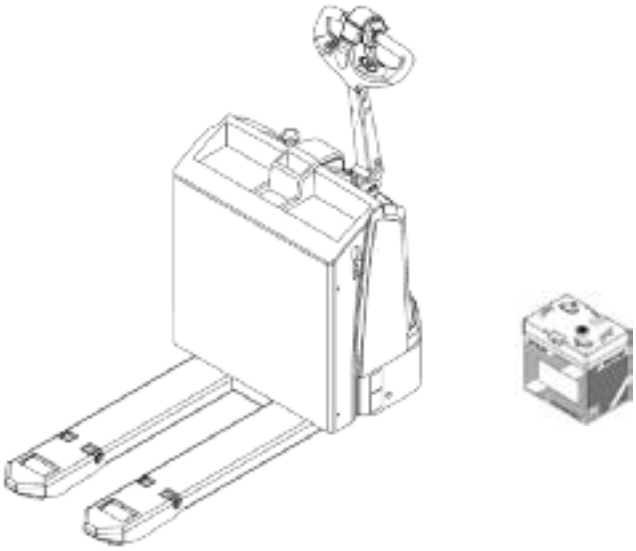
Discover®
Innovative Battery Solutions



INSTALLATION GUIDE

Hyster/Yale Lithium Walkie Pallet Jack – DLP-GC2-24V

READ AND SAVE THESE INSTRUCTIONS

DLP-GC2-24V Battery 900-0052

885-0093 REV C

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INTRODUCTION

This document describes installing the DLP-GC2-24V battery and Battery Discharge Indicator (BDI) onto a Lithium Walkie Pallet Jack.

Before using the instructions in this document, review the following for information on the battery and BDI.

- DLP-GC2-24V battery manual
  Lithium 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 Lithium 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

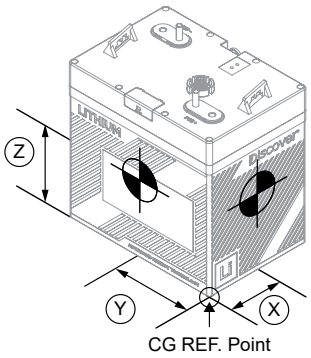
When handling or working near a battery:

- 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. BATTERY OVERVIEW

For overall battery operation including startup/shut down, charging, balancing, discharging refer to the Discover Lithium Professional Battery Manual.

2.1 Weight and Center of Gravity

Center of Gravity (CG) from CG REF. Point 0,0,0.	
X: 3.55 in (90 mm)	
Y: 5.1 in (130 mm)	
Z: 6.2 in (160 mm)	
Weight	30.7lbs (14 kgs)

2.2 Proper Use / Guidelines

2.2.1 Safety and Reliability

Discover Battery Lithium Professional (DLP) batteries are sealed, maintenance-free, and require no watering.

No electrolyte must be added, and there is no danger of acid spills or explosive vapors during normal use.

- WARNING: Do not disconnect the battery under load.
- Not suitable for immersion or high-pressure water spray.

2.2.2 Hazardous Material Information

HazMat Classification

Discover DLP lithium iron phosphate ($LiFePO_4$) batteries are classified as HazMat Class 9 (UN 3480 when shipped alone, UN 3481 when installed in equipment).

- Under normal use, Discover Lithium Professional DLP-GC2-24V batteries pose no danger of leakage, spilling, or outgassing.
- Lithium batteries are not subject to the same federal environmental restrictions as lead-acid (RCRA/EPCRA), but transportation is strictly regulated.
- State and municipal regulations may vary. For guidance, contact Discover Battery or your local environmental agency.

What to Do if a Cell Breach Occurs

- Ventilate the area immediately.
- Do not use water for cleanup; use absorbent material. Place contaminated waste in a sealed metal container.
- Avoid inhalation of fumes.
- In case of fire, use a CO_2, dry chemical, or foam extinguisher.
- Refer to the Discover Lithium Safety Data Sheet (SDS).
- Dispose of the damaged pack and cleanup materials in compliance with local EPA requirements.

Heavy Water Spray

- Discover DLP batteries are not designed for environments with heavy water spray or wash-down requirements.
- Do not submerge in water.

2.2.3 Recycling / Disposal

Recycle

- Discover DLP batteries are recyclable. Do not send lithium batteries to lead-acid recycling streams.
- Discover partners with authorized lithium recyclers. Contact Discover Battery or visit our website for assistance.

Re-Use

- When a DLP battery no longer meets application runtime needs, options may include:
- Repurposing for lower-demand storage (e.g., backup power).
- Recovery of case, terminals, and electronics for recycling.

Disposal

- Fully discharged LiFePOn cells are generally considered non-hazardous under federal RCRA definitions.
- Local/state regulations may differ; always follow regional disposal requirements.

2.2.4 Shipping Information

- Discover DLP batteries are classified as UN 3480 (lithium-ion batteries) or UN 3481 (with equipment), Class 9 Dangerous Goods.
- SOC limits: Shipments must comply with SOC limits (typically <30% SOC for air transport).
- Packaging must comply with UN standards:
- Batteries secured to pallet/crate
- Non-conductive material between units
- Protection from movement, heat, and accidental short circuit
- HazMat declarations, documentation, and certified shipper training are required under DOT/IATA/IMDG.
- The shipper is responsible for compliance with all transport regulations.

2.2.5 Storage

Leaving the battery connected to a trickle load or power electronics will cause the battery to be discharged during storage. Without any load, the battery will self-discharge by approximately 3% per month while in storage. After storage, charge the battery to 100% SOC and perform at least one full discharge and charge cycle before returning the battery to service.

1. **Store at 95% SOC or greater.** To store the battery for a period of up to 6 months, the battery must be initially put into storage at 95% SOC or greater. It must remain disconnected from all loads and power electronics during the storage period.
2. **Switch OFF the battery.** Set the battery to OFF.
3. **Check SOC every 6 months.** Recharge the battery to above 95% SOC at least every 6 months.
4. **Proper storage temperature.** Ensure storage is within the temperatures specified below.
   - 1 Month storage temperature -20°C to 45°C (-4°F to 113°F)
   - 6 Month storage temperature -10°C to 30°C (14°F to 86°F)

3. REQUIRED PARTS

- (1 to 4) x DLP-GC2-24V, 25.6 V 60 Ah lithium battery (900-0052)
- 1 x Battery to HYG CAN Cable (950-0060-HYG) - Only used for CAN communication
- 1 x LYNK LITE (950-0040) - Only used for CAN communication
- 1 x BDI Type A with 72” cable (950-0044)
- (1 to 4) x DLP T-connector (950-0041)
- (1 to 4) x DLP TOL-1800, battery to battery 72” cable (950-0036)
- DC cables if using more than one battery

Without CAN Communication

BATTERY DLP-GC2-24V (900-0052)	**SOC GAUGE BDI Type A with 72" cable (950-0044)**	DLP-T Connector (950-0041)	DLP TOL-1800 (950-0036)
1	1	1	–
2	1	2	1
3	1	3	2
4	1	4	3

With CAN Communication

BATTERY DLP-GC2-24V (900-0052)	**SOC GAUGE BDI Type A with 72" cable (950-0044)**	DLP-T Connector (950-0041)	DLP TOL-1800 (950-0036)	LYNK LITE (950-0040)	Battery to HYG CAN Cable (950-0060-HYG)
1	1	1	1	1	1
2	1	2	2	1	1
3	1	3	3	1	1
4	1	4	4	1	1

NOTE
A multiple battery installation is required for heavy-load applications or for extended runtimes.

4. SYSTEM OVERVIEW

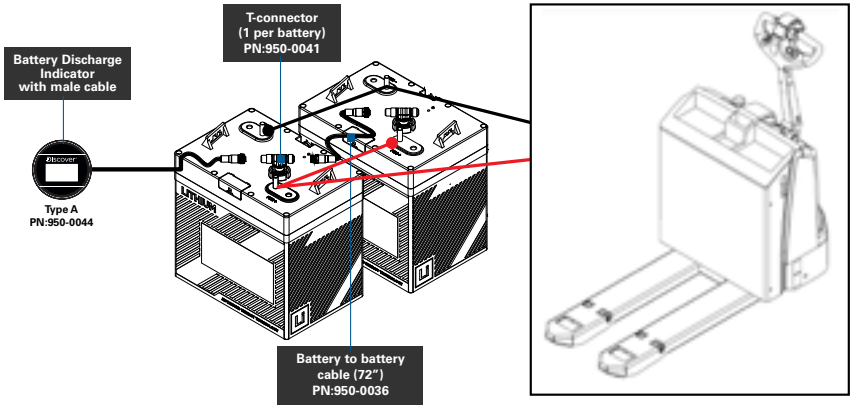


Figure 1. Wiring of communication and power cables without CAN Communication

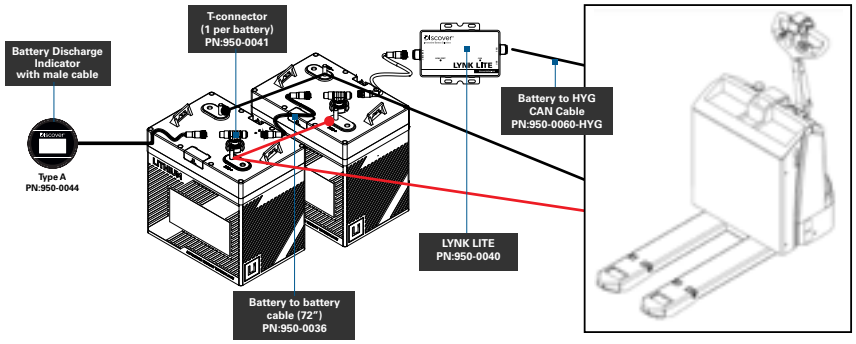


Figure 2. Wiring of communication and power cables with CAN Communication

- Communication with batteries is required for the BDI to display the state of charge (SOC) of batteries.

NOTICE
If the system connects multiple batteries and uses the DLP TOL-1800 cable (950-0036), the DLP T-connector (950-0041) is necessary to prevent the cable from bending and getting damaged.

- Do not use a lead-acid battery SOC gauge with the DLP-GC2-24V lithium batteries, as its measurements will be inaccurate.

5. BATTERY INSTALLATION

The DLP-GC2-24V fits in the same space as a GC6-sized lead battery.

- If the tray has batteries inside, remove existing batteries and cabling. The battery tray may require modifications.



Figure 3. Installing Batteries



Figure 4. Battery Tray

- Keep the batteries OFF (LED is OFF) during installation to prevent short circuits.
- Secure the battery with a bracket or strap.
- Place the battery on the bottom tray, close to the main positive and negative cables.
- Connect the positive and negative cables to the respective terminals of the battery. Ensure the correct torque is used to secure the cable ends to the terminals (10 Nm / 7.4 ft-lb).

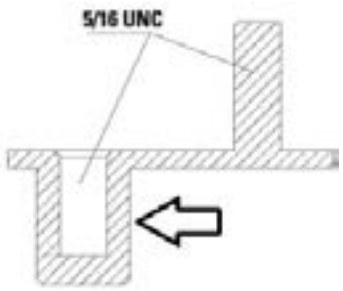


Figure 5. Torque bolt to 10 Nm (7.4 ft-lb) with a torque wrench

NOTE
The Walkie Pallet Jack provides a 4 AWG power cable. Acceptable cable gauges range from 4 AWG up to a maximum of 1/0 AWG.

- When connecting the BDI or other batteries in the system, connect the DLP-T Connector (950-0041) to the battery COM port on top of the battery. Each battery needs a T-connector to prevent bending and damaging cables.

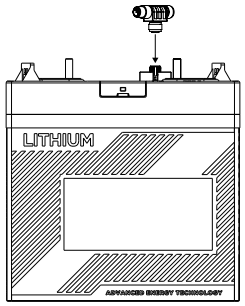


Figure 6. Connect T-Connector to Battery COM Port

- If you are using the external battery ON/OFF key, attach the red eyelet terminal on the BDI gauge on top of the main cables. See 7. External Battery ON/OFF Key for additional instructions.

5.1 Terminal Connections

Note the following when connecting cables to the battery terminal.

- **Connect to the battery terminal.** All power cable lugs must directly contact the battery terminal deck.
- **Stacking connections.** If other cables, such as the red eyelet cable of the BDI gauge, need to be connected to the battery terminal, stack them on top of the power cable lug.

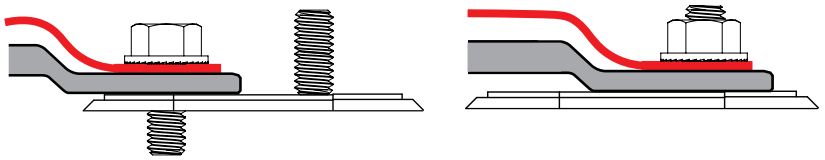


Figure 7. Correct Terminal Installation - Bolt, Post

- **Prevent short circuit.** To prevent short circuits, tape off or cover any exposed posts and terminals.

6. BATTERY DISCHARGE INDICATOR (BDI) DISPLAY

For information about the BDI, refer to the Type A Battery Discharge Indicator datasheet.
Type A Battery Discharge Indicator (CAN Bus) datasheet (808-0017)

6.1 Installing the BDI

1. Use a 2” hole saw to cut out a hole for the BDI in the plastic shroud at the front of the Walkie Pallet Jack.
2. Insert the BDI into the cutout.
3. Run the BDI cable from the DLP-GC2-24V battery behind the plastic shroud and plug it into the BDI gauge.
4. Turn ON the batteries. The BDI gauge should illuminate and display the battery information.
5. Before proceeding, thoroughly test the BDI to ensure that it operates as expected.
6. Secure the BDI with the U-bracket to the back of the BDI gauge behind the plastic shroud.
7. If the Walkie Pallet Jack is pressure washed and sanitized, apply a thin line of silicone around the edge of the BDI to seal out water. Additionally, apply silicone to the switch, USB port, and the plug on the backside of the BDI to prevent water ingress.



Figure 8. BDI Display installed on a Walkie Pallet Jack

7. EXTERNAL BATTERY ON/OFF KEY



Figure 9. BDI Wiring

1. Connect the two floating wires (red and brown) on the BDI Type A harness to either side of the ON/OFF key.
   - Connect the brown wire to the ON/OFF key.
     The other end of the brown wire is connected to pin 1 of the 5-pin DIN connector.

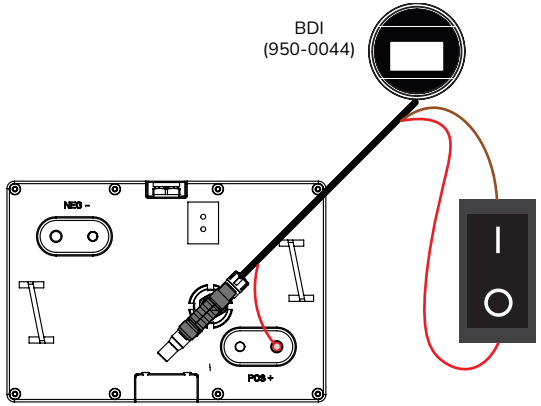


Figure 10. BDI Type A Wiring for ON/OFF Key

   - Connect the red wire to the opposite end of the ON/OFF key.
2. On the other end of the red wire, attach its eyelet terminal to the positive bolt or positive post of the DLP-GC2-24V battery. The eyelet terminal must be placed on top of the cable lug and secured under the nut.

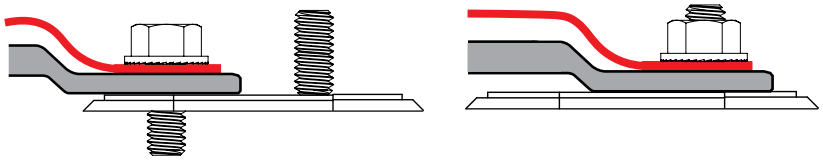


Figure 11. Red Eyelet Terminal on Top of Cable Lug

3. Confirm the switch is working before securing all the cables.
4. In applications where the BDI is exposed to pressure washing or sanitizing, apply silicone to the switch, USB port, and the plug on the backside of the BDI to prevent water ingress.

NOTICE

- You can use a momentary or toggle switch for the external ON/OFF key.
  - Latching is better for multiple battery installations.



Figure 12. Latching Switch

- If you do not intend to use the brown and red wires for an external ON/OFF key, please tape off and secure the loose ends of the wires and the eyelet terminal to prevent invalid operation.

8. INSTALLING LYNK LITE - ONLY FOR CAN COMMUNICATION



1. Connect batteries with 950-0036 to the LYNK Lite's LYNK Port connector.
2. Connect LYNK Lite with 950-0060-HYG from the CAN connector to the walkies BATTERY CAN Port.
3. Configure walkie to Battery Settings as per table XX below.
4. After configuring the walkie turn the truck's key OFF and restart the batteries using the batteries ON/OFF button (on the top or externally).
5. Turn truck's key ON and verify no faults are active on the truck BDI and you are reading state of charge information.

For troubleshooting refer to the HYG Discover service and parts manual.

9. WALKIE PALLET JACK SETTINGS

Table 9.1 Settings without CAN Communication (A Series)

PROPERTY	SETTING
BDI Warning Enable	1 (ON)
Warning BDI	20%
BDI Reset Volts	26 V
BDI Full Volts	25.56 V
BDI Empty Volts	23.5 V
BDI Discharge Time	75 minutes
BDI Reset Percent	30%
User Undervoltage	70%
Fast Charge Detection Enable	1 (ON)
Fast Charge Reset Delta	20%
Turn OFF Lift Lockout	OFF

Table 9.2 Settings without CAN Communication (B Series)

PROPERTY	SETTING
BATTERY TYPE	GENERAL
BAT. MIN ADJ.	75
BAT. MAX ADJ.	161
BDI ADJ STARTUP	10
BDI ADJ ST. MIN	80
BDI ADJ ST. MAX	186
BDI RESET	20%
BATT. LOW TRESHLD	20%
LOW BTRY MODE	1
BEEP ON LOW SOC	0
HYG LI-ION BATT	0

Table 9.3 Settings with CAN Communication

PROPERTY	SETTING
Battery Type	Li-ion
BAT. MIN ADJ.	226
BAT. MAX ADJ.	10
BDI ADJ STARTUP	5
BDI ADJ ST. MIN	10
BDI ADJ ST. MAX	10
BDI RESET	25%
BATT.LOW TRESHLD	20%
LOW BTRY MODE	ON
BEEP ON LOW SOC	OFF
HYG-LI-ION BATT	ON

10. CHARGER SETTING



Figure 13. Charger

10.1 Standard Charger

Change the on-board standard charger setting to Mode 14.

Set the dip switches as follows:

- 0 = Switch Up (or left if vertically oriented)
- 1 = Switch Down (or right if vertically oriented)

Switch settings are numbered left/right or up/down from 1 to 5.

Mode	Switch Setting (Numbered)				
	1	2	3	4	5
14	0	1	1	0	1

Figure 14. Dip Switch Setting

10.2 Other Chargers

The following chargers are recommended as alternatives to the standard charger.

CHARGER	ALGORITHM / SETTINGS	CHARGE TIME (PER BATTERY)
Delta-Q IC650	261	~2 hours
Summit II	BP#22670	~2 hours
Generic Charger	27.6 - 28.4 V bulk / absorption and ~27.2 V float charge	Depends on power

NOTE
If using a larger charger (e.g., greater than 650 W), you may need to increase the DC cable size between the charger and the battery. Please work with your charger supplier to ensure you have at least the minimum cable sizing for the charger on the system.

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

11. CONTACT INFORMATION

Click the following link and submit the support ticket:

- Ticket Submission Form

12. WARRANTY

For more information on warranties and returns check out our Discover Lithium Professional Warranty Document.