

INVERTER

F510



Communication - Addendum

EtherCAT

Table of Contents

1.0 Introduction to the EtherCAT expansion module	1-0
1.0.1 Communication Hardware and Data Structure	1-0
1.0.2 Product Specifications	1-0
1.0.3 Installation Instructions	1-1
1.0.4 LED indicator descriptions	1-2
1.0.5 Object Index List	1-3
1.0.6 Troubleshooting	1-5
1.0.7 XML File	1-5
2.0 I/O expansion card.....	1-6
2.0.1 Hardware and Data Structure	1-6
2.0.2 Product Specifications	1-6

1.0 Introduction to the EtherCAT expansion module

1.0.1 Communication hardware and data structure

This product is the EtherCAT high-speed communication expansion module (hereinafter referred to as communication module); it can perform remote setting and communication functions through the EtherCAT network environment. It can only be used with the TECO A510s/F510 AC motor driver (hereinafter referred to as a driver), and allow the driver to operate on the EtherCAT network.

1.0.2 Product specifications

EtherCAT ports

Item	Specifications
Connector	Dual-port network socket
Network protocols	EtherCAT communication protocol

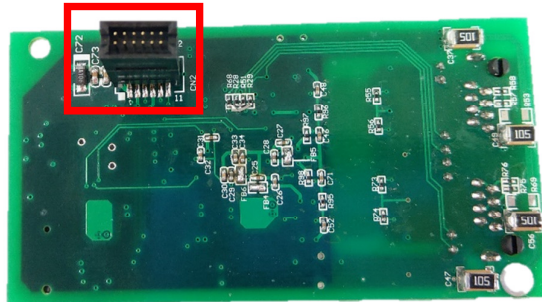
AC motor driver port

Item	Specifications
Connector	Control board CN2 connector
Terminal functions	1. The communication module communicates with the AC motor driver through this interface. 2. The AC motor driver provides power to the communication module through this interface.

1.0.3 Installation instructions

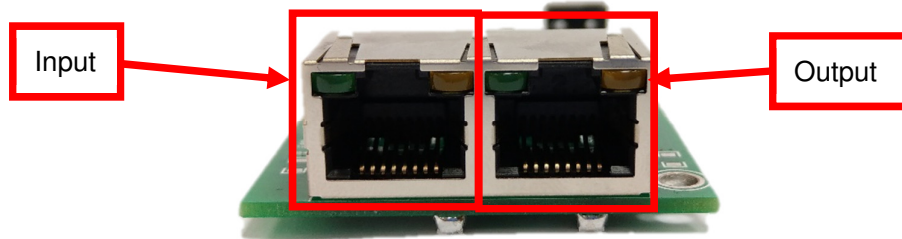
Communication module contact description

As shown in the figure below, the framed part is the CN2 connector that connects to the driver.



Communication module network socket

As shown in the figure below, the left socket is input and the right socket is output.



Driver parameter setting description

Users must first confirm related parameter settings on the driver in order to ensure that the communication module can connect normally.

Parameters	Parameter name	Settings	Settings descriptions
00-02	Operation command source	2	Communication control
00-05	Frequency command source	3	Communication control

1.0.4 LED indicator descriptions

The module has two dual-color LED indicators built-in used to quickly diagnose and monitor the communication statuses between the module itself and the EtherCAT network.

Module status LED2

Used to monitor whether the communication module is operating normally.

Indicator statuses	Status name	Description
Does not light up	Power not supplied	Power not supplied
Red light flashes	Data transmitting	Driver and communication expansion module data transmitting
Red/green light lights up	Driver data transmission error	Data transmission error between the driver and communication expansion module

Network status LED1

Used to monitor the operability of the communication module EtherCAT network.

Indicator statuses	Status name	Description
Does not light up	Not connected / INIT	EtherCAT network not connected (INIT)
Green light flashes	Standby	Preparation status (Pre-OP)
Green light lights up	Operation status	Operation status (OP)
Red light lights up	Driver data transmission error	Data transmission error between the driver and communication expansion module

1.0.5 Object index list

Basic index

Index	Sub-Index	Name	Default value	R/W	Size	Remarks
1000H	0	Device type	00000192H	R	U32	
1001H	0	Error register	0	R	U8	
1008H	0	Manufacturer device name	JN5-CM-CAN	R	U32	
1009H	0	Manufacturer hardware version	Version	R	U32	
100AH	0	Manufacturer software version	Version	R	U32	
1018H	0	number of entries	4	R	U8	
	1	Vender ID	0000081BH	R	U32	
	2	Product code	00000001H	R	U32	
	3	Revision	00000001H	R	U32	
1600H	0	Number of entries	2	RW	U8	
	1	1.Mapped Object	60400010H	RW	U32	
	2	2.Mapped Object	60420010H	RW	U32	
	3	3.Mapped Object	0	RW	U32	
	4	4.Mapped Object	0	RW	U32	
1601H	0	Number of entries	2	RW	U8	
	1	1.Mapped Object	604F0010H	RW	U32	
	2	2.Mapped Object	60500010H	RW	U32	
	3	3.Mapped Object	0	RW	U32	
	4	4.Mapped Object	0	RW	U32	
1A00H	0	Number of entries	3	RW	U8	
	1	1.Mapped Object	60400010	RW	U32	
	2	2.Mapped Object	60420010	RW	U32	
	3	3.Mapped Object	604F0020	RW	U32	
	4	4.Mapped Object	0	RW	U32	
1A01H	0	Number of entries	3	RW	U8	
	1	1.Mapped Object	604F0020	RW	U32	
	2	2.Mapped Object	60500020	RW	U32	
	3	3.Mapped Object	0	RW	U32	
	4	4.Mapped Object	0	RW	U32	

Object part

Index	Sub-Index	Name	Default value	R/W	Size	Unit	PDO MAP
603F	0	Error code	0	RO	U16		Yes
6040	0	Control word	0	RW	U16		Yes
6041	0	Status word	0	RO	U16		Yes
6042	0	vl target velocity	0	RW	S16	Hz	Yes
6043	0	vl velocity demand	0	RO	S16	Hz	Yes
604F	0	vl ramp function time Acceleration time	Driver default value	RW	U32	0.1S	Yes
6050	0	vl slow down time Deceleration time	Driver default value	RW	U32	0.1S	Yes

1.0.6 Troubleshooting

There are two indicators on top of the EtherCAT communication module. When a malfunction occurs, the cause of the malfunction can be confirmed based on the indicator statuses, and troubleshoot the error by following the descriptions below.

Indicator troubleshooting

Module status LED2

Indicator statuses	Status name	Troubleshooting method
Does not light up	Power not supplied	1. Confirm whether the driver power is normal. 2. Confirm whether the power terminal of the communication module is connected to the driver.
Red/green light lights up	Driver data transmission error	1. Confirm whether the communication module has proper contact. 2. Reconnect the power of the driver and confirm whether the error has been eliminated.

Network status LED1

Indicator statuses	Status name	Description
Does not light up	Not connected / INIT	1. Confirm whether the driver power is normal. 2. If connected to EtherCAT, confirm whether it is in INIT mode.
Red light lights up	Driver data transmission error	1. Confirm whether the communication module has proper contact. 2. Reconnect the power of the driver and confirm whether the error has been eliminated.

1.0.7 xml file

When using the EtherCAT communication module, if the xml description file (JN5-CMHI-ECAT_V (latest version).xml) is needed, please download it from the TECO official website (<http://globalsa.teco.com.tw>) or TWMC official website (<https://www.tecowestinghouse.com/drives-and-controls/>).

2.0 I/O expansion card

2.0.1 Hardware and data structure

This product is an I/O expansion module; it allows performing of I/O expansion functions through the SPI bus. Used with the TECO A510s/F510 AC motor driver (hereinafter referred to as a driver).

2.0.2 Product specifications

I/O ports

Item	Specifications
Connector	TB1 7 external contacts

AC motor driver port

Item	Specifications
Connector	Control board CN2 connector/CN5 connector
Transmission method	SPI high speed communication
Terminal functions	TB1 7 external contacts

TECO   **Westinghouse**

INVERTER

F510

Teco-Westinghouse Motor Company
5100 N. IH-35
Round Rock, Texas 78681
1-800-279-4007
www.tecowestinghouse.com

Distributor

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