WA 98032; phone 425-251-0559 or 800-288-3610.

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.

CE Requirements



DigiTrak receivers are classified as Class 2 radio equipment per the R&TTE Directive and may not be legal to operate or require a user license to operate in some countries. The list of restrictions and the required declarations of conformity are available on DCI's website, www.DigiTrak.com. Under **Service & Support**, click **Documentation** and select from the **CE Documents** drop-down menu.

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

For system component name and model information, refer to [System Specifications](#) on page 5.

Table of Contents

General Description	1
AC/DC Power Setup	2
Charging a Battery Pack	2
Battery Charger Status Indicators	3
Warnings and Precautions	4
Temperature	4
Power Input	4
User Serviceability	4
Liquids	4
Indoor Use	5
System Specifications	5
Power Requirements	5
Environmental Requirements	5
Storage and Shipping Requirements	6
Temperature	6
Packaging	6
Equipment and Battery Disposal	6
LIMITED WARRANTY	


General Description

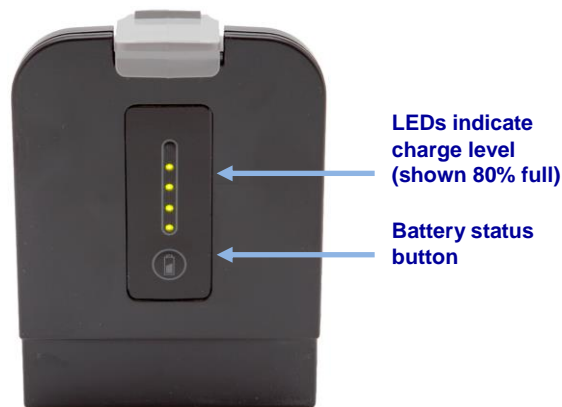


F Series Battery Charger and Li-Ion FBP Batteries

The DigiTrak® F Series™ Battery Charger (FBC) includes AC and DC power cords and an AC adapter. Rechargeable lithium-ion (li-ion) F Series battery packs (FBP) are included with a complete locating system and also sold separately. The battery packs power all current DigiTrak receivers and battery-operated remote displays. The FBC battery charger can operate from AC (100–240 V, 50–60 Hz, 1.5 A max.) or DC (10–28 V, 5 A max.) power sources. The AC power cord provided with your charger is standard to your global region.

A fully charged F Series FBP will power an F5 receiver for approximately 10 hours or an FSD remote for approximately 14 hours before recharging is necessary. A battery pack can be recharged about 400 times before the battery life is substantially reduced.

To check the charge status of a battery pack at any time, press the battery status button below the five LEDs.  The LEDs indicate the charge level, with each representing 20% of the charge.



F Series Battery Pack

Insert a fully charged DigiTrak F Series battery pack so it is flush with the back of the receiver and the tab is securely latched. To remove the battery pack, push down on the battery tab and pull the battery pack out and up from the battery compartment.

An F Series battery charger with a black and silver case labeled for use with DCI Li-ion or NiMH battery packs will also charge SE NiMH battery packs (SBP), although the charging times, battery voltages, and estimated battery lifetimes will be different from F Series Li-ion battery packs. Older F Series chargers with a dark grey and black case will only charge Li-ion batteries.

AC/DC Power Setup

Install either the AC adapter or the DC power cord by inserting the charger plug into the power port of the battery charger and then rotating it a quarter turn in either direction to lock it in place.



Inserting Charger Plug into Power Port

If using AC power, connect the AC power cord to the AC adapter, then plug the adapter into an AC power receptacle. If using DC power, plug the DC power cord directly into the DC power source. Once powered, the LEDs on the battery charger will begin to flash in succession and the charger will emit a series of beeps.

Charging a Battery Pack

With the charger connected to a power source and the orange LED flashing, insert a battery pack. The battery pack will be flush with the battery charger when it is properly installed. The charger will emit a long tone followed by four short beeps indicating an F Series battery pack has been detected.

During normal charging, the orange and red LEDs will illuminate to indicate the battery pack is undergoing a fast charge cycle. The battery pack is fully charged when the orange and green LEDs flash alternately.

Battery Charger Status Indicators

The battery charger has red, orange, and green LEDs that are on, off, or flashing depending on the charging status. A series of beeps will also sound to indicate a major battery pack or charger fault. The following table describes the charger or battery status indicated by the various LEDs and audible signals.

LEDs and Audible Signals	Charger or Battery Pack Status	Status Description	Action
Flashing Orange	No Battery Pack Detected	No battery pack or unknown battery type detected.	Insert viable battery pack.
Solid Green & Solid Orange	Slow Charge / Voltage Restoration	Battery pack voltage is less than 11.0 V, or Battery pack temperature is above 40° C.	None. Charger will slowly restore battery pack to full voltage.
Flashing Green & Solid Orange	Minor Charger Fault	Fault detected within charger temperature sensor circuitry.	Charger is safe to use temporarily with charge current limited to less than 1.0 A, but it should be sent in for repair as soon as convenient.
Solid Orange & Solid Red	Fast Charge	Normal operation; charge duration is approximately 4 hours.	None.
Alternately Flashing Green & Orange	Full Charge	Battery pack is charged to 100% capacity.	Remove fully charged battery pack.
Alternately Flashing Green & Red	Charge Terminated	Over-discharged battery pack could not be revived within a reasonable amount of time, or battery pack is in an over-charged condition.	Battery pack is damaged or near the end of its useable life. If battery pack is fairly new and in good physical condition, contact DCI Customer Service. Otherwise, battery pack is unrecoverable and should be properly recycled.
Alternately Flashing Orange & Red with Series of Beeps	Battery Pack Temperature Fault	Battery pack temperature is above 50° C, or battery pack temperature is below 0° C.	If battery pack is hot, try to cool it down; if cold, try to warm it up. Then recharge battery pack.
Flashing Red with Series of Beeps	Permanent Battery Pack Fault	Battery pack voltage is less than 5.0 V.	Battery pack is unrecoverable and should be properly recycled.
Flashing Green , Orange & Red with Series of Beeps	Major Charger Fault	Unrecoverable hardware failure of charger electronics detected.	Stop using charger and send it in for repair immediately; please contact DCI Customer Service.

Warnings and Precautions

DCI assumes no liability for problems that occur when you do not follow these warnings and precautions, as well as the general precautions outlined in Important Safety Instructions in the operator's manual for your locating system.



Warning The charger is designed with safeguards to protect you from shock and other hazards when used as specified in this manual. If you use the charger in a manner not specified in this document, the protection provided by the charger may be impaired. Please read this manual before using the charger.



Warning If you transport the charger in checked baggage, be sure to remove the batteries from the charger before packing it. FBP lithium-ion batteries are classified as dangerous goods and can only be shipped by trained professionals.

Temperature

The temperature of the air around the battery charger should be between 0 to 35° C. Charging the battery outside this range may increase charge time, harm battery performance, or reduce battery life.

It is important to maintain free airflow around the charger, especially near the top and bottom vents.

If the battery's internal temperature is below 0° C or above 50° C, the charger will not deliver charge current and will indicate a temperature fault.

Power Input

Use the supplied AC adapter and power cord or DC power cord to power the charger with DC power in the specified voltage range. Using other power cables could damage the charger, void the warranty, and cause a safety hazard.

User Serviceability

Do not disassemble the charger. It contains no user-serviceable parts.

Liquids

Avoid spilling liquids on the charger, which could cause a short circuit. If liquids are accidentally spilled on the charger, send it to DCI for repair.

Indoor Use

This battery charger is designed for indoor use only and should not come into contact with water or extreme dust. To avoid overheating, do not cover the charger while in use. Using it to charge any other type of battery other than a DCI battery pack can result in damage and void the battery charger warranty.

System Specifications

The power requirements, environmental requirements, and equipment maintenance requirements for the FBC F Series Battery Charger are listed below.

Power Requirements

Device (Model Number)	Operational Voltage	Operational Current
DigiTrak F Series Battery Charger (FBC)	Input 10–28 V $\overline{=}$ Output 19.2 V $\overline{=}$	5.0 A max 1.8 A max

Environmental Requirements

Device	Relative Humidity	Operating Temperature
DigiTrak F Series Battery Charger (FBC)	<99% for 0–10° C <95% for 10–35° C	0 to 35° C
DigiTrak F Series Lithium-Ion Battery Pack (FBP)	<99% for <10° C <95% for 10–35° C <75% for 35–60° C	-20 to 60° C

System working altitude: up to 2000 m.

Storage and Shipping Requirements

Temperature

Storage and transportation temperature must remain within -40 to 65° C.

Packaging

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.

SuperCell batteries are regulated UN3090 lithium metal batteries and F Series FBP batteries are regulated UN3480 and UN3481 lithium-ion batteries. Lithium batteries are considered Class 9 Miscellaneous Dangerous Goods under International Air Transportation Association (IATA) regulations; IATA regulation and Ground Transportation regulations 49 CFR 172 and 174 apply. These batteries must be packaged and shipped by trained and certified personnel only. Never ship damaged batteries.

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.

LIMITED WARRANTY

Digital Control Incorporated ("DCI") warrants that, when shipped from DCI, each DCI product (other than software products) will conform to DCI's current published specifications in existence at the time of shipment and will be free, for the warranty period ("Warranty Period") specified below, from material defects in materials and workmanship. In addition, DCI warrants that each DCI software product will perform in substantial accordance with the specifications set forth in the documentation for such software for the Warranty Period specified below. The following limited warranty ("Limited Warranty") is made solely to and for the benefit of the first end-user ("User") purchasing the DCI product from either DCI or a dealer expressly authorized by DCI to sell DCI products ("Authorized DCI Dealer") and is not assignable or transferable.

The foregoing Limited Warranty is subject to the following terms, conditions and limitations:

1. A Warranty Period of twelve (12) months shall apply to the following new DCI products: receivers/locators, remote displays, battery chargers and rechargeable batteries, and software programs and applications. A Warranty Period of ninety (90) days shall apply to all other new DCI products, including transmitters and accessories. A Warranty Period of ninety (90) days shall also apply to services provided by DCI, including testing, servicing, and repairing an out-of-warranty DCI product. The Warranty Period shall begin from the later of: (i) the date of shipment of the DCI product from DCI, or (ii) the date of shipment (or other delivery) of the DCI product from an Authorized DCI Dealer to User.
2. If a DCI product (excluding software products) does not perform as warranted during the Warranty Period, DCI will inspect the product and if DCI determines such product to be defective, DCI will, at its sole option and discretion, either repair or replace the product. If a software product does not perform as warranted during the Warranty Period, DCI will, at its sole option and discretion, either bring the defective software into material compliance with the specifications for such software or refund the purchase price paid for the defective software. **THE FOREGOING ARE USER'S SOLE AND EXCLUSIVE REMEDIES FOR BREACH OF THIS LIMITED WARRANTY.** All warranty inspections, repairs and adjustments must be performed either by DCI or by a warranty claim service authorized in writing by DCI. All warranty claims must include proof of purchase, including proof of purchase date, identifying the DCI product by serial number, and be submitted before the end of the Warranty Period.
3. The Limited Warranty shall only be effective if: (i) within fourteen (14) days of receipt of the DCI product, User registers the DCI product with DCI through its product registration website at access.DigiTrak.com; (ii) User makes a reasonable inspection upon first receipt of the DCI product and immediately notifies DCI of any apparent defect; and (iii) User complies with all of the Warranty Claim Procedures described below.
4. The service period for this equipment is five years from the date of manufacture. During this period, DCI will support the repair or replacement of the products featured in this manual. A fee for repairs and replacements may be charged if the product is outside the warranty period.

What is not covered

This Limited Warranty excludes all damage, including damage to any DCI product, due to: failure to follow DCI's operator's manual and other DCI instructions; use of a DCI product outside the specifications for which the DCI product is designed (including without limitation temperature); abuse; misuse; neglect; accident; fire; flood; Acts of God; improper applications; connection to incorrect line voltages and improper power sources; use of incorrect fuses; overheating; contact with high voltages or injurious substances; use of batteries or other products or components not manufactured or supplied by DCI; or other events beyond the control of DCI. This Limited Warranty does not apply to any equipment not manufactured or supplied by DCI nor, if applicable, to any damage or loss resulting from use of any DCI product outside the designated country of use. User agrees to carefully evaluate the suitability of the DCI product for User's intended use and to thoroughly read and strictly follow all instructions supplied by DCI (including any updated DCI product information which may be obtained from the DCI website). In no event shall this Limited Warranty cover any damage arising during shipment of the DCI product to or from DCI.

User agrees that the following will render the above Limited Warranty void: (i) alteration, removal or tampering with any serial number, identification, instructional, or sealing labels on the DCI product, or (ii) any unauthorized disassembly, repair or modification of the DCI product. In no event shall DCI be responsible for the cost of or any damage resulting from any changes, modifications, or repairs to the DCI product not expressly authorized in writing by DCI, and DCI shall not be responsible for the loss of or damage to the DCI product or any other equipment while in the possession of any service agency not authorized by DCI.

DCI does not warrant or guarantee the accuracy or completeness of data generated by HDD locating systems. The accuracy or completeness of such data may be impacted by a variety of factors, including (without limitation) active or passive interference (including from salt water) and other environmental conditions, failure to calibrate or use the device properly and other factors. DCI also does not warrant or guarantee, and disclaims liability for, the accuracy and completeness of any data generated by any external source or derived from data generated by any external source that may be displayed on a DCI device, including (without limitation) data received from any HDD drill rig.

DCI reserves the right to make changes in design and improvements upon DCI product from time to time, and User understands that DCI shall have no obligation to upgrade any previously manufactured DCI product to include any such changes.

THE FOREGOING LIMITED WARRANTY IS DCI'S SOLE WARRANTY AND IS MADE IN PLACE OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, IMPLIED WARRANTY OF NON-INFRINGEMENT, AND ANY IMPLIED WARRANTY ARISING FROM COURSE OF PERFORMANCE, COURSE OF DEALING, OR USAGE OF TRADE, ALL OF WHICH ARE HEREBY DISCLAIMED AND EXCLUDED. If DCI has substantially complied with the warranty claim procedures described below, such procedures shall constitute User's sole and exclusive remedy for breach of the Limited Warranty.

Limitation of remedies and liability

In no event shall DCI or anyone else involved in the creation, production, or delivery of the DCI product be liable for any damages arising out of the use or inability to use the DCI product, including but not limited to indirect, special, incidental, or consequential damages, or for any cover, loss of information, profit, revenue or use, based upon any claim by User for breach of warranty, breach of contract, negligence, strict liability, or any other legal theory, even if DCI has been advised of the possibility of such damages. In no event shall DCI's liability exceed the amount User has paid for the DCI product. To the extent that any applicable law does not allow the exclusion or limitation of incidental, consequential or similar damages, the foregoing limitations regarding such damages shall not apply.

This Limited Warranty gives you specific legal rights, and you may also have other rights which vary from state to state. This Limited Warranty shall be governed by the laws of the State of Washington.

Warranty claim procedures

1. If you are having problems with your DCI product, you must first contact the Authorized DCI Dealer where it was purchased. If you are unable to resolve the problem through your Authorized DCI Dealer, contact DCI's Customer Service Department in Kent, Washington, USA at 1-800 288-3610 (or, for international markets, the corresponding telephone number for that market) between 6:00 a.m. and 6:00 p.m. Pacific Time and ask to speak with a customer service representative. Prior to returning any DCI product to DCI for service, you must obtain a Return Merchandise Authorization (RMA) number. Failure to obtain an RMA may result in delays or return to you of the DCI product without repair.
2. After contacting a DCI customer service representative by telephone, the representative will attempt to assist you in troubleshooting while you are using the DCI product during actual field operations. Please have all related equipment available together with a list of all DCI product serial numbers. It is important that field troubleshooting be conducted because many problems do not result from a defective DCI product, but instead are due to either operational errors or adverse conditions occurring in the User's drilling environment.
3. If a DCI product problem is confirmed as a result of field troubleshooting discussions with a DCI customer service representative, the representative will issue an RMA number authorizing the return of the DCI product and will provide shipping directions. You will be responsible for all shipping costs, including any insurance. If, after receiving the DCI product and performing diagnostic testing, DCI determines the problem is covered by the Limited Warranty, required repairs and/or adjustments will be made, and a properly functioning DCI product will be promptly shipped to you. If the problem is not covered by the Limited Warranty, you will be informed of the reason and be provided an estimate of repair costs. If you authorize DCI to service or repair the DCI product, the work will be promptly performed and the DCI product will be shipped to you. You will be billed for any costs for testing, repairs and adjustments not covered by the Limited Warranty and for shipping costs. In most cases, repairs are accomplished within 1 to 2 weeks.
4. DCI has a limited supply of loaner equipment available. If loaner equipment is required by you and is available, DCI will attempt to ship loaner equipment to you by overnight delivery for your use while your equipment is being serviced by DCI. DCI will make reasonable efforts to minimize your downtime on warranty claims, limited by circumstances not within DCI's control. If DCI provides you loaner equipment, your equipment must be received by DCI no later than the second business day after your receipt of loaner equipment. You must return the loaner equipment by overnight delivery for receipt by DCI no later than the second business day after your receipt of the repaired DCI product. Any failure to meet these deadlines will result in a rental charge for use of the loaner equipment for each extra day the return of the loaner equipment to DCI is delayed.

Product demonstrations

DCI personnel may be present at a jobsite to demonstrate basic usage, features, and benefits of DCI products. User acknowledges that DCI personnel are present only to demonstrate a DCI product. DCI does NOT provide locating services or other consulting or contracting services. DCI does not assume any duty to train User or any other person, and does not assume responsibility or liability for the locating or other work performed at a jobsite at which DCI personnel or equipment are or have been present.