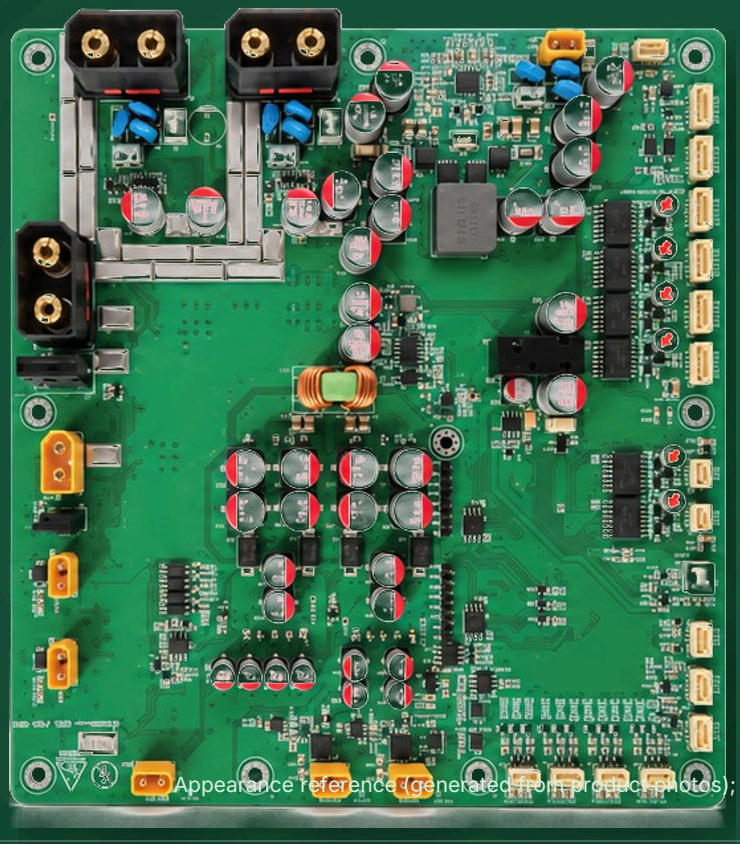
EQIO

ERB-PWR-B01

PRODUCT MANUAL

48 V Chassis Main Power-Management Board

Power-management board · Robot chassis p...



Appearance reference (generated from product photos); shipped units may differ.

Measurement and control, made easy.

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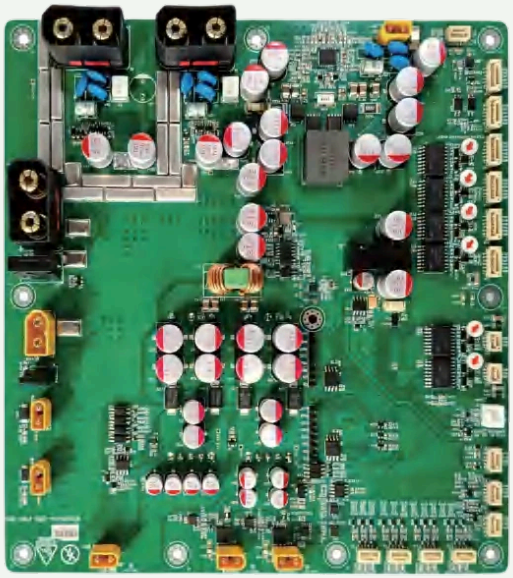
Easy · Quick · Input · Output

01 OVERVIEW

48 V Chassis Main Power-Management Board

Power-management board · Robot chassis power distribution · Power timing control · Equipment status management

ERB-PWR-B01 uses ChMC and BMC dual MCU, supports external power and battery input, charging path and multi-channel isolated output, integrates voltage, current, temperature monitoring and e-stop I/O, used for chassis power distribution management.
External power, battery discharge and charging I/O respectively layout, controller and management unit via isolated serial HMI, e-stop signal can control powertrain circuit. Multi-channel voltage output suited to connect chassis powertrain, control and sensing equipment, facilitates centralized organize status acquisition and power enable.



Product appearance reference; shipped units may differ.

Key features

- ChMC and BMC dual MCU architecture
- 48V external power and battery input
- Independent charging input output path
- 24V and 12V isolated power
- Monitoring, e-stop and isolated RS-485

02 FUNCTIONS

Functions and engineering value

Dual management unit cooperation

Board uses ChMC and BMC2 MCU, respectively configured with storage resources and via 2-ch isolated RS-485 interconnect, ChMC mount RTC. System can around dual management unit organize power status, monitoring and control procedure, but specific task assign and fault policy requires actual firmware implements shall prevail.

Main power and charging path

Board has external power and battery discharge 2-ch independent 48V input, and settings independent charging input and output path. Main power and charging parameters respectively listed, not can independent I/O directly de automatic switch, and all linked stream or specific battery charging algorithm, related operation mode must follow application configured with confirm.

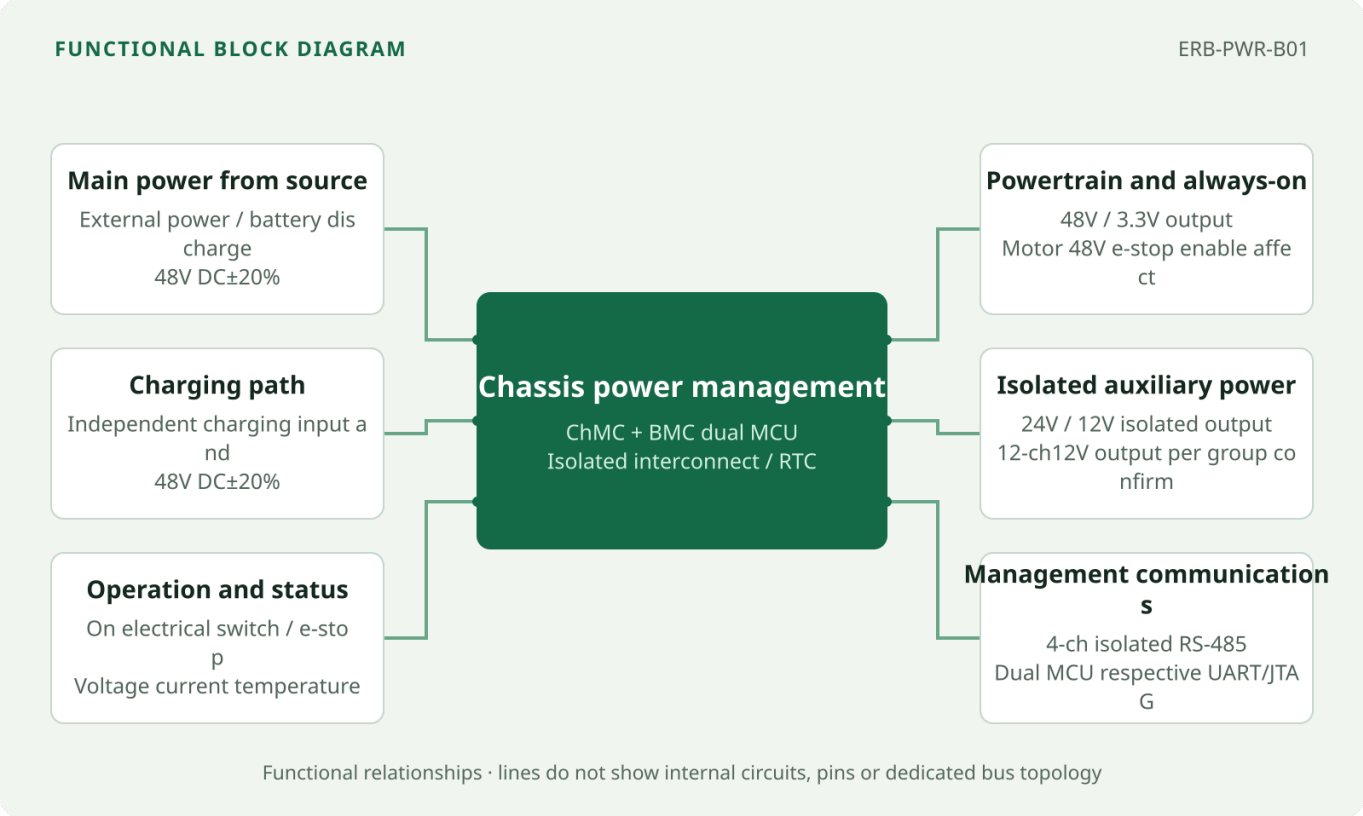
Classified output and e-stop signal

Core output cover 3.3V, 48V and 24V and 12V isolated power, and list has 12-ch 12V isolated output. On electrical switch and e-stop I/O used for external operation, e-stop via MOS enable path shut-off motor 48V and provides detection signal, complete set action and recovery procedure should combined with system verification.

The functional notes explain the product’s role from published configuration. Optional functions, software and peripherals follow the project definition. Chip capability is not the same as implemented I/O.

03 ARCHITECTURE

Functional blocks and system connections



Function relationship illustration, based on website I/O and configured with compiled; not indicates actual on-board circuit, independent bandwidth or not published chip interconnect implements.

Platform and I/O

The board uses ChMC and BMC dual MCU architecture, published data gives clock and storage lower limit, but not specified device model. Function note should focus power distribution, monitoring and management I/O; independent charging path not etc. To already disclosed charging algorithm, e-stop I/O also not should expand write specific safety certification or etc.grade.

> **Reading the diagram**
>
> Solid lines show published functional relationships, not on-board buses, bridge chips or connector pins. Optional controllers, radios, storage and software follow the configuration and interface files.

04 SPECIFICATIONS

Technical specifications

Compiled from published product data. Batch, I/O and environmental ratings follow the order confirmation.

Core system

MCU	Includes 2 MCU (1 as ChMC, 1 as BMC) clock≥72MHz, Flash≥128KB, SRAM≥32KB ChMC add-on FLASH≥256Mb, BMC add-on FLASH≥128Mb
RTC	ChMC mount RTC RTC
Power I/O	Main power input: has external power and battery discharge 2-ch independent power I/O, 48V±20% DC, total input power≥4950W charging power input 48V±20% DC, power≥480W charging power output 48V±20% DC, power≥480W core power output: 3.3V/48V output, 24V/12V isolated output, 12-ch12V isolated output

I/O and expansion

Interface with switch	On electrical switch: normally open self-returning illuminated switch, LED power 24V, power≤1W; e-stop button: normally closed knob, via MOS manage enable motor 48V power shut-off, and enable signal can be BMC detection
Other external port	4-ch isolated RS-485, rate at least 10Mbps
ChMC and BMC interconnect I/O	2-ch isolated RS-485
Debug interface	2 MCU respective debug UART/JTAG I/O

Mechanical specifications and system requirements

Specification	190 × 200 × 40mm (±2mm), weight≤0.5kg (not including pack fitted, allowed deviation±10g), board thickness 2.0mm
System requirements	FreeRTOS V10.3.1+

Environmental conditions

Operating temperature	-20°C~55°C (temperature-rise limit 95°C, 85°Calarm threshold), storage temperature: -40°C~+70°C

05 APPLICATIONS

From product capability to applications

Robot chassis power distribution

Can chassis powertrain, compute and sensing load per voltage etc.grade group, uses external power and battery discharge I/O organize power solution. Design when check input from source, each channel load and routing capability, website total input capability not can replace each item output channel and connector single independent load confirm.

Power timing management

Suited to requires from control unit organize on electrical, status inspection and powertrain enable equipment, ChMC and BMC can via isolated serial switch management information. Specific boot sequence, detection conditions and fault response from firmware definition, should switch operation, battery status change and equipment restart etc.scenario under item by item verification.

Charging and run status connect

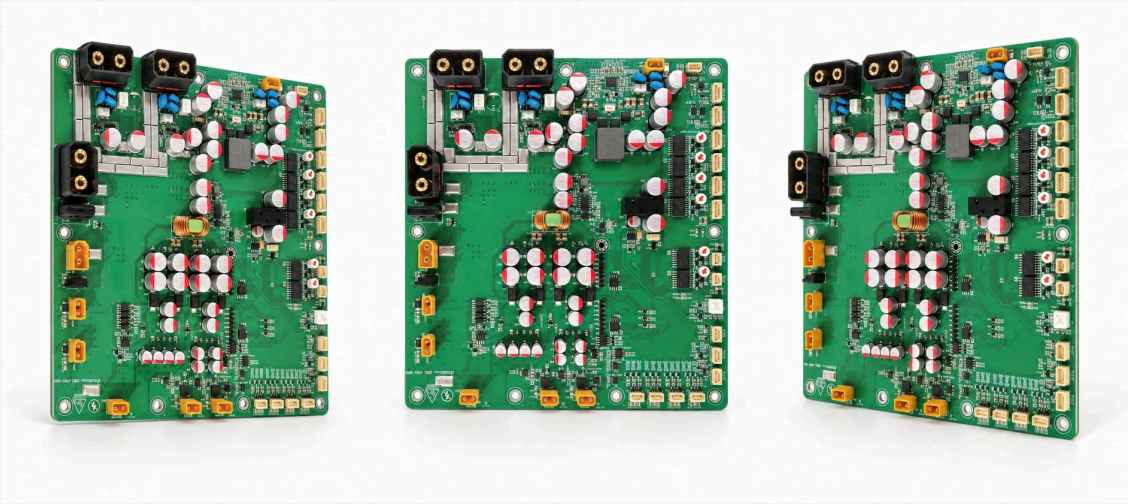
Can uses independent charging I/O and management communications charging related status include chassis system integration, power, temperature and run status from application solution organize monitoring. Charging voltage current control, battery compatible and run mode switch not can from I/O name infer, required and power and battery solution one and confirm.

Integration checks

Input and charging	2-ch main input 48V±20%, total input capability≥4950W; charging input/output each ≥480W, operation mode required confirm.
Output group	3.3V/48V, 24V/12V isolated output and 12-ch12V isolated output; check actual channel belongs to and single channel load.
Switch and e-stop	E-stop as used for motor 48V enable and BMC detection; check control polarity, shutdown and recovery procedure.
Management and environment	FreeRTOS10.3.1+; ChMC/BMC isolated communications, operation−20–55°C, board outline 190 × 200 × 40mm.

06 CONFIGURATION

Appearance, configuration and selection



Multi-angle reference (generated from product photos); shipped units may differ.

Configuration

Main input supports 48V±20%, matching on electrical switch and e-stop I/O, run FreeRTOS management environment.

Selection guide

Order confirmation	Batch, I/O and environmental ratings follow the order confirmation
Published data	Compiled from published product data; EQIO provides selection and system integration
Configuration talk	Share the application, I/O count, environment and software so a configuration can be proposed

Request a quotation and selection support

Email lyping@eqio.com Phone +86 182 8191 2988
Web eqio.com

EQIO

Easy · Quick · Input · Output

BRAND

Measurement and control, made easy.



EQIO product family · concept rendering

Brand story

EQIO builds measurement and control products and systems. The name stands for Easy Quick Input Output: Easy is a clear structure that is quick to learn, Quick is a direct path to efficient delivery, and Input / Output is every link between the device under test and the control system.
The soft single-cycle wave inside the Q links the brand to signals, acquisition and I/O. “Measurement and control, made easy” is our promise for every selection, integration and delivery.

What we do

Products

Data acquisition, test instruments, control and I/O, modular platforms, software, cables

Systems

Configured to the measurand, channels, accuracy and software, from design to commissioning

Support

Selection advice, training, maintenance and calibration

How we deliver

01
Requirements

02
Solution design

03
Build & integration

04
Factory test

05
Delivery & training

06
Ongoing support

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