Cordex® HP Protocol Bridge Peripheral Quickstart Guide

For use with Polarium® batteries

alpha®

an EnerSys® company

Part Number: 0180094-012-QS

Read this document carefully

This document contains important safety instructions that must be followed during the installation, servicing, and maintenance of this product. Keep it in a safe place. If there are any questions regarding the safe installation or operation of this product contact Alpha Technologies Ltd. or your nearest Cordex® power system representative.

Save this document for future reference.

Introduction

The Cordex® HP protocol bridge is a protocol converter peripheral that interfaces with third-party products including Polarium® batteries to allow for monitoring via the Cordex® HP system controller.

The Cordex® HP protocol bridge peripheral can translate CANOpen, Modbus RTU, RS232, and RS485 signals to the protocol used in the Cordex® HP family of power conversion products and packaged neatly into a compact form factor.

Set up consists of two parts – the Wiring setup and the Cordex® HP controller setup. The Cordex® HP controller setup describes the process for adding Polarium® batteries allowing you to view the data through the controller.
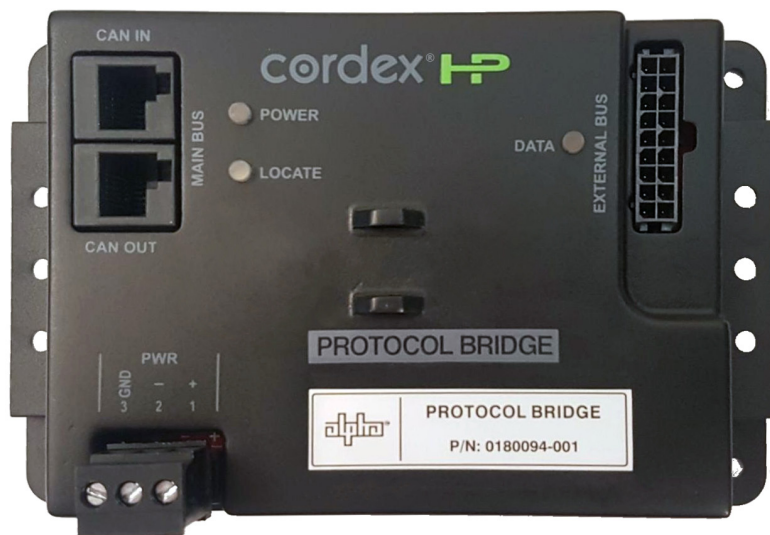

Figure 1: Cordex® HP protocol bridge peripheral

NOTICE

The Cordex® HP protocol bridge peripheral (PN: 0180094-012) is inclusive of the protocol bridge peripheral and the Polarium® 6-inch cable (PN: 8701459-002).

The Cordex® HP controller, CAN cable (offset to offset), and Polarium® batteries are sold separately.

Specifications

Electrical	
Input voltage	20 to 60 Vdc
Input power	5 W
Features	
Power LED	Solid blue indicates power is present and is applied with correct polarity.
	Off indicates no power is present or polarities are incorrect.
Locate LED	Solid green indicates CAN communication OK.
	Solid red indicates the external bus has no cable attached.
	Off indicates no signal received from the controller.
Data LED	Solid white indicates external communication through bus OK.
	Off indicates that no data information is being transferred.
Mechanical	
Dimensions H × W × D	5.2 × 3.3 × 1.2 in. (131.3 × 83.9 × 28.9 mm)
Weight	0.4 lb (0.2 kg)
Mounting	Rack mount (option)
	DIN rail mount (option)
	Panel mount (option)
CAN communication	RJ12 offset
Connection	**External bus:** 18-pin Molex® connector
	Power: Terminal block
Environmental	
Temperature	**Operation:** –40 to 158°F (–40 to 70°C)
	Storage: –40 to 185°F (–40 to 85°C)
Relative humidity	0 to 95% non-condensing
Elevation	Up to 6,562 ft (2,000 m)

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Regulatory compliance

Regulatory compliance	
Safety	CSA C22.2 No. 62368-1:19
	UL 62368-1-2021
	IEC 62368-1-2018/2020
	EN 62368-1-2020
EMC	FCC CFR47 Part 15/B- Class B
	CAN ICES-003(B) / NMB-003(B)
	EN 55032 (CISPR 32) Class B
	EN 61000-4-2
	EN 61000-4-3
	EN 61000-4-4
	EN 61000-4-6
	ETSI EN 300 386

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Polarium® battery support

Polarium® battery support	
Model	Polarium® Battery SLB48-100-144-1U 13S Series, Generation 5, 100 Ah, 19-inch, 4RU
	Polarium® Battery SLB48-100-226-1U 13S Series, Generation 5, 100 Ah, 23-inch, 2RU
	Polarium® Battery SLB48-200-228-1U 13S Series, Generation 5, 200 Ah, 23-inch, 2RU

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Safety

Save these instructions

This document contains important safety instructions that must be followed during the installation, servicing, and maintenance of the product. Keep it in a safe place. Review the drawings and illustrations contained in this document before proceeding. If there are any questions regarding the safe installation or operation of this product, contact Alpha Technologies Ltd. or the nearest Cordex® power system representative.

Safety symbols

To reduce the risk of injury or death, and to ensure the continued safe operation of this product, the following symbols have been placed throughout this document. Where these symbols appear, use extra care and attention.

Symbol	Type	Description
⚠	**WARNING**	**Risk of serious injury or death** Equipment in operation poses a potential electrical hazard which could result in serious injury or death to personnel. This hazard may continue even when power is disconnected.
⚠	**CAUTION**	Cautions indicate the potential for injury to personnel.
⚠	**CAUTION**	**Risk of burns** A device in operation can reach temperature levels which could cause burns.
❗	**ATTENTION**	The use of attention indicates specific regulatory or code requirements that may affect the placement of equipment or installation procedures. Follow the prescribed procedures to avoid equipment damage or service interruption.
⏚	**GROUNDING**	This symbol indicates the location or terminal intended for the connection to protective earth. An enclosure that is not properly connected to protective earth presents an electrical hazard. Only a licensed electrician can connect AC power and protective earth to the enclosure.
✔	**NOTICE**	A notice provides additional information to help complete a specific task or procedure or general information about the product.

General safety

WARNING

This system is designed to be installed in a restricted access location that is inaccessible to the general public.

Ce système est conçu pour être installé dans un endroit à accès restreint inaccessible au grand public.

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WARNING

This equipment is not suitable for use in locations where children are likely to be present.

Cet équipement ne convient pas pour une utilisation dans des lieux ou des enfants sont susceptibles d'être présents.

You must read and understand the following warnings before installing the system and its component. Failure to do so could result in personal injury or death.

- Read and follow all instructions included in this document.
- Only trained personnel are qualified to install or replace this equipment and its components.
- Use proper lifting techniques whenever handling equipment, parts, or batteries.

Electrical safety

WARNING

The Cordex® HP protocol bridge peripheral is Safety Extra Low Voltage (SELV) so no shock hazard exists. However, high currents are possible if I/O lines are not correctly fused. The DC output from the rectifiers and the battery system has a high short circuit current capacity that may cause severe burns and electrical arcing. Use extreme care when working inside the shelf while the system is energized. Do not make contact with live components or parts.

Before working with any live battery or power system, follow these precautions:

- Remove all metallic jewelry, such as watches, rings, metal rimmed glasses, or necklaces.
- Wear safety glasses with side shields at all times during the installation.
- Use OSHA approved insulated hand tools. Do not rest tools on top of batteries.

WARNING

Lethal voltages are present within the power system. Always assume that an electrical connection or conductor is energized. Check the circuit with a voltmeter with respect to the grounded portion of the enclosure (both AC and DC) before performing any installation or removal procedure.

Installation and safety precautions

Only qualified personnel should install and connect the power components within the Cordex® power system.

The installer should follow all applicable local rules and regulations for electrical and battery installations; for example, Canadian Standards Association (CSA®), Underwriters Laboratories Inc. (UL), Canadian Electrical Code (CEC®), National Electrical Code (NEC®), Occupational Safety and Health Administration (OSHA®), and local fire codes. It is suitable for installation as part of the Common Bonding Network in one or more of the following locations:

- Network telecommunication facilities
- Locations where the NEC applies
- Outside plant

ATTENTION

Battery safety data sheets

Read the battery safety data sheet (SDS) before installing batteries in the power system. The SDS provides important information including hazard identification, first aid measures, handling and storage, and PPE.

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Wiring setup

> **NOTICE**
> The Cordex® HP protocol bridge peripheral is plug and play.

> **NOTICE**
> The DC system supports a single battery, although that battery can consist of multiple Polarium® battery modules. Battery modules are automatically added to the battery system according to the protocol bridges assigned to the system. Each protocol bridge can communicate with up to 26 Polarium® battery modules.

1. Install the Cordex® HP protocol bridge peripheral in your system by mounting it on a rack, panel, or DIN rail.

2. Use the 6-inch Polarium® cable and connect the Molex® connector to the Cordex® HP protocol bridge peripheral and the RJ45 connector to the top port on the first Polarium® battery module. Use appropriate cables to daisy chain to additional Polarium® battery modules as needed. Refer to the Polarium® documentation for more information. Up to 26 Polarium® battery modules are supported per protocol bridge.

3. Connect input power (20 to 60 Vdc range) to the Cordex® HP protocol bridge peripheral.

4. Connect a CAN communication cable back to the controller.
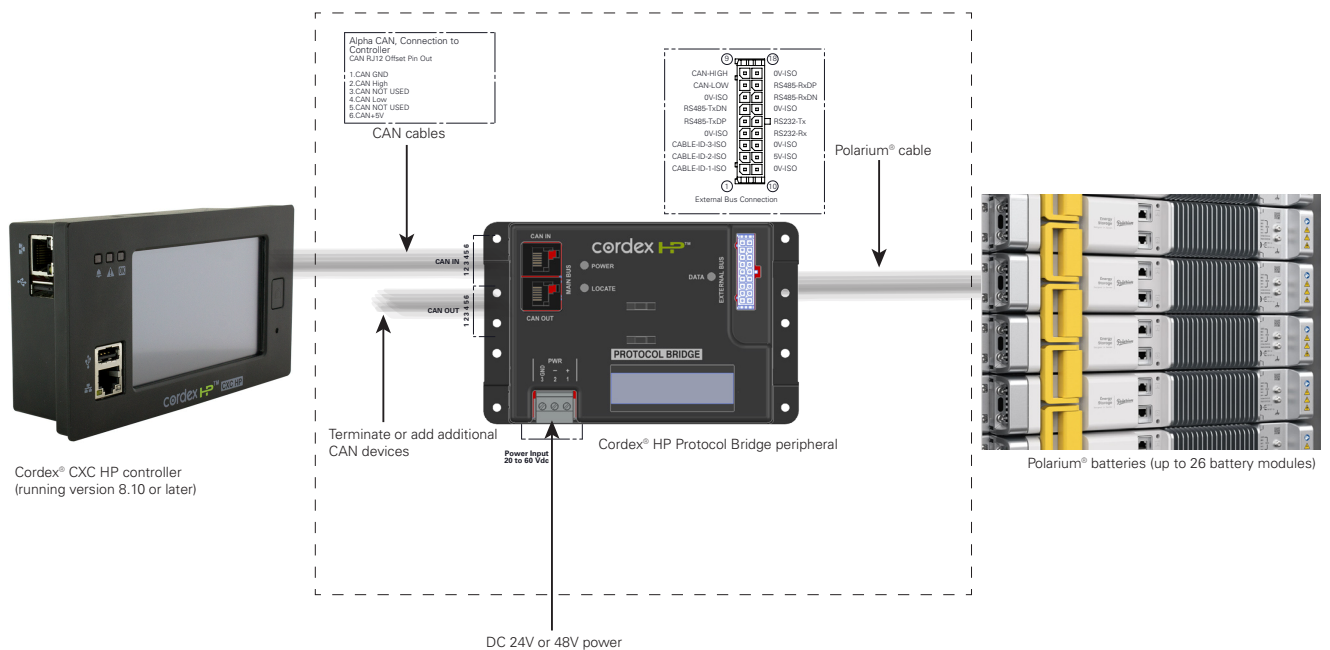
Figure 2: Cordex® HP protocol bridge peripheral wiring overview

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Cordex® HP controller setup

NOTICE

Ensure the Cordex® HP controller is using software version 8.10 or later.

To add Polarium battery modules to the DC system for the first time:

1. Connect a Cordex® HP protocol bridge on the CAN bus, and ensure the Polarium® battery modules are connected to the protocol bridge.

2. When adding Polarium® modules for the first time, remove the default battery system in order to add one that is compatible with Polarium® batteries. To do this, go to **Systems > DC System > Inventory > Battery**. If a battery already exists, remove it.

3. In the **Battery** table, select the **Add Battery** button to launch the wizard. Select **Add Polarium Battery** from the dropdown list and select the **Done** button to exit the wizard.

4. The Polarium® battery modules connected via the protocol bridge will begin to appear in the **Polarium Battery Modules** table. If the battery modules do not appear, the protocol bridge may not be assigned to the battery. If this is the case, use the **Configure Polarium Battery** wizard to manually assign the appropriate protocol bridge to the battery.

   On this table you can view the battery module voltage, current, power, communication status, active temperature, and breaker/fuse status.

5. By selecting the **Go To** button for a given battery module, the **Battery Status**, **Configuration**, and **Alarms** tables are displayed.

NOTICE

The **Maximum Temperature** and **Minimum Temperature** of all the battery modules are logged as performance logs. To see these logs, first follow the steps under controller setup to add battery modules to your system. Then go to **Logs > Performance** to view the appropriate temperature log for the Polarium® battery.
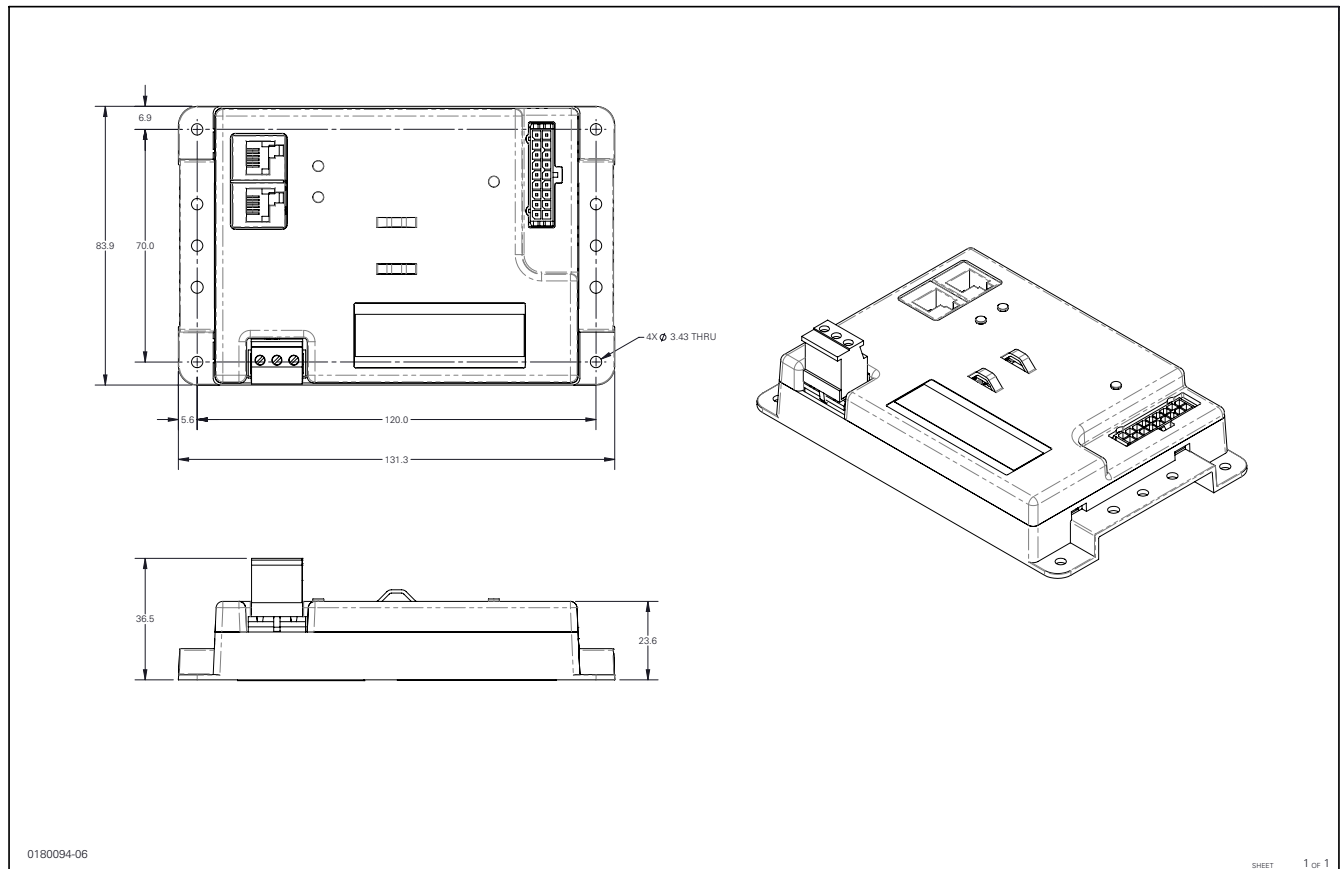
Figure 3: Cordex® HP protocol bridge peripheral technical drawing

For technical support, contact us:

Canada and US: +1 888-462-7487
International: +1 604-436-5547
Email: support@alpha.ca