Quick Installation Guide

Industrial Ethernet Switch - ETH-42GX Series

QS-016 2025A

Introduction

RLH **ETH-42GX** series industrial unmanaged Ethernet switches are equipped with four 10/100/1000/2.5GBase-T(X) ports and two 1G/10GBase-X SFP+ ports. They are DIN rail mountable, and designed to operate in harsh environments with an extended operating temperature range of -40°C to 75°C.

The **ETH-42GXP-BT-1** PoE++ model is a PSE that supplies up to 90W of PoE per port to Powered Devices (PDs) in accordance with the IEEE 802.3bt standard. A PSE (Power Sourcing Equipment) is a network device like a switch or hub that supplies power to PDs through an Ethernet cable. Power over Ethernet enables users to transmit electrical power, along with data, to remote devices over standard twisted-pair wiring across an Ethernet network. This unmanaged PoE++ switch combines high power with fast 10Gbps SFP+ ports for flexibility.

Package Contents

Description	Quantity
ETH-42GX-1 or ETH-42GXP-BT-1	1 ea.
Quick Installation Guide	1 ea.

Prior to Installation

Verify the correct model and package contents. Check for shipping damage and contact RLH immediately if any components are damaged or missing. Ensure that a suitable installation environment is available with sufficient space for mounting.

Caution - Before Installing

⚠ **Installing in a closed or multi-rack environment may increase the ambient temperature. Check to make sure that the maximum operating temperature for this equipment is not exceeded.**

⚠ **Verify sufficient air flow for safe operation when installing in an enclosure of rack environment.**

⚠ **Ensure that the installation does not create a hazardous condition due to uneven or unsafe mechanical loading. Install only onto T35 DIN rail or equivalent.**
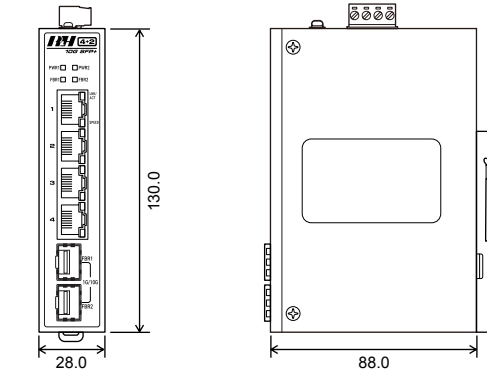
⚠ **Verify the use of a correct power supply and supply wiring to prevent overloading of the circuit and creating hazardous conditions.**
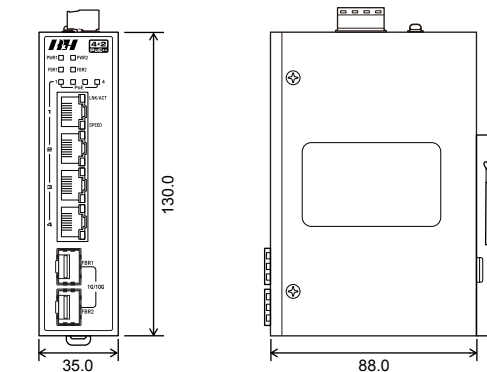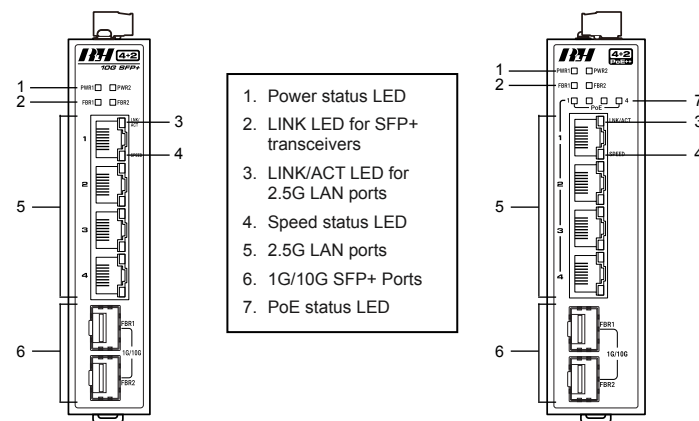
Dimensions

Unit = mm

ETH-42GX-1

28.0 · 130.0 · 88.0

ETH-42GXP-BT-1

35.0 · 130.0 · 88.0

Front Panel

1. Power status LED
2. LINK LED for SFP+ transceivers
3. LINK/ACT LED for 2.5G LAN ports
4. Speed status LED
5. 2.5G LAN ports
6. 1G/10G SFP+ Ports
7. PoE status LED

DIN Rail Mounting

- **Installation**

1. Insert the upper lip of the DIN rail clip into the mounting rail.

2. Press the Switch towards the mounting rail until it snaps into place.
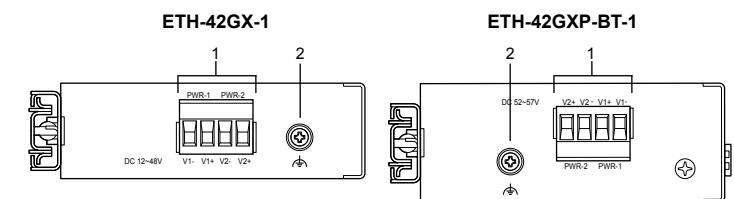

Step 1 · DIN Rail · Step 2
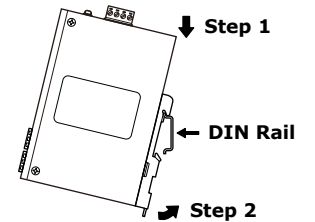
- **Removal**

1. Pull down the latch on the DIN rail clip using a screwdriver.

2. Slightly rotate the switch forward and lift up to remove it from the DIN rail.

DIN Rail · Step 2 · Step 1
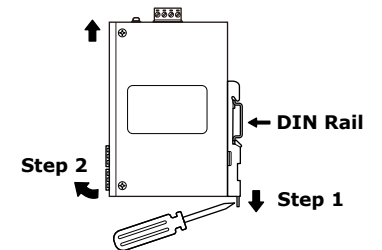
## Power Connections

ETH-42GX-1   **ETH-42GXP-BT-1**

1. Input power terminals, PWR1 and PWR2
2. Chassis Ground

Wiring

The ETH-42GX series switch supports dual redundant power supplies, indicated on the front panel as PWR1 and PWR2. The connections for PWR1 and PWR2 are located on the terminal block, identified as V1 and V2.

PWR-1 PWR-2

V1- V1+ V2- V2+

- Verify the correct power and polarity from the power source. Use solid copper wire only.

- Insert the negative/positive wires into the desired V-/V+ terminals.
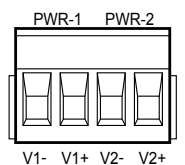
- Tighten the wire-clamp screws on the connector terminal with a small flat-blade screwdriver. Tug lightly on the wires to verify that wiring is secure.

Attach a ground wire to the Ground screw to limit the effects of electromagnetic interference (EMI). Run the ground connection from the ground screws to the grounding surface prior to connecting devices.

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ETH-42GX Series   **Quick Install Guide**

Quick Installation Guide

Cables

The ETH-42GX series switches utilize standard Ethernet ports and can use CAT 3, 4, 5, 5e and above UTP cables to connect to any other network devices (PCs, servers, switches, routers, or hubs) depending on the link type.

Cable Types

Speed	Cable Type	Max. Length	Connector
10BASE-T	Cat. 3, 4, 5 100-ohm	UTP 100m (328 ft)	RJ-45
100BASE-TX	Cat. 5 100-ohm UTP	UTP 100m (328 ft)	RJ-45
1000BASE-T	Cat. 5 / Cat. 5e 100-ohm UTP	UTP 100m (328 ft)	RJ-45
2.5GBASE-T	Cat. 5e 100-ohm UTP	UTP 100m (328 ft)	RJ-45

Cable Pin Assignments

10/100Base-T(X) P.S.E. RJ-45 Port	
Pin No.	Assignments
#1	TD+ with PoE Power output +
#2	TD- with PoE Power output +
#3	RD+ with PoE Power output -
#6	RD- with PoE Power output -

1000/2.5GBase-T P.S.E. RJ-45 Port	
Pin No.	Assignments
#1	BI_DA+ with PoE Power output +
#2	BI_DA- with PoE Power output +
#3	BI_DB+ with PoE Power output -
#4	BI_DC+ with PoE Power output +
#5	BI_DC- with PoE Power output +
#6	BI_DB- with PoE Power output -
#7	BI_DD+ with PoE Power output -
#8	BI_DD- with PoE Power output -

10/100 Base-T(X) MDI/MDI-X		
Pin Number	MDI port	MDI-X port
1	TD+(transmit)	RD+(receive)
2	TD-(transmit)	RD-(receive)
3	RD+(receive)	TD+(transmit)
4	Not used	Not used
5	Not used	Not used
6	RD-(receive)	TD-(transmit)
7	Not used	Not used
8	Not used	Not used

1000/2.5GBase-T MDI/MDI-X		
Pin Number	MDI port	MDI-X port
1	BI_DA+	BI_DB+
2	BI_DA-	BI_DB-
3	BI_DB+	BI_DA+
4	BI_DC+	BI_DD+
5	BI_DC-	BI_DD-
6	BI_DB-	BI_DA-
7	BI_DD+	BI_DC+
8	BI_DD-	BI_DC-

LED Indicators

LED	Color	Status	Description
PWR1	Green	On	Sufficient power received by V1- and V1+
PWR2	Green	On	Sufficient power received by V2- and V2+
Ethernet Port LNK/ACT	Green	On	Port link established
		Blinking	Port is transmitting or receiving packets
Ethernet Port Speed	Green	On	2.5Gbps
	Amber	On	1000Mbps
	Off	On	10 or 100Mbps
PoE	Green	On	Port is delivering PoE
SFP+ LNK/ACT	Green	On	Port link established
		Blinking	Port is transmitting or receiving packets

Specifications

Switch Model	ETH-42GX-1	ETH-42GXP-BT-1
Physical Ports		
10/100/1000/2.5GBase-T(X) RJ45 Ethernet ports with Auto MDI/MDI-X	4	4 (PSE with IEEE 802.3bt Type 4)
1G/10GBase-X SFP+ ports	2	2
Technology		
Ethernet Standards	IEEE 802.3 for 10Base-T IEEE 802.3u for 100Base-T IEEE 802.3ab for 1000Base-T IEEE 802.3z for 1000Base-X IEEE 802.3bz for 2.5GBase-T IEEE 802.3ae for 10G SFP+ IEEE 802.3x for Flow control IEEE 802.3af/at/bt Power over Ethernet (PoE) / PoE+ / PoE++"	
MAC Table	8K	
Processing	Store-and-Forward	
Jumbo frame	16K Bytes	
Switch Properties	Switching latency: 10µs Switching bandwidth: 60Gbps	
LED Indicators		
Power Indicator (PWR)	Green: Power LED x 2	
10/100/1000/2500Base-T(X) RJ45 Ethernet Port Indicator	Upper LED for Link/Act indicator: Green for port Link/Act Lower LED for speed indicator ~ Green for 2500Mbps / Amber for 1000Mbps / Off-light for 10 or 100Mbps.	
1G /10GBase-X SFP+ Port Indicator	Green: Port Link.	
PoE LED	N/A	Green for port is delivering PoE.
Power		
Redundant Input power	Dual DC inputs. 12-48VDC on 4-pin terminal block	Dual DC inputs. 52-57VDC on 4-pin terminal block
Power consumption(Typ.)	<10Watts	<10Watts
PoE Power budget	N/A	240W max
Current overload protection	Internal fuse protection	
Reverse Polarity Protection	When polarity is reversed, the device will not power on	
Physical Characteristics		
Dimension (W x D x H)	1.10" (W) x 3.46" (D) x 5.24" (H) (28mm x 88mm x 133mm)	1.38" (W) x 3.46" (D) x 5.24" (H) (35mm x 88mm x 133mm)

Switch Model	ETH-42GX-1 / ETH-42GXP-BT-1
Environmental	
Storage Temperature	-40°C to 85°C (-40°F to 185°F)
Operating Temperature	-40°C to 75°C (-40°F to 167°F)
Operating Humidity	5% to 90% Non-condensing
Operating Altitude	Up to 2000m
Regulatory Approvals	
EMC	CE EMC (EN 55035, EN 55032), FCC Part 15 B
EMI	EN 55032, CISPR32, EN 61000-3-2, EN 61000-3-3, FCC Part 15 B class A
EMS	IEC/EN61000-4-2 (ESD) IEC/EN61000-4-3 (RS) IEC/EN61000-4-4 (EFT) IEC/EN61000-4-5 (Surge) IEC/EN61000-4-6 (CS) IEC/EN61000-4-8 (PFMF) IEC/EN61000-4-11 (Dips)
Shock	IEC60068-2-27
Free Fall	IEC60068-2-31
Vibration	IEC60068-2-6
Warranty	5 years

⚠ Safety

- **Use 12-24AWG solid copper wire conductors only.**
- **Use minimum 105°C rated wiring.**
- **Screw down terminal block torque value is 4.5 lb-in.**
- **Do not block ventilation holes.**
- **Clean only with a dry cloth, do not use liquids.**

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