

User Manual

QEC-RXXJTXS Series

EtherCAT Junction and Fiber-Optic Junction Modules

QEC-RXXJT1S / QEC-RXXJT2S / QEC-RXXJT3S / QEC-RXXJT6S

(Version 1.0)

REVISION

DATE	VERSION	DESCRIPTION
2026/10/06	**Version 1.0**	**New release: common manual for QEC-RXXJT1S/JT2S/JT3S/JT6S.**

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SAFETY INFORMATION

- Read these safety instructions carefully.
- Please carry the unit with both hands and handle it with caution.
- Power input voltage: +19 to +50 VDC (typ. +24 VDC).
- Make sure the voltage of the power source is appropriate before connecting the equipment to the power source.
- To prevent the QEC device from shock or fire hazards, please keep it dry and away from water and humidity.
- Operating temperature: see Section 1.3. Operate QEC-RXXJT3S within 0 to +70 °C until QEC confirms the extended range.
- Red RJ45 ports (QEC PoE) can carry DC power. Do not connect them to EtherCAT P or IEEE 802.3af/at PoE equipment; see Section 2.6.2.
- QEC-RXXJT3S contains a laser transmitter. Never look into the fiber port or into the end of a connected fiber.
- Never touch un-insulated terminals or wires unless the power source is disconnected.
- If your QEC device will not be used for a period of time, disconnect it from the power source to avoid transient overvoltage damage.

WARNING!



DO NOT ATTEMPT TO OPEN OR TO DISASSEMBLE THE CHASSIS (ENCASING) OF THIS PRODUCT. PLEASE CONTACT YOUR DEALER FOR SERVICING FROM QUALIFIED TECHNICIAN.

CONTENT

Ch. 1 General Information 1
1.1 Introduction 2
1.2 Specifications 3
1.3 Dimensions 4
1.3.1 QEC-RXXJT1S/2S 4
1.3.2 QEC-RXXJT3S 5
1.3.3 QEC-RXXJT6S 6
1.4 Ordering Information 7
1.4.1 Ordering Part Number 7
Ch. 2 Hardware System 8
2.1 EtherCAT Junction Operating Principle 9
2.2 General Connector Summary 10
2.2.1 EtherCAT Interface 11
2.2.2 Power Connector 13
2.2.3 Power and Connection Status LEDs 14
2.3 QEC-RXXJT1S / QEC-RXXJT2S 17
2.4 QEC-RXXJT3S 18
2.5 QEC-RXXJT6S 21
2.6 DIN-Rail 23
2.7 Wiring to the Connector 24
2.7.1 Connecting the wire to the connector 24
2.7.2 Removing the wire from the connector 24
Ch. 3 Hardware Installation and Setup 25
3.1 DIN-Rail installation 26
3.2 Removing QEC-RXXJT Unit 27
3.3 Wiring Examples 28
3.3.1 Example 1: QEC-RXXJT1S / JT2S, two copper lines 28
3.3.2 Example 2: QEC-RXXJT3S fiber pair 29
3.3.3 Example 3: QEC-RXXJT6S, five branches 30
Ch. 4 SubDevice Information 32
4.1 ESI (EtherCAT SubDevice Information) File 33
4.2 Device Identity 34
4.3 Mailbox, Process Data and Distributed Clocks 35
4.4 Diagnostics 35
4.5 Product Support 35
Warranty 36

Ch. 1

General Information

1.1 Introduction

The ICOP QEC-RXXJTXS series are EtherCAT junction modules for DIN-rail mounting. They let you build an EtherCAT network as a line with branches (tree or star wiring) instead of a single daisy chain. The series covers four models: **QEC-RXXJT1S**, **QEC-RXXJT2S**, **QEC-RXXJT3S** and **QEC-RXXJT6S**. This manual covers all four. Content common to the series appears once. Model-specific content is marked with the models it applies to.

A junction module is **not** a general-purpose Ethernet hub, IP switch or frame duplicator. EtherCAT uses one frame that passes through every SubDevice in turn. Inside the junction module, one or more EtherCAT SubDevice Controllers (ESCs) forward that frame through their ports in a fixed order.

The frame runs out to the end of one physical branch and back, then to the next branch, and finally returns to the MDevice. The five OUT ports of QEC-RXXJT6S therefore do not output five copies of a frame. They are visited one after another by the same frame.

See 2.1 EtherCAT Junction Operating Principle.

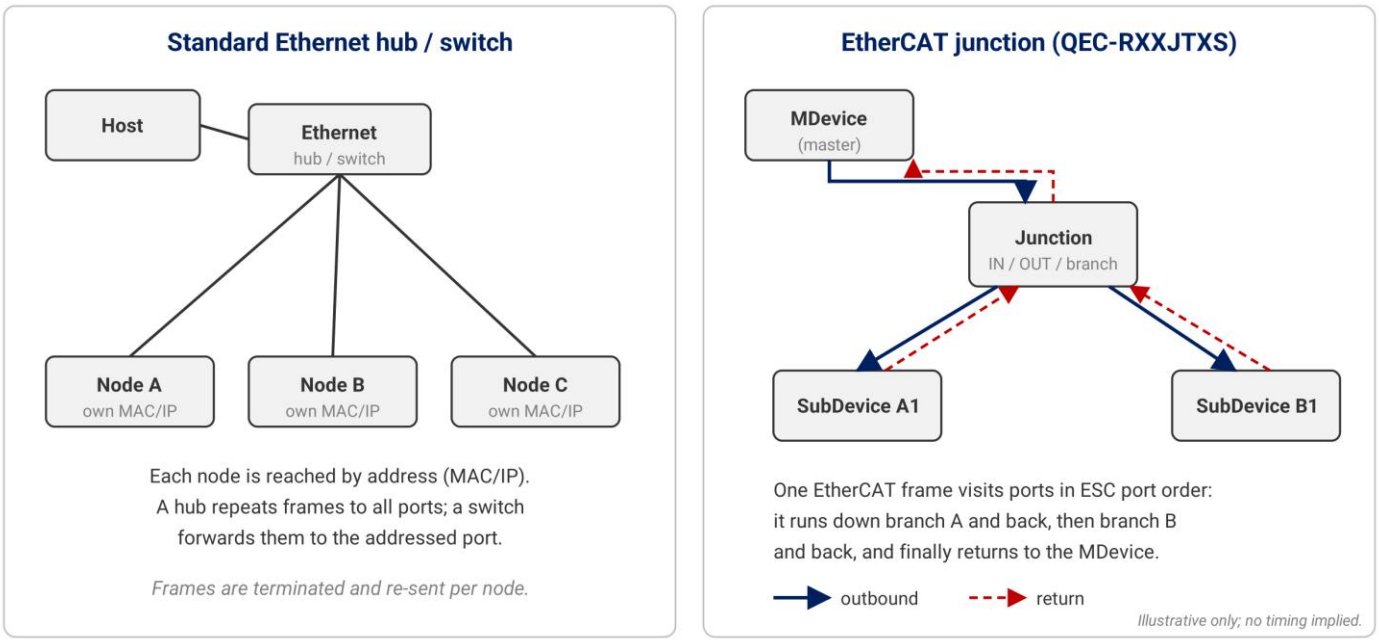


Figure 1-1: Standard Ethernet hub/switch compared with an EtherCAT junction (concept only)

QEC lists the series as verified using the EtherCAT Conformance Test Tool (CTT). The module needs no parameter configuration ("Configuration: not required" in the datasheet).

1.2 Specifications







Table 1-1: Specifications

Item	QEC-RXXJT1S / JT2S	QEC-RXXJT3S	QEC-RXXJT6S
EtherCAT			
Port type	EtherCAT junction	EtherCAT fiber-optic junction	EtherCAT junction
Port configuration	3 ports (1 IN / 2 OUT)	3 ports (1 IN / 1 OUT / 1 fiber)	6 ports (1 IN / 5 OUT)
Network	EtherCAT, 100BASE-TX	EtherCAT, 100BASE-FX (fiber port); 100BASE-TX (RJ-45)	EtherCAT, 100BASE-TX
Fiber wavelength	-	1310 nm	-
Max. cable length	100 m	20 km (fiber); 100 m (RJ45)	100 m
Connector interface	RJ45	RJ45; duplex LC, single-mode	RJ45
Auto MDI/MDIX	Supported	Supported	Supported
Reference clock	Supported	Supported	Supported
General			
Connector color	Red: with PoE; Black: without PoE; Silver: standard RJ45		
Protocol	EtherCAT; verified using the EtherCAT Conformance Test Tool (CTT)		
Ethernet standard	IEEE 802.3	IEEE 802.3	IEEE 802.3
Transmission rate	100 Mbps	100 Mbps	100 Mbps
Configuration	Not required	Not required	Not required
Power connector	4-pin power input/output and 2-pin FGND		
Power requirement	+19 to +50 VDC (+24 VDC typ.)		
Power consumption	0.3 W	0.3 W	0.5 W
LED indicators	PWR, RUN, LINK, ERROR, junction RJ45 LINK	PWR, RUN, LINK, ERROR, fiber LINK	PWR, RUN, LINK, ERROR, junction RJ45 LINK
Certifications	CE, FCC, VCCI		
Environment			
Operating temperature	-20 to +70 °C	0 to +70 °C	-20 to +70 °C
Storage temperature	-30 to +80 °C	-30 to +80 °C	-30 to +80 °C
Relative humidity	10 to 90 % RH, non-condensing		
Hardware			
Dimensions	107.45 x 66 x 30 mm (excluding DIN-rail mount)		
Weight	215 g	235 g	255 g
Installation	DIN rail	DIN rail	DIN rail

1.3 Dimensions

1.3.1 QEC-RXXJT1S/2S

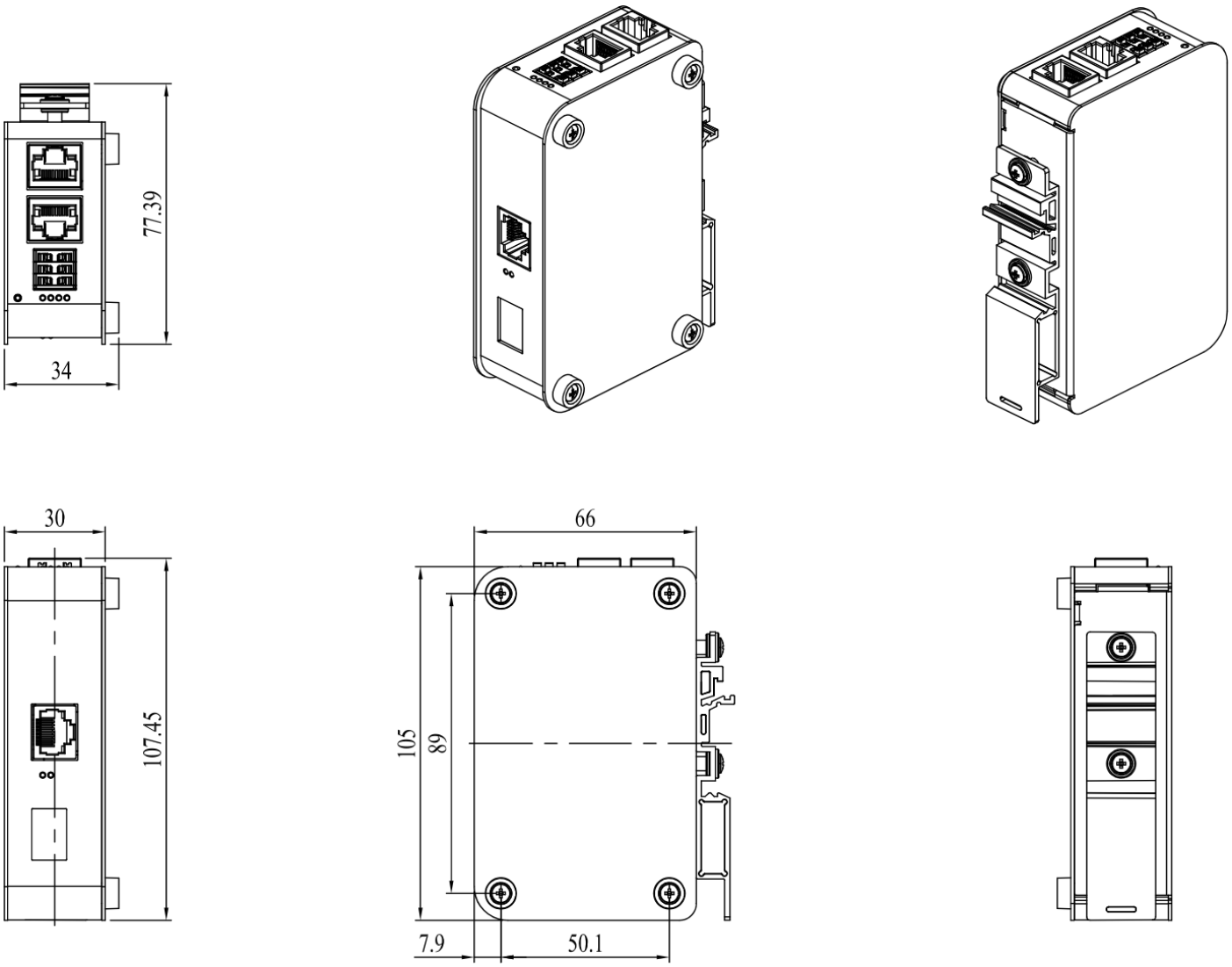


Figure 1-2: Dimensions, QEC-RXXJT1S / JT2S (unit: mm)

1.3.2 QEC-RXXJT3S

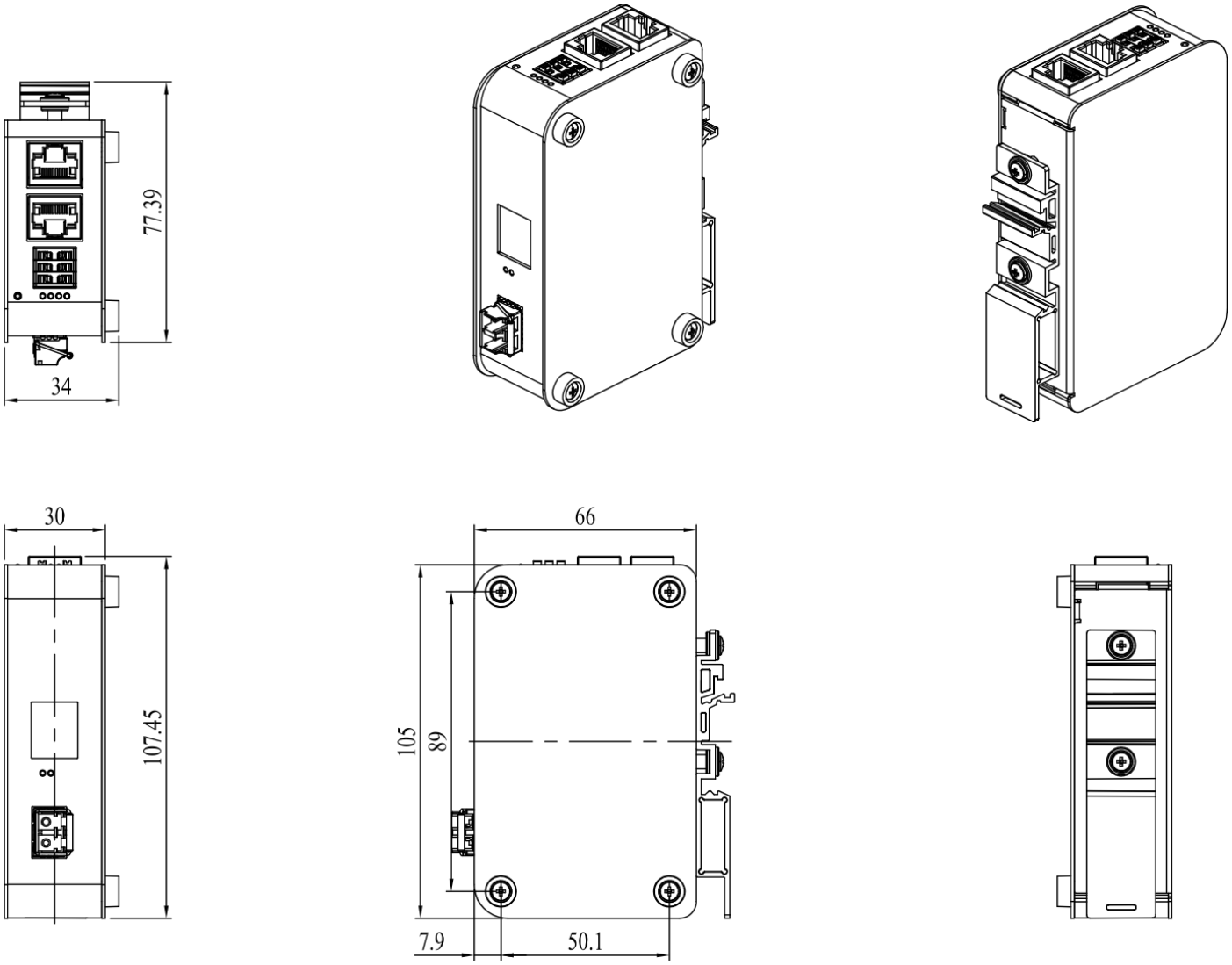


Figure 1-3: Dimensions, QEC-RXXJT3S (unit: mm)

1.3.3 QEC-RXXJT6S

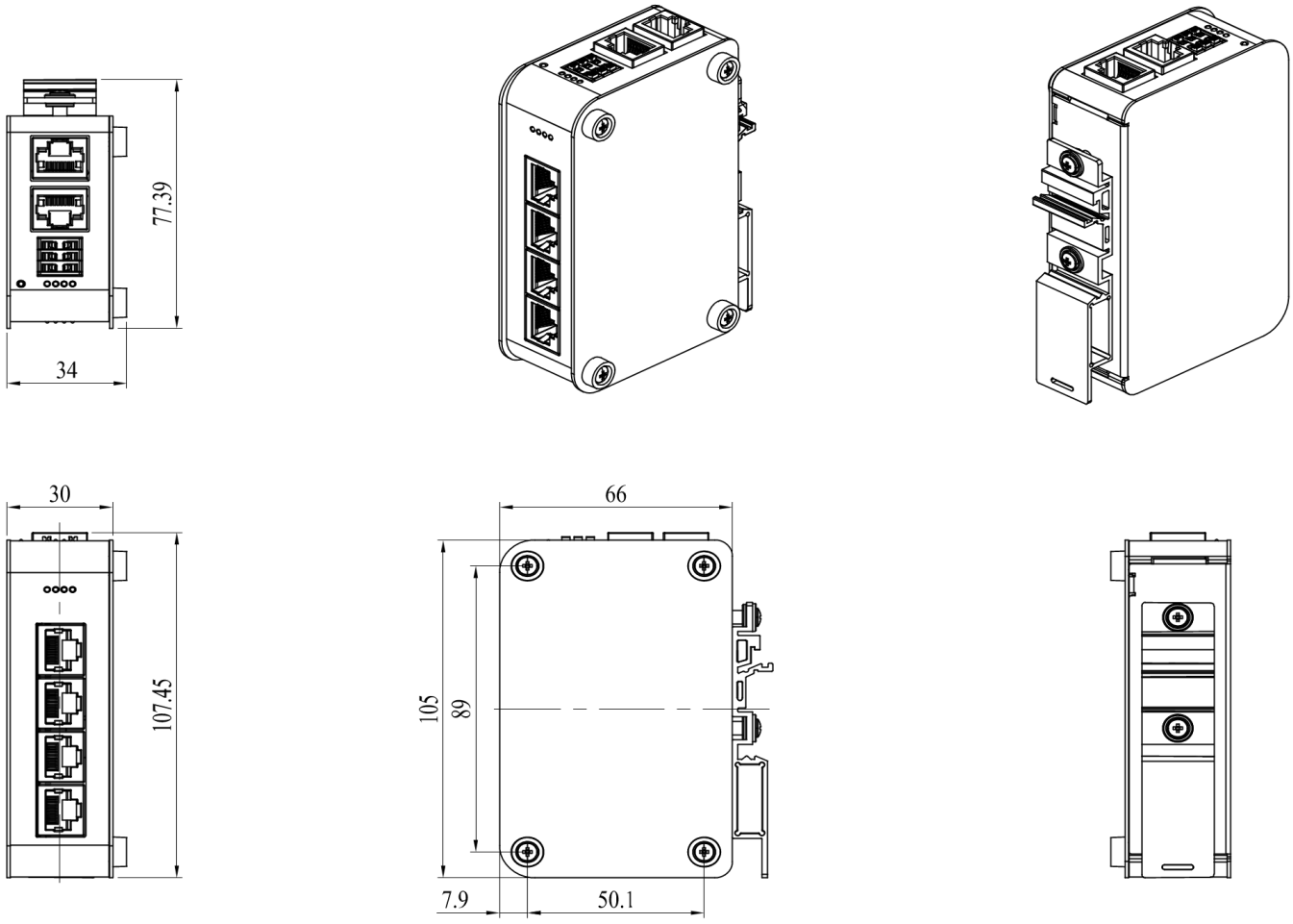


Figure 1-4: Dimensions, QEC-RXXJT6S (unit: mm)

1.4 Ordering Information

Table 1-2: Part number structure

Type	RJ45 power source		Functions		Feature	-	Coating
	Input	Output	Junction / Fiber Optics	Type	Standard		
QEC-R	**X**	**X**	**JT**	**X**	**S**		**X**

1. Type: Code 1~4

R: EtherCAT SubDevice.

2. RJ45 Power source: Code 5~6

0: RJ45 In/Out w/o power.

1: RJ45 PoE Device, Red Plastic Housing.

3. Functions: Code 7~9

JT: Junction / Fiber Optics.

X: 1/2: 1 ports (1 for Standard; 2 for PoE).

3: 1 ports Fiber Optics.

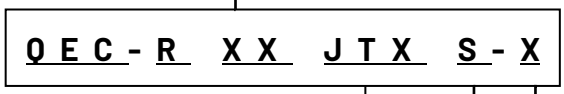
6: 6 ports.

4. Feature: Code 10

S: Standard.

5. Coating: Code 11

C: Yes / N: Normal



1.4.1 Ordering Part Number

Below are the standard Part Numbers:

- **QEC-R00JT1S-N**: EtherCAT SubDevice Junction Module (1 IN / 2 OUT, RJ45)
- **QEC-R11JT2S-N**: EtherCAT SubDevice Junction Module (1 IN / 2 OUT, RJ45, PoE Junction Port)/PoE
- **QEC-R00JT3S-N**: EtherCAT SubDevice Fiber-Optic Junction Module (1 IN / 1 OUT / 1 Fiber, Single-mode)
- **QEC-R00JT6S-N**: EtherCAT SubDevice Junction Module (1 IN / 5 OUT, RJ45)

Ch. 2

Hardware System

2.1 EtherCAT Junction Operating Principle

In a plain EtherCAT line, each SubDevice has one input and one output port, so devices can only be chained. A junction module contains ESCs with more than two active ports. Extra cables can then leave the same point of the network. Physically the wiring becomes a tree or star. Logically, the EtherCAT frame still travels one path. Each ESC forwards the frame through its ports in the order fixed by the ESC. A port with no link is closed and skipped. The frame goes to the end of each branch and comes back before it continues to the next port.

Keep three concepts apart when you plan, wire and commission a junction:

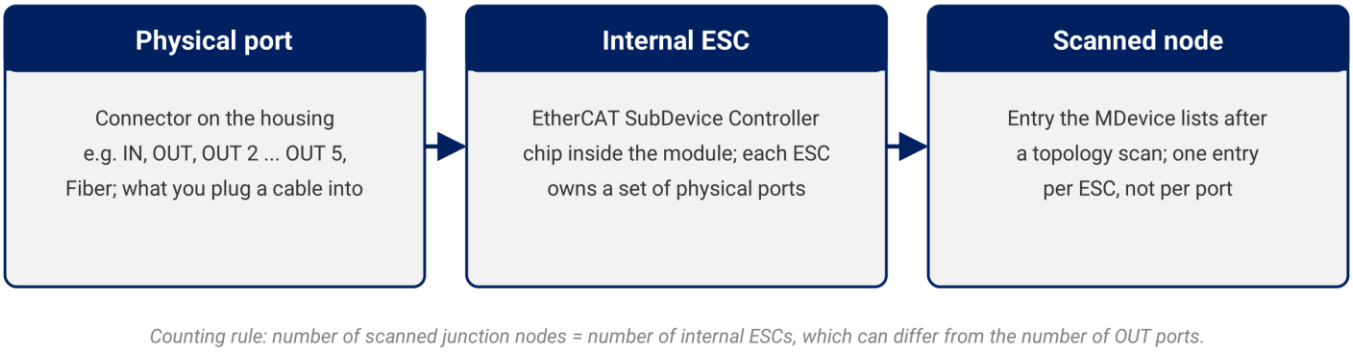


Figure 2-1: Physical port, internal ESC and scanned node

Table 2-1: Ports, ESCs and scan entries per model (source: ESI files)

Model	Physical EtherCAT ports	Internal ESCs	Junction nodes in a scan
QEC-RXXJT1S / JT2S	3 (IN, OUT, side junction port)	1 (one ESI device description)	1: QEC-R00JT1S, QEC-R11JT1S, QEC-R00JT2S or QEC-R11JT2S
QEC-RXXJT3S	3 (IN, OUT, fiber port)	1 (one ESI device description)	1: QEC-R00JT3S or QEC-R11JT3S
QEC-RXXJT6S	6 (IN 0, OUT 1 to OUT 5)	4 (ESI v1r1: four device descriptions)	4: QEC-R00JT6S-0 to -3 (R11: QEC-R11JT6S-0 to -3)

2.2 General Connector Summary

The top face is the same on all models.

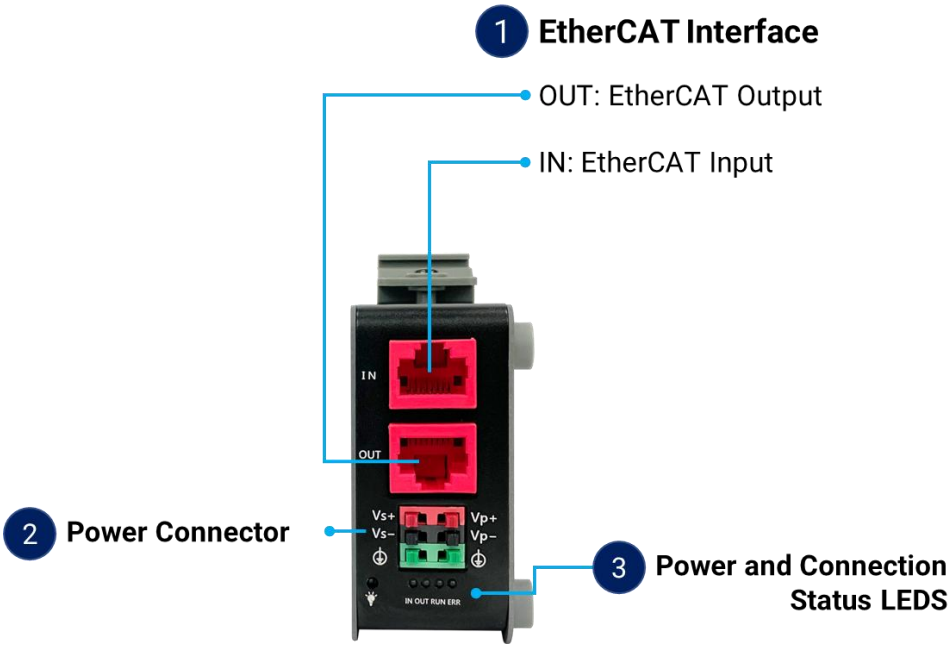


Figure 2-2: Top face, common to all models (shown: QEC-R11JT2S-N with red PoE RJ45 housings)

It carries the EtherCAT IN and OUT ports, the power terminal and the status LEDs.

Table 2-2: Top-face connectors and indicators

No.	Description		Type Narrative	Pin #
1	EtherCAT Interface	OUT	External RJ45 Connector	8-pin
		IN	(Gold finger)	8-pin
2	Power Connector		Terminal Block Interface	6-pin

2.2.1 EtherCAT Interface

RJ45 Connectors.

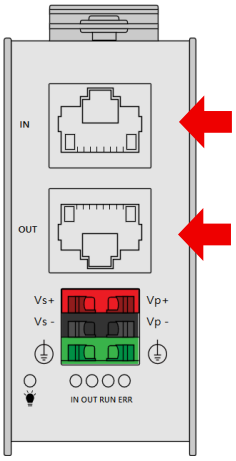
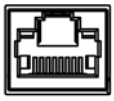


Figure 2-3: EtherCAT interface (IN and OUT) on the top face

Table 2-3: EC IN pin assignment

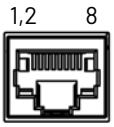


Pin #	Signal Name	Pin #	Signal Name
1	LAN1_TX+	2	LAN1_TX-
3	LAN1_RX+	4	VS+
5	VP+	6	LAN1_RX-
7	VS- (GND)	8	VP- (GND)

* PoE LAN with the Red Housing; Regular LAN with Black Housing.

* L4, L5, L7, L8 pins are option, for RJ45 Power IN/OUT.

Table 2-4: EC OUT pin assignment



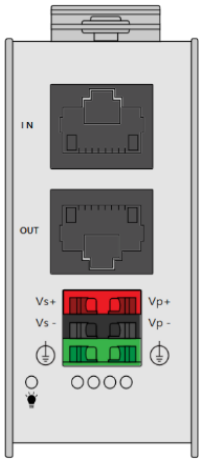
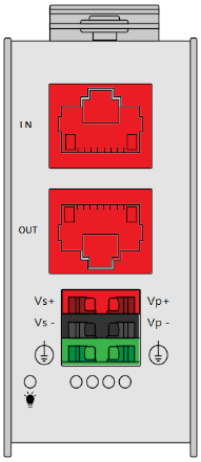
Pin #	Signal Name	Pin #	Signal Name
1	LAN2_TX+	2	LAN2_TX-
3	LAN2_RX+	4	VS+
5	VP+	6	LAN2_RX-
7	VS- (GND)	8	VP- (GND)

* PoE LAN with the Red Housing; Regular LAN with Black Housing.

* L4, L5, L7, L8 pins are option, for RJ45 Power IN/OUT.

Note. QEC's PoE (Power over Ethernet)

In QEC product installations, users can easily distinguish between PoE and non-PoE: if the RJ45 house is red, it is PoE type, and if the RJ45 house is black, it is non-PoE type.

	
Non-PoE type	PoE type

PoE (Power over Ethernet) is a function that delivers power over the network. QEC can be equipped with an optional PoE function to reduce cabling. In practice, PoE is selected based on system equipment, so please pay attention to the following points while evaluating and testing:

1. When connecting PoE and non-PoE devices, make sure to disconnect Ethernet cables at pins 4, 5, 7, and 8 (e.g., when a PoE-supported QEC EtherCAT MDevice connects with a third-party EtherCAT SubDevice).
2. The PoE function of QEC is different and incompatible with EtherCAT P, and the PoE function of QEC is based on PoE Type B, and the pin functions are as follows:

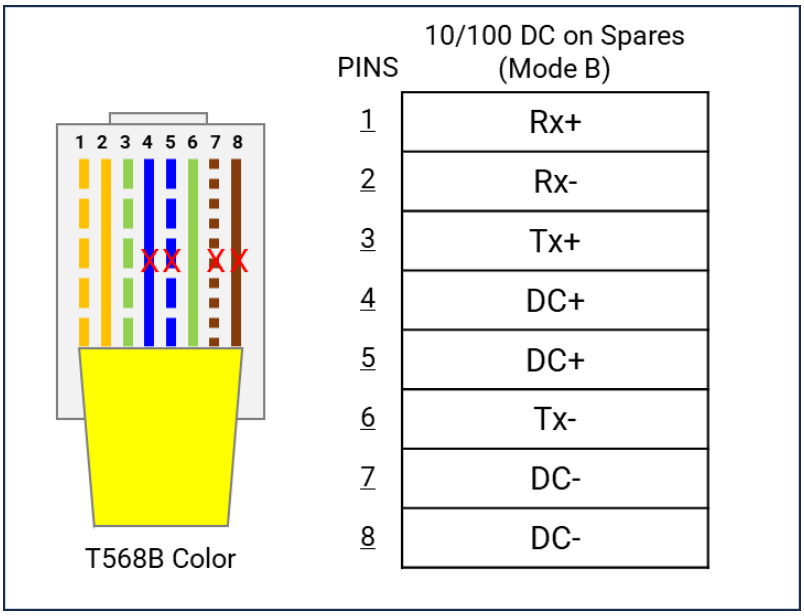


Figure 2-4: QEC PoE pin functions (spare pairs, Mode B)

3. QEC's PoE power supply is up to **24V/3A**.

2.2.2 Power Connector

Euroblock Connectors.
4-pin Power Input/Output (+V: Red / GND: Black) and 2-pin FGND (Green).

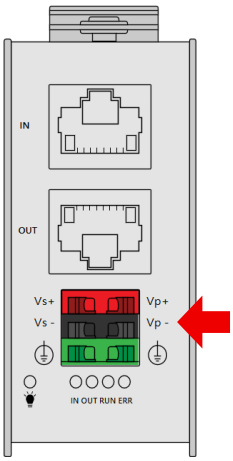


Figure 2-5: Power connector on the top face

Vs for system power; Vp for peripheral power and backup power.

Table 2-5: Power connector pin assignment

	Pin #	Signal Name	Pin #	Signal Name
	1	Vs+	2	Vp+
	3	Vs- (GND)	4	Vp- (GND)
	5	F.G	6	F.G

* Power Input voltage +19 to +50VDC Power Input (Typ. +24VDC)

2.2.3 Power and Connection Status LEDs

Power and connection status LEDs information.

2.2.3.1 Power Status LED

Power input is 24V (typical). The LED status provides high/low voltage warning.

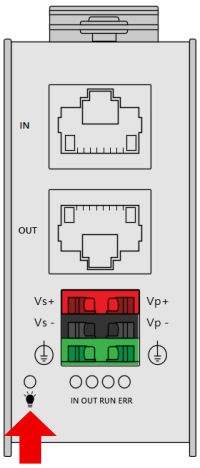


Figure 2-6: Power status LED (PWR)

Table 2-6: Power status LED

Notation	States	Condition	Description
PWR	Green LED On	Voltage <= 50V and >= 45V Voltage <= 26V and >= 19V	When Vs and Vp voltages are confirmed to be normal, the Green LED will remain steady on.
	Green LED On Red LED On	Voltage < 45V and > 26V Voltage < 19V and > 12V	LEDs will alternately flash (at 0.3-second intervals) until the Vs and Vp voltages are correct.
	Orange LED On	Voltage > 50V or < 12V	Orange LED (Green + Red) will continuously flash (at 0.3-second intervals) until the Vs and Vp voltages are correct.

* Vs power status will be displayed first.

Power ERROR Code table (Red LED Flashing Display (2 seconds/cycle))：

Table 2-7: Power error codes (red LED flashing, 2 seconds per cycle)

Long Light	Short Flash	Description
0 Long Light	After microchip completes the Bootloader test, it proceeds to the APP program stage.	
	1 short flash	Microchip communication with the EtherCAT chip failed.
	2 short flashes	EtherCAT chip internal RAM test failed.
	5 short flashes or 6 short flashes	Quartz oscillator on the board abnormality.
1 Long Light	Indicates the microchip Bootloader stage during startup, APP program not yet executed.	
	1 short flash	microchip internal SRAM failed.
	2 short flashes	APP software CHECKSUM failed.
2 Long Lights	Not yet defined.	

* **Note:** If you encounter any of the above abnormal states, please contact us, info@icop.com.tw.

2.2.3.2 Connection Status LEDs

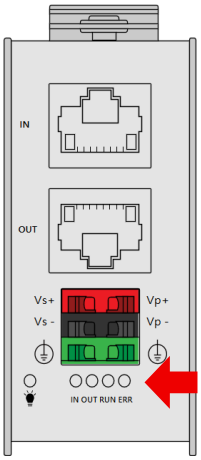


Figure 2-7: Connection status LEDs (IN, OUT, RUN, ERR)

There are EtherCAT In, Out, Run, and Error Status LEDs.



Figure 2-7-1: Connection status LEDs (IN, OUT, RUN, ERR)

Table 2-8: Connection status LEDs

Notation	Color	States	Description
In	Green	Off	No link
		Blinking	Link and activity
		On	Link without activity
Out	Green	Off	No link
		Blinking	Link and activity
		On	Link without activity
Run	Green	Off	The device is in state INIT
		Blinking	The device is in state Pre-Operation
		Single Flash	The device is in state Safe-Operation
		On	The device is in state Operation
Err	Red	Off	No error
		Blinking	Invalid Configuration
		Single Flash	Local Error
		Double Flash	Process Data Watchdog Timeout EtherCAT Watchdog Timeout
		On	The device is in state Error

2.3 QEC-RXXJT1S / QEC-RXXJT2S

Applies to: QEC-RXXJT1S, QEC-RXXJT2S.

Both models have three RJ45 ports: **IN** and **OUT** on the top face and one **junction port** on the side face. The junction port starts a second branch. JT1S and JT2S differ only in the junction port: on JT2S it carries QEC PoE (red housing). On JT1S it does not (black housing).

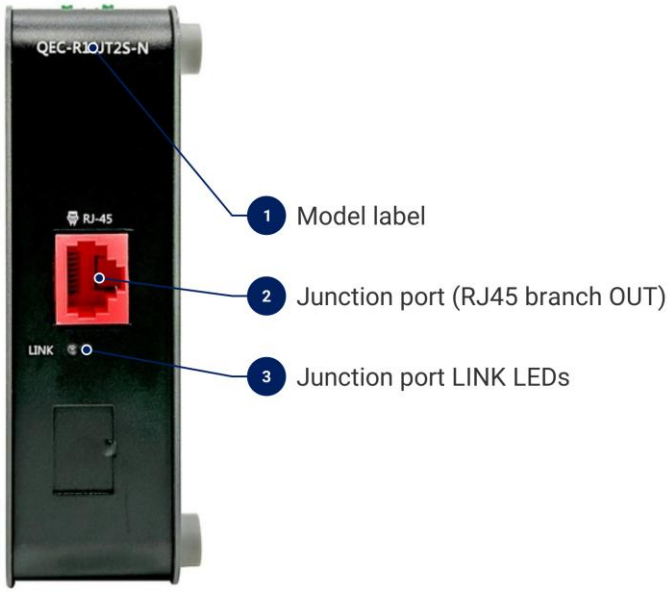
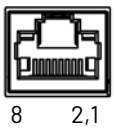


Figure 2-8: Side face, QEC-R11JT2S-N

2. Junction port (RJ45 branch OUT)

Table 2-9: Junction port pin assignment (QEC-RXXJT1S / JT2S)



Pin #	Signal Name	Pin #	Signal Name
1	LAN1_TX+	2	LAN1_TX-
3	LAN1_RX+	4	VS+
5	VP+	6	LAN1_RX-
7	VS- (GND)	8	VP- (GND)

3. Junction port LINK LEDs

Table 2-10: Junction port LINK LED

Notation	Color	States	Description
Junction Out	Green	Off	No link
		Blinking	Link and activity
		On	Link without activity

2.4 QEC-RXXJT3S

Applies to: QEC-RXXJT3S.

QEC-RXXJT3S has RJ45 **IN** and **OUT** ports on the top face and a **duplex LC fiber-optic port** on the side face. The fiber port carries the EtherCAT branch as 100BASE-FX at 1310 nm over single-mode fiber (9/125 µm), up to 20 km. Two QEC-RXXJT3S units are used as a pair, one at each end of the fiber link.

The fiber port uses an SFP optical transceiver (Optoway SPS-3120G series, Class 1 laser).

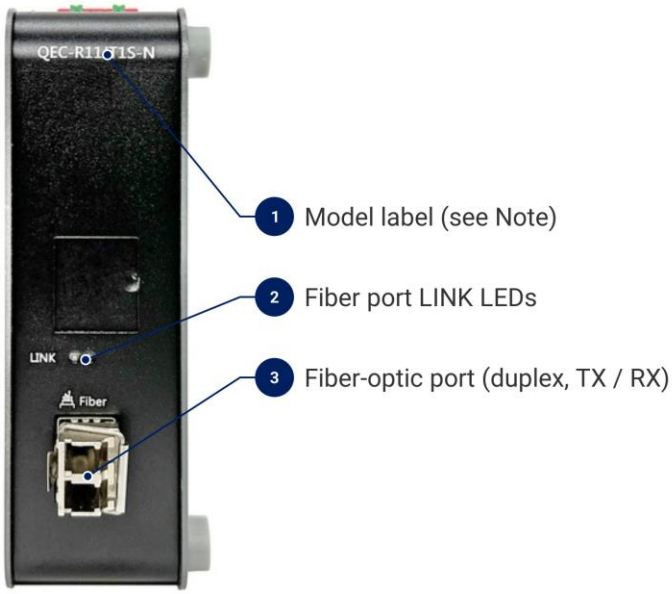


Figure 2-9: Side face, QEC-RXXJT3S (sample unit)

2. Fiber pairing (TX to RX)

Each fiber port has a transmit (TX) and a receive (RX) side. Connect the pair crossed: TX of unit A to RX of unit B, and RX of unit A to TX of unit B.

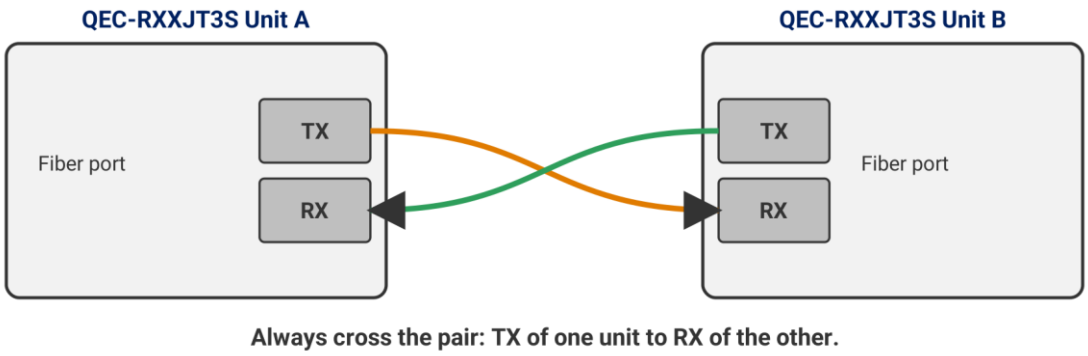


Figure 2-10: Crossed fiber pairing between two QEC-RXXJT3S units

Table 2-11: QEC-RXXJT3S fiber interface

Item	Value
Physical layer	100BASE-FX (125 Mbps line rate)
Wavelength	1310 nm
Fiber type	Single-mode, 9/125 μm
Connector	Duplex LC (SFP), UPC polish
Transmit power	−14 to −8 dBm
Receiver sensitivity	−31 dBm (max. input −8 dBm)
Optical power budget	17 dB (worst case)
Max. distance	20 km (depends on fiber loss, connectors and splices)
Laser class	Class 1 (IEC 60825, FDA 21 CFR 1040.10/1040.11)
Transceiver operating temperature	0 to +70 °C (SPS-3120G) / −40 to +85 °C (SPS-3120AG), case temperature.

Connector Dimension

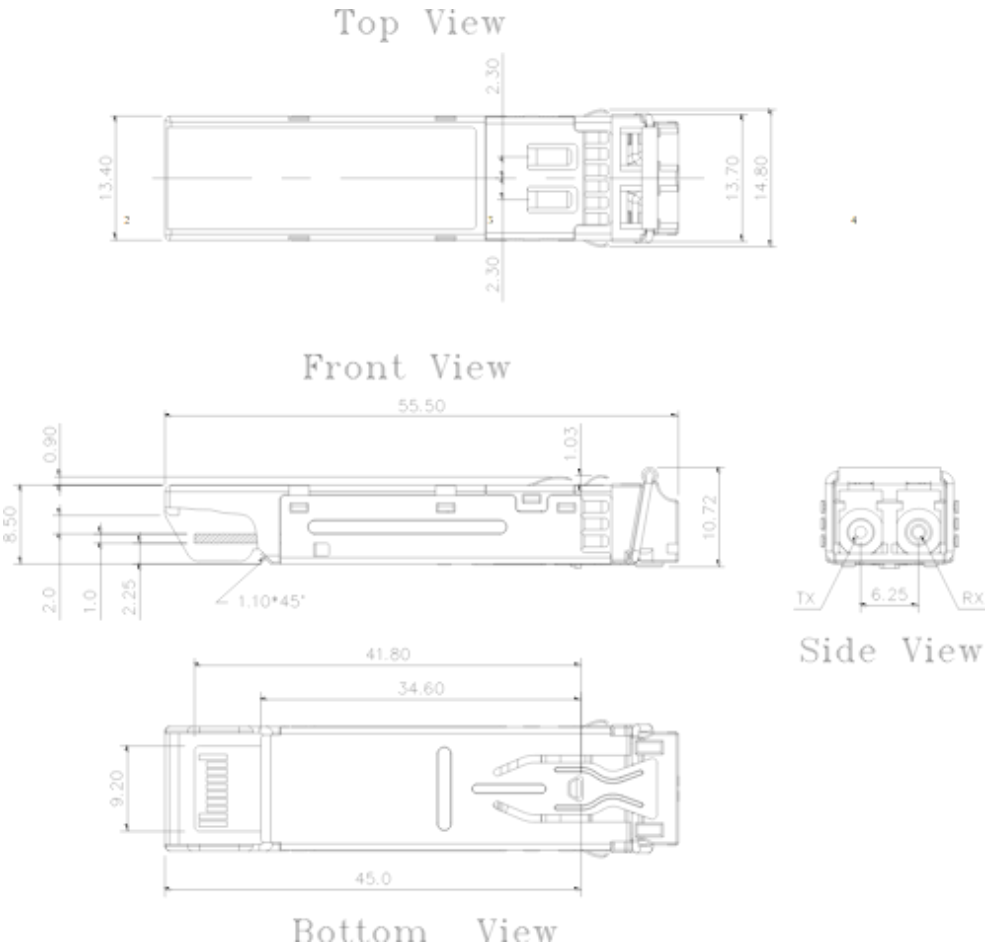


Figure 2-11: SFP fiber transceiver dimensions (unit: mm)

***Note. Fiber patch cords**

- Use **LC-LC duplex single-mode** patch cords (9/125 µm, UPC).
- If the site uses SC fiber distribution panels, use an **LC-SC hybrid** patch cord. LC and SC connectors are not mechanically compatible.
- Do not mate APC (green, angled) connectors with the UPC port. This causes high loss and can damage the end faces.
- The 17 dB budget must cover fiber attenuation (typically about 0.35 dB/km at 1310 nm), connector losses (about 0.3 dB per mated pair) and splices. Keep a safety margin of at least 3 dB.

***WARNING! Class 1 laser product**

The fiber port contains a Class 1 laser transmitter. Never look into the fiber port or into the end of a connected fiber, directly or through optical instruments. Fit dust plugs to unused ports and cable ends.

2.5 QEC-RXXJT6S

Applies to: QEC-RXXJT6S.

QEC-RXXJT6S has six RJ45 ports: **IN 0** and **OUT 1** on the top face, and **OUT 2 to OUT 5** (silver, standard RJ45) on the side face. The module contains **four ESCs**, so a topology scan lists **four junction nodes**, not five or six.

Each ESC serves fixed ports:

- **ESC0**, shown in 86EVA as **EHUB Slot(1)**, serves IN 0 and OUT 1.
- **ESC1**, shown as **EHUB Slot(2)**, serves OUT 2.
- **ESC2**, shown as **EHUB Slot(3)**, serves OUT 3.
- **ESC3**, shown as **EHUB Slot(4/5)**, serves OUT 4 and OUT 5.

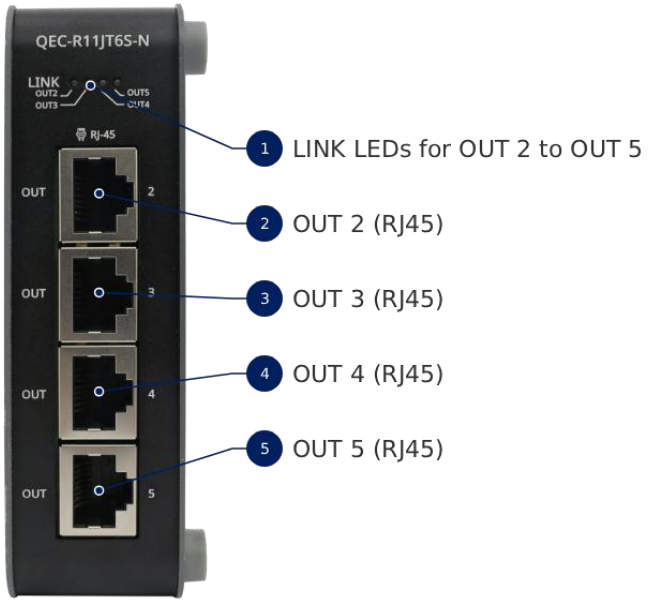
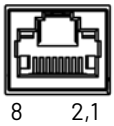


Figure 2-12: Side face, QEC-R11JT6S-N

From 2 to 5. Junction port (RJ45 branch OUT)

Table 2-12: OUT 2 to OUT 5 pin assignment (QEC-RXXJT6S)



Pin #	Signal Name	Pin #	Signal Name
1	LAN1_TX+	2	LAN1_TX-
3	LAN1_RX+	4	-
5	-	6	LAN1_RX-
7	-	8	-

Scan order

In the example below, the device on OUT 1 is called A, on OUT 2 B, on OUT 3 C, on OUT 4 D and on OUT 5 E.

86EVA lists them in this order:

EHUB Slot(1) → A → EHUB Slot(2) → EHUB Slot(3) → EHUB Slot(4/5) → B → C → D → E

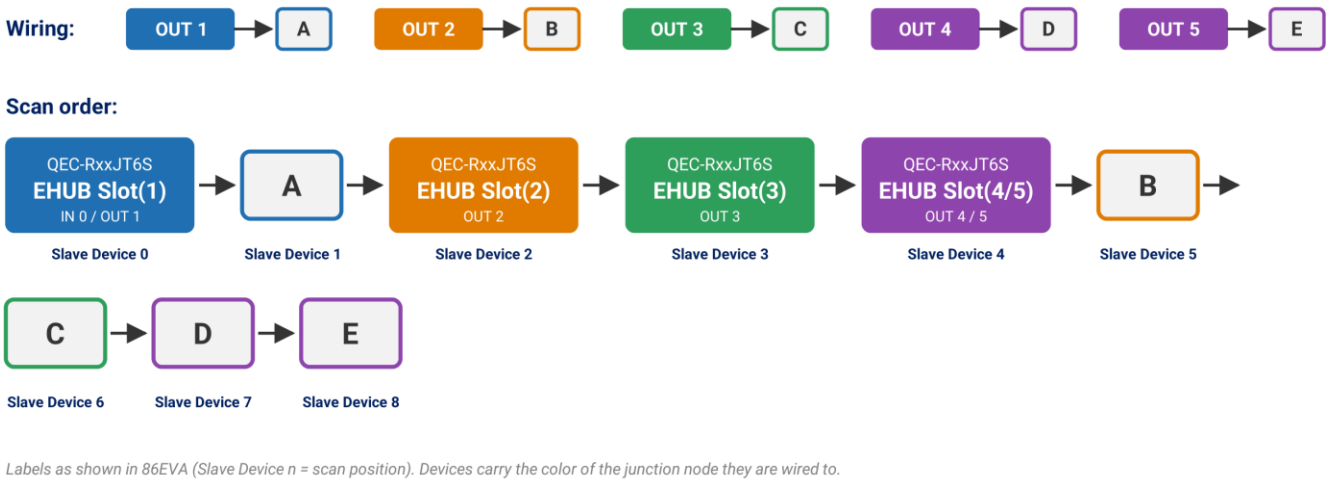


Figure 2-13: QEC-RXXJT6S scan order as shown in 86EVA (one device on each OUT port)

The frame enters EHUB Slot(1) on IN 0 and first runs the complete OUT 1 line. It then passes the other three junction nodes, which therefore appear next to each other in the scan. After that, the frame runs the OUT 2, OUT 3, OUT 4 and OUT 5 lines in turn.

If a line has several devices, all of them appear in sequence before the next line starts. A port with no cable is skipped. Figure 3-10 shows the physical wiring and the scan side by side.

***Note. SubDevice numbers**

The SubDevice numbers in 86EVA follow the scan order. Devices on OUT 2 to OUT 5 appear in OUT port order, but only after all four junction nodes. Devices on OUT 1 appear before EHUB Slot(2). Keep this in mind when you assign device numbers in your application, for example axis numbers.

2.6 DIN-Rail

QEC-RXXJT Series is an easy-install design to help you set-up your modules easily. Please refer to Ch.3.1 DIN-Rail installation.

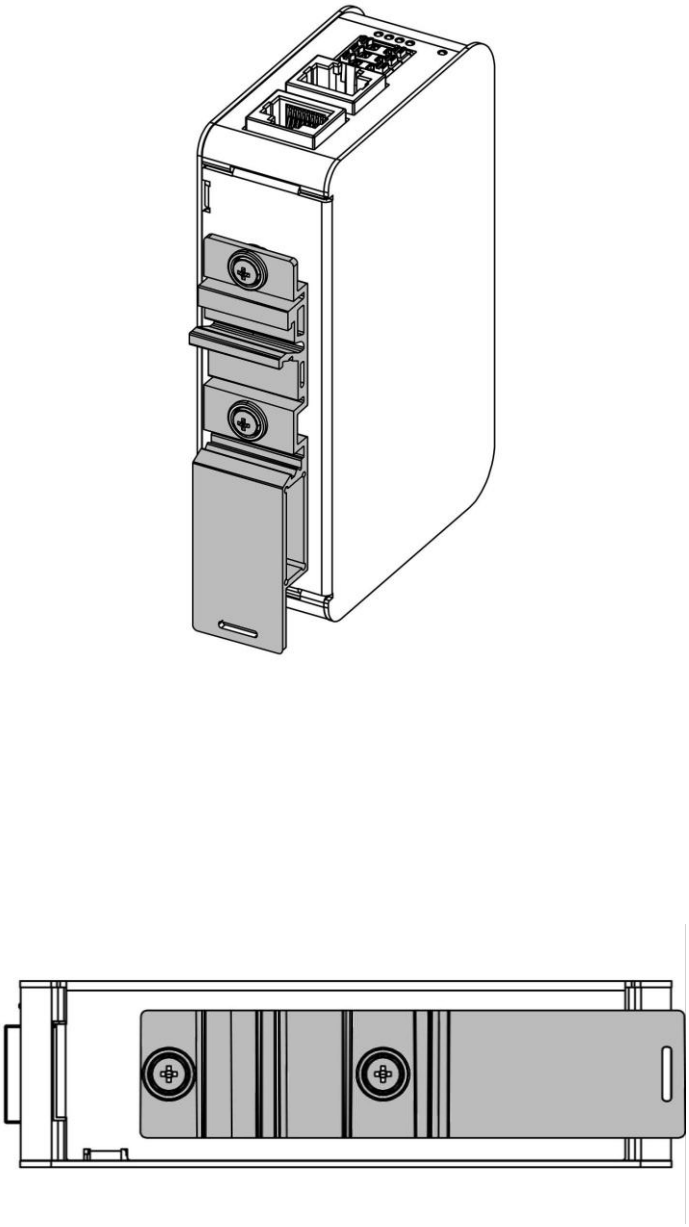


Figure 2-14: DIN-rail mounting clip

2.7 Wiring to the Connector

This section is suitable for the Power Connector wiring.

2.7.1 Connecting the wire to the connector

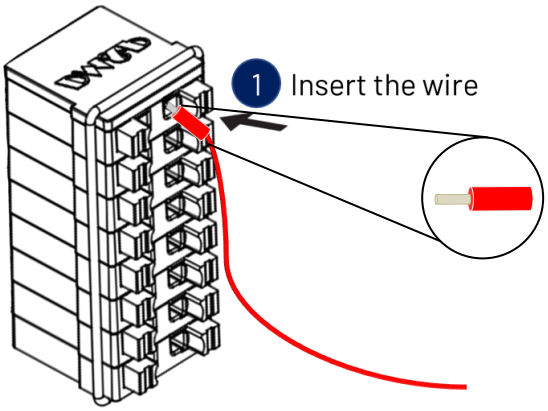
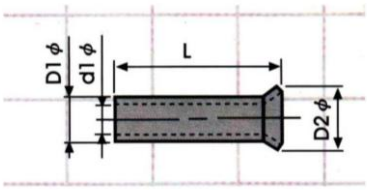


Figure 2-15: Connecting a wire to the power connector



Insulated Terminals Dimensions (mm)

Position	L	ØD1	Ød1	ØD2
CN 0.5-6	6.0	1.3	1.0	1.9
CN 0.5-8	8.0	1.3	1.0	1.9
CN 0.5-10	10.0	1.3	1.0	1.9

2.7.2 Removing the wire from the connector

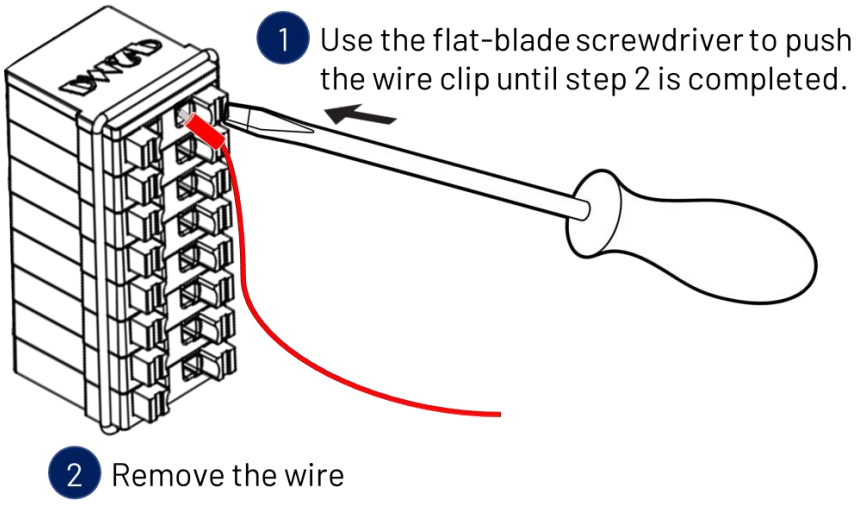


Figure 2-16: Removing a wire from the power connector

Ch. 3

Hardware Installation and Setup

3.1 DIN-Rail installation

Slide in the QEC-RXXJT on the hookup guides and press the QEC-RXXJT with a certain amount of force against the DIN track until the DIN Track mounting hook lock into place.

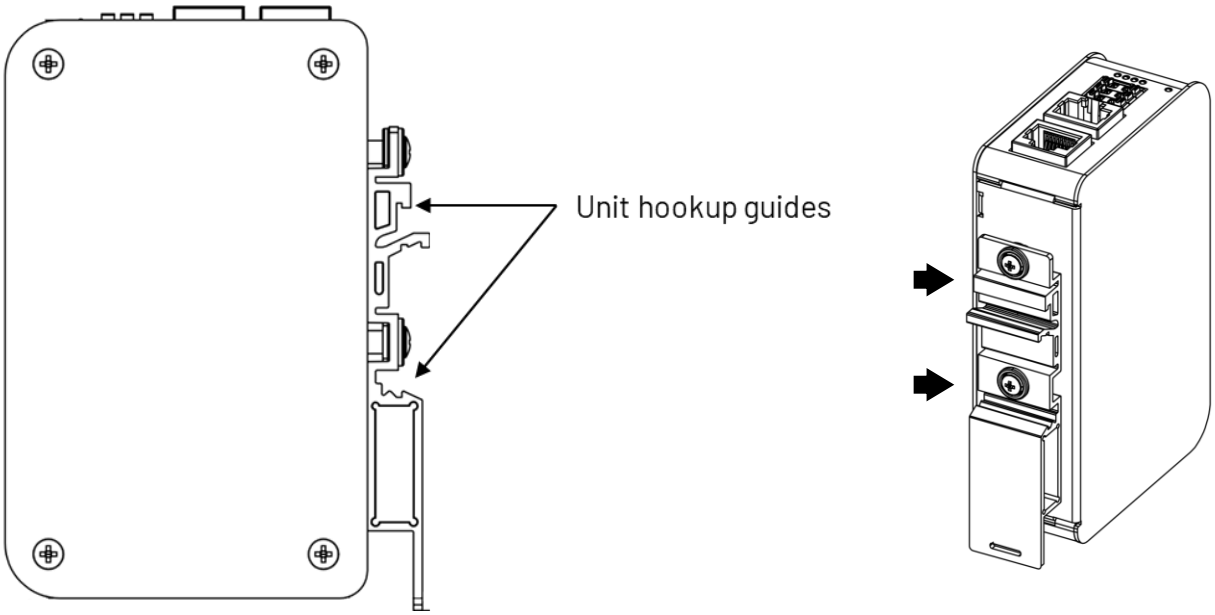


Figure 3-1: Hooking the module onto the DIN rail

When you mount the QEC-RXXJT, releasing the DIN track mounting hook on the QEC-RXXJT is unnecessary. After you mount the QEC-RXXJT, make sure it is locked to the DIN Track.

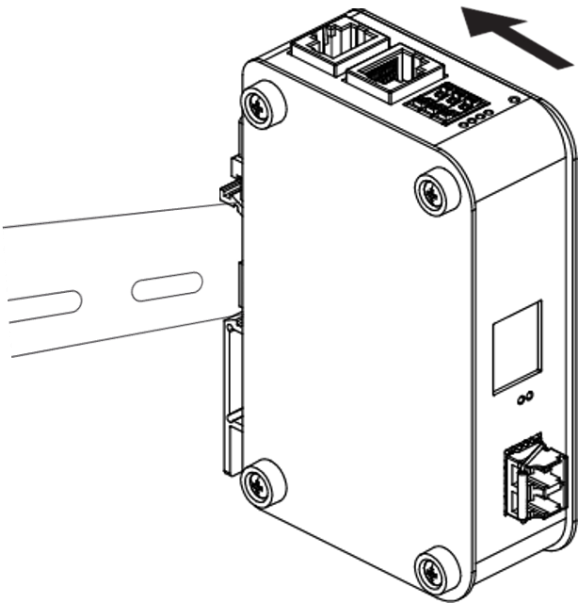


Figure 3-2: Module locked on the DIN rail

***Note**: Always turn OFF the Unit power supply and I/O power supply before connecting and removing the QEC-RXXJT.

3.2 Removing QEC-RXXJT Unit

Use a flat-blade screwdriver to remove the DIN Track mounting hook on the unit.

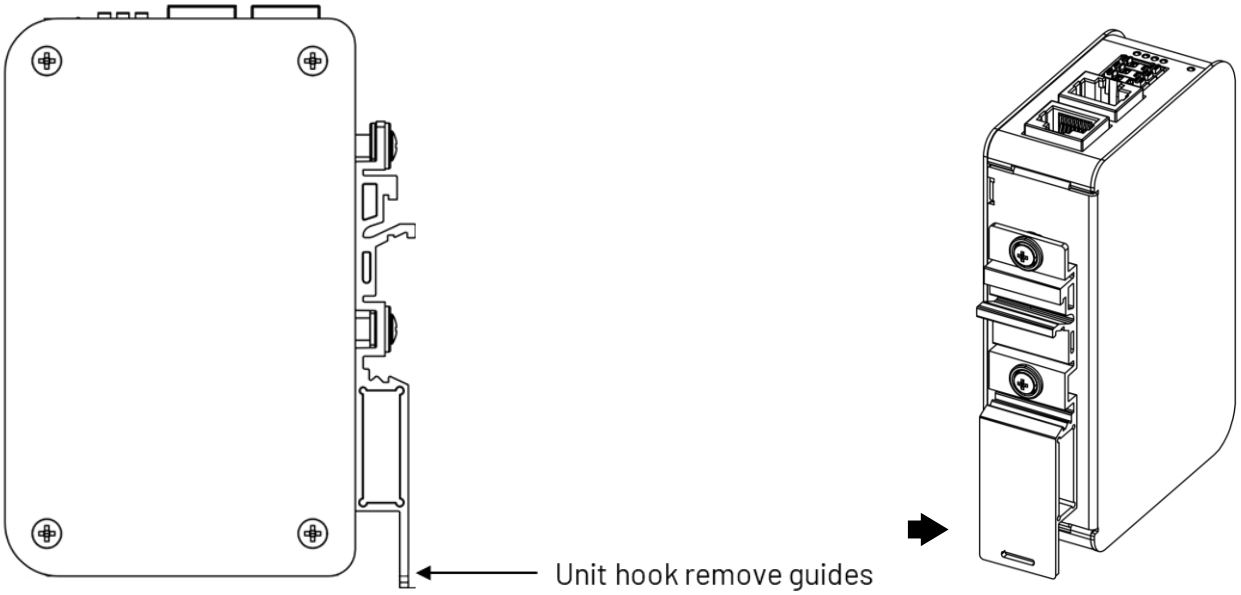


Figure 3-3: Releasing the DIN-rail mounting hook with a flat-blade screwdriver

Pull down and out the flat-blade screwdriver with force against the DIN track until you hear the DIN Track remove the hook.

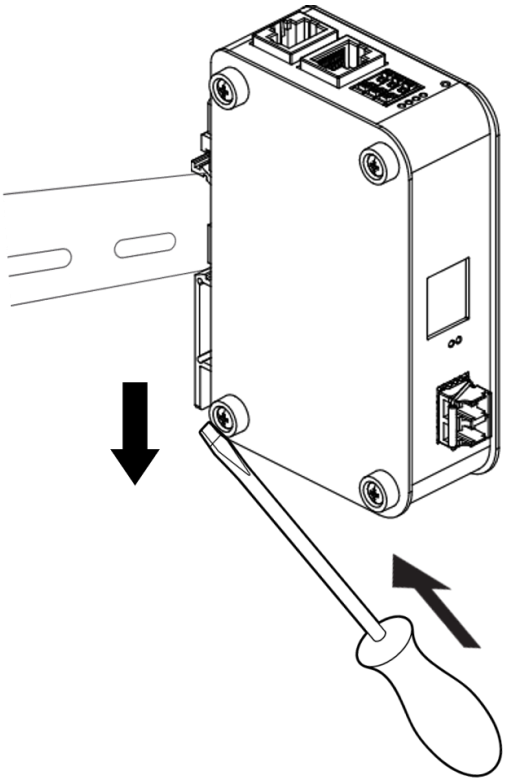


Figure 3-4: Removing the module from the DIN rail

3.3 Wiring Examples

The examples below show the physical wiring for each model and how the same network appears in a topology scan in EtherCAT MDevice.

3.3.1 Example 1: QEC-RXXJT1S / JT2S, two copper lines

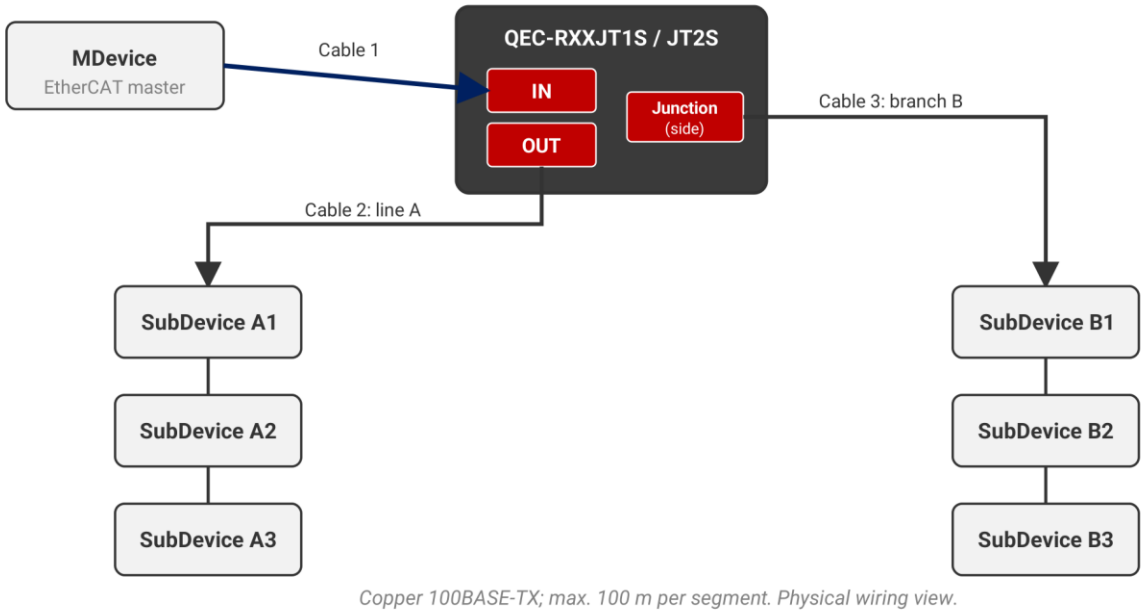


Figure 3-5: Physical wiring, QEC-RXXJT1S / JT2S with two copper lines

The module appears as one junction node. The devices on OUT appear first, followed by the devices on the junction port: **QEC-RxxJT1S / JT2S › A1 › A2 › A3 › B1 › B2 › B3**

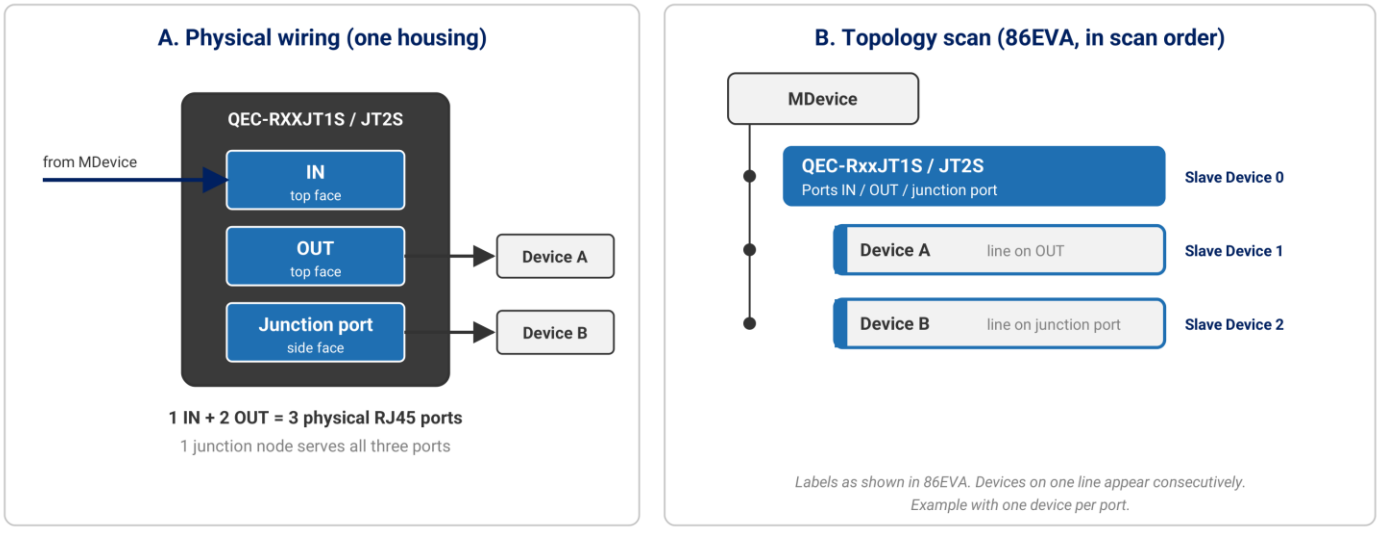


Figure 3-6: QEC-RXXJT1S / JT2S: physical wiring (left) and topology scan (right)

3.3.2 Example 2: QEC-RXXJT3S fiber pair

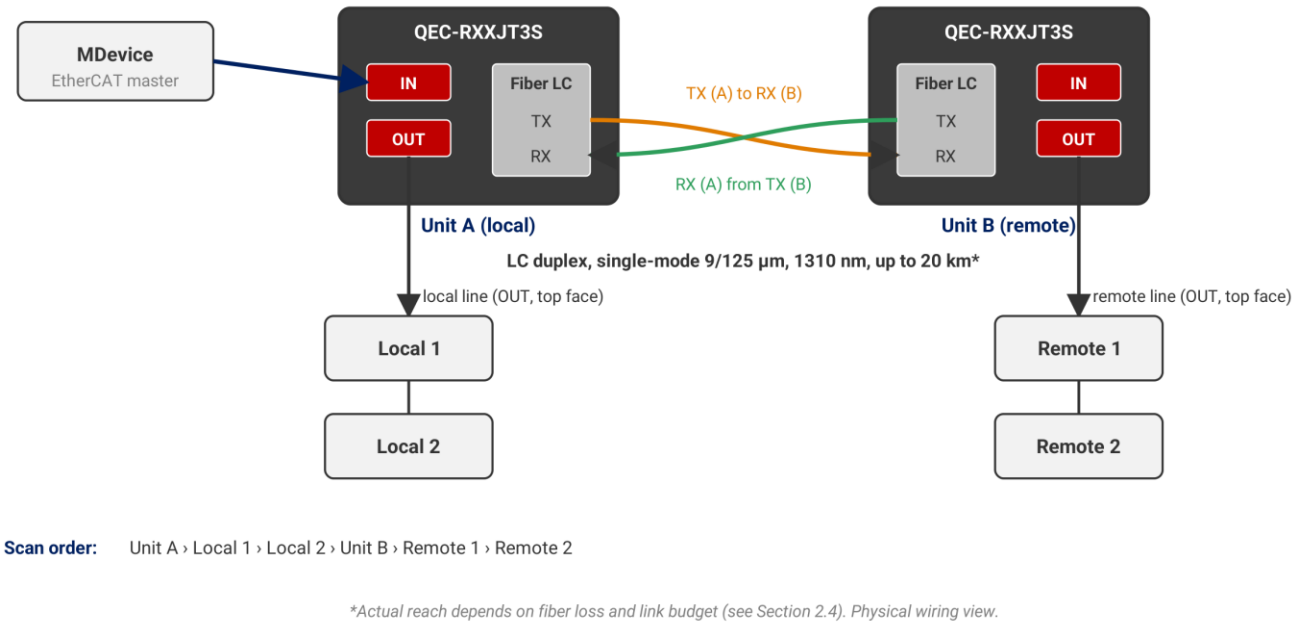


Figure 3-7: Physical wiring, QEC-RXXJT3S pair over fiber

Connect the two units with an LC-LC duplex single-mode patch cord, TX to RX crossed (see Section 2.4). Connect the local line to OUT on the top face of unit A, and the remote line to OUT on the top face of unit B. Each unit appears as one junction node. Devices connected to unit B are scanned in the same way as local devices: **Unit A › Local 1 › Local 2 › Unit B › Remote 1 › Remote 2**

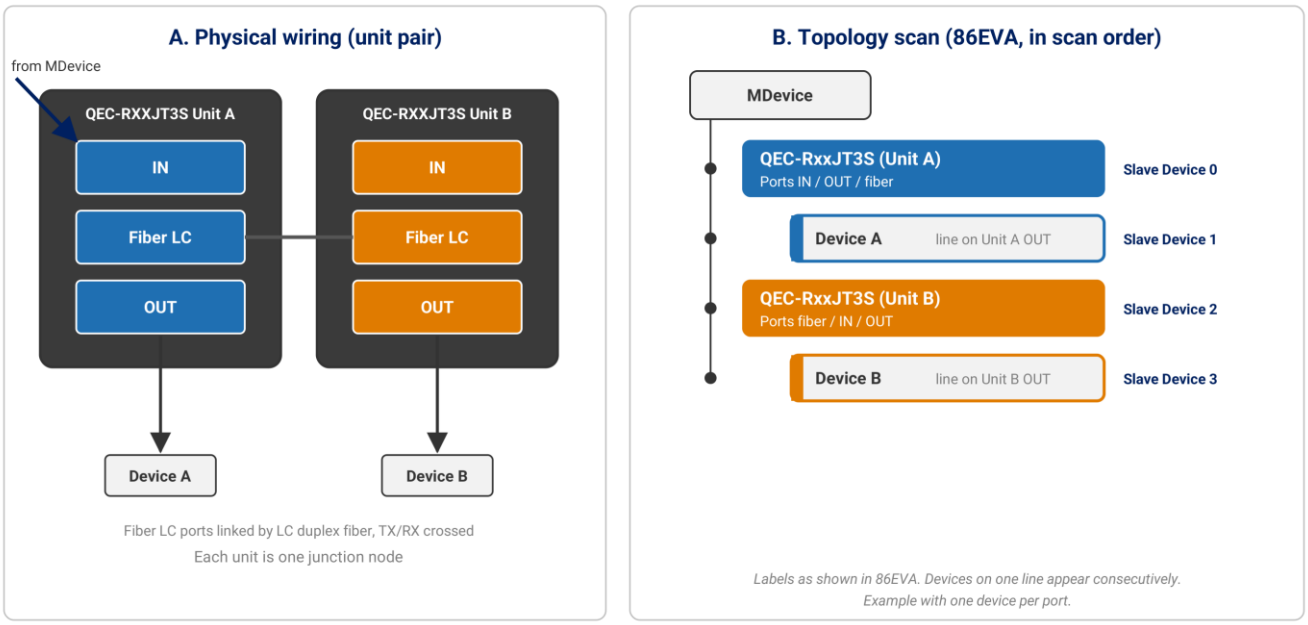


Figure 3-8: QEC-RXXJT3S: physical wiring (left) and topology scan (right)

3.3.3 Example 3: QEC-RXXJT6S, five branches

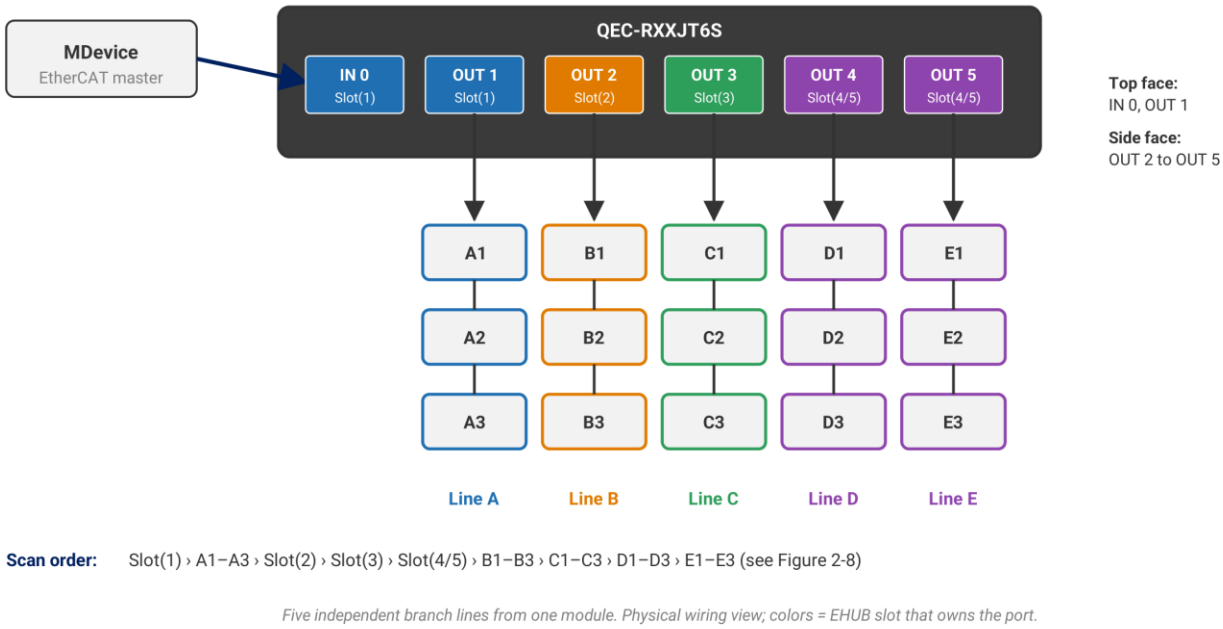


Figure 3-9: Physical wiring, QEC-RXXJT6S with five branch lines

One QEC-RXXJT6S housing has five OUT ports but appears as four junction nodes in the scan: EHUB Slot(1) to EHUB Slot(4/5). OUT 4 and OUT 5 share EHUB Slot(4/5).

The same color identifies the same junction node in both views of Figure 3-10.

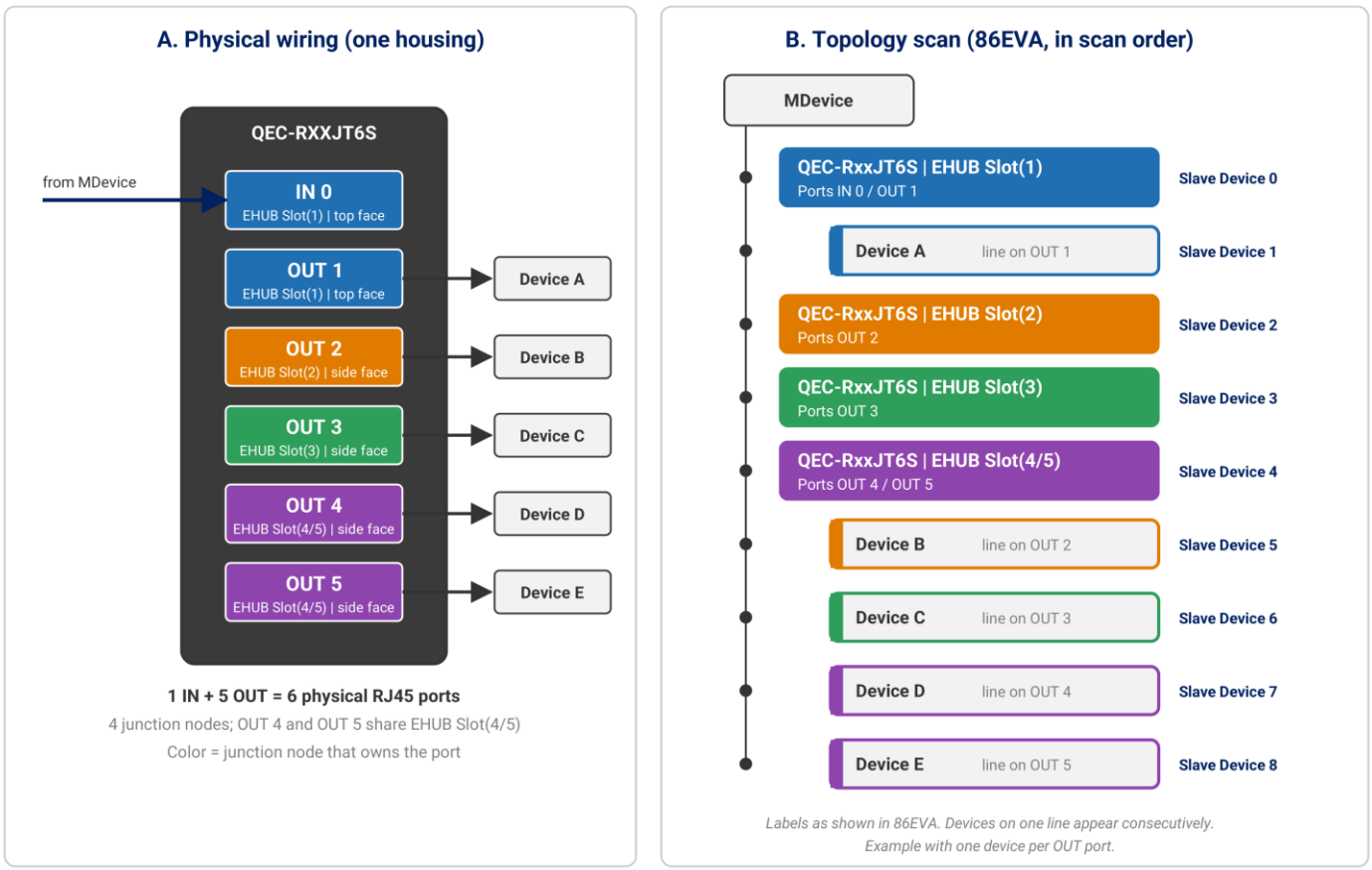


Figure 3-10: QEC-RXXJT6S: physical wiring (left) and topology scan (right)



Figure 3-11: 86EVA scan of QEC-RXXJT6S with devices on OUT 1 to OUT 5

Ch. 4

SubDevice Information

4.1 ESI (EtherCAT SubDevice Information) File

ESI files contain the device description of a SubDevice in XML format. Load the ESI file into the MDevice configuration software so that the MDevice can identify the module and each of its ESCs. Table 4-2 lists the files per part number.

Table 4-1: Common ESI data

ESI item	Value (all junction ESI files)
ESI schema version	EtherCATInfo 1.6
Vendor ID / vendor name in ESI	0x00000BC3 / "DMPElectronics"
Device group	ESC_ControlBoard
Profile	5001
EEPROM size	2048 bytes
Number of device descriptions	JT1S, JT2S, JT3S: 1 per file; JT6S: 4 files (-0 to -3) per part number

***Note: Ensuring Up-to-date Installation of the XML Device Description File (ESI)**

To ensure smooth functioning, it is important to install the latest version of the XML device description file in the EtherCAT MDevice software. The latest version of the XML device description file can be downloaded from the QEC website: https://www.qec.tw/.

4.2 Device Identity

The MDevice reads Vendor ID, product code and revision from the SII EEPROM of each ESC during the scan and compares them with the ESI. Values per part number are listed in Table 4-2.

Vendor ID is **0x00000BC3** for all models.

The ESI device name of QEC-R00JT3S and QEC-R11JT3S is correct ("QEC-R00JT3S" / "QEC-R11JT3S"). However, the type text in both files reads "QEC-R11JT3S-N".

Table 4-2: ESI files by part number

Part number	ESI file	Device name(s)	Product code	Revision
QEC-R00JT1S-N	QEC-R00JT1S.xml	QEC-R00JT1S	0x000085F4	0x20230505
QEC-R11JT1S-N	QEC-R11JT1S.xml	QEC-R11JT1S	0x000085F7	0x20230505
QEC-R00JT2S-N	QEC-R00JT2S.xml	QEC-R00JT2S	0x000085F8	0x20230505
QEC-R11JT2S-N	QEC-R11JT2S.xml	QEC-R11JT2S	0x000085FB	0x20230505
QEC-R00JT3S-N	QEC-R00JT3S.xml	QEC-R00JT3S	0x000085FC	0x20230505
QEC-R11JT3S-N	QEC-R11JT3S.xml	QEC-R11JT3S	0x000085FF	0x20230505
QEC-R00JT6S-N	QEC-R00JT6S_ESI_v1r1.zip (4 XML files)	QEC-R00JT6S-0 to -3	0x0086D0F0	0x00060000, 0x00060100, 0x00060200, 0x00060300
QEC-R11JT6S-N	QEC-R11JT6S_ESI_v1r1.zip (4 XML files)	QEC-R11JT6S-0 to -3	0x0086D0F1	0x00060000, 0x00060100, 0x00060200, 0x00060300

4.3 Mailbox, Process Data and Distributed Clocks

- **No mailbox, no CoE.** None of the junction ESI files declares a mailbox. The modules therefore have no CoE object dictionary, and no SDO access is possible. The object dictionary of QEC I/O modules (e.g. QEC-RXXDXXK) does **not** apply.
- **No process data.** No PDOs are defined, so no PDO configuration is needed in the MDevice. The JT3S ESI lists two SyncManagers (0x1100, 0x1400) and two FMMUs, but both SyncManagers are disabled with size 0.
- **ESC operation.** The EEPROM configuration data in the ESI enables ESC device emulation (ESC configuration bit 0 = 1). The AL state then follows the state requested by the MDevice without an application controller.
- **Distributed clocks.** All ESI files define two operation modes: SM-Synchron (AssignActivate 0x0000) and DC-Synchron (AssignActivate 0x0300). This matches "Reference clock: supported" in the datasheet.

4.4 Diagnostics

The earlier QEC-RXXJT1S/2S datasheet and the QEC-RXXJT6S product page mention internal monitoring of temperature, voltage, current and operating hours. Datasheet v2r0 does not. The current ESI files declare no mailbox. Monitoring objects such as the 0x5000-range objects of other QEC modules therefore cannot be read over EtherCAT with these ESIs. Whether the monitoring function exists, and how it is accessed.

Use the LED indicators (2.6.3) and the AL status and error counters that the MDevice reads from each ESC for diagnosis.

4.5 Product Support

- QEC website, datasheets and ESI downloads: https://www.qec.tw/
- ICOP technical support and downloads: https://www.icop.com.tw/resource_entrance
- First steps with a QEC MDevice and 86Duino: see "Set up the QEC-M-043T for 86Duino" on www.qec.tw.

Warranty

This product is warranted to be in good working order for a period of one year from the date of purchase. Should this product fail to be in good working order at any time during this period, we will, at our option, replace or repair it at no additional charge except as set forth in the following terms. This warranty does not apply to products damaged by misuse, modifications, accident or disaster.

Vendor assumes no liability for any damages, lost profits, lost savings or any other incidental or consequential damage resulting from the use, misuse of, or inability to use this product. Vendor will not be liable for any claim made by any other related party.

Return authorization must be obtained from the vendor before returned merchandise will be accepted. Authorization can be obtained by calling or faxing the vendor and requesting a Return Merchandise Authorization (RMA) number. Returned goods should always be accompanied by a clear problem description.