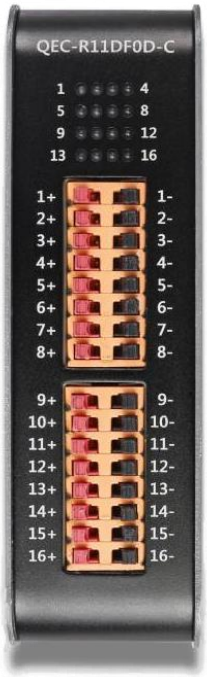


# User's Manual

# QEC-RxxD

EtherCAT Slave Digital I/O Module

With Isolated 16-ch Digital Input/Output

**QEC-R00DF0S-N**

**QEC-R00D0FS-N**

**QEC-R00D88S-N**

**QEC-R11DF0S-N**

**QEC-R11D0FS-N**

**QEC-R11DF88-N**

**(Revision 1.0B)**

# REVISION

| DATE | VERSION | DESCRIPTION |
|---|---|---|
| **2022/05/27** | **Version1.0A** | **New Release** |
| **2022/09/1** | **Vesrion1.0B** | **Words Modification** |

# COPYRIGHT


Ver.1.0A May 2022

# TRADEMARKS ACKNOWLEDGMENT



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For EtherCAT solution service, support or tutorials, please visit the QEC website:

- QEC: https://www.qec.tw/

This Manual is for the QEC-R series.

# SAFETY INFORMATION

- Read these safety instructions carefully.
- Please carry the unit with both hands and handle it with caution.
- Power Input voltage +24VDC @ 220mA (Typ.)
- Make sure the voltage of the power source is appropriate before connecting the equipment to the power outlet.
- To prevent the QEC device from shock or fire hazards, please keep it dry and away from water and humidity.
- Operating temperature between -20~+70°C.
- When using external storage as the main operating system storage, ensure the device's power is off before connecting and removing it.
- Never touch un-insulated terminals or wire unless your power adaptor is disconnected.
- Locate your QEC device as close as possible to the socket outline for easy access and avoid force caused by the entangling of your arms with surrounding cables from the QEC device.
- If your QEC device will not be used for a period of time, make sure it is disconnected 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 Product Description

The QEC-RxxD series are industrial EtherCAT slave Digital I/O modules equipped with the EtherCAT protocol and reduce help reduce infrastructure and operation costs. All the modules can be deployed in the network topologies such as star, line, or ring. The isolated input and output design protect the QEC-RxxD against harmful interferences and environments.

QEC-RxxD's use of the latest Digital Input components reduces heat generation and extends service life. The EtherCAT Slave Digital Input and Digital Output modules can be matched with any of the 4, 8, 12, and 16 channels with a total maximum of 16ch, and providing customized services that can save unnecessary cost. Each channel is completely isolated, simplifying the design of isolated signals between the entire system. The QEC-RxxD has passed and verified by the conformance testing tool; therefore, the EtherCAT Master and configurator can be manipulate and applied to various system and devices quickly.

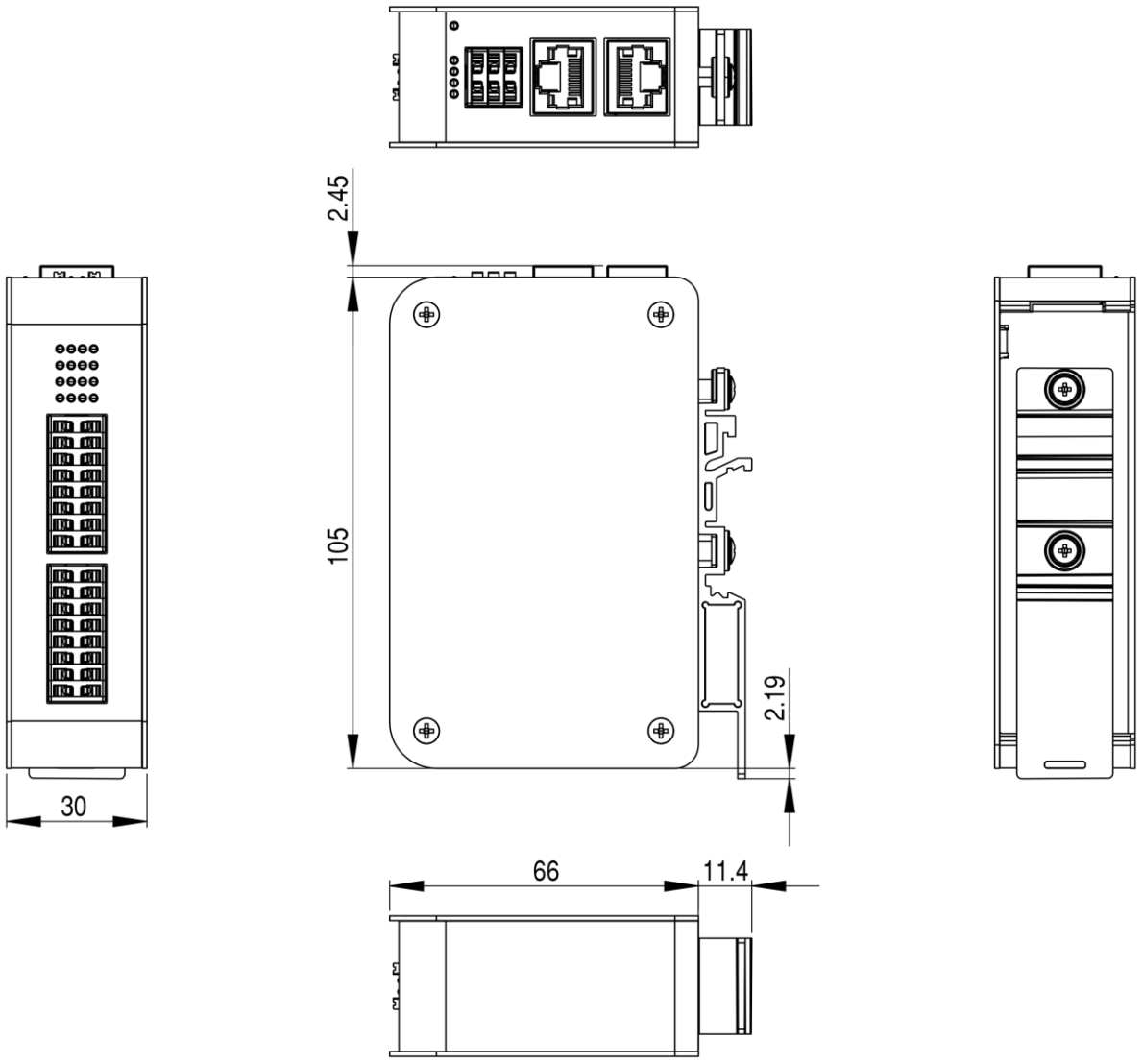
## 1.1.1 Product Features

- Suitable for EtherCAT protocol
- 16-ch Digital Input / 16-ch MOSFET Relay Digital Output
- 1500 Vrms Optical Isolation for each Digital I/O
- Vp/Vs Dual Isolated Power Input with Redundancy backup
- Wire-break detection for Digital Input
- LED indicators for I/O status

# 1.2 Product Specifications

| Model Name | | QEC-R00DF0S | QEC-R00D88S | QEC-R00D0FS |
|---|---|---|---|---|
| I/O Type (Digital) | | Input | Input & Output | Output |
| Channel | | 16-ch | 8-ch Input/8-ch Output | 16-ch |
| Input/Output Type | | Sinking | | |
| DI - Frequency | | 500Hz | | - |
| DI - Wire-break detection | | Option | | - |
| DI - Voltage | | 24V - 56V | | |
| DO - MOS Relay | | - | MOS-FET Relay | |
| DO - Frequency | | - | Frequency: 400Hz | |
| DO - Load Voltage | | - | 60V (AC peak/DC) | |
| DO - Load Current | | - | 1A (Optional to 2A) | |
| Isolation Protection | | 2000Vrms | DI: 2000Vrms<br>DO: 1500Vrms | 1500Vrms |
| Optocoupler | | 2000Vrms | DI: 2000Vrms<br>DO: 1500Vrms | 1500Vrms |
| Connector Color | | Positive: Red<br>Negative: Black | Positive: Red/Orange<br>Negative: Black | Positive: Orange<br>Negative: Black |
| Protocol | | EtherCAT | | |
| Connector | | 2 x RJ-45<br>6-pin Power Input /Output<br>16-ch Push-in Terminal | | |
| Transmission Rate | | 100Mbps | | |
| Power Requirement | | +24VDC @ 220mA (Typ.) | | |
| Power Consumption | | 5W | | |
| LED Indicator | | PWR, RUN, DI status | | |
| Operating Temperature | | -20°C to +70 °C | | |
| Dimension | | 105 x 66 x 30mm (Without DIN-Rail) | | |
| Installation | | DIN rail | | |
| Components' Certifications | DI | IEC 61131-2, DIN VDE V 0884-11, UL 1577, IEC 60950-1, IEC 62368-1, IEC 61010-1 and GB 4943.1-2011 | | |
| | DO | UL 94 V-0, UL Recognized, CSA Certified, EN/IEC 60950-1 | | |

# 1.3 Product Dimensions

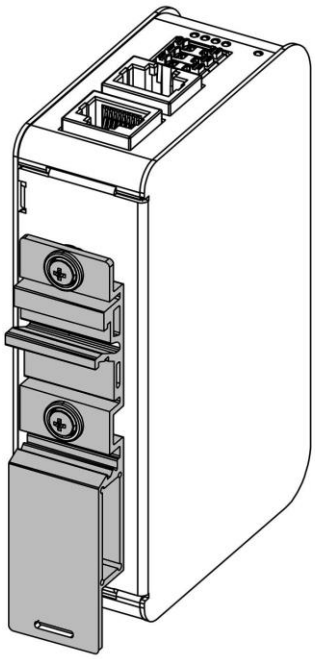


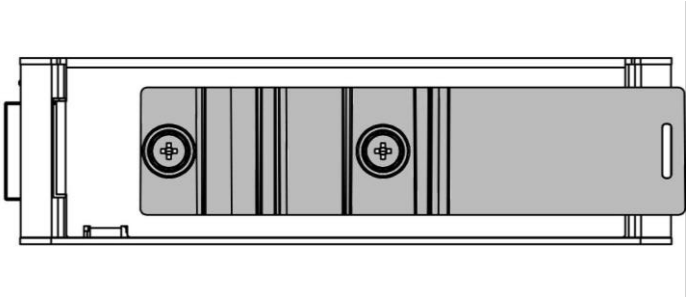

(Unit: mm)

# 1.4 Mounting Instruction

QEC-RxxD series is an easy-install design to help you set-up your modules easily. Please refer to Ch.3.1

- **DIN-Rill**





# 1.5 Ordering Information

| Type | RJ45 power source | | Functions | | | Feature | – | Coating |
|---|---|---|---|---|---|---|---|---|
| | Input | Output | Digital | Input | Output | Wire-break detection | | |
| QEC-R | x | x | D | x | x | x | | x |

**1. Type:** Code 1~4

R: RJ45

**2. RJ45 Power source:** Code 6~7

0: RJ45 In/Out w/o power

1: RJ45 In/Out – Power Device

**3. Functions:** Code 8~10

D: Digital I/O

x: 0 ,4 ,8, C (12), F (16) input channels

x: 0 ,4 ,8, C (12), F (16) output channels

**4. Feature:** Code 11

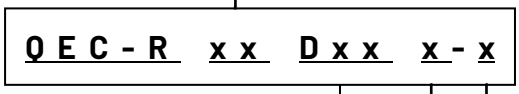
D: Wire-break detection

S: Standard

**5. Coating:** Code 13

C: Yes

N: Normal



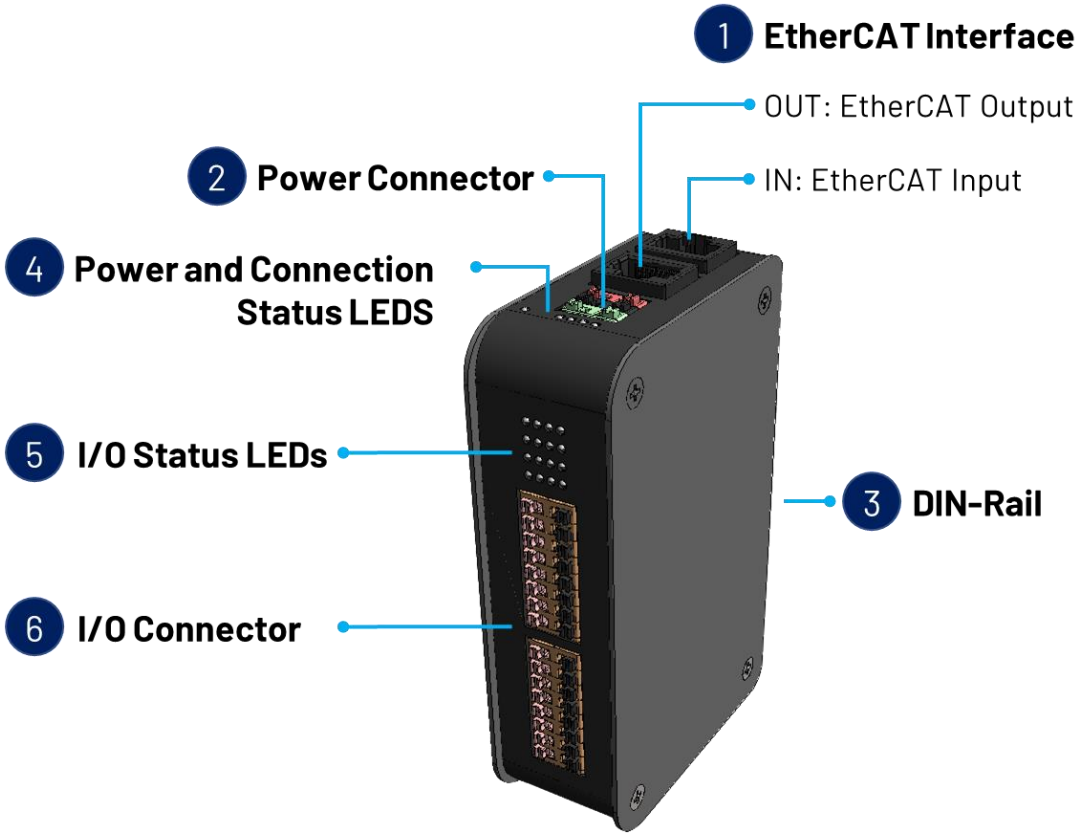

## 1.5.1 Refer Part Number:

| PART Number | DESCRIPTION |
|---|---|
| **QEC-R00D0FS-N** | **16-CH DIGITAL OUTPUT** |
| **QEC-R00D88S-N** | **8-CH DIGITAL OUTPUT & 8-CH DIGITAL INPUT** |
| **QEC-R00DF0S-N** | **16-CH DIGITAL INPUT** |

# Ch. 2

# Hardware System

## 2.1 General Technical Data

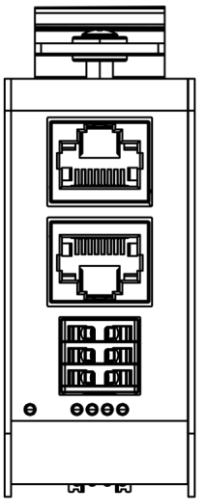


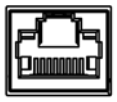

## 2.2 Connector Summary

| Nbr | Description | | Type of Connections | Pin nbrs. |
|---|---|---|---|---|
| 1 | EtherCAT Interface | OUT | External RJ45 Connector (Gold finger) | 8-pin |
| | | IN | | 8-pin |
| 2 | Power Connector | | External Power Socket | 6-pin |
| 3 | DIN-Rail | | - | - |
| 4 | Power and Connection Status LEDs | | External Status LEDs | - |
| 5 | I/O Status LEDs | | External Status LEDs | - |
| 6 | I/O Connector | 1 ~ 16 | QEC 2 x 8 | 16-pin |
| | | 17 ~ 32 | | 16-pin |

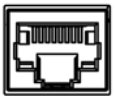
## 2.2.1 EtherCAT Interface

### EC IN



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

### EC OUT


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

## 2.2.2 Power Connector

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

## 2.2.3 DIN-Rail installation

Please refer to Ch.3.1.

## 2.2.4 Power and Connection Status LEDs

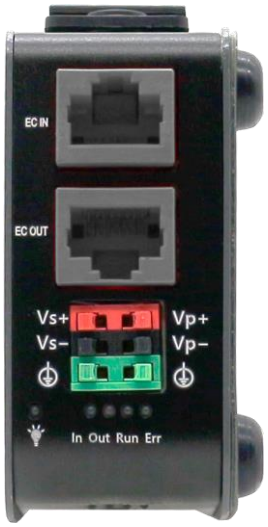
### Power Status LED

| Notation | Color | States | Description |
|---|---|---|---|
| PWR  | Green / Red | Green LED On | 1. Voltage <= 50V and Voltage >= 45V<br>2. Voltage <= 26V and Voltage >= 19V |
| | | Green and Red LED Cross-flash | 1. Voltage < 45V and Voltage > 26V<br>2. Voltage < 19V and Voltage > 12V |
| | | Orange LED On | Voltage > 50V or Voltage < 12V |

** Vs power status will be displayed first.*

### Connection Status LEDs

| Notation | Color | States | Description |
|---|---|---|---|
| In | Green | Off | The device is in state INIT |
| | | On | The device is in state Operation |
| Out | Green | Off | The device is in state INIT |
| | | On | The device is in state Operation |
| Run | Green | Off | The device is in state INIT |
| | | On | The device is in state Operation |
| Err | Red | Off | The device is in state Safe-Operation |
| | | On | The device is in state Error |



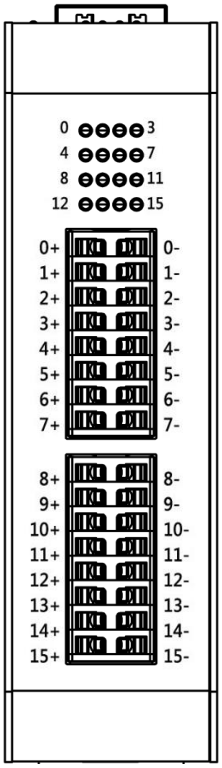

## 2.2.5 I/O Status LEDs

| Notation | Color | States | Description |
|---|---|---|---|
| DI | Green | Off | Digital input status is “Off” |
| | | On | Digital input status is “On” |
| DO | Green | Off | Digital output status is “Off” |
| | | On | Digital output status is “On” |

## 2.2.6 I/O Connector

### Pin1 to Pin16

| Pin # | Signal Name | Pin # | Signal Name |
|---|---|---|---|
| 0+ | D0+ | 0- | D0- |
| 1+ | D1+ | 1- | D1- |
| 2+ | D2+ | 2- | D2- |
| 3+ | D3+ | 3- | D3- |
| 4+ | D4+ | 4- | D4- |
| 5+ | D5+ | 5- | D5- |
| 6+ | D6+ | 6- | D6- |
| 7+ | D7+ | 7- | D7- |




### Pin17 to Pin32

| Pin # | Signal Name | Pin # | Signal Name |
|---|---|---|---|
| 8+ | D8+ | 8- | D8- |
| 9+ | D9+ | 9- | D0- |
| 10+ | D10+ | 10- | D10- |
| 11+ | D11+ | 11- | D11- |
| 12+ | D12+ | 12- | D12- |
| 13+ | D13+ | 13- | D13- |
| 14+ | D14+ | 14- | D14- |
| 15+ | D15+ | 15- | D15- |

# Ch. 3

# Hardware Installation

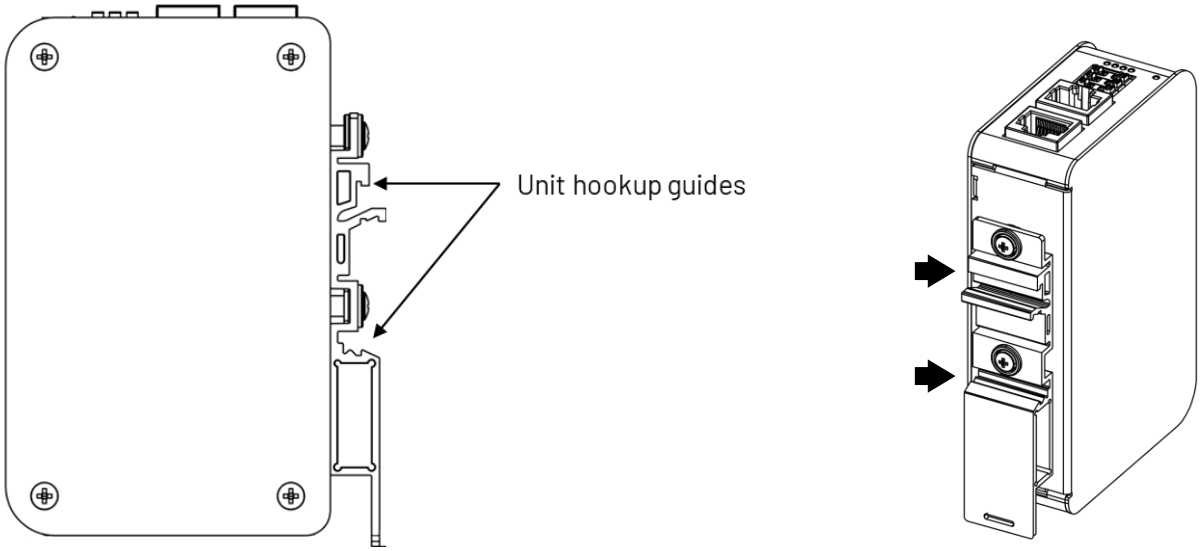


This section describes how to install QEC-RxxD.

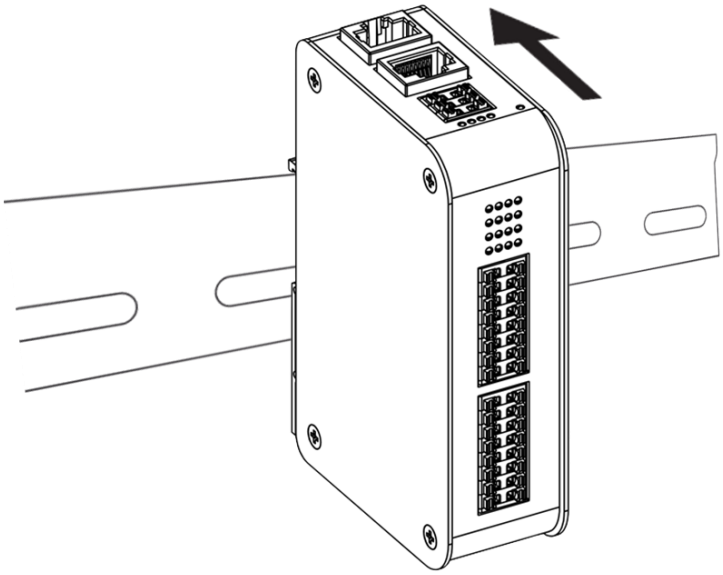
Please turn OFF the power supply before you mount QEC-RxxD. Always mount QEC-RxxD one at a time.

# 3.1 DIN-Rail installation

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



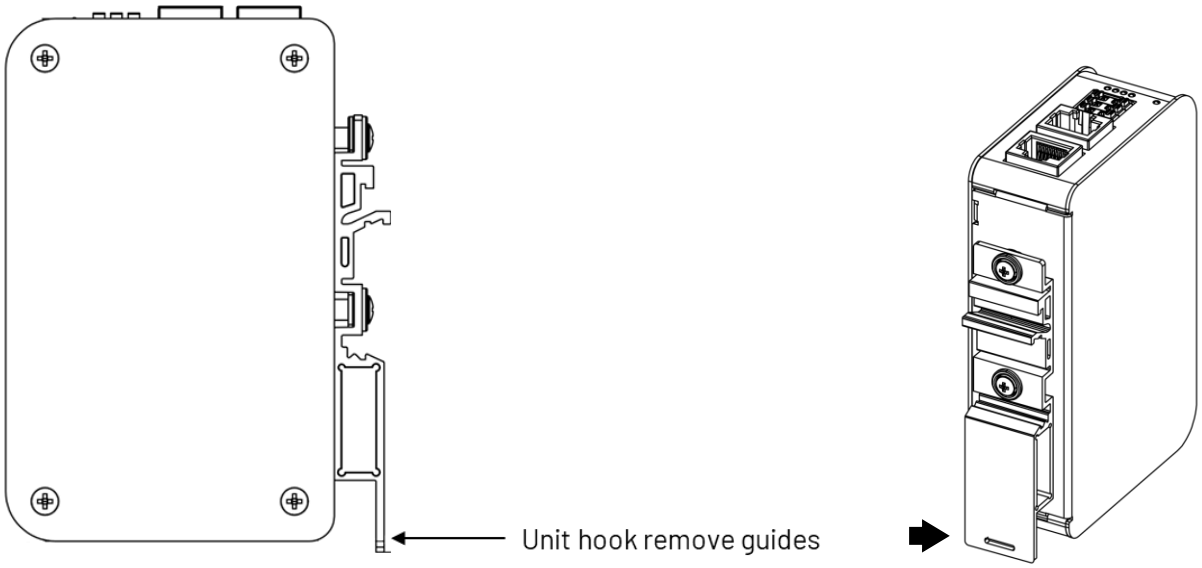

When you mount the QEC-RxxD, releasing the DIN track mounting hook on the QEC-RxxD is unnecessary. After you mount the QEC-RxxD, make sure it is locked to the DIN Track.



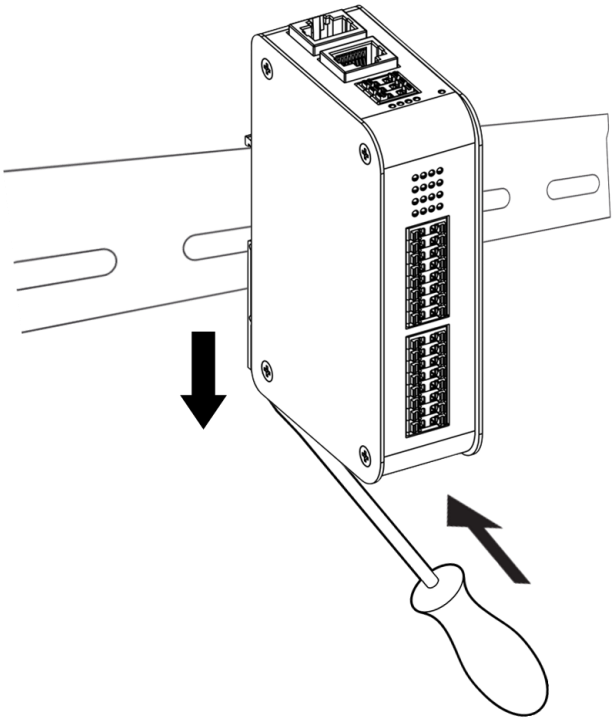
Note: Always turn OFF the Unit power supply and I/O power supply before connecting and removing the QEC-RxxD.

# 3.2 Removing QEC-RxxD Unit

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




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



# Ch. 4

# Slave Information

## 4.1 ESI (EtherCAT Slave Information) file

The ESI files contain information unique to the EtherCAT Slave Terminals in XML format. You can load an ESI file into the Support Software to easily allocate Slave Terminal process data and other settings. The ESI files for QEC EtherCAT slaves are already installed in the Support Software.

You can also download it on https://www.qec.tw/product/qec-r00d/ for details.

## 4.2 Object Dictionary

The object dictionary defined here shall be used complementary with ETG.5001 and ETG.1000.

- Device Profile: 5001 Modular Device Profile
- Modul Profile: 0
- Usage Notes:
  - The PDO mapping object and SyncManager assignment object do not need to be defined. In that case they are created automatically.
  - The following objects are fixed included in the SSC and shall not be defined in the file: 0x1000, 0x1001, 0x1008, 0x1009, 0x100a, 0x1010, 0x1011, 0x1018, 0x10F0, 0x10F1, 0x10F3, 0x1c00, 0x1c32, 0x1c33
  - Entries less or equal one 8Bit shall not overlap byte borders.
  - Entries greater 8Bit shall always start at an exact word border

## 4.2.1 QEC-R00DF0D

| INDEX | OBJECTCODE | SI | DATATYPE | NAME | DEFAULT | ACCESS | DESCRIPTION |
|---|---|---|---|---|---|---|---|
| **0X5000** | VARIABLE | | UINT16 | SP_Voltage | 0 | ro | Read System Power Voltage. |
| **0X5001** | VARIABLE | | UINT16 | SP_Current | 0 | ro | Read System Power Current. |
| **0X5002** | VARIABLE | | UINT16 | PP_Voltage | 0 | ro | Read Peripheral Power Voltage. |
| **0X5003** | VARIABLE | | UINT16 | PP_Current | 0 | ro | Read Peripheral Power Current. |
| **0X5004** | VARIABLE | | INT16 | Temperature | 0 | ro | Read ESC Temperature. |
| **0X5005** | VARIABLE | | UINT8 | BoxStatus | 0 | ro | EtherCAT Slave Status |
| **0X5010** | VARIABLE | | | WireBreak | | | |
| | | 1 | UINT16 | WireBreakTestChStatus | 0 | rw | |
| | | 2 | UINT16 | WireBreakTestResult | 0 | ro | |
| **INPUT PROCESS DATA** | | | | | | | |
| **0X6000** | RECORD | | | DigitalInput | | | |
| | | 1 | BOOL | Channel00 | | ro | |
| | | 2 | BOOL | Channel01 | | ro | |
| | | 3 | BOOL | Channel02 | | ro | |
| | | 4 | BOOL | Channel03 | | ro | |
| | | 5 | BOOL | Channel04 | | ro | |
| | | 6 | BOOL | Channel05 | | ro | |
| | | 7 | BOOL | Channel06 | | ro | |
| | | 8 | BOOL | Channel07 | | ro | |
| | | 9 | BOOL | Channel08 | | ro | |
| | | 10 | BOOL | Channel09 | | ro | |
| | | 11 | BOOL | Channel10 | | ro | |
| | | 12 | BOOL | Channel11 | | ro | |
| | | 13 | BOOL | Channel12 | | ro | |
| | | 14 | BOOL | Channel13 | | ro | |
| | | 15 | BOOL | Channel14 | | ro | |
| | | 16 | BOOL | Channel15 | | ro | |

## 4.2.2 QEC-R00DC4D

| INDEX | OBJECTCODE | SI | DATATYPE | NAME | DEFAULT | ACCESS | DESCRIPTION |
|---|---|---|---|---|---|---|---|
| **0X5000** | VARIABLE | | UINT16 | SP_Voltage | 0 | ro | Read System Power Voltage. |
| **0X5001** | VARIABLE | | UINT16 | SP_Current | 0 | ro | Read System Power Current. |
| **0X5002** | VARIABLE | | UINT16 | PP_Voltage | 0 | ro | Read Peripheral Power Voltage. |
| **0X5003** | VARIABLE | | UINT16 | PP_Current | 0 | ro | Read Peripheral Power Current. |
| **0X5004** | VARIABLE | | INT16 | Temperature | 0 | ro | Read ESC Temperature. |
| **0X5005** | VARIABLE | | UINT8 | BoxStatus | 0 | ro | EtherCAT Slave Status |
| **0X5010** | VARIABLE | | | WireBreak | | | |
| | | 1 | UINT16 | WireBreakTestChStatus | 0 | rw | |
| | | 2 | UINT16 | WireBreakTestResult | 0 | ro | |
| **INPUT PROCESS DATA** | | | | | | | |
| **0X6000** | RECORD | | | DigitalInput | | | |
| | | 1 | BOOL | Channel00 | | ro | |
| | | 2 | BOOL | Channel01 | | ro | |
| | | 3 | BOOL | Channel02 | | ro | |
| | | 4 | BOOL | Channel03 | | ro | |
| | | 5 | BOOL | Channel04 | 0 | wo | |
| | | 6 | BOOL | Channel05 | 0 | wo | |
| | | 7 | BOOL | Channel06 | 0 | wo | |
| | | 8 | BOOL | Channel07 | 0 | wo | |
| | | 9 | BOOL | Channel08 | 0 | wo | |
| | | 10 | BOOL | Channel09 | 0 | wo | |
| | | 11 | BOOL | Channel010 | 0 | wo | |
| | | 12 | BOOL | Channel011 | 0 | wo | |
| **OUTPUT PROCESS DATA** | | | | | | | |
| **0X7000** | RECORD | | | DigitalOutput | | | |
| | | 1 | BOOL | Channel00 | 0 | wo | |
| | | 2 | BOOL | Channel01 | 0 | wo | |
| | | 3 | BOOL | Channel02 | 0 | wo | |
| | | 4 | BOOL | Channel03 | 0 | wo | |

# 4.2.3 QEC-R00D88D

| INDEX | OBJECTCODE | SI | DATATYPE | NAME | DEFAULT | ACCESS | DESCRIPTION |
|---|---|---|---|---|---|---|---|
| **0X5000** | VARIABLE | | UINT16 | SP_Voltage | 0 | ro | Read System Power Voltage. |
| **0X5001** | VARIABLE | | UINT16 | SP_Current | 0 | ro | Read System Power Current. |
| **0X5002** | VARIABLE | | UINT16 | PP_Voltage | 0 | ro | Read Peripheral Power Voltage. |
| **0X5003** | VARIABLE | | UINT16 | PP_Current | 0 | ro | Read Peripheral Power Current. |
| **0X5004** | VARIABLE | | INT16 | Temperature | 0 | ro | Read ESC Temperature. |
| **0X5005** | VARIABLE | | UINT8 | BoxStatus | 0 | ro | EtherCAT Slave Status |
| **0X5010** | VARIABLE | | | WireBreak | | | |
| | | 1 | UINT16 | WireBreakTestChStatus | 0 | rw | |
| | | 2 | UINT16 | WireBreakTestResult | 0 | ro | |
| **INPUT PROCESS DATA** | | | | | | | |
| **0X6000** | RECORD | | | DigitalInput | | | |
| | | 1 | BOOL | Channel00 | | ro | |
| | | 2 | BOOL | Channel01 | | ro | |
| | | 3 | BOOL | Channel02 | | ro | |
| | | 4 | BOOL | Channel03 | | ro | |
| | | 5 | BOOL | Channel04 | | ro | |
| | | 6 | BOOL | Channel05 | | ro | |
| | | 7 | BOOL | Channel06 | | ro | |
| | | 8 | BOOL | Channel07 | | ro | |
| **OUTPUT PROCESS DATA** | | | | | | | |
| **0X7000** | RECORD | | | DigitalOutput | | | |
| | | 1 | BOOL | Channel00 | 0 | wo | |
| | | 2 | BOOL | Channel01 | 0 | wo | |
| | | 3 | BOOL | Channel02 | 0 | wo | |
| | | 4 | BOOL | Channel03 | 0 | wo | |
| | | 5 | BOOL | Channel04 | 0 | wo | |
| | | 6 | BOOL | Channel05 | 0 | wo | |
| | | 7 | BOOL | Channel06 | 0 | wo | |
| | | 8 | BOOL | Channel07 | 0 | wo | |

# 4.2.4 QEC-R00D4CD

| INDEX | OBJECTCODE | SI | DATATYPE | NAME | DEFAULT | ACCESS | DESCRIPTION |
|---|---|---|---|---|---|---|---|
| **0X5000** | VARIABLE | | UINT16 | SP_Voltage | 0 | ro | Read System Power Voltage. |
| **0X5001** | VARIABLE | | UINT16 | SP_Current | 0 | ro | Read System Power Current. |
| **0X5002** | VARIABLE | | UINT16 | PP_Voltage | 0 | ro | Read Peripheral Power Voltage. |
| **0X5003** | VARIABLE | | UINT16 | PP_Current | 0 | ro | Read Peripheral Power Current. |
| **0X5004** | VARIABLE | | INT16 | Temperature | 0 | ro | Read ESC Temperature. |
| **0X5005** | VARIABLE | | UINT8 | BoxStatus | 0 | ro | EtherCAT Slave Status |
| **0X5010** | VARIABLE | | | WireBreak | | | |
| | | 1 | UINT16 | WireBreakTestChStatus | 0 | rw | |
| | | 2 | UINT16 | WireBreakTestResult | 0 | ro | |
| **INPUT PROCESS DATA** | | | | | | | |
| **0X6000** | RECORD | | | DigitalInput | | | |
| | | 1 | BOOL | Channel00 | | ro | |
| | | 2 | BOOL | Channel01 | | ro | |
| | | 3 | BOOL | Channel02 | | ro | |
| | | 4 | BOOL | Channel03 | | ro | |
| **OUTPUT PROCESS DATA** | | | | | | | |
| **0X7000** | RECORD | | | DigitalOutput | | | |
| | | 1 | BOOL | Channel00 | 0 | wo | |
| | | 2 | BOOL | Channel01 | 0 | wo | |
| | | 3 | BOOL | Channel02 | 0 | wo | |
| | | 4 | BOOL | Channel03 | 0 | wo | |
| | | 5 | BOOL | Channel04 | 0 | wo | |
| | | 6 | BOOL | Channel05 | 0 | wo | |
| | | 7 | BOOL | Channel06 | 0 | wo | |
| | | 8 | BOOL | Channel07 | 0 | wo | |
| | | 9 | BOOL | Channel08 | 0 | wo | |
| | | 10 | BOOL | Channel09 | 0 | wo | |
| | | 11 | BOOL | Channel010 | 0 | wo | |
| | | 12 | BOOL | Channel011 | 0 | wo | |

# 4.2.5 QEC-R00D0FD

| INDEX | OBJECTCODE | SI | DATATYPE | NAME | DEFAULT | ACCESS | DESCRIPTION |
|---|---|---|---|---|---|---|---|
| **0X5000** | VARIABLE | | UINT16 | SP_Voltage | 0 | ro | |
| **0X5001** | VARIABLE | | UINT16 | SP_Current | 0 | ro | |
| **0X5002** | VARIABLE | | UINT16 | PP_Voltage | 0 | ro | |
| **0X5003** | VARIABLE | | UINT16 | PP_Current | 0 | ro | |
| **0X5004** | VARIABLE | | INT16 | Temperature | 0 | ro | |
| **0X5005** | VARIABLE | | UINT8 | BoxStatus | 0 | ro | NormalOperation 0<br>ESC_3p3_Power_NG 3<br>DIO_3p3_Power_NG 4<br>EXT_Xtal_Stop 5<br>EXT_Xtal_OverRang 6<br>PowerVoltageLowOrHigh 0x10<br>PowerVoltageTooLowOrTooOVer 0x11 |
| **OUTPUT PROCESS DATA** | | | | | | | |
| **0X7000** | RECORD | | | DigitalOutput | | | |
| | | 1 | BOOL | Channel00 | 0 | wo | |
| | | 2 | BOOL | Channel01 | 0 | wo | |
| | | 3 | BOOL | Channel02 | 0 | wo | |
| | | 4 | BOOL | Channel03 | 0 | wo | |
| | | 5 | BOOL | Channel04 | 0 | wo | |
| | | 6 | BOOL | Channel05 | 0 | wo | |
| | | 7 | BOOL | Channel06 | 0 | wo | |
| | | 8 | BOOL | Channel07 | 0 | wo | |
| | | 9 | BOOL | Channel08 | 0 | wo | |
| | | 10 | BOOL | Channel09 | 0 | wo | |
| | | 11 | BOOL | Channel10 | 0 | wo | |
| | | 12 | BOOL | Channel11 | 0 | wo | |
| | | 13 | BOOL | Channel12 | 0 | wo | |
| | | 14 | BOOL | Channel13 | 0 | wo | |
| | | 15 | BOOL | Channel14 | 0 | wo | |
| | | 16 | BOOL | Channel15 | 0 | wo | |

# 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, originality 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.