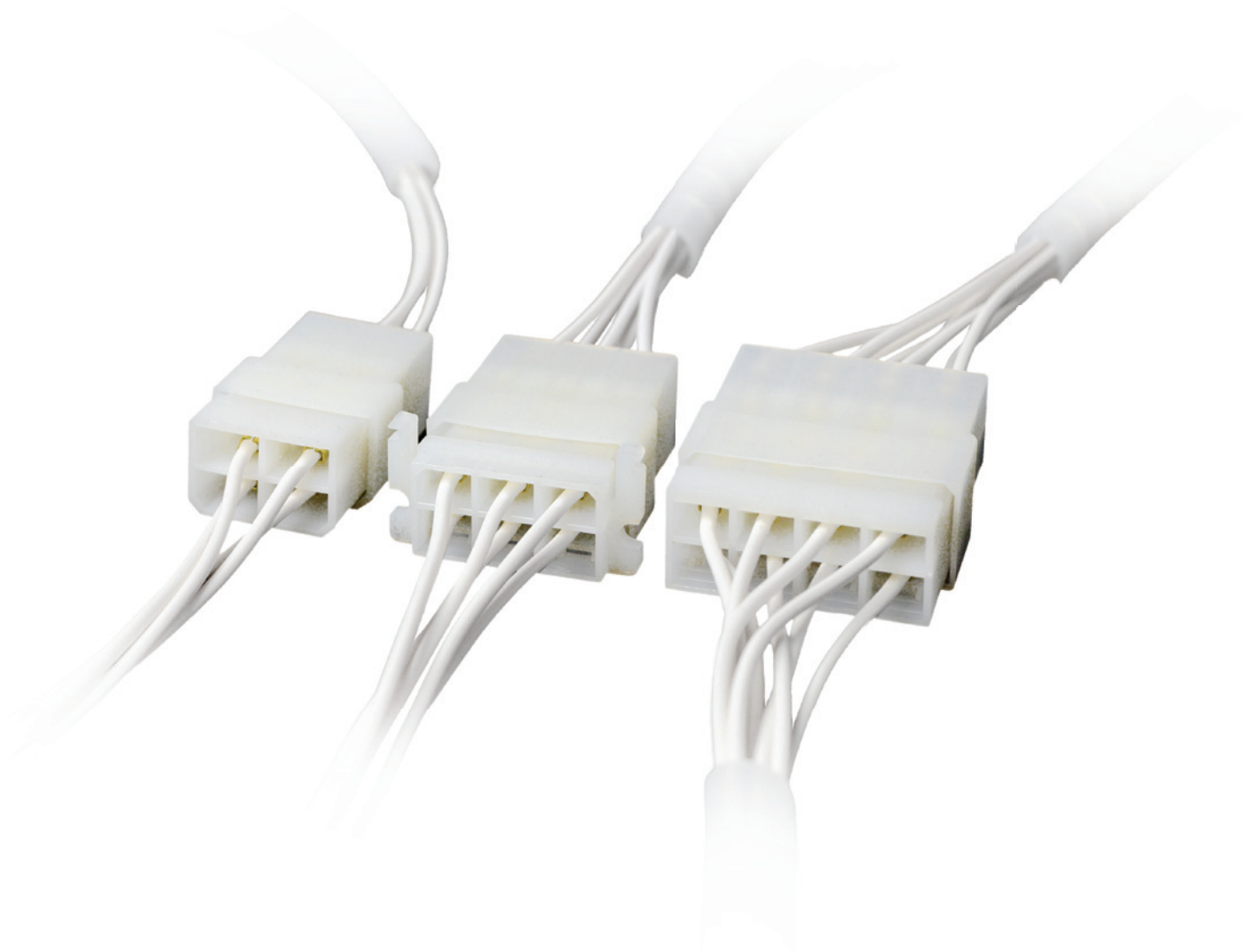


Technical Manual

GWL/Modular Battery Link



Product Description

The wiring harness connects the individual battery cells to the Battery Management System (BMS). It consists of an appropriate number of wires in the spiral sleeve and the connectors in a common housing. The loose side of the female conductors is terminated by the lugs for the battery connection, the loose side of the male conductors is terminated by the ferrules for connection to the BMS terminals. Wire terminations are numbered according to the order of the cells.

The module is part of the GWL/Modular series, i.e. is an open solution that is compatible with GWL's downstream products as well as similar components available elsewhere.

Possibilities of Use

For different types of central BMS modules, balancers and batteries, which are terminated by screw terminals. Harness can be sorted additively for any number of cells. Up to 16 connectors there are not interchangeable.

Original downstream product for connecting the GWL/Modular CPM to Winston batteries, i.e. BPF (Battery Pack Flexi) connection and BMS (Battery Management System) modules.

- For batteries with M6 to M12 threads
- For BMS with connection terminals from 1 mm² (can be customised)
- For balancing currents up to 5A
- Basic harness for 4 cells, GND and total Plus (six wires)
- Additive harness for 4 cells (four wires)
- Additive harness for 8 cells (eight wires)

Functions

- Safe and well-arranged potential wires of individual cells to a common place (all insulated components, conductors concealed in additional insulation and mechanical protection)
- Uniform balancing support (equal length and strength of all conductors, robust connection)
- Easy, fast and safe connection (service, replacement, decommissioning..., without the risk of short-circuit and wiring change during reconnection)
- Preventing the transition resistance on the battery terminal (ring lugs as opposed to the fork terminals etc. allow for tightening terminal interconnections properly)
- Easy replacement of system components (flexible GWL/Modular interchangeability for service, upgrade, installation expansion, etc.)

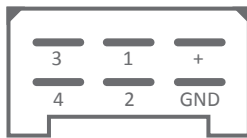
Technical Specification

Type w = number of wires in the harness d = inner diameter of mesh	w4d8	w6d8	w8d8	w4d12	w6d12	w8d12
Number of wires in the harness	4	6	8	4	6	8
Harness length female	0.8 m			0.8 m		
Harness length male	0.8 m			0.8 m		
Wire cross-section	0.75 mm ²			0.75 mm ²		
Coupling connectors	Faston 6.3 mm			Faston 6.3 mm		
Inner diameter of mesh	8 mm			12 mm		
Hollow	1 mm			1 mm		
Weight of a complete harness	180 g			180 g		

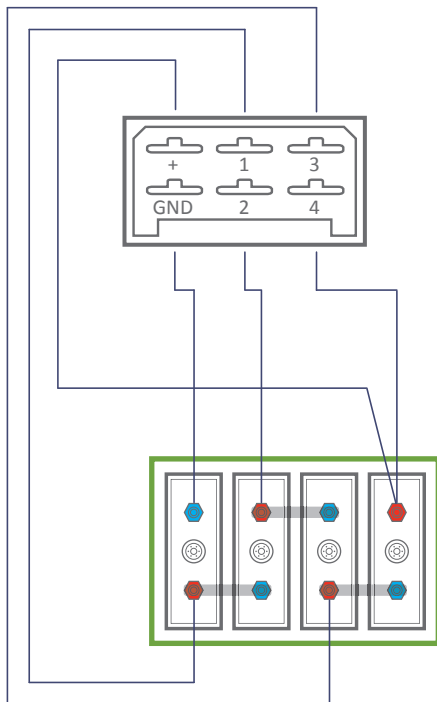


12V Wiring Diagram

MALE PLUG



FEMALE SOCKET

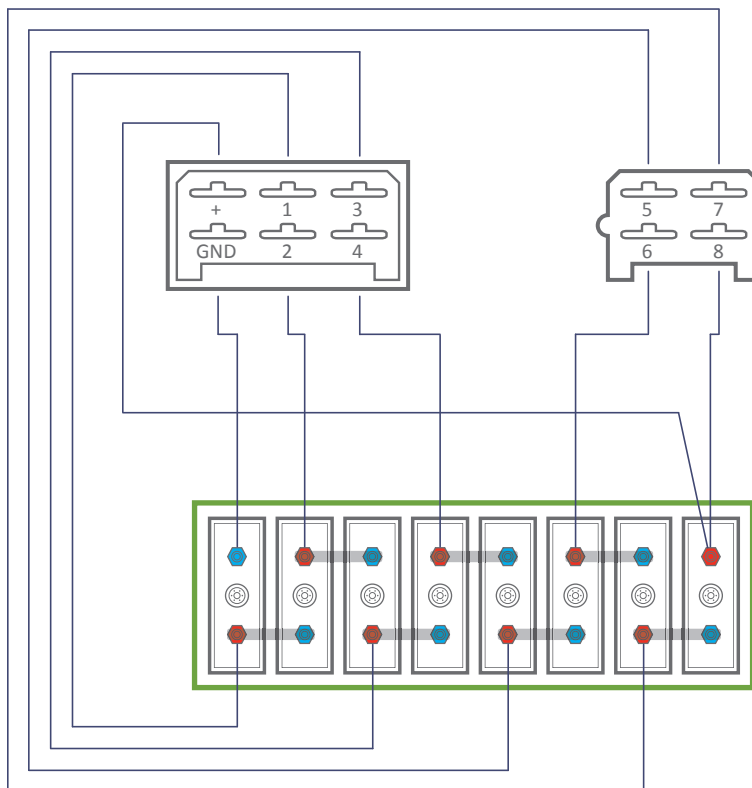


24V Wiring Diagram

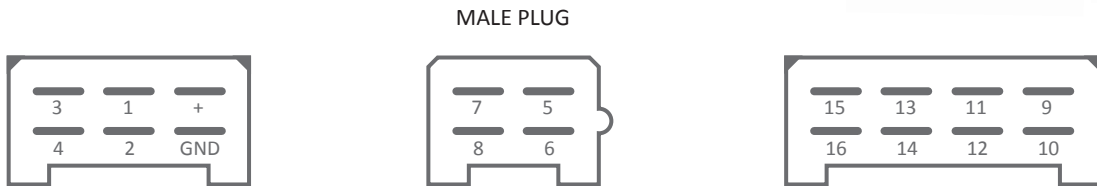
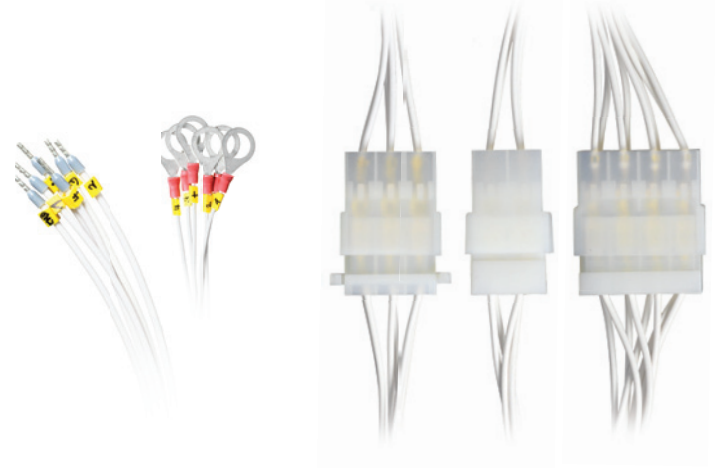
MALE PLUG



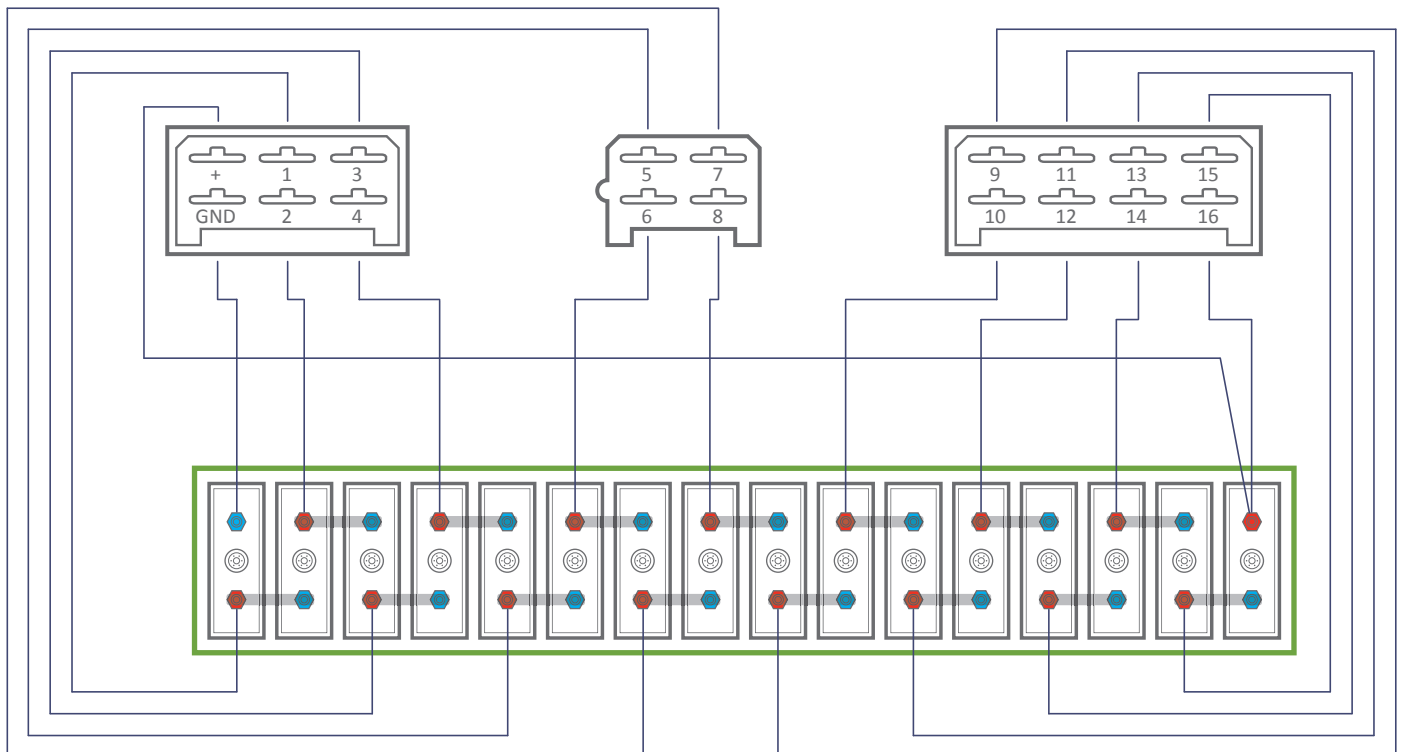
FEMALE SOCKET



48V Wiring Diagram



FEMALE SOCKET



Installation Instructions

- 1) Prepare the necessary wire harness types according to the terminal screw diameter and the number of battery cells:
 - **wxd8** harness for **M6** and **M8** wires, **wxd12** harness for **M10** and **M12** wires
 - for **4 w6dx cells** (connect the GND terminal to the minus pole of the whole assembly, the wire + (plus) can be connected to the plus of the whole assembly = total pack voltage)
 - for **5 – 8 cells w6dx** and **w4dx**
 - for **8 – 16 cells w6dx, w4dx** and **w8dx**
 - add more **w4dx** or **w8dx** harnesses **for a larger number of cells**, but on those harnesses, you need to **re-label the wires and connectors to avoid confusion**
- 2) Visually check the status of the LiFePO₄ cells, check cell voltage, clean cell terminals and terminal interconnections.
- 3) Place the interconnections directly on the cell terminals, align the wiring harness eyes on the top of the interconnections under the flat and spring washers and tighten the bolt. From the eye, point the wire outlet in the direction of the expected harness route and into the prepared indentation in the terminal cover.
- 4) Use spiral tubing (or insulating or tightening bands) to adjust the appropriate route near the terminals. Keep the excess length of some wires in the tubing.

Installation Principles, Location and Battery Systems Operation

- Remove metal objects from your hands (watches, rings, bracelets...) before mounting.
- Wear protective equipment and insulated tools for the work.
- Protect the battery's live parts from short circuits (shifting the interconnection, dropping a conductive object...).
- Be focused, prudent and careful.
- Place the battery pack with the terminals and safety valves facing up.
- Provide heat is vented from the installation area at high operating currents.
- If possible, select a battery location away from freezing point and temperature above 40 °C.
- Ensure accessibility for service and visual inspection.
- Ensure that the battery can be safely disconnected when connected to downstream systems.
- Provide adequate monitoring, supervision and service, and train the operator.
- Ensure the system is balanced and protect the box from dangerous mechanical and electrical conditions.
- Refer to the enclosed booklet [„How to LiFePO₄ Battery“](#). to familiarise yourself with the features and principles of battery operation.



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