

CN-8021 CANopen Bus Adapter

1 Module Overview

CN-8021 CANopen bus adapter supports standard CANopen communication and device specification DS401. 64 TPDO, 64 RPDO.

2 Technical Parameter

Hardware Parameter	
System Power	Nominal:24VDC, Range: 19.2~28.8VDC Current: Max.2A@24VDC Reverse Protection: YES
Power Consumption	50mA@24VDC
Internal Bus Supply Current	Max.: 2.5A@5VDC
Isolation	System Power to Field Power Isolation
Power Supply	Nominal:24VDC, Range: 19.2~28.8VDC
Field Power Current	Max. DC 8A
IO Modules Supported	32 pcs
Wiring	Max.: AWG 18 Min.: AWG 24
Installation	35mm DIN-Rail
Size	115*51.5*75mm
Weight	130g
Environment Specification	
Operating Temperature of Vertical Installation	-35°C~60°C
Operating Temperature of Horizontal Installation	-35°C~70°C
Relative Humidity	5~ 95%RH (No Condensation)
Storage Temperature	-40°C~85°C
Storage Humidity	5~ 95%RH (No Condensation)
Manufacturing Test Temperature	-40°C~75°C
Ingress Protection Rating	IP20
CANOPEN Parameter	
Protocol	CANopen DS401
Connect the interface	5PIN terminal
Station Address	Dial code setting (1-99)
Process Data	All inputs up to 512 bytes, outputs up to 512 bytes; 8-bit data input up to 254 bytes, output up to 254 bytes; 16-bit data input up to 254 bytes, output up to 254 bytes; 32-bit data input up to 512 bytes, output up to 512 bytes;
Configuration Interface	Type-C
Transmission Rate	10 kbit/s, 20 kbit/s, 50 kbit/s, 100 kbit/s, 125 kbit/s, 250 kbit/s, 500 kbit/s, 800 kbit/s, 1000 kbit/s



THERE IS A RISK OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH.

Disconnect all devices from power, including connected devices, before removing any covers, or installing or removing any accessories, hardware, cables, or wires, except in specific circumstances specified in the appropriate hardware guidelines for this device.

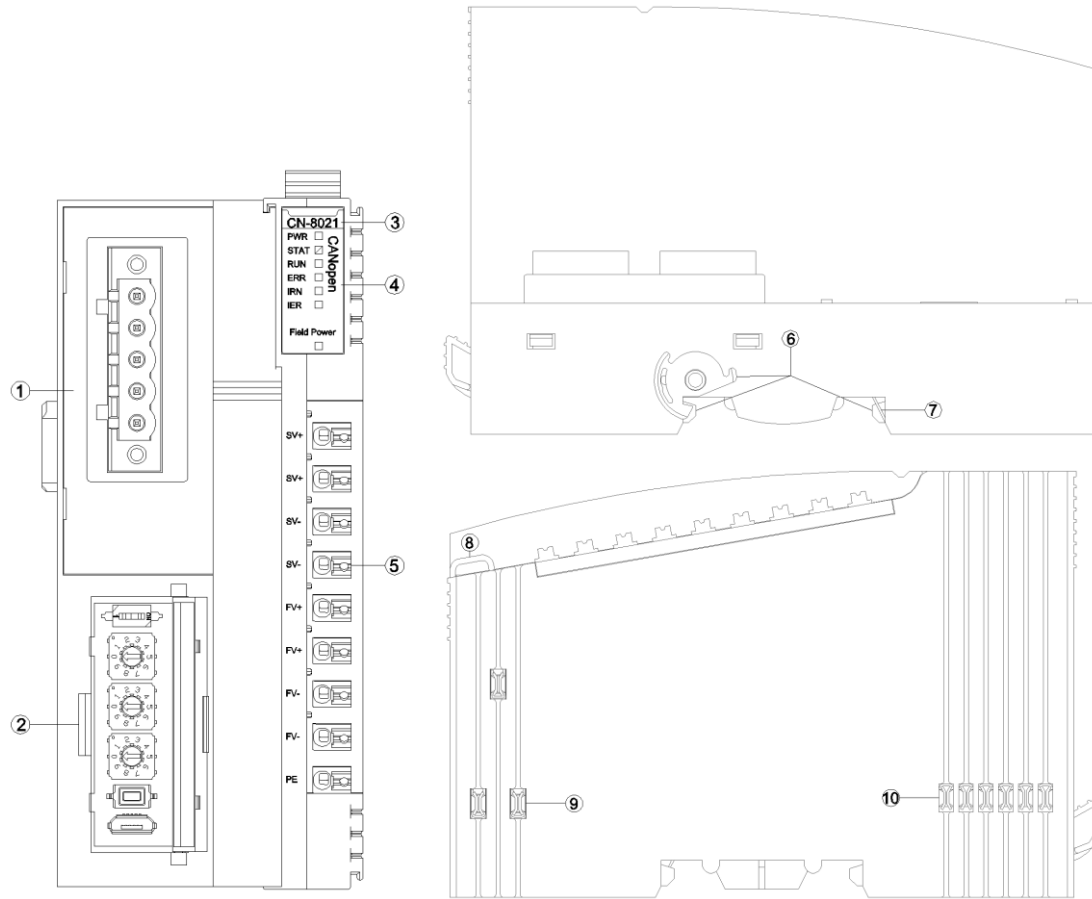
Always use a voltage sensing device with an appropriate rating to detect a power outage at the appropriate place and time, as instructed.

Replace and tighten all covers, accessories, hardware, cables, and wires, and confirm that the ground connection is correct before powering on the device.

When operating this equipment and related products, the specified voltage must be used.

Failure to follow instructions specified by the manufacturer may result in serious consequences such as death, personal injury, or damage to equipment since the protection provided by the equipment may be impaired.

3 Hardware Interface



- ① CANopen port
- ② Config Interface
- ③ Module type
- ④ LED Indicator
- ⑤ Wiring Terminal
- ⑥ Buckle
- ⑦ Grounding Spring Sheet
- ⑧ Fixed Wiring Harness
- ⑨ Field Power
- ⑩ Internal Bus

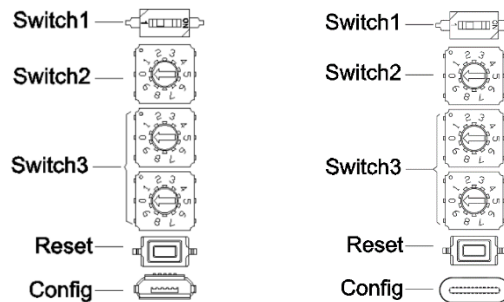
3.1 CANopen Interface

The device wiring adapts 5 Pin screw terminals and its Pin definition is as below:

CANopen interface pin definition

Pin	Definition	Description
1	NC	Empty
2	CANH	CAN_H signal bus line
3	PE	Protecting Earthing
4	CANL	CAN_L signal terminal bus line
5	GND	Signal Grounded

3.2 Configuration Interface



Switch1: DIP switch is used to set the terminal resistance.

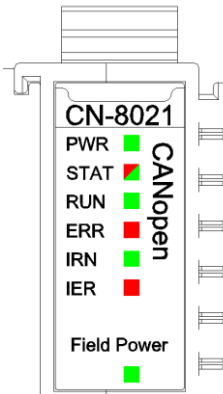
Switch2: DIP switch is used to set the communication baud rate

Switch3: DIP switch is used to set the address of the adapter module. It is set by a 2-bit decimal hardware DIP switch, and each CANopen adapter has a unique station address (1~99).

Reset: Module reset button, long pressing the button for more than 5 seconds and all parameters of the module will be restored to the default value. When the Reset button is activated, a green indicator will light up in the upper left corner of the button.

Config: configured ports, it is standard Micro USB/Type-C interface for configuring device parameters and firmware upgrades.

3.4 LED Indicator



PWR Power State (GREEN)	Definition
ON	System Power Normal
OFF	System Power Failure
STAT Module State (RED/GREEN)	Definition
Double Flash (RED)	Module Soft Restarted by Hard-Fault
ON(GREEN)	Running
Single Flash (GREEN)	Stopping
Flash(2.5Hz) (RED/GREEN)	Boot Mode
Flash(10Hz) (RED/GREEN)	Firmware Updating
RUN Network State (GREEN)	Definition
ON	CAN communication has been established
Flash	The CAN communication is not established
ERR Network Error (RED)	Definition
OFF	No Error
Flash	Error Existing
IRN IO Run Indicator (GREEN)	Definition
ON	IO Initialization Normal
OFF	IO Initialization Failure
IER IO Error Indicator (RED)	Definition
OFF	IO Communication Normal
Double Flash	IO Communication Failure
Field Power State Indicator (GREEN)	Definition
ON	Field Power Normal
OFF	Field Power Failure

WARNING

UNEXPECTED EQUIPMENT OPERATION

By viewing the PW indicator, could determine the power supply status of a module. If the PW is steady green, the power supply is normal. Otherwise, the module cannot work properly.

When the module is initially powered on, there will be 3S for the backplane bus connection. After the backplane bus is initialized, STA is in the green steady state. If STA is in the green blinking state, it indicates that the backplane bus has not been initialized, and it needs to be powered off and restarted for re-initialization.

STA abnormal working state occurs during the normal operation of the module, please check the firmware version information of all modules, and consult ODOT technical support for details.

If a module is upgraded, check that all modules are in the normal state after the upgrade. Otherwise, an exception may occur.

Failure to follow instructions specified by the manufacturer may result in serious consequences such as death, personal injury, or damage to equipment since the protection provided by the equipment may be impaired.

AVERTISSEMENT

FONCTIONNEMENT INATTENDU DE L'EQUIPEMENT

En regardant l'état de l'indicateur de PW, jugez l'état d'alimentation du module. Le feu vert PW reste allumé et l'alimentation est normale. Autrement, le module ne fonctionnera pas correctement.

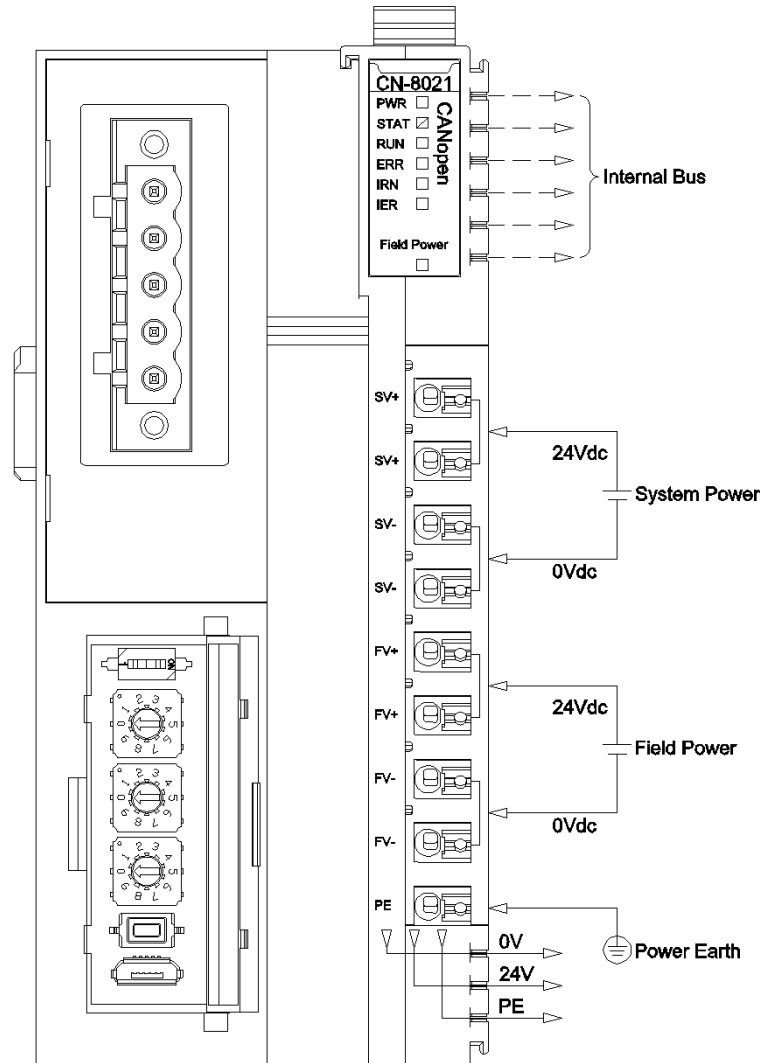
Lorsque le module est alimenté initialement, il y aura 3S pour la connexion de bus de backboard. STA est un état vert permanent après l'initialisation du bus de backboard. Si STA est en état de clignotement vert, cela signifie que l'initialisation du bus de backboard n'est pas passée et doit être redémarrée hors tension et réinitialisée.

L'état de fonctionnement anormal de STA se produit pendant le fonctionnement normal du module, veuillez vérifier les informations de version du firmware de tous les modules, et consulter le support technique ODOT pour plus de détails.

Si le module a une opération de mise à niveau, après l'achèvement de la mise à niveau, le besoin de vérifier que tous les modules sont dans l'état normal avant de courir, sinon il conduira à une exception.

Le fait de ne pas suivre les instructions peut entraîner une défaillance de la protection fournie par l'équipement, ce qui peut entraîner des conséquences graves, comme des blessures ou des dommages à l'équipement.

4 Wiring



NOTICE

UNEXPECTED DEVICE OPERATION

Inside the module, two terminal blocks SV+ have been shorted, two terminal blocks SV - have been shorted, two terminal blocks FV+ have been shorted, and two terminal blocks FV - have been shorted. Externally, only one system power supply and one field power supply need to be connected.

The wire should be copper wire with a core greater than 0.2mm² and less than 1mm², and the impedance is less than 10Ω.

Failure to follow instructions specified by the manufacturer may result in serious consequences such as death, personal injury, or damage to equipment since the protection provided by the equipment may be impaired.

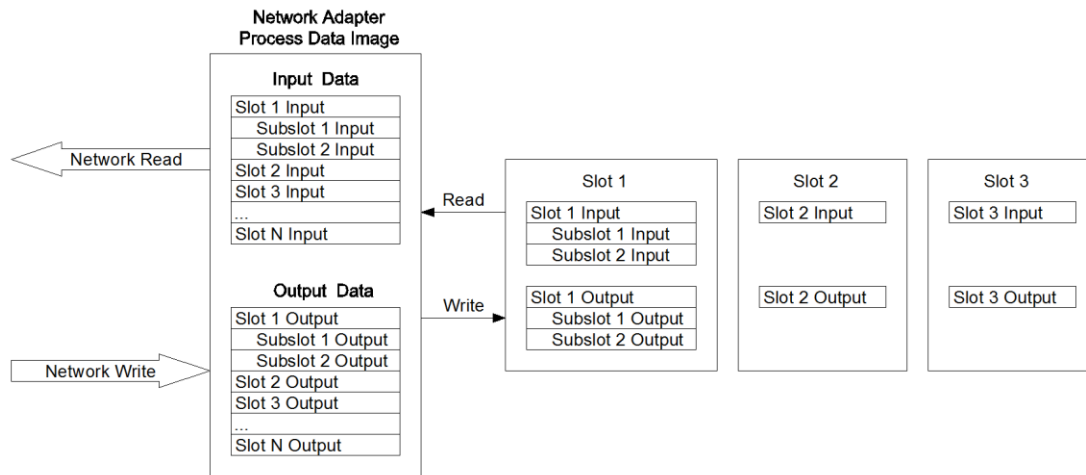
5 Process data definition

5.1 Adapter process data definition

CANopen Adapter itself has no input-output process data.

5.2 IO Module process data mapping

The network adapter reads and writes input and output process data of IO module in real time through the internal bus, and its data mapping model is shown as follow:



Input and output data of the IO module are mapped to objects 6000,6200, 6401,6411 based on data types. TPDO and RPDO both support variable PDO mapping.

6 Configuration Parameter Definition

Configuration Parameter				
No.	Description			
Byte 0	Reserved	Fault Action for Output	Fault Action for Input	Source of Configuration Data
Byte 1	CAN BaudRate			
Byte 2	CANopen Slave Address			
Byte 3	Reserved		Auto Start	Auto Generate PDO COB-ID
Byte 4				
Byte 5 ... Byte 19	Reserved			

Data description:

Source of Configuration Data: Parameter configuration mode (Default: 0)

0: Configured software configuration is valid

1: Fieldbus controller configuration is valid

Fault Action for Input: Input data handling mode when IO occurs fault (Default: 0)

0: Hold Last Input Value

1: Clear Input Value

Fault Action for Output: Output data handling mode when IO occurs fault (Default: 1)

0: Hold Last Output Value

1: Clear Output Value

CANopen Slave Address: CANopen slave device number (read only, default: 1)

CAN BaudRate: CAN bus baud rate Settings (default: 2)

0: 1 MBit/sec

1: 800 kBit/sec

2: 500 kBit/sec

3: 250 kBit/sec

4: 125 kBit/sec

5: 100 kBit/sec

6: 50 kBit/sec

7: 20 kBit/sec

8: 10 kBit/sec

Auto Generate PDO COB-ID: PDO identifiers can be automatically assigned, the Enable and the Disable is optional. After the PDO identifier is enabled, the PDO identifier could be automatically assigned to the I/O module. After the PDO identifier is disabled, only 4 predefined PDO are available, and more PDO need to be set by the CANOPEN master. It is disabled by default.

Auto Start: The slave is automatically started. Enable and disable is optional. After this function is enabled, the site will proactively send a PDO message and uploads the message when there is data. It is disabled by default.

A Dimension drawing

