

TRS67-IOLINK

Bus Coupler Ethercat IO-Link IP67

Documentation

Document data

Date	26/06/2023
Revision	0
File Name	eTRS67-IOLink.pdf
Protocol	
Tipology	Documentation
By	T.P.A.
Group Name	UT
Notes	TRS67-IOLink Master module documentation

This documentation is the property of T.P.A. S.r.l.

Any unauthorized duplication is forbidden.

The Company reserves the right to modify the content of the document at any time.

INDEX

INSTRUCTION	4
1 DESCRIPTION	4
1.1 Product information	4
1.2 Dimensions	5
1.3 Description of each port.....	5
1.3.1 Ethernet and power	5
1.3.2 I/O signal.....	6
1.4 Description of the light	7
1.4.1 Light indicator of Ethernet and Power.....	7
1.4.2 Light indicator of I/O signal.....	7
2 INSTALLATION	8
2.1 Connectors and Accessories.....	8
2.2 Connect description	8
2.2.1 Device grounding	8
2.2.2 Shielded cable.....	8
2.2.3 Power supply.....	9
2.2.4 I/O connection	9
2.3 Device fasten.....	9
3 TECHNICAL DATA	10
3.1 Main parameters	10
3.2 EtherCAT	10
3.3 US Device and sensor power supply.....	10
3.4 UA Actuator power supply.....	10
3.5 IO connection.....	11
3.6 Electrical isolation	11
3.7 Mechanical test	11
3.8 EMC test	11

REVISIONS

Revision number	Date	Protocol	List of changes and/or modified paragraphs
Rev 0	26/06/2023		First release

INSTRUCTION

Note

This instruction is used for TRS67-IOLINK module.

This instruction is about the specifications, installation, main function and the configuration process of the TRS67-IOLINK module.

Application

This instruction applies to the following

Electrical engineer

Field installation workers

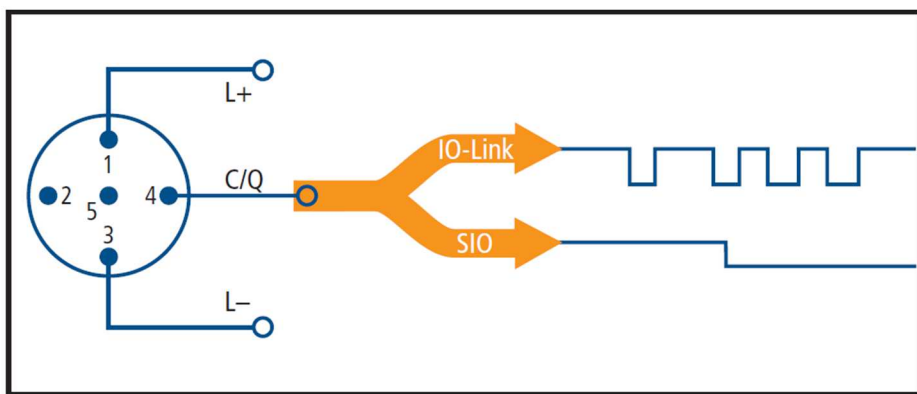
Disclaimer

This manual is based on existing information, and its contents are subject to change without notice. Tpa has done its best to ensure that its content is accurate and reliable when writing this manual but shall not be liable for the loss and damage caused by omission, inaccuracy or typographical errors in this manual.

1 DESCRIPTION

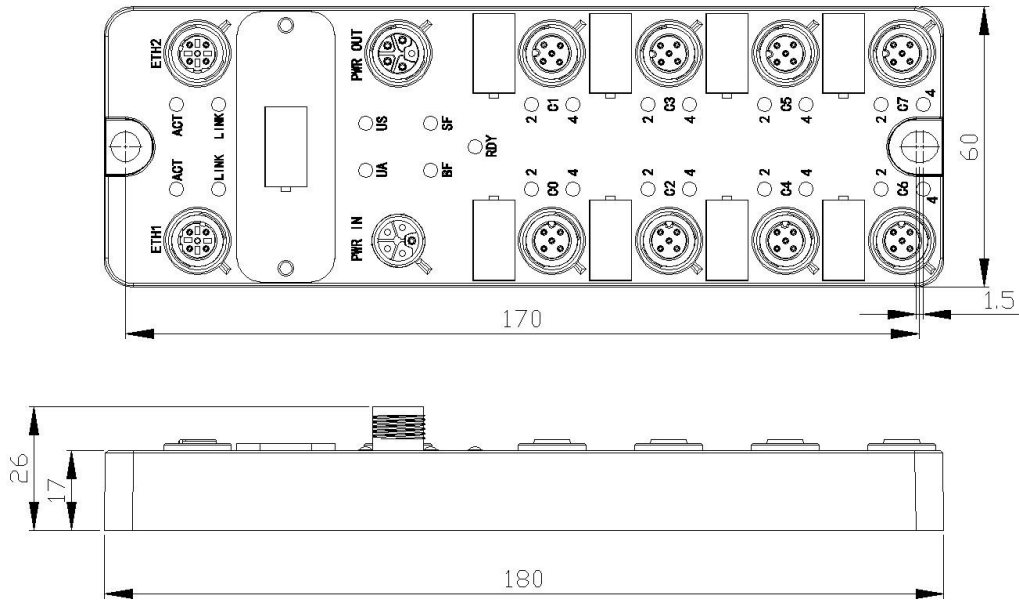
1.1 Product information

The TRS67-IOLINK module is the IO-Link Master device developed by T.P.A. that complies with the EtherCAT communication protocol. The module can control up to 8 different IO-Link slave devices (Type A) with an additional 8 digital input or output signals (connected to pin 2). Furthermore, if no IO-Link device is connected on a specific port, an additional digital input or output can be configured on pin 4, usually used for IO-Link protocol.



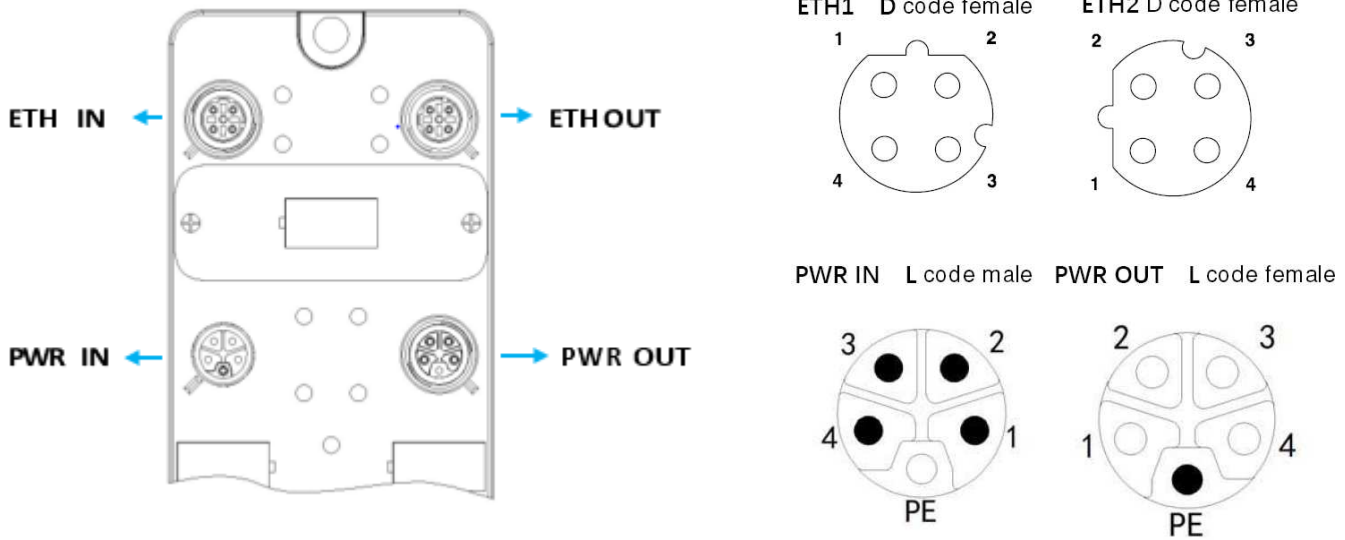
This series of products uses M12 T Code coded connectors for power supply. All channel ports of the TRS67 series support fault diagnosis alarms and short-circuit self-recovery functions, which can help engineers quickly locate and find on-site faults and reduce maintenance costs.

1.2 Dimensions



1.3 Description of each port

1.3.1 Ethernet and power

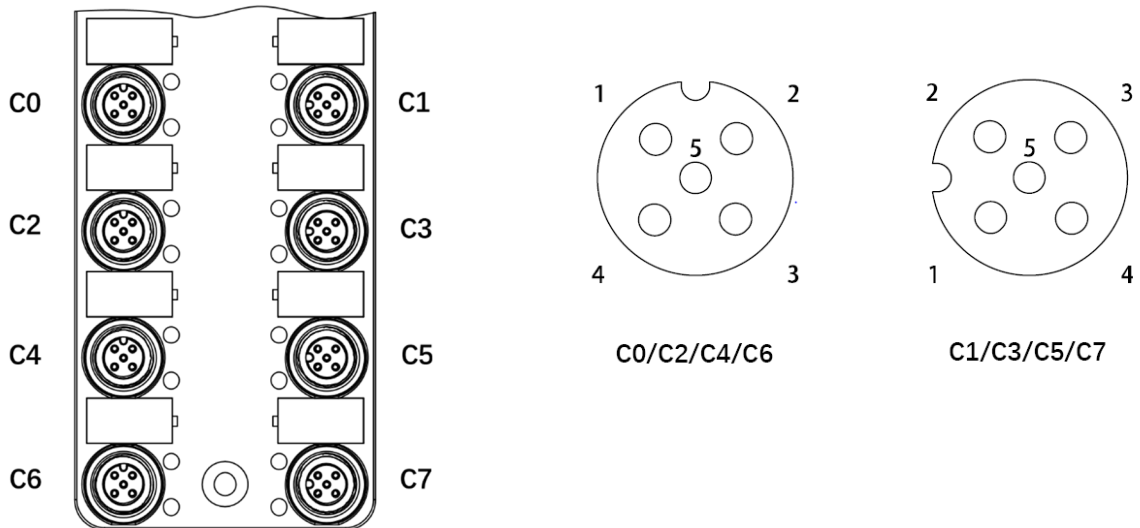


Contact definition

Contact No.	ETH (ETHERCAT)	PWR (POWER)
1	TX+	24 V(US+)
2	RX+	GND(UA-)
3	TX-	GND(US-)
4	RX-	24 V(UA+)

1.3.2 I/O signal

A Code FM

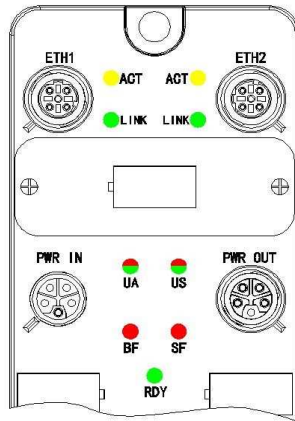


Contact definition

PIN	Description
1	24 V (only for input connectors)
2	Digital 24 V input or output
3	GND
4	IO-Link signal or 24 V additional digital I\O
5	FE

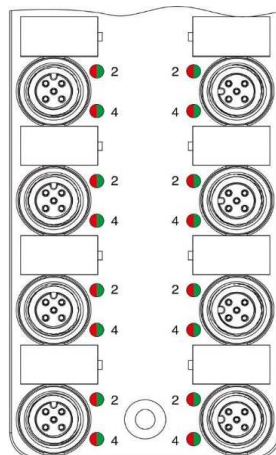
1.4 Description of the lights

1.4.1 Light indicator of Ethernet and Power



LED	Color & Behaviour	Description
LINK	OFF	Not used
ACT	OFF	Port closed (cable NOT connected)
	Green Blinking	Port open and data activity
	Green Fix	Port open (cable connected)
RDY or RUN	OFF	EtherCAT Initialization status
	Green Single Blinking	EtherCAT Safe-Operational status
	Green Fast Blinking	EtherCAT Pre-Operational status
	Green Fix	EtherCAT Operational status
US (device and sensor power supply)	OFF	US power supply missing
	Green Fix	US power supply normal
	Red Fix	US power supply undervoltage
UA (output power supply)	OFF	UA power supply missing
	Green Fix	UA power supply normal
	Red Fix	UA power supply undervoltage
BF	OFF	No Break Error
	Red Fix	Break Error
SF	OFF	No Inspection Error
	Red Fix	Inspection Error

1.4.2 Light indicator of I/O signal



LED	Color & Behaviour	Description
Signal C0-C7 (Light 2/Light 4)	OFF	Input\Output signal OFF
	Green Fix	Input\Output signal ON
	Red Fix	Input\Output signal undervoltage
Light indicator 2 and 4 red at the same time		Pin 1 (power) overload short circuit

2 INSTALLATION

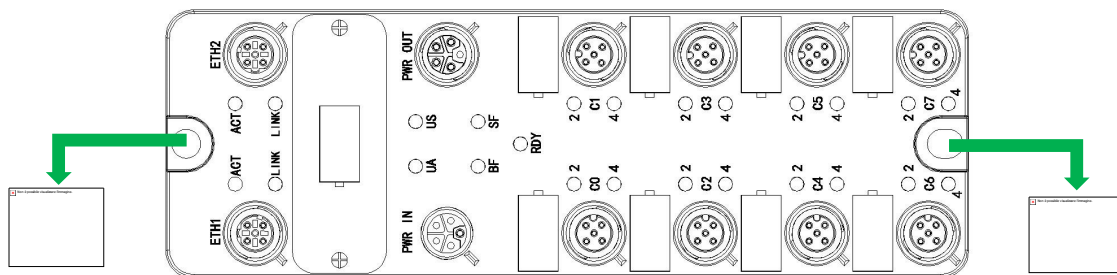
2.1 Connectors and Accessories

	M12 connector - I/O TRS8.3.04
	M12 connector - Power in TRS8.3.03
	M12 connector - Power out TRS8.3.02
	M12 cover for female
	M12 connector - EtherCAT TRS8.3.01
	M12 connector male to 2M8 female - I/O TRS8.3.05

2.2 Connect description

2.2.1 Device grounding

To avoid data damage or loss, please ensure that the device is well grounded.



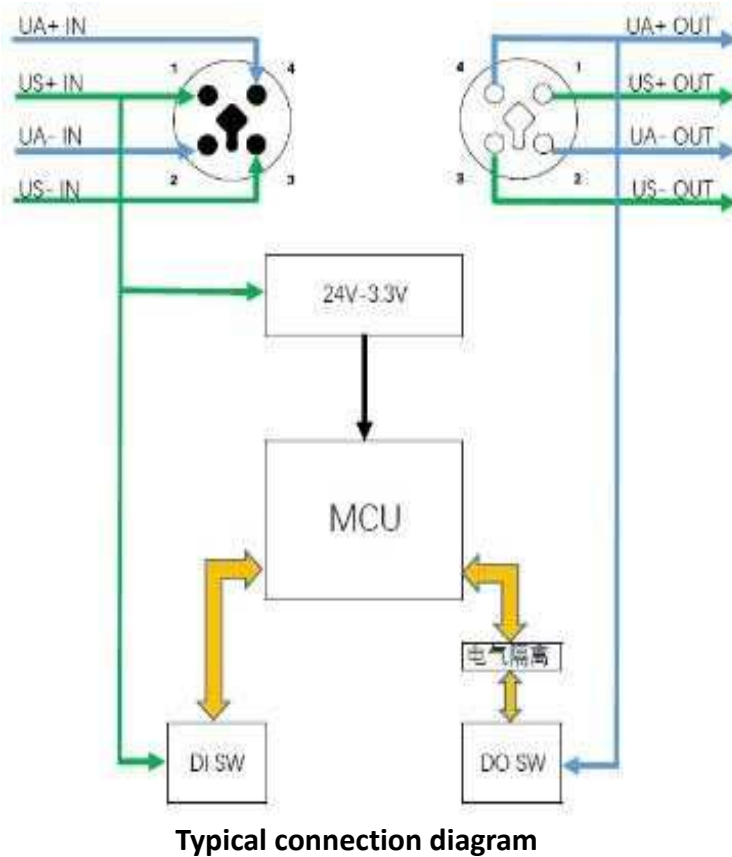
2.2.2 Shielded cable

To avoid data damage or loss, use the EtherCAT cable, ensure that the shielding layer of the cable is well grounded.

2.2.3 Power supply

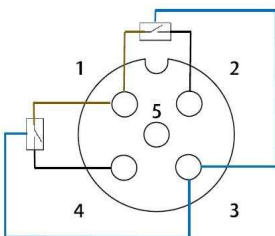
TRS67-IOLINK module power supply use M12 T code connection.

Module system and DI supported with US power supply, DO with UA power supply. Power range 18-30 Vdc, current 12 A, the module uses series power supply, please pay attention to the voltage drop and the total current of the power supply.

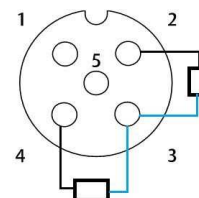


2.2.4 IO connection

TRS67-IOLINK module IO signal is PNP. Please pay attention to the wiring method when connecting the sensor and actuator, the typical connection diagram is shown below



Typical Connection diagram input



Typical Connection diagram output

2.3 Device fasten

Please use standard M4 screws to fix the module, the fixing surface should be kept flat, the module cannot bear bending stress.

3 TECHNICAL DATA

3.1 Main parameters

Housing material	Zinc alloy
Filler material	Polyurethane
Weight	300 g
Operating temperature	-25 --- 60 °C If the device is used at an ambient temperature higher than 50 °C, any contact with the metal surface of the device might cause burning
Storage temperature	From -30 to 70 °C
Operating humidity	From 5% to 95%
Storage humidity	From 5% to 95%
Operating pressure	From 70 to 106 kPa
Protecting degree	IP67

3.2 EtherCAT

Port	2
Transmission	Copper cable
Connection method	M12 D code 4 pin
Transmission speed	100 Mbps
Device type	ETHERCAT Device
Consistency	Class B
Refresh time	2 ms
EtherCAT protocol	COE FOE

3.3 US Device and sensor power supply

Connection method	M12 L code 5 pin
Input voltage	18-30 Vdc
Output current	MAX 12 A
Reverse polarity protection	YES
Current consumption	120 mA/no load

3.4 UA Actuator power supply

Connection method	M12 L code 5 pin
Input voltage	18-30 Vdc
Output current	MAX 12 A
Reverse polarity protection	YES
Current consumption	5 mA/no load

3.5 IO connection

Connection method	M12 A code 5 pin
Type	PNP
Input type	EN 61131-2 types 1 and 3
IO typical voltage	24 Vdc
Actuator supply current	500 mA/one signal
Sensor supply current	500 mA/one signal
Protection of overload and short circuit	870 mA/self-fixable

3.6 Electrical isolation

Testing parts	Testing voltage
US power Supply/ETH 1	500 V AC, 50 Hz, 1 Min
US power supply/ETH 2	500 V AC, 50 Hz, 1 Min
US power supply/FE	500 V AC, 50 Hz, 1 Min
ETH 1/FE	500 V AC, 50 Hz, 1 Min
ETH 2/FE	500 V AC, 50 Hz, 1 Min
ETH 1/ETH 2	500 V AC, 50 Hz, 1 Min
US/UA power supply	500 V AC, 50 Hz, 1 Min
UA power supply/ETH 1	500 V AC, 50 Hz, 1 Min
UA power supply/ETH 2	500 V AC, 50 Hz, 1 Min
UA power supply/FE	500 V AC, 50 Hz, 1 Min

3.7 Mechanical test

Vibration resistance according to EN60068-2-6/IEC60068-2-6	5 g
Shock complies with EN 60068-2-27/IEC 60068-2-27	30 g, 11 ms cycle, half-sine shock pulse
Continuous impact according to EN60068-2-27/IEC60068-2-27	10 g

3.8 EMC test

Noise immunity test complies with EN 61000-6-2 standard	
ESD EN 61000-4-2/IEC 61000-4-2	Standard B, 6 kV contact discharge, 8 kV air discharge
Electromagnetic field EN 61000-4-3/IEC 61000-4-3	Standard A, field strength: 10 V/m
Electrical fast transient burst immunity EN 61000-4-4/IEC 61000-4-4	Standard B, 2 kV
Surge immunity (Surge) EN 61000-4-5/IEC 61000-4-5	Standard B, DC power cord: ± 0.5 kV/ ± 0.5 kV (symmetry/asymmetry)
Conducted interference EN 61000-4-6/IEC 61000-4-6	Standard A: testing voltage 10 V
Noise emission test according to EN 61000-6-4	
Radio interference EN 55022	Class A



T.P.A. Srl Tecnologie e Prodotti per l'Automazione - Via Carducci, 221 - 20099 Sesto S. Giovanni
email: info@tpaspa.it - www.tpaspa.com - P.I.: IT02016240968