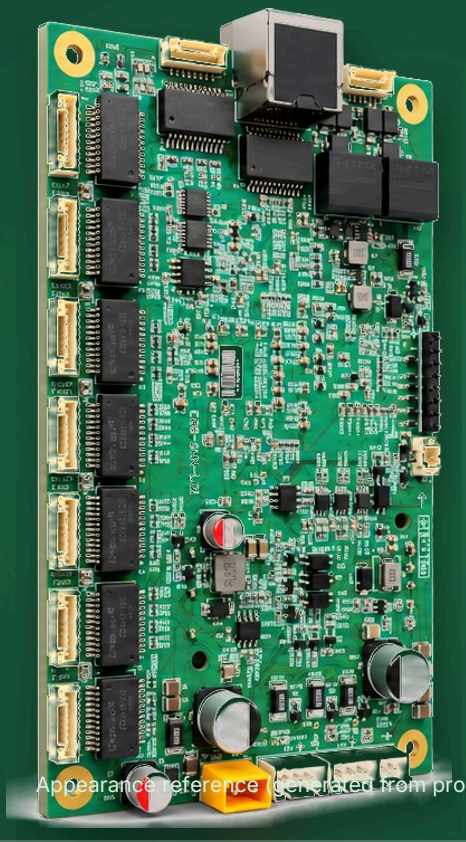
EQIO

ERB-SWN-L01

PRODUCT MANUAL

Gigabit and 2.5G Layer-1 Ethernet Switch Board

Network and EtherCAT board · Robot inter...



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

Measurement and control, made easy.

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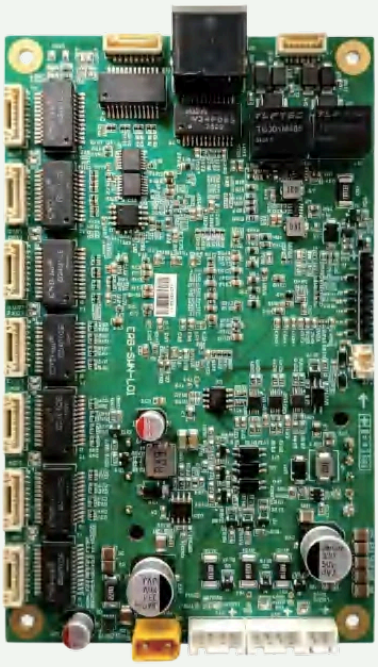
Easy · Quick · Input · Output

01 OVERVIEW

Gigabit and 2.5G Layer-1 Ethernet Switch Board

Network and EtherCAT board · Robot internal network · Equipment interconnect · Network and power distribution integrates

ERB-SWN-L01 provides 8-ch Gigabit Ethernet and 1-ch 2.5G network, integrates MCU health management and 3-ch independent can control 24V isolated output, supports network cascade, VLAN and industrial equipment attach.
Network switch and power control centralized the same board, isolated RS-485 and PPS signal used for management and synchronous connect. Compact structure facilitates install robot and industrial equipment, suited to sensing node interconnect, network aggregation and peripheral equipment power management.



Product appearance reference; shipped units may differ.

Key features

- 8-ch Gigabit plus 1-ch 2.5G network
- Supports cascade, VLAN and STP/RSTP
- 3-ch can control 24V isolated output
- Independent MCU and RTC
- Isolated RS-485 and PPS connect

02 FUNCTIONS

Functions and engineering value

Gigabit and 2.5G aggregation

ERB-SWN-L01 provides 8-ch Gigabit Ethernet and 1-ch 2.5G network, switch core supports cascade and VLAN, STP/RSTP etc.function, can used for centralized connect equipment node. Port rate and switch function belongs to different metrics, specific network group, on assign and can used configured with must follow system solution confirm.

Management and synchronous connect

Independent MCU combined with RTC handles status and management task, switch unit and MCU via I2C and reset signal connect. 2-ch isolated RS-485 and 1-ch isolated PPS provides external management and synchronous signal path, PPS I/O this body not can represent has network devices already implements unified time synchronous.

Network and power coordination

Board uses 24V DC input, and provides 3-ch independent can control 24V isolated output, facilitates peripheral node group power. Each channel output capability respectively listed, network connect and power group can together planning, actual equipment load, boot current and channel at the same time operation conditions required integrates when check.

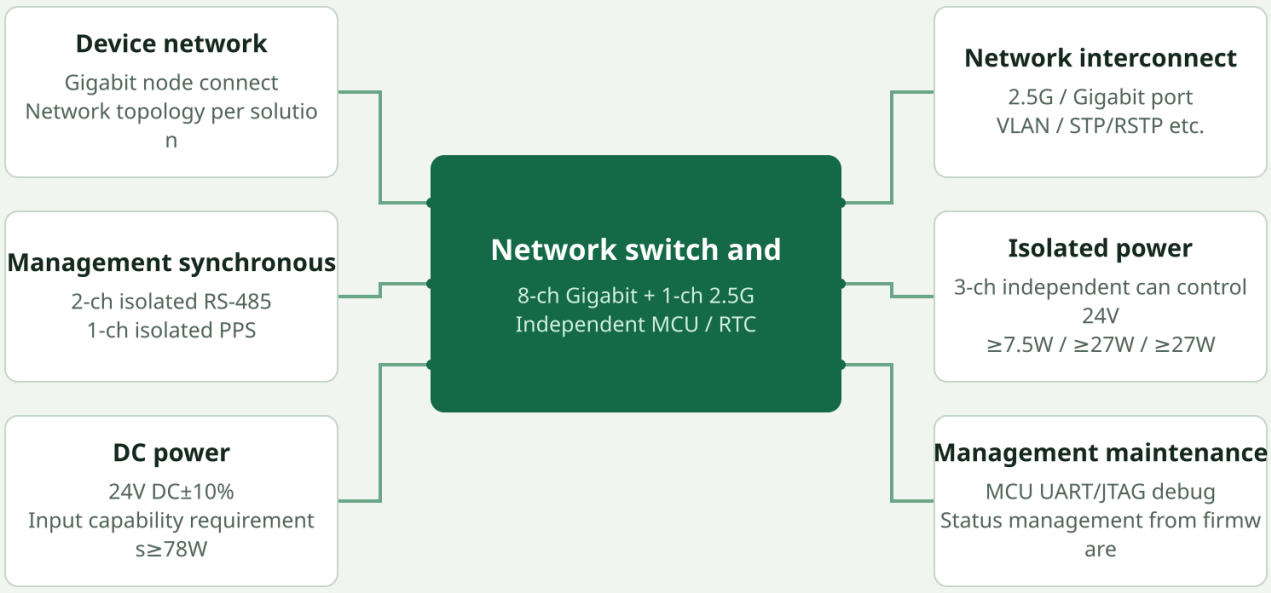
The functional notes explain the product’s role from published configuration. Optional functions, software and peripherals follow the project definition. Chip capability is not the same as implemented I/O.

03 ARCHITECTURE

Functional blocks and system connections

FUNCTIONAL BLOCK DIAGRAM

ERB-SWN-L01



Functional relationships · lines do not show internal circuits, pins or dedicated bus topology

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

This board network switch core and independent MCU forms function platform, website not has gives switch chip or MCU specific model. Data can note already published port, layer-2 switch function and management connect, but not should invent switch capacity, pack forwarding rate or processor type; isolated power belongs to single independent power function.

> **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

2.5G network switch chip	Supports output at least 8-ch Gigabit network and 1-ch 2.5G network, supports multi chip cascade supports loop detection, STP/RSTP, IGMP Snooping, VLAN, 802.1X port certification etc.
MCU	Clock≥72MHz, Flash≥128KB, SRAM≥32KB, add-on FLASH≥128Mb
RTC	MCU mount RTC RTC
Power I/O	Power input: 24V DC±10%, power≥78W 3-ch independent can control 24VDC±10%isolated power output, 1-ch power≥7.5W, additionally 2-ch power all ≥27W

Mechanical specifications and system requirements

Specification	139 × 84 × 29mm (±2mm), weight≤0.18kg (not including pack fitted, allowed deviation±10g), board thickness 1.6mm
System requirements	FreeRTOS V10.3.1+

I/O and expansion

External I/O	2-ch isolated RS-485 (from the same connector brought out), rate at least 0.5Mbps, 1-ch isolated PPS synchronous signal 1-ch 2.5G network (1 independent connector brought out), 8-ch Gigabit Ethernet
Debug interface	MCU debug UART/JTAG I/O
Switch chip/MCU interconnect I/O	1-chI2C, reset signal

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 internal network

Can multiple robot sensing or control node attach Gigabit port, and according to overall topology used 2.5G connect and on grade equipment HMI. VLAN and loop related function can and network planning, but port configured with, actual stream amount and equipment protocol requires together verification, not cannot only based on rated rate determine block condition.

Industrial device network aggregation

Suited to compact equipment in centralized layout network switch and status management, via isolated RS-485 attach management link. Requires used STP/RSTP or multicast function when, should confirm delivery firmware and configured with ingress, and per actual device connection method test network recovery, multicast stream amount and fault handling.

Communications and auxiliary power distribution

Can requires 24V power peripheral equipment assign to 3-ch isolated output, at the same time uses board network port completes data interconnect. System should log each channel power load, start-stop policy and should network node, on electrical and single channel restart when inspection equipment recovery, avoid only per total power arrangement load.

Integration checks

Port configured with	8-ch Gigabit plus 1-ch 2.5G; VLAN, STP/RSTP etc.function required check firmware, configured with method and actual topology.
Output group	3-ch can control 24V isolated output: 1-ch≥7.5W, additional 2-ch each ≥27W, required check at the same time load conditions.
Power and synchronous	24V±10%, input power capability requirements≥78W; isolated PPS direction, signal level and synchronous used method required confirm.
Management and environment	FreeRTOS10.3.1+, 2-ch isolated RS-485; operation−20–55°C, installation dimensions 139 × 84 × 29mm.

06 CONFIGURATION

Appearance, configuration and selection



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

Configuration

Uses 24V DC input, 3-ch isolated output respectively supports at least 7.5W, 27W and 27W.

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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