

JN5-CM-CAN

**Instruction Manual for
Communication Module**

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Chapter 1 Introduction

JN5-CM-CAN communication module is applied to automation control system with Industrial bus of CANopen equipment network so 510 series inverter (A510/F510/E510/L510), without function of CANopen, can run in CANopen network. From the perspective of CANopen network, JN5-CM-CAN communication module is network equipment. From the perspective of inverter, JN5-CM-CAN communication module is kind of communication between RS485 communication port and 510 series inverter.

510 series inverter, built in RS485 with various kinds of communication functions, can connect with different bus communication module via Modbus, including CANopen, DeviceNet and Profibus. But when the communication port is connected with CANopen network, it cannot be used for other communication functions.

CANopen master controls JN5-CM-CAN communication module through CANopen communication protocol and the module receive the command to control the inverter via Modbus.

1.1 Features and Supports

◆ Support functions:

- 1) Support CAN2.0A protocol.
- 2) Support CANopen DS301 V4.02.

◆ Support Services:

- 1) PDO (Processing data objects):

PDO1~PDO2: RxPDO maps out the writable device parameters; TxPDO maps out the readable device parameters. PDO message transmits real-time data by peer mode.

- 2) SDO (Service Data Objects):

SDO message configures the controlled node and each node to access the object dictionary.

There are two kinds of SDO, request SDO and response SDO.

- 3) SOP (Special Object Protocol):

Support pre-defined Master/ Controlled connection default COB-ID.

Support broadcast services (when Address is 0).

4) Support SYNC Service:

5) NMT (Network Management)

Support NMT Module control

Support Boot-up

Support Baud Rate is 500K, 250K, 125K, and 50K.

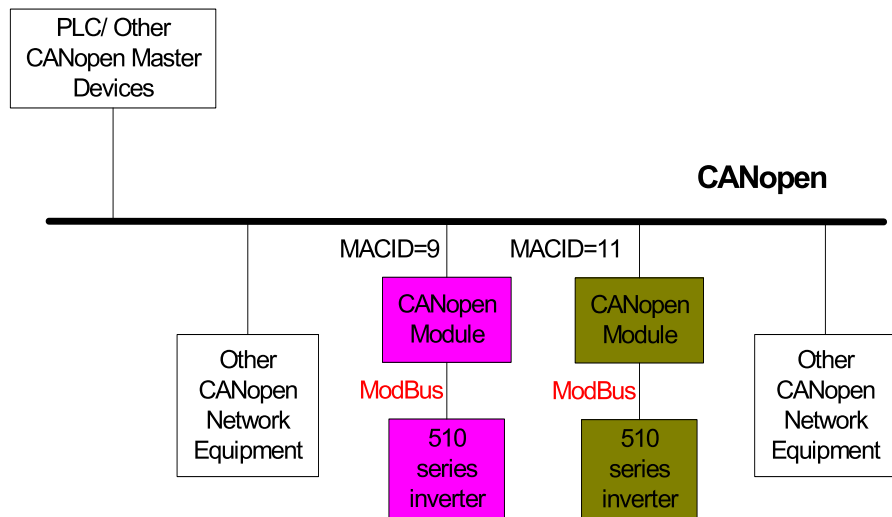
◆ Descriptions of Modbus communication with inverter

1) Support to read the state of 510 series inverter (run/stop, fault, warning signal).

2) Support to control the inverter's run/stop, forward/reverse rotation and frequency command.

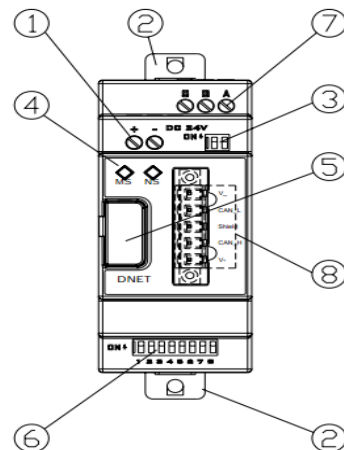
3) Support to control inverter's acceleration/ deceleration time.

1.2: System Configuration Diagram



1.3: Communication Module Unit Structure

- ① 24vDC power terminal
- ② Recyclable installation slider
- ③ DIP switch
(2PIN: Network termination resistance selection)
- ④ Function module indicators /
Network module indicators
- ⑤ Button
- ⑥ DIP switch (8PIN: Set network ID and function)
- ⑦ RS485 communication port (connection to the inverte
- ⑧ CANopen bus connection terminal



Chapter 2 Installation

2.1: Installation and Dimensions

JN5-CM-CAN module can be mounted vertically, refer to Figure 2.1 (Left). Fix the module to DIN rail. The rail is clamped accurately by plastic grooves. It is suggested to add the clip on the terminal rail to fix the module on the rail. JN5-CM-CAN module can be directly mounted with screw M4, refer to Figure 2.1 (Right).

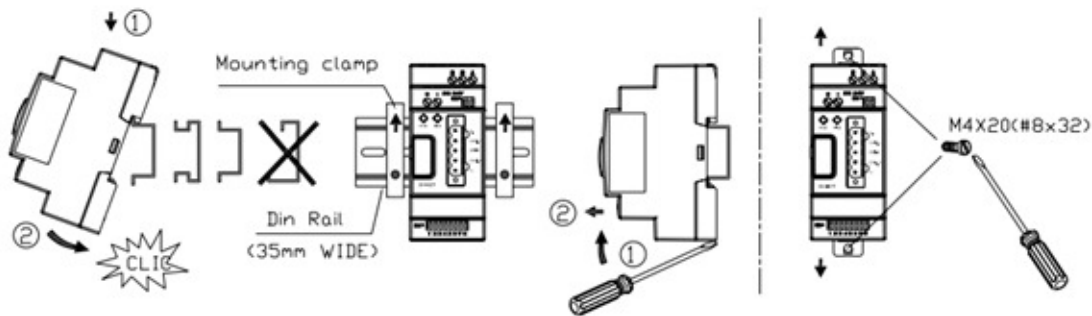


Figure 2.1.1 Installation

Dimensions:

Unit: mm (1 inch= 25.4 mm)

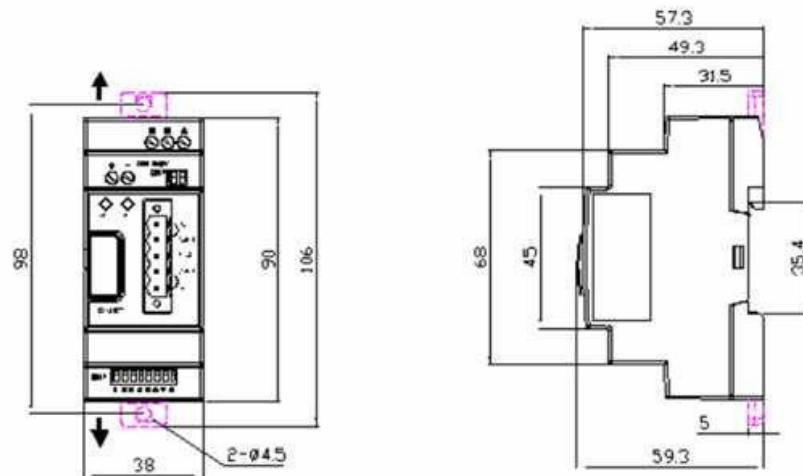


Figure 2.1.2 Dimensions

2.2 Connection to Power Supply

JN5-CM-CAN can use network power (DC-24V) and also can use self-24VDC power supply.

Warning:

Always ensure the safety of electric isolation between extra low voltage and 24V power supply.

① Fast fuse, Breaker, Circuit protector

② Filter

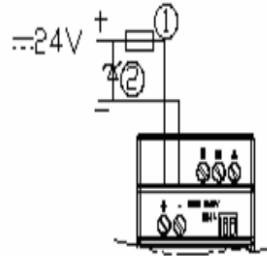


Figure 2.2.1

2.3 Connection to CANopen

Use 5 terminals of device network connector to connect with CANopen bus.

It is suggested to use the device network connector and cables regulated by CIA. Selection of cable types is to determine the maximum allowable length of bus and data transmission rate.

Terminals assignment:

1. GND (Black)
2. CAN_L (Blue)
3. Screen (Colorless)
4. CAN_H (White)
5. 24V (Red)

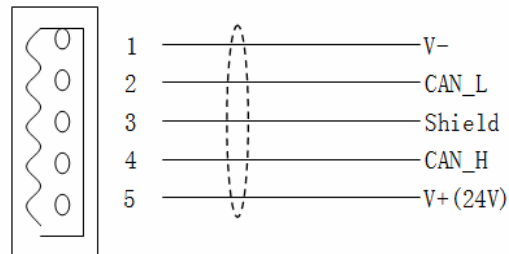


Figure 2.3.1 Device socket terminals assignment

All terminals are required to be correctly connected to ensure the normality and safety of communications. Refer to Figure 2.5.

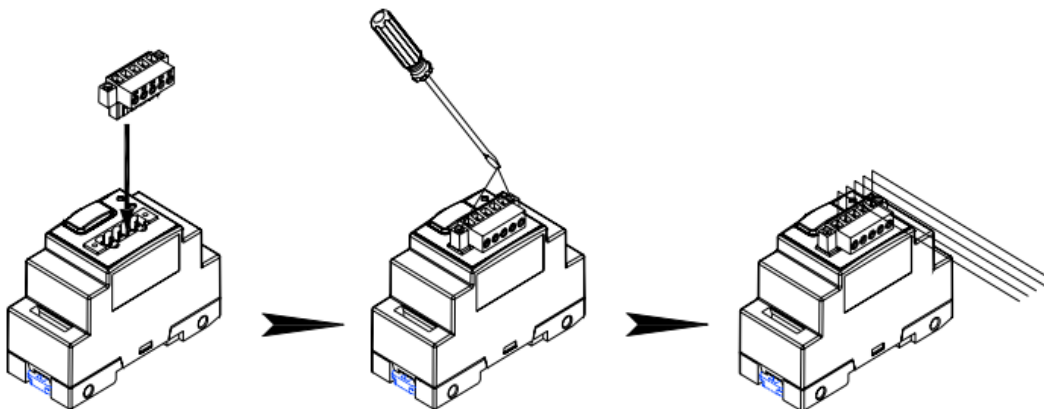


Figure 2.5 Installation of terminal block

2.4 Connection to ModBus of 510 series inverter

Communication module is set to fixed baud rate 19200bps, 8 bit data, 1bit stop, no parity bit and the communication protocol is ModBus RTU. Connect with the inverter and the communication parameter setting is the followings.

Function	Description	Setting value	Default value
00-02	Run source	2:communication control	1
00-05	A510/F510	3: communication setting	
	L510/E510	5	
09-00	INV Communication Station Address	1	1
09-02	A510/F510	4	3
	L510/E510	2	2
09-03	Stop bit selection	0	0
09-04	Parity selection	0	0

* Refer to the inverter's instruction manual: communication port application for details of communication setting and wiring.

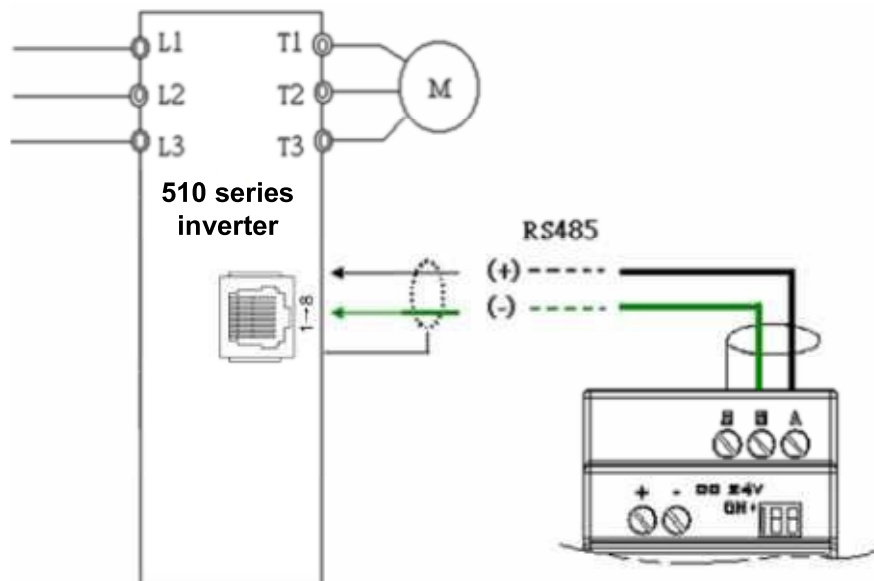


Figure 2.4.1 RS485 connection

2.5 Termination Resistors

The first and the last communication station of device network are required to be connected to 120 Ω termination resistors between CAN_L and CAN_H. JN5-CM-CAN module provides termination resistors and it is required to turn on DIP switch SW2 while the module is used.

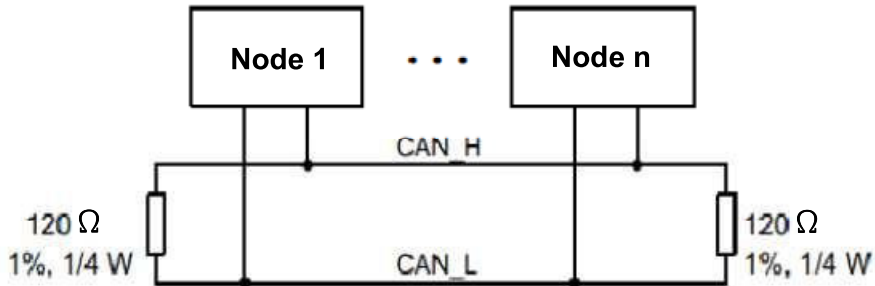


Figure 2.5.2 Termination resistors (RT) = 120Ω

2.6 Electrical Isolation

JN5-CM-CAN communication module performs electrical isolation as follows: DC/DC module of 1KV pressure resistance is used to make communication drive circuit and communication control chip pass through high-speed optocoupler so as to perform the isolation between the signals. Thus, noise of communication line does not interfere in internal digital circuit. Refer to the following figure.

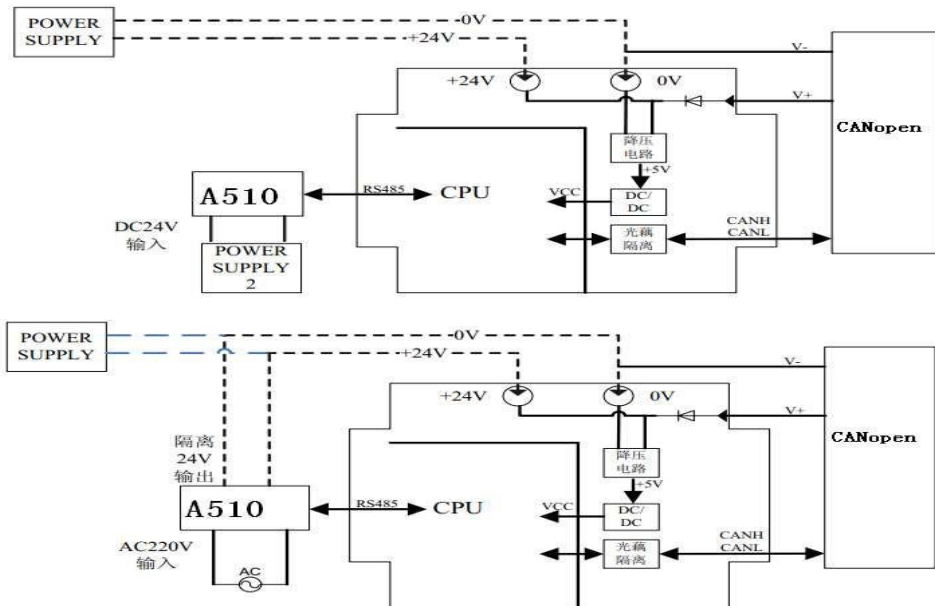


Figure 2.6.1 Diagram of internal electrical isolation

2.7 Transmission Rate, Maximum Transmission Distance and Cable Length

Data transmission rate requirements regulated by ODVA are shown as the followings:

500kbps, 250kbps, 125kbps, and 50kbps.

The maximum allowable length of the bus depends on the type of cable used. The allowable cable types are as follows:

- Thin cable
- Thick cable
- Flat cable

Data transmission cable requirements regulated by ODVA (for Thick cable):

Baud Rate(kbps)	Maximum bus length(m)	Baud Rate (kbps)	Maximum bus length(m)
500	100	125	500
250	250	50	1000

Chapter 3 Operation

3.1 Power-on Initialization

JN5-CM-CAN communication module usually uses network power. When there are more network device and insufficient voltage, it is allowable to use self-power. Make sure if the connection between the module and power or between the bus interface and RS485 is correct and inverter's RS485 communication parameters setting.

3.2 Network Function Setting

Setting of CANopen communication module network ID is required to be enabled before power on. The setting range is 1~63.

3.3 Network Site Setting and Baud Rate Setting

Each node station needs a unique network site (MAC ID) in device network structure. User can assign it up to 63 sites (1~63) in this structure. Each MAC ID in the bus structure is required to be unique. Set the node address by DIP switch SW1~SW6 in JN5-CM-CAN communication module. If it performs reset, it is required to disconnect to be enabled.

CANopen communication module supports communication baud rate 500K, 250K, 125K and 50K. If it performs reset, it is required to disconnect to be enabled.

Setting value of DIP switch SW1 (when DIP switch is ON, the value is 1).

Function	DIP switch position	DIP switch state	Contents
Network sites setting	SW6--SW1	000001	Network site is 1
		000010	Network site is 2
		000011	Network site is 3
		
		111110	Network site is 62
		111111	Network site is 63
Baud Rate setting	SW8--SW7	00	50K
		01	125K
		10	250K
		11	500K

3.4 LED State Display

There are two bi-color LED indicator in JN5-CM-CAN communication module for rapid diagnosis, and monitoring the state of itself and bus communication.

LED module state (MS)

Bi-color LED (green/ red) indicates the state of DNET communication module to monitor if device works properly. Module state indicator functions:

Module Indicator	State	Functions	Notes
Off	Without power on	Without power on	
Green light blinks	Stand by	Improper connection with inverter	
Green light is on	Operating	On operation	
Red light blinks	Restorable fault	Fault occurs but can be restored	

Network State LED (NS)

Bi-color LED (green/ red) indicates the state of device network bus communication to monitor the network operability of communication module. Meaning of network state indicator:

Network Indicator	State	Functions	Notes
Off	Without power on	Without power on	
Green light blinks and Red light is off	Blinking	Pre-operation	The device is in pre-operational state. 2.5 Hz flashes
Green light is on and Red light is off.	Bright	Operation state	The device is in operation state
Green light blinks	Flash	Stop state	Bright for 200ms and 1000ms
Red light blinks	Communication bus is off	Communication bus is off	

Chapter 4 Function Descriptions

4.1 Predefined Connection of JN5-CM-CAN Module

0x1000~0x1FFF of object dictionaries and 0x2000~0x5FFF of manufactures custom zones are used in JN5-CM-CAN module. These object dictionaries are in charge of the communication and data exchange of CANopen and CAN network. Index and sub-index are used to define the object dictionaries. Each of them has his data length (UIN8, UIN16, UIN32, etc.) and properties (RO, WO, RW, CONST, and MAPPALE). Data of the object dictionaries can be read and modified by SDO service.

Generally, there are one Master and some node stations in CANopen network and it usually used CANopen's pre-defined connection. Pre-defined connection is the interrelation of COB-ID related to communication and node ID.

To reduce network configuration workload, CANopen defines the allocation table of default identification symbol (CAN-ID). These symbols can be used in the pre-operation state and can be modified by dynamic allocation. CANopen device needs to provide the corresponding identification symbol for the supported communication objects.

Default ID allocation table is based on 11 bits CAN-ID. Among them, high 4 bits is for function code and low 7 bits is for Node-ID, set by DIP switch.

CAN identifier allocation table of JN5-CM-CAN's CANopen predefined Master/ node station connection set

Broadcasting objects of CANopen predefined Master/ node station connection set			
Objects	Function code (ID-bits 10-7)	COB-ID	Index of communication parameters in OD
NMT Module Control	0000	0000H	
SYNC	0001	0080H	1005H , 1006H , 1007H

Peer object of CANopen Master/ node station connection set			
Objects	Function code (ID-bits 10-7)	COB-ID	Index of communication parameters in OD
Urgent	0001	081H-0FFH	1024H , 1015H
PDO1(Send)	0011	181H-1FFH	1800H
PDO1(Receive)	0100	201H-27FH	1400H
PDO2(Send)	0101	281H-2FFH	1801H
PDO2(Receive)	0110	301H-37FH	1401H
SDO(Send/ Server)	1011	581H-5FFH	1200H
SDO(Receive/ Client)	1100	601H-67FH	1200H
NMT Error Control	1110	701H-77FH	1016H-1017H

Notes:

1. PDO/ SDO sending/ receiving are observed by CAN node stations.
2. NMT error control includes Node Guarding, Heartbeat and Boot-up agreement.
JN5-CM-CAN module supports Heartbeat production and Boot-up agreement.

4.2 Network Management Service (NMT)

1. Network management control (NMT Module Control)

JN5-CM-CAN module supports network management commands defined by DS301. These commands are sent either from CANopen Master or other node stations. JN5-CM-CAN module support node heartbeat production. The operation command is referred to the following table. When Node_ID = 0, all node station devices are controlled (in a broadcasting way).

NMT control command format

COB-ID (CAN-ID)	DLC	BYTE0	BYTE1
0x000	2	CS (command word)	NodeID (Node identifier)

NMT command word and corresponding functional services

CS (command word)	NMT service (control action)
0x01	Start node station device
0x02	Stop node station device
0x80	Make node station enter pre-operation
0x81	Reset node station
0x82	Reset node station communication

Node protection state value

Value	state
0x00	Initializing
0x02	Stopped
0x80	Operational
0x81	Pre-operational

4.3 Service Data Object (SDO)

Service data object is mainly for transmitting non-time critical data, like parameter value. User can access the items in device object dictionary via SDO. Object dictionary serves as the main data exchange medium between application layer and communication layer. All data in CANopen device can be managed in object dictionary. Every object dictionary item can be positioned with index and sub-index. Service data object (SDO) defined by CANopen is to access these items.

JN5-CM-CAN module supports one SDO server so it can provide SDO service. SDO uses pre-defined connection to send and receive COB-ID, 0x580 + NodeID (sending) and 0x600 + NodeID (receiving). A SDO message includes one set of COB-ID (requested SDO and responded SDO), and it can perform access action between two nodes. SDO can transmit any size of data, but it is required to use segment transmission way if it is over 4 bytes. SDO has three kinds of transmission modes, acceleration transmission, segment transmission and block transmission. Acceleration transmission mode is often used in SDO of JN5-CM-CAN.

COB ID of SDO communication is as follows:

- From Master to Follower: 600h + ID
- From Follower to Master: 580h + ID

Read: from Master to Follower (Request code: 0x40)

COB-ID	Byte0	Byte1	Byte2	Byte3	Byte4	Byte5	Byte6	Byte7
(600H) +Node-ID	Request Code	Object Index		Object sub-index	Request Data			
		LSB	MSB		Reserved			

Read: Follower reset

COB-ID	Byte0	Byte1	Byte2	Byte3	Byte4	Byte5	Byte6	Byte7
(580H) +Node-ID	Response Code	Object Index		Object sub-index	Request Data			
		LSB	MSB		bit0~bit7	Bit8~bit 15	Bit16~bit 23	Bit24~bit 31

Response code (READ):

43H Read 4-byte data

4BH Read 2-byte data

4FH Read 1-byte data

Write: from Master to Follower (“acceleration” message, up to 4-byte data)

COB-ID	Byte0	Byte1	Byte2	Byte3	Byte4	Byte5	Byte6	Byte7
(600H) +Node-ID	Request Code	Object Index		Object sub-index	Request Data			
		LSB	MSB		bit0~bit 7	Bit8~bit 15	Bit16~bi t23	Bit24~bi t31

Request code (WRITE):

23H Write 4-byte data

2BH Write 2-byte data

2FH Write 1-byte data

Write: from Follower to Master (Response code: 0x60H)

COB-ID	Byte0	Byte1	Byte2	Byte3	Byte4	Byte5	Byte6	Byte7
(580H) +Node-ID	Response Code	Object Index		Object sub-index	Request Data			
		LSB	MSB		Reserved			

4.4: Process Data Object (PDO)

Operating modes in PDO are production/ consumption. Each network node can learn the messages of transmitting nodes and judge if it is required to deal with it after receiving messages.

PDO data transmitting ways can be one to one or one to many. Each PDO message contains transmitting PDO (TxPDO) and receiving PDO (RxPDO) message. Transmitting ways are defined in PDO communication parameter index (the first group to receive PDO messages index is 1400h, the first group to transmit PDO messages index is 1800h, the second group to receive

PDO messages index is 1401h, and the second group transmit PDO messages index is 1801h.

PDO transmitting way is shown as the following table:

Type Numbers	PDO Transmitting Types				
	Cyclic	Acyclic	Synchronous	Asynchronous	RTR only
0		○	○		
1-240	○		○		
241-251					
252			○		○
253				○	○
254				○	
255				○	

Type No 1-240 presents synchronization messages (SYNC) numbers between two PDO transmitting messages.

Type No 252 presents promptly updating data upon receiving SYNC messages.

Type No 253 presents promptly updating data upon receiving RTR messages.

Type No 254 presents not supporting.

Type No 255 presents asynchronous transmitting messages.

For A510-CANopen module, transmitting modes of TPDO supports are the followings:

- 1-240 transmission in a synchronous and periodic ways: Data receiving SYNC of No. N is collected and updated in packets and then is transmitted on the bus. Transmission type corresponding to the setting value is N.
- 254-255 transmission in an asynchronous way: Module will trigger transmitting data after experiencing event time and it is required to restrict the time interval at each transmitting data period.

Note: JN5-CM-CAN module supporting RPDO transmitting way is synchronous and aperiodic (0), synchronous trigger mode (1--240), and asynchronous way (254,255). It is suggested RPDO transmitting property is asynchronous way. When RPDO transmits in a synchronous and periodic way, it is suggested the number be not less than 10. TPDO supporting trigger way is synchronous or asynchronous (1--240) and it is suggested synchronous and periodic system setting not be less than 100MS.

Inhibit Time

Definition of inhibit time is to prevent TPDO from sending frequently and taking up a lot of bus bandwidth so as not to affect the bus communication. Thus, the shortest time interval (unit: ms) of TPDO sending PDO is defined. When this parameter is 0, it is disabled. It is defined in communication parameter sub-index 3.

Event Time

This parameter defines PDO sending cycle time (unit: ms) and it is required to set PDO transmission type to be 254 or 255. When this parameter is 0, it is disabled. It is defined in communication parameter sub-index 5.

4.5 JN5-CM-CAN Object Dictionary

Index	Sub-index	Definition	Default Value	R/W	Size	Notes
1000H	0	Device type	00010192H	R	U32	
1001H	0	Error register	0	R	U8	
1005H	0	COB-ID SYNC message	80H	R	U32	
1006H	0	Communication cycle period	0	RW	U32	synchronous and periodic communication
1008H	0	Manufacturer device name	JN5-CM-CAN	R	U32	
1009H	0	Manufacturer hardware version	V10	R	U32	
100AH	0	Manufacturer software version	V10	R	U32	
1014H	0	COB-ID emergency	00000080H+Node-ID	R	U32	
1015H	0	Inhibit time EMCY	0	RW	U16	
1016H	0	number of entries	1	R	U8	
	1	Consumer heartbeat time	0	RW	U32	Unit: 1ms unsupported
1017H	0	Producer heartbeat time	0	RW	U16	Unit: 1ms
1018H	0	number of entries	3	R	U8	

Index	Sub-index	Definition	Default Value	R/W	Size	Notes
	1	Vender ID	0x00000373	R	U32	
	2	Product code	0x00000100	R	U32	
	3	Revision	00010000H	R	U32	
1200H	0	Server SDO Parameter	2	R	U8	
	1	COB-ID Client -> Server	0000600H+Node-ID	R	U32	
	2	COB-ID Client <- Server	0000580H+Node-ID	R	U32	
1400H	0	number_of_entries	2	R	U8	
	1	COB-ID used by PDO	0x00000200H+Node-ID	RW	U32	
	2	Transmission Type	0XFE	RW	U8	
1401H	0	number_of_entries	2	R	U8	
	1	COB-ID used by PDO	00000300H+Node-ID	RW	U32	
	2	Transmission Type	0XFE	RW	U8	
1600H	0	number_of_entries	3	RW	U8	
Control word	1	1.Mapped Object	60400010	RW	U32	
	2	2.Mapped Object	60420010	RW	U32	
	3	3.Mapped Object		RW	U32	
	4	4.Mapped Object		RW	U32	
1601H	0	number_of_entries	2	RW	U8	
Control word	1	1.Mapped Object	604F0010	RW	U32	
	2	2.Mapped Object	60500010	RW	U32	
	3	3.Mapped Object		RW	U32	
	4	4.Mapped Object		RW	U32	

Index	Sub-index	Definition	Default Value	R/W	Size	Notes
1800H	0	number_of_entries	5	R	U8	Entry numbers
	1	COB-ID used by PDO	00000180H+Node-ID	RW	U32	
	2	Transmission Type	17	RW	U8	Transmission Type
	3	Inhibit time	0	RW	U16	Inhibit time
	4	CMS-Priority Group	3	RW	U8	
	5	Event timer	0	RW	U16	Event timer
1801H	0	number_of_entries	5	R	U8	Entry numbers
	1	COB-ID used by PDO	00000280H+Node-ID	RW	U32	
	2	Transmission Type	19	RW	U8	
	3	Inhibit time	0	RW	U16	Inhibit time
	4	CMS-Priority Group	3	RW	U8	
	5	Event timer	0	RW	U16	Event timer
1A00H	0	number_of_entries	3	RW	U8	
State word	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		RW	U32	
1A01H	0	number_of_entries	4	RW	U8	
State word	1	1.Mapped Object	603F0010	RW	U32	
	2	2.Mapped Object	60410010	RW	U32	
	3	3.Mapped Object	60430010	RW	U32	

Index	Sub-index	Definition	Default Value	R/W	Size	Notes
	4	4.Mapped Object	60610008	RW	U32	

DS402

index	Sub-index	Definition	Default Value	R/W	Size	Units/ mode	PDO MAP
603F	0	Error code	0	RO	U16		Yes
6041	0	Status word	0	RO	U16		Yes
6043	0	vl velocity demand	0	RO	S16	Hz vl	Yes
6040	0	Control word	0	RW	U16		Yes
6042	0	vl target velocity	0	RW	S16	Hz vl	Yes
604F	0	vl ramp function time acceleration time	10000	RW	U32	0.1S vl	Yes
6050	0	vl slow down time deceleration time	10000	RW	U32	0.1S vl	Yes

4.6 Definition of DS402 Data

603F: Record error code of node station n

6041: Display the current inverter's state (run/stop)

6043: Display the current speed command value, which is S16 data type.

The highest bit indicates forward/ reverse rotation. 0: forward rotation; 1: reverse rotation.

Less than 15 bits indicates the current frequency value and this value is 50 times of actual output frequency value.

Eg, When 6043 display value is hex of 4E20, the highest bit value is 0 (forward rotation). Less than 15 bits value converted to the value at decimal is 20000 and the actual output speed should be 400.00 Hz. If it displays A120, the highest bit value is 1 (reverse rotation). Less than 15 bits value is 2120, converted to the frequency value is $2120(H) = 8480(D)$, $f=8480(D)/50=169.6Hz$.

So 6043 displaying A120 indicates the inverter's frequency value is 169.6 Hz (reverse rotation state).

6040: control word, hex data type and bit0 controls inverter's state (Run/Stop). 1: RUN, 0: STOP

Bit7: 1: Fault Reset. When bit7 is 1, clear the current resettable error; when bit7 is 0, it cannot reset the current error.

6042: control inverter's forward/ reverse rotation and operation frequency. Bit15: 1: reverse rotation; 0: forward rotation, which is not counted in frequency operation. Bit14~Bit0 presents hex of frequency command and the actual output frequency = (Input frequency which is converted into decimal value*2)/100.

Ex: When 6042 is 2452H, the highest bit = 0 presents forward rotation. If Bit14~Bit0 = 010 0100 0101 0010(B), the converted decimal value is 9298(D) and the actual output frequency value is $9298*2/100=185.96\text{HZ}$; similarly, when 6042 is A452(H), the actual output frequency value is 185.96HZ and it presents reverse rotation.

604F: Set the acceleration time of A510, and the actual acceleration time is (604f/10).

6050: Set the deceleration time of A510, and the actual deceleration time is (6050/10).

Note: When it sends out the data, the low bit is at the front and the high bit is behind it.

4.7: Control Group Address for 510 series inverter

JN5-CM-CAN module provides the operation of inverter's control group via SDO command.

Refer to section 4.7.4 for specific operation way. The address is as follows:

4.7.1: A510 Control Group Address

Register Address	Bit	Content
2500H	Reserved	
2501H	0	Operation Command 1 : Run 0 : Stop
	1	Reverse Command 1 : Reverse 0 : Forward
	2	External Fault 1 : Fault
	3	Fault Reset 1 : Reset
	4	Reserved
	5	Reserved
	6	Multi-function Comm S1 1 : "ON"
	7	Multi-function Comm S2 1 : "ON"
	8	Multi-function Comm S3 1 : "ON"
	9	Multi-function Comm S4 1 : "ON"
	A	Multi-function Comm S5 1 : "ON"
B	Multi-function Comm S6 1 : "ON"	

Register Address	Bit	Content
	C	Multi-function Comm S7 1 :“ON”
	D	Multi-function Comm S8 1 :“ON”
	E	drive mode 1 : “ON”
	F	Reserved
2502H	Frequency Command	
2503H	Reserved	
2504H	Reserved	
2505H	AO1	
2506H	AO2	
2507H	DO	
2508H	Reserved	
2509H	Reserved	
250AH	Reserved	
250BH	Reserved	
250CH	Reserved	
250DH	Reserved	
250EH	Reserved	
250FH	Reserved	
2510H	G12-00 H-WORD	
2511H	G12-00 L-WORD	
2512H	=1, parameters are all writable commands	

Note: Write in zero for Not used BIT, do not write in data for the reserved register.

Monitor DATA (Readable)

Register No.	Bit	Content
2520H	0	Operation State 1 : Run 0 : Stop
	1	Direction State 1 : Reverse 0 : Forward
	2	Inverter operation prepare state 1 : ready 0 : unready
	3	Fault 1 : Abnormal
	4	Warning 1 :“ON”
	5	ZeroSpeed 1 :“ON”
	6	Is440V 1 :“ON”
	7	FreqAgree 1 :“ON”
	8	SetFreqAgree 1 :“ON”
	9	FreqDet1 1 :“ON”
	A	FreqDet2 1 :“ON”
	B	UnderVoltage 1 :“ON”
C	InvNoOutput 1 :“ON”	

Register No.		Bit	Content	
		D	FreqNotFromComm	1 :“ON”
		E	SeqNotFromComm	1 :“ON”
		F	OverTorque	1 :“ON”
2521H	Error Description	0		31 Under Torque 1
		1	UV	32 Under Torque 2
		2	OC	33 CF02
		3	OV	34 CF03
		4	OH1	35 CF04
		5	OL1	36 CF05
		6	OL2	37 CF06
		7	OH4	38 CF07
		8	OH5	39 CF08
		9	SC	40 CF09
		10	Ground OC	41 CF10
		11	Fuse broken	42 CF11
		12	Input Phase Loss	43 CF12
		13	Output Phase Loss	44 CF13
		14	PG Overspeed	45 CF14
		15	PG Open	46 CF15
		16	PG Speed Deviation	47 CF16
		17	External Fault 01	48 CF17
		18	External Fault 02	49 Feedback Fault
		19	External Fault 03	50 Keypad Removed
		20	External Fault 04	51 OH
		21	External Fault 05	52 OH3
		22	External Fault 06	53 Modbus External Fault
		23	External Fault 07	54 Braking Transistor Fault
		24	External Fault 08	55 Braking Resistor Overheat
		25	External Fault 09	56 CE
		26	External Fault 10	57
		27	External Fault 11	58
		28	External Fault 12	59
		29	Over Torque 1	60
		30	Over Torque 2	61
2522H	DI state	0	Terminal S1	
		1	Terminal S2	
		2	Terminal S3	
		3	Terminal S4	
		4	Terminal S5	
		5	Terminal S6	

Register No.	Bit	Content							
	6	Terminal S7							
	7	Terminal S8							
	8	Reserved							
	9	Reserved							
	A	Reserved							
	B	Reserved							
	C	Reserved							
	D	Reserved							
	E	Reserved							
	F	Reserved							
2523H	Frequency Command								
2524H	Output Frequency								
2525H	Reserved								
2526H	DC Voltage Command								
2527H	Output Current								
2528H	Warning Description	0	No alarm	18	EF2	36	SE03	54	BB6
		1	OV	19	EF3	37	SE04	55	BB7
		2	UV	20	EF4	38	SE05	56	BB8
		3	OL2	21	EF5	39	HPERR	57	Reserved
		4	OH2	22	EF6	40	EF	58	Reserved
		5	Reserved	23	EF7	41	CTRL	59	Reserved
		6	OT	24	EF8	42	SUME	60	Reserved
		7	Reserved	25	CLA	43	RDP	61	RETRY
		8	Reserved	26	CLB	44	Reserved	62	SE07
		9	UT	27	ADL	45	OL1	63	SE08
		10	OS	28	Reserved	46	SE09		
		11	PGO	29	USP	47	Reserved		
		12	DEV	30	RDE	48	Reserved		
		13	CE	31	WRE	49	BB1		
		14	Reserved	32	FB	50	BB2		
		15	Reserved	33	VRYE	51	BB3		
		16	EF0	34	SE01	52	BB4		
		17	EF1	35	SE02	53	BB5		
2529H	DO State								
252AH	Reserved								
252BH	Reserved								
252CH	AI 1 Input								
252DH	AI 2 Input								
252EH	Reserved								
252FH	A510/L510/E510 Check								

4.7.2: F510 Control Group Address

Register No.	Bit	Content
2500H	Reserved	
2501H	0	Operation Command 1 : Run 0 : Stop
	1	Reverse Command 1 : Reverse 0 : Forward
	2	External Fault 1 : Fault
	3	Fault Reset 1 : Reset
	4	Reserved
	5	Reserved
	6	Multi-function Comm S1 1 : "ON"
	7	Multi-function Comm S2 1 : "ON"
	8	Multi-function Comm S3 1 : "ON"
	9	Multi-function Comm S4 1 : "ON"
	A	Multi-function Comm S5 1 : "ON"
	B	Multi-function Comm S6 1 : "ON"
	C	Reserved
	D	Reserved
	E	drive mode 1 : "ON"
	F	Reserved
2502H	Frequency Command	
2503H	Reserved	
2504H	Reserved	
2505H	AO1	
2506H	AO2	
2507H	DO	
2508H	Reserved	
2509H	Reserved	
250AH	Reserved	
250BH	Reserved	
250CH	Reserved	
250DH	Reserved	
250EH	Reserved	
250FH	Reserved	
2510H	G12-00 H-WORD (parameter 12-00 Read & Write address at high bit)	
2511H	G12-00 L-WORD (parameter 12-00 Read & Write address at low bit)	
2512H	=1, parameters are all writable commands	

Note: Write in zero for Not used BIT, do not write in data for the reserved register.

Monitor DATA (Readable)

Register No.	Bit	Content
--------------	-----	---------

Register No.	Bit	Content		
2520H	0	Operation State 1 : Run 0 : Stop		
	1	Direction State 1 : Reverse 0 : Forward		
	2	Inverter operation prepare state 1 : ready 0 : unready		
	3	Fault 1 : Abnormal		
	4	Warning 1 : "ON"		
	5	ZeroSpeed 1 : "ON"		
	6	Is440V 1 : "ON"		
	7	FreqAgree 1 : "ON"		
	8	SetFreqAgree 1 : "ON"		
	9	FreqDet1 1 : "ON"		
	A	FreqDet2 1 : "ON"		
	B	UnderVoltage 1 : "ON"		
	C	InvNoOutput 1 : "ON"		
	D	FreqNotFromComm 1 : "ON"		
	E	SeqNotFromComm 1 : "ON"		
	F	OverTorque 1 : "ON"		
2521H	0	31		
	1	UV	32	
	2	OC	33	
	3	OV	34	CF03 (NV-RAM Fault)
	4	OH1 (Heat Sink OH)	35	CF04 (NV-RAM BCC Error)
	5	OL1 (Motor Overload)	36	
	6	OL2 (Inverter Overload)	37	
	7	Over Torque	38	CF07 (Motor Control fault)
	8	Under Torque	39	
	9	SC	40	
	10	Ground OC	41	
	11	Fuse broken	42	
	12	Input Phase Loss	43	
	13	Output Phase Loss	44	
	14	PG Overspeed	45	
	15	PG Open	46	
	16	PG Speed Deviation	47	
	17	External Fault 1	48	
	18	External Fault 2	49	
	19	External Fault 3	50	
	20	External Fault 4	51	
	21	External Fault 5	52	
	22	External Fault 6	53	
	23	External Fault 7	54	
	24	External Fault 8	55	

Register No.		Bit	Content						
		25	Feedback Fault				56		
		26	Keypad Removed				57		
		27	Modbus External Fault				58		
		28	CE				59		
		29	Safety Torque Off				60		
		30					61		
2522H	DI State	0	Terminal S1						
		1	Terminal S2						
		2	Terminal S3						
		3	Terminal S4						
		4	Terminal S5						
		5	Terminal S6						
		6	Reserved						
		7	Reserved						
		8	Reserved						
		9	Reserved						
		A	Reserved						
		B	Reserved						
		C	Reserved						
		D	Reserved						
		E	Reserved						
		F	Reserved						
2523H		Frequency Command							
2524H		Output Frequency							
2525H		Reserved							
2526H		DC Voltage Command							
2527H		Output Current							
2528H	Warning Description	0	No alarm	18	EF2	36	V/f Curve Error	54	Baseblock 6
		1	OV warning	19	EF3	37	AI Setting Error	55	Baseblock 7
		2	UV warning	20	EF4	38	PID Select Error	56	Baseblock 8
		3	OL2 warning	21	EF5	39	KVA Setting Error	57	Reserved
		4	Inv OH2 warning	22	EF6	40	Both F-RUN and R-RUN	58	Reserved

Register No.	Bit	Content								
	5	Reserved	23	EF7	41	Control Modes Are Not Matched	59	Reserved		
	6	Over-torque 1 warning	24	EF8	42	Param Copy Checksum Error	60	Reserved		
	7	Reserved	25	CLA	43	Read Prohibited	61	Retry Baseblock		
	8	Reserved	26	CLB	44	INV KVAs Are Not Matched	62	PG Card Warning		
	9	Under-torque 2 warning	27	Reserved	45	OL1 Warning (Motor Overload)	63	PSV Invalid or align unfinished		
	10	PG over-speed warning	28	Reserved	46	PI Setting Error				
	11	PG open warning	29	Unattended start warning	47	Reserved				
	12	Dev. speed warning	30	OP EEPROM failed	48	Reserved				
	13	MODBUS Fault	31	product code, S/W ver. is different	49	Baseblock 1				
	14	MODBUS no message warning	32	PID Feedback Loss warning	50	Baseblock 2				
	15	MODBUS Comm. Fault	33	Verify Error	51	Baseblock 3				
	16	External Fault from MODBUS	34	Setting Range Error	52	Baseblock 4				
	17	EF1	35	DI Terminal Error	53	Baseblock 5				
2529H	DO State	0	R1							
		1	R2							
		2	R3							
		3	Reserved							
		4	Reserved							
		5	Reserved							

Register No.	Bit	Content
	6	Reserved
	7	Reserved
	8	Reserved
	9	Reserved
	A	Reserved
	B	Reserved
	C	Reserved
	D	Reserved
	E	Reserved
	F	Reserved
252AH		Reserved
252BH		Reserved
252CH		AI 1 Input
252DH		AI 2 Input
252EH		Reserved
252FH		A510/L510/E510/F510(300/100/200/400) Check

Note: Do not write in data for the reserved register.

4.7.3: E510/ L510 Control Group Address

Command Data (Readable and Writeable)

Note: Functions labeled in yellow part are more in inverter E510 than that in L510.

Register No	Bit	Content
2500H		Ready
2501H	Operation Signal	0 Run Command 1 : Run 0 : Stop
		1 Reverse Command 1 : Reverse 0 : Forward
		2 External Abnormal 1 : Abnormal (EFO)
		3 Abnormal Reset 1 : Reset Command
		4 Jog Forward Command 1 : Jog Forward Command
		5 Jog Reverse Command 1 : Jog Reverse Command
		6 Multi-function Input Command S1 1 : "ON" 0 : "OFF"
		7 Multi-function Input Command S2 1 : "ON" 0 : "OFF"
		8 Multi-function Input Command S3 1 : "ON" 0 : "OFF"
		9 Multi-function Input Command S4 1 : "ON" 0 : "OFF"
		A Multi-function Input Command S5 1 : "ON" 0 : "OFF"
B Multi-function Input Command S6 1 : "ON" 0 : "OFF"		
C Relay R1 1 : "ON" 0 : "OFF"		
D Relay R2 1 : "ON" 0 : "OFF"		
E~F	(Reserved)	
2502H		Frequency Command
2503~ 251FH		Ready

Note: Write 0 in reserved bit and do not write in DATA in ready register.

Monitor Data (Readable)

Register No		Bit	Content	
2520H	State Signal	0	Operation State	1 : Run 0 : Stop
		1	Rotation State	1 : Reverse 0 : Forward
		2	Inverter Operation Ready State	1 : Ready 0 : Unready
		3	Abnormal	1 : Abnormal
		4	DATA setting error	1 : Error
		5-F	(Reserved)	

2526H	Input DC Voltage Command (1/1V)
2527H	Output Current (10/1A)
2528H	Reserved
2529H	Output Torque
252AH	PID Feedback (100% / Maximum output frequency, 10/1%)
252BH	PID Input (100% / Maximum output frequency, 10/1%)
252CH	AVI Input of TM2(1000 / 10V) *1
252DH	ACI Input of TM2 (1000 / 10V) *1
252EH	Keypad's Analog Input (1000 / 10V)
252EH	Keypad's Analog Input Value (1000 / 10V)
252FH	A510/L510/E510 Check

4.7.4: Operation on Inverter Control Group via SDO command

When we perform control group 25 of A510 series by SDO, the corresponding rule is as the follows:

Index	sub-index
2000H+25	member+1

The index is 2025, and the sub-index is 01--2F, operating in operable address range plus 1. Ex.

when we perform the control group 2501, the corresponding index of SDO is 2025 and sub-index is 02 (01+1=02); then the module will automatically transform to perform 2501 group address of A510 series.

Note: The control group content in EDS document is for A510 series. For F510/ E510/L510 series, the operation process is similar to that in A510 series. If the communication protocol is updated, it depends on the attached protocol with the inverter.

Chapter 5 EDS Document of JN5-CM-CAN module

Document Name: 00000373000101920000010000010000

[FileInfo]

EDSVersion=4.0

FileName=TECO_510_CAN.eds

FileVersion=0x01

FileRevision=0x01

Description=EDS file for TECO_510 CANopen Slave

CreationTime=11:04 AM

CreationDate=10-23-2012

CreatedBy=Junxian.Gong

ModificationTime=02:13 PM

ModificationDate=10-24-2012

ModifiedBy=Junxian.Gong

[DeviceInfo]

VendorName=TAIAN-TECHNOLOGY

VendorNumber=0x000000EE

ProductName=TECO_510

ProductNumber=0x00000100

RevisionNumber=0x00010000

OrderCode=0

BaudRate_10=0

BaudRate_20=0

BaudRate_50=1

BaudRate_100=0

BaudRate_125=1

BaudRate_250=1

BaudRate_500=1

BaudRate_800=0

BaudRate_1000=0

SimpleBootUpMaster=0

SimpleBootUpSlave=1

Granularity=0x00

DynamicChannelsSupported=0x00000002

GroupMessaging=0

LSS_Supported=0

NrOfRXPDO=2

NrOfTXPDO=2

CompactPDO=0x00

[Comments]

Lines=1

Line1=EDS file for TECO_510 CANopen Slave DSP402

[DummyUsage]

Dummy0001=0

Dummy0002=0

Dummy0003=0

Dummy0004=0

Dummy0005=0

Dummy0006=0

Dummy0007=0

[DynamicChannels]

[MandatoryObjects]

SupportedObjects=0x0003

1=0x1000

2=0x1001

3=0x1018

[OptionalObjects]

SupportedObjects=0x0020

1=0x1005

2=0x1006

3=0x1008

4=0x1009

5=0x100A

6=0x1014

7=0x1015

8=0x1016

9=0x1017

10=0x1200

11=0x1400

12=0x1401

13=0x1600

14=0x1601

15=0x1800

16=0x1801

17=0x1A00

18=0x1A01

19=0x603F

20=0x6040

21=0x6041

22=0x6042

23=0x6043

24=0x604F

25=0x6050

26=0x2025

[1000]

ParameterName=Device Type

ObjectType=7

AccessType=RO

DataType=0x0007

PDOMapping=0

ObjFlags=0x00000000

DefaultValue=0x00010192

[1001]

ParameterName=Error Register

ObjectType=7

AccessType=RO

DataType=0x0005

PDOMapping=0

ObjFlags=0x00000000

DefaultValue=0x00

[1005]

ParameterName=COB-ID SYNC message

ObjectType=7

AccessType=RW

DataType=0x0007

PDOMapping=0

ObjFlags=0x00000000

DefaultValue=0x80

[1006]

ParameterName=Communication cycle period

ObjectType=7

AccessType=RW

DataType=0x0007

PDOMapping=0

ObjFlags=0x00000000

DefaultValue=0x0000000A

[1008]

ParameterName=Manufacturer device name

ObjectType=7

AccessType=CONST

DataType=0x0009

PDOMapping=0

ObjFlags=0x00000000

DefaultValue=JN5-CM-CAN

[1009]

ParameterName=Manufacturer hardware version

ObjectType=7

AccessType=CONST

DataType=0x0009

PDOMapping=0

ObjFlags=0x00000000

DefaultValue=V10

[100A]

ParameterName=Manufacturer software version

ObjectType=7

AccessType=CONST

DataType=0x0009

PDOMapping=0

ObjFlags=0x00000000

DefaultValue=V10

[1014]

ParameterName=COB-ID Emergency message

ObjectType=7

AccessType=RO

DataType=0x0007

PDOMapping=0

ObjFlags=0x00000000

DefaultValue=\$NodeID + 0x80

[1015]

ParameterName=Inhibit time EMCY

ObjectType=7

AccessType=RW

DataType=0x0006

PDOMapping=0

ObjFlags=0x00000000

DefaultValue=0

[1016]

SubNumber=0x02

ParameterName=Consumer Heartbeat Time

ObjectType=8

ObjFlags=0x00000000

[1016sub0]

ParameterName=Number of entries

ObjectType=7

AccessType=RO

DataType=0x0005

PDOMapping=0

ObjFlags=0x00000000

DefaultValue=1

[1016sub1]

ParameterName=Consumer Heartbeat Time

ObjectType=7

AccessType=RW

DataType=0x0007

PDOMapping=0

ObjFlags=0x00000000

DefaultValue=0

[1017]

ParameterName=Producer Heartbeat Time

ObjectType=7

AccessType=RW

DataType=0x0006

PDOMapping=0

ObjFlags=0x00000000

DefaultValue=0

[1018]

SubNumber=0x04

ParameterName=Identity Object

ObjectType=9

ObjFlags=0x00000000

[1018sub0]

ParameterName=Number of entries

ObjectType=7

AccessType=RO

DataType=0x0005

PDOMapping=0

ObjFlags=0x00000000

LowLimit=3

HighLimit=3

DefaultValue=3

[1018sub1]

ParameterName=Vendor ID

ObjectType=7

AccessType=RO

DataType=0x0007

PDOMapping=0

ObjFlags=0x00000000

DefaultValue=0x00000373

[1018sub2]

ParameterName=Product code

ObjectType=7

AccessType=RO

DataType=0x0007

PDOMapping=0

ObjFlags=0x00000000
DefaultValue=0x00000100

[1018sub3]

ParameterName=Revision number
ObjectType=7
AccessType=RO
DataType=0x0007
PDOMapping=0
ObjFlags=0x00000000
DefaultValue=0x00010000

[1200]

SubNumber=0x03
ParameterName=Server SDO Parameter
ObjectType=9
ObjFlags=0x00000000

[1200sub0]

ParameterName=Number of entries
ObjectType=7
AccessType=RO
DataType=0x0005
PDOMapping=0
ObjFlags=0x00000000
DefaultValue=2

[1200sub1]

ParameterName=COB-ID Client to Server
ObjectType=7

AccessType=RO

DataType=0x0007

PDOMapping=0

ObjFlags=0x00000000

DefaultValue=\$NodeID + 0x600

[1200sub2]

ParameterName=COB-ID Server to Client

ObjectType=7

AccessType=RO

DataType=0x0007

PDOMapping=0

ObjFlags=0x00000000

DefaultValue=\$NodeID + 0x580

[1400]

SubNumber=0x03

ParameterName=Receive PDO1 parameter

ObjectType=9

ObjFlags=0x00000000

[1400sub0]

ParameterName=Number of entries

ObjectType=7

AccessType=RO

DataType=0x0005

PDOMapping=0

ObjFlags=0x00000000

DefaultValue=2

[1400sub1]

ParameterName=COB-ID

ObjectType=7

AccessType=RW

DataType=0x0007

PDOMapping=0

ObjFlags=0x00000000

DefaultValue=\$NodeID + 0x200

[1400sub2]

ParameterName=Transmission type

ObjectType=7

AccessType=RW

DataType=0x0005

PDOMapping=0

ObjFlags=0x00000000

LowLimit=1

HighLimit=255

DefaultValue=0XFE

[1401]

SubNumber=0x03

ParameterName=Receive PDO2 parameter

ObjectType=9

ObjFlags=0x00000000

[1401sub0]

ParameterName=Number of entries

ObjectType=7

AccessType=RO

DataType=0x0005

PDOMapping=0

ObjFlags=0x00000000

DefaultValue=2

[1401sub1]

ParameterName=COB-ID

ObjectType=7

AccessType=RW

DataType=0x0007

PDOMapping=0

ObjFlags=0x00000000

DefaultValue=\$NodeID + 0x00000300

[1401sub2]

ParameterName=Transmission type

ObjectType=7

AccessType=RW

DataType=0x0005

PDOMapping=0

ObjFlags=0x00000000

LowLimit=1

HighLimit=255

DefaultValue=0XFE

[1600]

SubNumber=0x05

ParameterName=Receive PDO1 mapping

ObjectType=9

ObjFlags=0x00000000

[1600sub0]

ParameterName=Number of mapped objects

ObjectType=7

AccessType=RW

DataType=0x0005

PDOMapping=0

ObjFlags=0x00000000

LowLimit=0

HighLimit=4

DefaultValue=2

[1600sub1]

ParameterName=1.mapped object

ObjectType=7

AccessType=RW

DataType=0x0007

PDOMapping=0

ObjFlags=0x00000000

DefaultValue=0x60400010

[1600sub2]

ParameterName=2.mapped object

ObjectType=7

AccessType=RW

DataType=0x0007

PDOMapping=0

ObjFlags=0x00000000

DefaultValue=0x60420010

[1600sub3]

ParameterName=3.mapped object

ObjectType=7

AccessType=RW

DataType=0x0007

PDOMapping=0

ObjFlags=0x00000000

DefaultValue=0X00000000

[1600sub4]

ParameterName=4.mapped object

ObjectType=7

AccessType=RW

DataType=0x0007

PDOMapping=0

ObjFlags=0x00000000

DefaultValue=0

[1601]

SubNumber=0x05

ParameterName=Receive PDO2 mapping

ObjectType=9

ObjFlags=0x00000000

[1601sub0]

ParameterName=Number of mapped objects

ObjectType=7

AccessType=RW

DataType=0x0005

PDOMapping=0

ObjFlags=0x00000000

LowLimit=0

HighLimit=4

DefaultValue=2

[1601sub1]

ParameterName=1.mapped object

ObjectType=7

AccessType=RW

DataType=0x0007

PDOMapping=0

ObjFlags=0x00000000

DefaultValue=0X604F0010

[1601sub2]

ParameterName=2.mapped object

ObjectType=7

AccessType=RW

DataType=0x0007

PDOMapping=0

ObjFlags=0x00000000

DefaultValue=0X60500010

[1601sub3]

ParameterName=3.mapped object

ObjectType=7

AccessType=RW

DataType=0x0007

PDOMapping=0

ObjFlags=0x00000000

DefaultValue=0X00000000

[1601sub4]

ParameterName=4.mapped object

ObjectType=7

AccessType=RW

DataType=0x0007

PDOMapping=0

ObjFlags=0x00000000

DefaultValue=0

[1800]

SubNumber=0x06

ParameterName=Transmit PDO1 parameter

ObjectType=9

ObjFlags=0x00000000

[1800sub0]

ParameterName=Number of entries

ObjectType=7

AccessType=RO

DataType=0x0005

PDOMapping=0

ObjFlags=0x00000000

DefaultValue=5

[1800sub1]

ParameterName=COB-ID

ObjectType=7

AccessType=RW

DataType=0x0007

PDOMapping=0

ObjFlags=0x00000000

DefaultValue=\$NodeID + 0x180

[1800sub2]

ParameterName=Transmission type

ObjectType=7

AccessType=RW

DataType=0x0005

PDOMapping=0

ObjFlags=0x00000000

DefaultValue=0X11

[1800sub3]

ParameterName=Inhibit time

ObjectType=7

AccessType=RW

DataType=0x0006

PDOMapping=0

ObjFlags=0x00000000

DefaultValue=0

[1800sub4]

ParameterName=CMS-Priority

ObjectType=7

AccessType=RW

DataType=0x0005

PDOMapping=0

ObjFlags=0x00000000

DefaultValue=3

[1800sub5]

ParameterName=Event Timer

ObjectType=7

AccessType=RW

DataType=0x0006

PDOMapping=0

ObjFlags=0x00000000

DefaultValue=0

[1801]

SubNumber=0x06

ParameterName=Transmit PDO2 parameter

ObjectType=9

ObjFlags=0x00000000

[1801sub0]

ParameterName=Number of entries

ObjectType=7

AccessType=RO

DataType=0x0005

PDOMapping=0

ObjFlags=0x00000000

DefaultValue=5

[1801sub1]

ParameterName=COB-ID

ObjectType=7

AccessType=RW

DataType=0x0007

PDOMapping=0

ObjFlags=0x00000000

DefaultValue=\$NodeID + 0x00000280

[1801sub2]

ParameterName=Transmission type

ObjectType=7

AccessType=RW

DataType=0x0005

PDOMapping=0

ObjFlags=0x00000000

DefaultValue=0X13

[1801sub3]

ParameterName=Inhibit time

ObjectType=7

AccessType=RW

DataType=0x0006

PDOMapping=0

ObjFlags=0x00000000

DefaultValue=0

[1801sub4]

ParameterName=CMS-Priority

ObjectType=7

AccessType=RW

DataType=0x0005

PDOMapping=0

ObjFlags=0x00000000

DefaultValue=3

[1801sub5]

ParameterName=Event Timer

ObjectType=7

AccessType=RW

DataType=0x0006

PDOMapping=0

ObjFlags=0x00000000

DefaultValue=0

[1A00]

SubNumber=0x05

ParameterName=Transmit PDO1 mapping

ObjectType=9

ObjFlags=0x00000000

[1A00sub0]

ParameterName=Number of mapped objects

ObjectType=7

AccessType=RW

DataType=0x0005

PDOMapping=0

ObjFlags=0x00000000

LowLimit=0

HighLimit=4

DefaultValue=3

[1A00sub1]

ParameterName=1.mapped object

ObjectType=7

AccessType=RW

DataType=0x0007

PDOMapping=0

ObjFlags=0x00000000

DefaultValue=0x60400010

[1A00sub2]

ParameterName=2.mapped object

ObjectType=7

AccessType=RW

DataType=0x0007

PDOMapping=0

ObjFlags=0x00000000

DefaultValue=0x60420010

[1A00sub3]

ParameterName=3.mapped object

ObjectType=7

AccessType=RW

DataType=0x0007

PDOMapping=0

ObjFlags=0x00000000

DefaultValue=0X604F0010

[1A00sub4]

ParameterName=4.mapped object

ObjectType=7

AccessType=RW

DataType=0x0007

PDOMapping=0

ObjFlags=0x00000000

DefaultValue=0X00000000

[1A01]

SubNumber=0x05

ParameterName=Transmit PDO2 mapping

ObjectType=9

ObjFlags=0x00000000

[1A01sub0]

ParameterName=Number of mapped objects

ObjectType=7

AccessType=RW

DataType=0x0005

PDOMapping=0

ObjFlags=0x00000000

LowLimit=0

HighLimit=4

DefaultValue=3

[1A01sub1]

ParameterName=1.mapped object

ObjectType=7

AccessType=RW

DataType=0x0007

PDOMapping=0

ObjFlags=0x00000000

DefaultValue=0X603F0010

[1A01sub2]

ParameterName=2.mapped object

ObjectType=7

AccessType=RW

DataType=0x0007

PDOMapping=0

ObjFlags=0x00000000

DefaultValue=0X60410010

[1A01sub3]

ParameterName=3.mapped object

ObjectType=7

AccessType=RW

DataType=0x0007

PDOMapping=0

ObjFlags=0x00000000

DefaultValue=0X60430010

[1A01sub4]

ParameterName=4.mapped object

ObjectType=7

AccessType=RW

DataType=0x0007

PDOMapping=0

ObjFlags=0x00000000

DefaultValue=0X00000000

[2025]

SubNumber=0x15

ParameterName=add Group

ObjectType=9

ObjFlags=0x00000000

[2025sub0]

ParameterName=number of entries

ObjectType=7

AccessType=RO

DataType=0x0005

PDOMapping=0

ObjFlags=0x00000000

DefaultValue=48

[2025sub2]

ParameterName=Operation Signal

ObjectType=7

AccessType=RW

DataType=0x0006

PDOMapping=0

ObjFlags=0x00000000

LowLimit=0

HighLimit=0xffff

DefaultValue=0

[2025sub3]

ParameterName=Frequency Command

ObjectType=7

AccessType=RW

DataType=0x0006

PDOMapping=0

ObjFlags=0x00000000

LowLimit=0

HighLimit=40000

DefaultValue=500

[2025sub6]

ParameterName=AO1

ObjectType=7

AccessType=RW

DataType=0x0006

PDOMapping=0

ObjFlags=0x00000000

LowLimit=0

HighLimit=0xffff

DefaultValue=0

[2025sub7]

ParameterName=AO2

ObjectType=7

AccessType=RW

DataType=0x0006

PDOMapping=0

ObjFlags=0x00000000

LowLimit=0

HighLimit=0xffff

DefaultValue=0

[2025sub8]

ParameterName=DO

ObjectType=7

AccessType=RW

DataType=0x0006

PDOMapping=0

ObjFlags=0x00000000

LowLimit=0

HighLimit=0xffff

DefaultValue=0

[2025sub11]

ParameterName=G12-00 H-WORD

ObjectType=7

AccessType=RW

DataType=0x0006

PDOMapping=0

ObjFlags=0x00000000

LowLimit=0

HighLimit=0xffff

DefaultValue=0

[2025sub12]

ParameterName=G12-00 L-WORD

ObjectType=7

AccessType=RW

DataType=0x0006

PDOMapping=0

ObjFlags=0x00000000

LowLimit=0

HighLimit=0xffff

DefaultValue=0

[2025sub13]

ParameterName=All parameters can be written

ObjectType=7

AccessType=RW

DataType=0x0006

PDOMapping=0

ObjFlags=0x00000000

LowLimit=0

HighLimit=0xffff

DefaultValue=0

[2025sub21]

ParameterName=State Signal

ObjectType=7

AccessType=RO

DataType=0x0006

PDOMapping=0

ObjFlags=0x00000000

LowLimit=0

HighLimit=0xffff

DefaultValue=0

[2025sub22]

ParameterName=Error Description

ObjectType=7

AccessType=RO

DataType=0x0006

PDOMapping=0

ObjFlags=0x00000000

LowLimit=0

HighLimit=0xffff

DefaultValue=0

[2025sub23]

ParameterName=DI State

ObjectType=7

AccessType=RO

DataType=0x0006

PDOMapping=0

ObjFlags=0x00000000

LowLimit=0

HighLimit=0xffff

DefaultValue=0

[2025sub24]

ParameterName=Frequency command

ObjectType=7

AccessType=RO

DataType=0x0006

PDOMapping=0

ObjFlags=0x00000000

LowLimit=0

HighLimit=0xffff

DefaultValue=0

[2025sub25]

ParameterName=Output frequency

ObjectType=7

AccessType=RO

DataType=0x0006

PDOMapping=0

ObjFlags=0x00000000

LowLimit=0

HighLimit=0xffff

DefaultValue=0

[2025sub27]

ParameterName=DC voltage command

ObjectType=7

AccessType=RO

DataType=0x0006

PDOMapping=0

ObjFlags=0x00000000

LowLimit=0

HighLimit=0xffff

DefaultValue=0

[2025sub28]

ParameterName=Output current

ObjectType=7

AccessType=RO

DataType=0x0006

PDOMapping=0

ObjFlags=0x00000000

LowLimit=0

HighLimit=0xffff

DefaultValue=0

[2025sub29]

ParameterName=warning

ObjectType=7

AccessType=RO

DataType=0x0006

PDOMapping=0

ObjFlags=0x00000000

LowLimit=0

HighLimit=0xffff

DefaultValue=0

[2025sub2A]

ParameterName=DO State

ObjectType=7

AccessType=RO

DataType=0x0006

PDOMapping=0

ObjFlags=0x00000000

LowLimit=0

HighLimit=0xffff

DefaultValue=0

[2025sub2D]

ParameterName=AI 1 Input

ObjectType=7

AccessType=RO

DataType=0x0006

PDOMapping=0

ObjFlags=0x00000000

LowLimit=0

HighLimit=0xffff

DefaultValue=0

[2025sub2E]

ParameterName=AI 2 Input

ObjectType=7

AccessType=RO

DataType=0x0006

PDOMapping=0

ObjFlags=0x00000000

LowLimit=0

HighLimit=0xffff

DefaultValue=0

[2025sub2F]

ParameterName=Software Version

ObjectType=7

AccessType=RO

DataType=0x0006

PDOMapping=0

ObjFlags=0x00000000

LowLimit=0

HighLimit=0xffff

DefaultValue=0

[2025sub30]

ParameterName=A510/L510/E510/F510 Check

ObjectType=7

AccessType=RO

DataType=0x0006

PDOMapping=0

ObjFlags=0x00000000

LowLimit=0

HighLimit=0xffff

DefaultValue=0

[603F]

ParameterName=Error code;

ObjectType=7

AccessType=RO

DataType=0x0006

PDOMapping=1

ObjFlags=0x00000000

LowLimit=0

HighLimit=0xFFFF

DefaultValue=0

[6040]

ParameterName=Control word;

ObjectType=7

AccessType=RW

DataType=0x0006

PDOMapping=1

ObjFlags=0x00000000

LowLimit=0

HighLimit=0xFFFF

DefaultValue=0

[6041]

ParameterName=Status word;

ObjectType=7

AccessType=RO

DataType=0x0006

PDOMapping=1

ObjFlags=0x00000000

LowLimit=0

HighLimit=0xFFFF

[6042]

ParameterName=vl target velocity;

ObjectType=7

AccessType=RW

DataType=0x0006

PDOMapping=1

ObjFlags=0x00000000

DefaultValue=0x0

[6043]

ParameterName=vl velocity demand;

ObjectType=7

AccessType=RO

DataType=0x0006

PDOMapping=1

ObjFlags=0x00000000

DefaultValue=0x0

[604F]

ParameterName=vl ramp function time;

ObjectType=7

AccessType=RW

DataType=0x0006

PDOMapping=1

ObjFlags=0x00000000

LowLimit=1

HighLimit=60000

DefaultValue=100

[6050]

ParameterName=vl slow down time;

ObjectType=7

AccessType=RW

DataType=0x0006

PDOMapping=1

ObjFlags=0x00000000

DefaultValue=10000