EPC-TM32 (Expansion IO Card) User Manual

When users need to expand the number or functionality of control terminals for the inverter, please choose our expansion IO card EPC-TM32. The EPC-TM32 supports 5 channels of digital input, 3 channels of digital output, 2 channels of analog input, 1 channel of analog output, 1 channel of relay output, as well as 2 channels of STO input (Safe Torque Off signal) and 1 channel of leakage current detection input.

1. Appearance

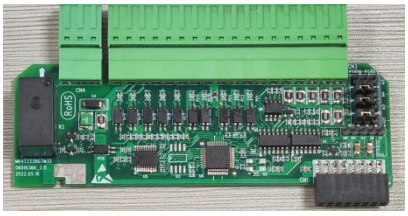


Figure 1 EPC-TM32



Figure 2 EPC-TM32 terminal

2. Terminal and jumper switch description

2.1 Terminal description

Category	Terminal symbol	Terminal name	Technical specifications
Analog Input	AI3	Analog input 3	0 ~ 20mA: Input impedance 500Ω Maximum input current 25mA
			0 ~ 10V: Input impedance 22kΩ Maximum input voltage 12.5V
			Switching between 0 ~ 20mA and 0 ~ 10V analog inputs is achieved through jumper switch S2, with voltage input as the default setting.
			Jump the jumper cap of S2 to S4 for compatibility with motor
			See below for functional code selection instructions.
	AI4	Analog input 4	0 ~ 20mA: Input impedance 500Ω Maximum input current 25mA
			-10 ~ +10V: Input impedance 22kΩ Maximum input voltage ±12.5V
			Switching between 0 ~ 20mA and -10V ~ +10V analog inputs is achieved through jumper switch S3, with voltage input as the default setting.
	LCT	Leakage current detection	Rated current of the current transformer: 800A (or 1500A)
			Turns ratio of the current transformer: 800:5 (or 1500:5)
			LCT terminal input current range: -45mA to +45mA
			Refer to the current transformer wiring and functional code selection instructions below.
Analog output	AO2	Analog output 2	0 ~ 20mA: Impedance required 200Ω to 500Ω
			0 ~ 10V: Impedance required ≥10kΩ

Category	Terminal symbol	Terminal name	Technical specifications
			Switching between 0 ~ 20mA and 0 ~ 10V analog outputs is achieved through jumper switch S1, with voltage output as the default setting.
	GND	Analog	Internally isolated from COM.
Digital input	X6 ~ X10	Digital input Terminal 6～10	Input specifications: 24VDC, 10mA
			Frequency range: 0～200Hz
			Voltage range: 10V～30V
			X terminal defaults to active low. If you need to set it as active high, short the jumper cap on standard IO card S4 to COM.
	STO1	Safe torque stop signal input 1	The factory default has STO function. If the user needs to disable the STO function, 24V should be shorted simultaneously to STO1 and STO2. Input specifications, frequency range, and voltage range are the same as the digital input terminal parameters.
	STO2	Safe torque stop signal input 2	
	+24V	+24V	24V ±10%, internally isolated from GND Maximum load 200mA
	COM	+24V reference ground	Internally isolated from GND
Digital output	DO2 ~DO4	open circuit collector output	Voltage range: 0~24V
			Current range: 0～50mA
			Pulse output: 0～50kHz
	CME	DO reference ground	Reference ground for DO2 to DO4. Internally isolated from COM and GND.
Relay 2 output	TA/ TB/ TC	Relay output	TA−TB: Normally closed
			TA−TC: Normally open
			Contact capacity: 250VAC/3A, 30VDC/3A

Notes:

1. When using the EPC-TM32, pay attention to ensure that the current and voltage parameters of the input and output channels do not exceed the limits;

2. S2 and S4 share a jumper switch. When AI3 is used as the motor temperature input, S2 does not require a jumper switch;

2.2 parameter setting instructions

Parameter	Definition	Scope	Factory default
d0-25	Motor 1 temperature sensor sampling channel selection	Ones place: sensor channel selection: 0: invalid 1: Analog input EAI (on PG expansion card) 2: Analog input AI3 (on IO expansion card) Tens place: sensor type selection: 0:PT100 1:PT1000 2:KTY84 3:NTC	00
d3-25	Motor 2 temperature sensor sampling channel selection		
Parameter	Definition	Scope	Factory default
E1-26	Current transformer model	0:800:5 (Applicable to 355kW and below AC drive) 1:1500:5 (Applicable to 400kW and above AC drive)	0

Notes:

1. When using AI3 as an analog input, set jumper switch S2 to select the current or voltage input type according to

requirements. The default input type is voltage.

2. When using AI3 for motor temperature detection:

If using a PT100 sensor, set d0-25 to 02, and set jumper switch S4 to PT100. S2 does not require a jumper.

If using a KTY84 sensor, set d0-25 to 22, and set jumper switch S4 to PT100. S2 does not require a jumper.

If using a PT1000 sensor, set d0-25 to 12, and set jumper switch S4 to PT1000. S2 does not require a jumper.

If using an NTC sensor, set d0-25 to 32, and set jumper switch S4 to PT1000. S2 does not require a jumper.

3. If using Motor 2, configure the corresponding d3-25 parameters.

For information about Motor 1 and Motor 2, refer to function code A0-08.

4. When using LCT leakage current detection, set E1-26 according to the current transformer model.

2.3 Jumper switch description

Jumper switch	Function description	Factory settings
S1	Mode switching for analog output AO2 AO2_I: 0～20mA AO2_V: 0～10V	0~10V Voltage input
S2	Mode switching for analog input AI3 AI3_I: 0～20mA AI3_V: 0～10V	0~10V Voltage input
S3	Mode switching for analog input AI4 AI4_I: 0～20mA AI4_V：-10V~10V	-10V~+10V Voltage input
S4	Selection of input mode for AI3 analog motor temperature sensor: PT100: PT100/KTY84 motor temperature sensor PT1000: PT1000/NTC motor temperature sensor	none (Shared with S2 jumper switch)

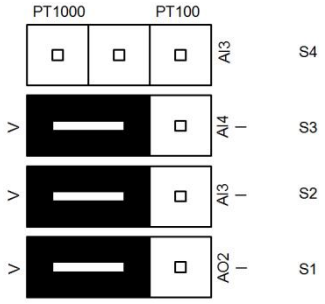


Figure 3 Schematic diagram of jumper switch

2.4 Current transformer wiring instructions

LCT is the current input terminal for the current transformer (corresponding to the secondary side of the current transformer).

When users use a current transformer for leakage current detection, it is necessary to connect the output terminal of the transformer (secondary side) to the LCT and GND terminals; otherwise, it will not work properly.

Note: When the current transformer is in operation, the secondary side must not be open-circuited, as it poses a risk of electric shock and personal injury!

The external appearance of the current transformer is shown in Figure 4:

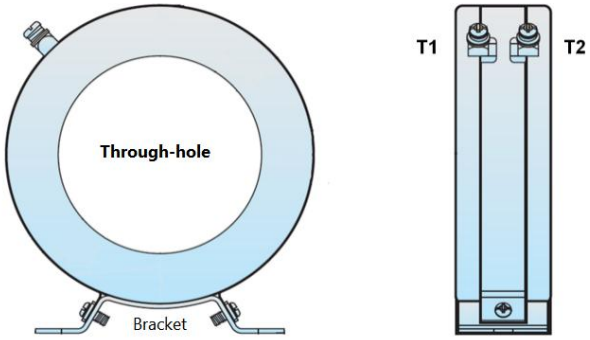


Figure 4: External appearance of current transformer

The three-phase output wires of the inverter should pass through the core hole of the current transformer, and the terminals T1 and T2 are the outputs of the secondary side of the current transformer (the secondary side must not be open-circuited when the current transformer is in operation). After correct wiring, proper insulation protection should be applied to T1 and T2.

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When using a current transformer to detect leakage current, it is necessary to match the corresponding current transformer according to the power and current rating of the inverter, as shown in the table below:

model	RCT-90 800/5A	RCT-110 1500/5A
turns ratio	800:5	1500:5
examination range	-7.27A~+7.27A	-13.64A~+13.64A
Perforated hole diameter	90mm	110mm
AC drive power	355kW and below	400kW and above