

SERVICE AND PARTS GUIDE

Lithium Walkie Pallet Jack DLP-GC2-24V

READ AND SAVE THESE INSTRUCTIONS

DLP-GC2-24V Battery 900-0052

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INTRODUCTION

The Discover Energy Systems DLP-GC2-24V and accessories are a lithium battery package designed to fit into existing battery trays for pallet walkie applications that use GC6 lead batteries. This service guide is intended to provide information on how to service the package.

Before using the instructions in this document, review the following for information on the battery and Battery Discharge Indicator (BDI).

- DLP-GC2-24V battery manual
[AES Professional Installation and Operation Manual \(805-0027\)](#)
- Type A Battery Discharge Indicator datasheet
[Type A Battery Discharge Indicator \(CAN Bus\) datasheet \(808-0017\)](#)

1. AUDIENCE, MESSAGES, WARNINGS, GENERAL SAFETY, PERSONAL PROTECTIVE EQUIPMENT

1.1 Audience

Configuration, installation, service, and operating tasks should only be performed by qualified personnel in consultation with local authorities having jurisdiction and authorized dealers. Qualified personnel should have training, knowledge, and experience in the:

- Installation of electrical equipment
- Application of electrical codes, safety, and installation standards
- Analysis and reduction of hazards involved in performing electrical work
- Installation and configuration of batteries

1.2 Warning, Caution, Notice, and Note Messages

Messages labeled on the battery and in this manual are formatted according to this structure.



Additional information concerning important procedures and features of the battery. Read all the instructions before installation, operation, and maintenance.



Important information regarding hazardous conditions.

WARNING

Important information regarding hazardous conditions that may result in personal injury or death.

CAUTION

Important information regarding hazardous conditions that may result in personal injury.

NOTICE

Important information regarding conditions that may damage the equipment but not result in personal injury.

NOTE

Ad hoc information concerning important procedures and features unrelated to personal injury or equipment damage.

1.3 Warnings and General Safety



Do not dispose of the product in a fire or the garbage.



This product is made of recyclable materials and should be recycled.



⚠ WARNING

ELECTRIC SHOCK AND FIRE HAZARD

Do not lay tools or other metal parts across battery terminals or internal components.

Failure to follow these instructions may result in death or serious injury.

⚠ CAUTION

ELECTRIC SHOCK HAZARD

- Do not touch the energized surfaces of any electrical component in the battery system.
- Before servicing, follow all procedures to fully de-energize the battery system.
- Follow [Safe Handling Procedures](#) when working with the battery.

Failure to follow these instructions may result in injury.

1.4 Safe Handling Procedures

Before using the battery, read all instructions and cautionary markings on the units and all appropriate sections of the [AES Professional Installation and Operation Manual \(805-0027\)](#).

- Use personal protective equipment when working with the battery.
- Dispose of or recycle a battery following local regulations.
- Do not modify, re-manufacture, or attempt to insert foreign objects into the battery.
- Do not immerse or expose the battery to water, other liquids, fire, explosion, or other hazards.
- Do not lift or carry while in operation.
- Take precautions when handling electrical cables.
- Do not submerge the battery.
- Do not install the battery with the terminals facing down.
- Do not use the battery with a charging system that exceeds the specifications of the battery. Using batteries or a charging system that exceeds the cable and fuse specifications may present a fire risk or other hazards.
- Do not short-circuit the battery.
- Do not drop the battery.
- If the battery is damaged, take it to a service center for inspection.

1.5 Personal Protective Equipment

When handling or working near a battery:

- Use Personal Protective Equipment, including clothing, glasses, insulated gloves, and boots.
- Do not wear rings, watches, bracelets, or necklaces when handling or working near the battery.

2. TROUBLESHOOTING

2.1 Preparation

The following items are essential in diagnosing the Discover Lithium battery.

- Computer using the Windows 10 or 11 operating system
- LYNK ACCESS software ([website](#))
- LYNK LITE Gateway (950-0040)
- USB Type-B micro / Type-A cable

2.2 Common Troubleshooting Tasks

Getting battery information.

One of the first things you may want to do is get information about the battery.

1. Download and install the LYNK Access software from the [Discover Energy website](#). LYNK ACCESS is compatible with Windows 10 and 11.
2. Once installed on your computer, connect the USB Type-B micro / Type-A cable between the computer and the LYNK LITE Communication Gateway.

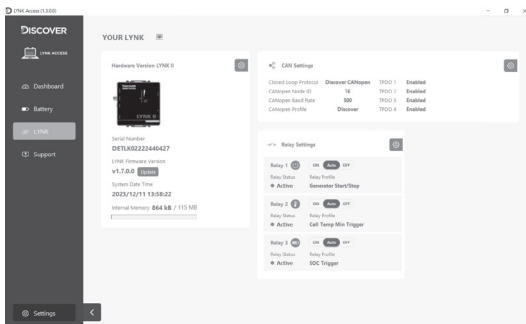


Figure 1. LYNK ACCESS software

3. Use the LYNK ACCESS software to communicate with the battery through the LYNK LITE Communication Gateway and download data logs or generate diagnostic reports.

DISCOVER	Report Date Time	Report Version	LYNK Access Version	
	2024-06-12 13:44:06	0.0.0.2	3.4.0.0	
		BATTERY 1	BATTERY 2	BATTERY 3
Battery Info				
Battery Name				
Serial Number	DLPH48B223650059	DLPH48B14129005	DLPH48B223650060	
Firmware Version	4.5.1.0	4.5.1.0	4.5.1.0	
Bootloader Version	4.4.0.0	4.2.0.0	4.4.0.0	
Hardware Version	4.2	4.2	4.2	
Manufacture Info	F900-0067_m900-0067	F900-0062_m900-0062	F900-0067_m900-0067	
Rated Capacity (Ah)	100	100	100	
Module Count	16	16	16	
Battery Status				
Active Faults				
Terminal Voltage (V)	55.9	56.2	55.1	
Cell Min (V)	3.46	3.46	3.46	
Cell Max (V)	3.46	3.48	3.47	
Cell Avg (V)	3.47	3.47	3.47	
Current (A)	0.78	-0.42	-0.09	
Pack Temp (°C)	26	26	24	
Board Temp (°C)	27	27	26	
SOC (%)	100	100	100	
Battery History				
History Charge (kWh)	332.5	18.8	334.2	
History Discharge (kWh)	302.4	13.3	298.8	
Cycle Count	146	6	157	

Figure 2. Sample Diagnostic Report

For information on using LYNK ACCESS, refer to the [LYNK II Installation and Operation Manual](#) (805-0033).

There is no power to the lift, and BDI is OFF.

- If the battery is OFF, it was manually turned OFF or entered low-voltage protection. Touch the ON/OFF button on the battery to try turning it ON. If the battery remains OFF, recharge it.
 - After turning ON the battery with either the external ON/OFF button or the button on top of the battery, the LED on top of the battery lights up green, and the BDI display should be illuminated.

There is no power to the lift, and BDI is ON.

- Check to see if the walkie pallet jack's display has any faults. If it does, contact your support team for the walkie pallet jack.

The lift will not operate.

1. Check whether the BDI is ON and displaying any faults or warnings. If it is OFF, turn the batteries ON with either the external ON/OFF button or the button on top of the battery.
2. If the battery is ON and the lift does not operate, confirm the Lift Lockout is ON (disabled) and that there are no active faults on the lift.
3. If the Lift Lockout is OFF and the battery is ON, contact your support team for the walkie pallet jack for further diagnosis.

I am not getting the expected runtime.

- Fully charge the batteries (overnight or over a weekend). After connecting the charger, confirm the AC power is on (check the breaker) and that the BDI indicates the battery is charging.

The BDI display indicates a fault, is flashing, or displays a fault number.

- The battery automatically recovers from all faults except the low-voltage fault. Repeated low-voltage faults could damage the battery, voiding the warranty.
 - A low-voltage fault shuts down the battery and turns off the BDI. Immediately connect the charger, and once the battery is fully charged, manually turn the batteries back on.

3. FAULTS AND WARNINGS

Number	Fault/Warning	Recovery
1	Low voltage	The battery is shut down. Connect the charger and turn the battery ON to charge the battery.
2	Over voltage	Decrease charge voltage and automatically recover after 120 seconds.
3	Under temperature	Charge the battery to turn ON the internal heater.
4	Over temperature	Automatic recovery after the battery cell temperature drops to an acceptable level.
5	Over-discharge current	Discharge current exceeds the battery rating.
6	Over-charge current	The charge current is too high. Consider derating the charge current before continuing.
7	Load qualification	The battery failed load qualification at startup. Check to see if there is a short circuit, reverse polarity, or batteries at a higher SOC connected in parallel.
10	Under-temperature in charge	Continue charging to engage the internal heater. Charging will continue once the battery cell temperature reaches 4°C (39.2°F) or higher.
13	Over-temperature in charge	The battery stops charging and will continue charging only after the battery temperature is below the recovery threshold.

Contact your support team for the walkie pallet jack if you need more support.

4. AT A GLANCE LED

WARNING

ELECTRIC SHOCK AND FIRE HAZARD

- Always assume the battery main relay is ON (Closed).
- Verify the battery's terminal voltage with a voltmeter before handling, even if the At-a-glance LED shows that it may be OFF.

Failure to follow these instructions may result in death or serious injury.

The LED button on the battery indicates the following.

LED Color	Description
No LED	The main relay is OFF (open). The battery is off.
Solid green	The main relay is ON (closed). The battery is ready for operation.
Flashing orange	The main relay is ON (closed), but one or more of the operating parameters (voltage, current, temperature) has exceeded a fault threshold. Unless the condition is corrected and after a short delay of up to ten seconds, the battery will transition to protection mode, and the main relay will switch to OFF (open).
Flashing red	The main relay is OFF (open), the battery is in protection mode, and a fault has occurred.

5. PROCEDURES

5.1 Replacing the Fuse

⚠ CAUTION

ELECTRIC SHOCK

- Do not touch the energized surfaces of any electrical component in the battery system.
- Before servicing the battery, follow all procedures to fully de-energize the battery system.
- Verify the battery's terminal voltage with a voltmeter before handling, even if the At-a-glance LED shows that it may be OFF.

Failure to follow these instructions may result in injury.

Replacing the fuse should be performed by qualified personnel only.

- Use only insulated tools
- Wear personal protective equipment
- The battery system must be de-energized
- Battery cables must be disconnected
- Battery terminals must be protected from short-circuiting and touch

Specification	960-0019
Fuse Rating	58 V, 125 A
Fuse Mounting Bolt	M5
Fuse Terminal Torque	8 to 10 Nm (5.9 to 7.4 ft-lb). DO NOT EXCEED 10 Nm (7.4 ft-lb).

1. Ensure that the DC system is de-energized, and disconnect the battery charger and all loads.
2. If connected with other batteries, remove the battery and isolate it.
3. Protect the battery terminals from short-circuiting and touch by covering them with terminal covers or electrically rated tape.

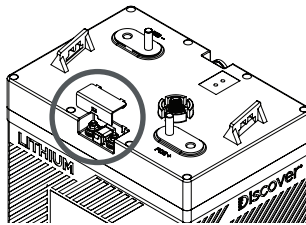


Figure 3. Open fuse cover

4. Open the fuse cover and remove the nuts holding the fuse and replace it with a new fuse paying strict attention to orientation and the fuse ratings.
5. Torque the nut holding the new fuse to 8 to 10 Nm (5.9 to 7.4 ft-lb). DO NOT EXCEED 10 Nm (7.4 ft-lb).
6. After removing the terminal protection, reinstall the battery into the system and replace the fuse cover.

5.2 Submitting a Support Ticket

For additional assistance, submit a support ticket.

Prepare the following:

1. Proof of original purchase that includes date and identity of purchaser, name of authorized seller, product model number, serial number and purchase price (note the transaction currency, if not USD).
2. Description of the issue.
3. Battery log files and diagnostic reports downloaded for analysis.

Click the following link and submit the support ticket:

- [Ticket Submission Form](#)

APPENDIX

A.1 Service Parts

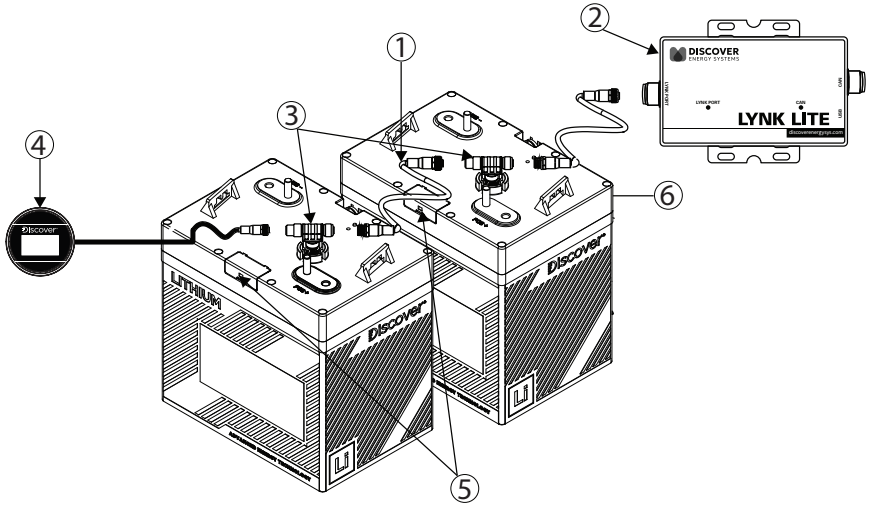
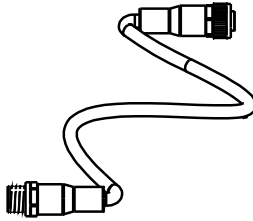


Table A-1. List of Parts and Service Kits

	Name	Description	Part Number	
1	DLP TOL Battery to Battery cable	DLP TOL -1800 COMM Cable battery to battery, 1.8 m (70.87 in) (F-M)	950-0036	Page 13
2	LYNK LITE	LYNK LITE Communication Gateway	950-0040	Page 13
3	DLP T Connector	DLP T Connector (COMM T Connector) (F-F-M)	950-0041	Page 13
4	SOC GAUGE - TYPE A	SOC GAUGE - TYPE A with Female Cable 1.8 m (70.87 in)	950-0044	Page 13
5	FUSE 58V 125A BF1		960-0019	Page 13
6	DLP-GC2-24V COVER	DLP-GC2-24V COVER AND BMS - Rev A	960-0024-24V	Page 13

DLP TOL -1800 COMM Cable battery to battery, 1.8 m (70.87 in) (F-M) (950-0036)



LYNK LITE (950-0040)



DLP T Connector (COMM T Connector) (F-F-M) (950-0041)



SOC GAUGE - TYPE A with Female Cable 1.8 m (70.87 in) (950-0044)



FUSE 58V 125A BF1 (960-0019)



DLP-GC2-24V COVER AND BMS - Rev A (960-0024-24V)

