GW-7433D

MODBUS TCP Server & RTU Slave to CANopen Master

Quick Start User Guide

1. Introduction

The CAN (Controller Area Network) is a serial communication protocol, which efficiently supports distributed real-time control with a very high level of security. It is an especially suited for networking "intelligent" devices as well as sensors and actuators within a system or sub-system. In CAN networks, there is no addressing of subscribers or stations in the conventional sense, but instead, prioritized messages are transmitted. CANopen is one kind of the network protocols based on the CAN bus and mainly used for machine control network, such as textile machinery, printing machines, injection molding machinery, or packaging machines, etc. CANopen is a low level network that provides connections between simple industrial devices (sensors, actuators) and higher-level devices (controllers), as shown in Figure 1.1.



Figure: Example of the CANopen network GW-7433D MODBUS TCP/RTU to CANopen Gateway QuickStart (Version 1.0.1, 3/2009) 1

2. Hardware Installation

Step1: Connect the (R) Vs+ and (B) GND pins of the GW-7433D module to the DC power supply (10~30VDC).



- **Step3:** Connect the Ethernet ports of the GW-7433D and the PC to the hub with standard network cable respectively.
- Step4: Connect the CAN ports of theGW-7433D with CANopen slave devices

3. Configure the GW-7433D

Before starting the GW-7433D gateway, users need to configure the parameters of it via the "Configuration Wizard" and "GW-7433D Utility" tools. The details of this procedure are shown below. For more information about setting steps, please refer to section 5 of the GW-7433D's user's manual. **Step1:** Configure the network parameters via "Configuration Wizard"

🐞 Configure Wizard V. 1.2.0	СОМ1					
COM status	Host PC	Operation				
COM1 💌 115200 💌	IP Host IP	Step 4:				
Line control : N,8,1	Mask Host Mask	to COM1 of the 7188E/8000E.				
Close	Gateway Host Gateway	Press the [Open] button.				
		Kackward Forward >>				
7188E Setting (Origin)	7188E Setting (Recomend)	Information of the				
IP IP	IP Enter IP	7188E/8000E				
Mask Mask	Mask Enter Mask	Configure				
Gateway Gateway	Gateway Enter Gateway					
		Exit				

To Use the Configuration Wizard, you must first install PCDiag. (8000CD:\Napdos\7188e\TCP\PCDiag\Setup\Setup.exe)

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- **Step2:** After configuring the network setting of the GW-7433D, users can use the GW-7433D Utility tool to configure it.
- **Step3:** Click the "Connect" button to connect with the GW-7433D. These steps are shown in the following figure.



Figure : Connection setting of GW-7433D

If the GW-7433D is online and work normally, the GW-7433D Utility tool will display the "MappingModules" window. Shown in the following figure.

	🖣 MappingModules		
		Device Amount	
			1
	Workstation		
	- GW-7344D Parameter	18	2
			2
	Com Port		<u>ა</u>
	Baudrate	115200	4
	DATA Bit	8	
	Parity	None	5
	STOP Bit	1	C
	Listen mode	- 8	0
	CANopen Param	eters	1
	Baud Rate (bps)	500 🔄 🔶 9	
	Length MAX (m)	100(m)=328(ft)	
	Note : Repeater is ne	eded every 1000(m)	
	SYNC (0~255)	0	
	SYNC Time (ms)	0	
	Ethernet Paramete	ers	
	- IP 192	168 255 3	
0 🧲	MASK 255	255 0 0	
	Gateway 192	168 255 4	
	Save A	l Setting	

Connect to the CANopen slave devices with the GW-7433D

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- A Select the device amount of CANopen slaves. Maximum amount of CANopen slaves = 10.
- **2** \rightarrow Set the GW-7433D station number of Modbus RTU slave.
- **3** → Select the COM port number of GW-7433D to be the Modbus RTU COM port
 - \rightarrow Select the baud rate of the Modbus RTU COM Port.
- **5** \rightarrow Set the data bit of the Modbus RTU COM port.
- **6** \rightarrow Set the parity of the Modbus RTU COM port.
 - \rightarrow Set the stop bit of the Modbus RTU COM port.
- **8** \rightarrow Select if the GW-7433D is in listen mode or normal mode.
- **9** \rightarrow Set the baud rate of CAN bus.
- **10** \rightarrow Change the GW-7433D IP, MASK or Gateway.
- When user finish from step 1 to step 10, please click the button, and the "CANopenDeviceSetting" window will be pop-up then user can set the CANopen slave device parameters into the GW-7433D.

Step4: Setting the RxPDO, TxPDO, RxSDO, and TxSDO of "CANopenDeviceSetting" window. As follow figure.

(1). TxPDO Setting.

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		T	TxPDO Setting (Hex)			RxPD0 Setting (Hex)				
Device Number	4	NO.	COB-ID	RTR	DLen	Byte0	Byte1	Byte2		
•		1	&H181	1		2 P_DI 1	P_DI2			
		2	&H281	1		4 P_AIL1	P_AIH 1			
Module ID(1~64)	1	3		A 1				Bute		
modulo ibiti o ij j		4						Word		
		5						Null		
Guarding Time(ms)	500	6								
additing (motions)		7								
		8								
11	_	9								
Delete		10		_				-		
1		11	4	S	0			1		
Contraction of the local division of the loc	-	12								
Exit		13								
1		14								

- 1 \rightarrow It is the code name of this CANopen salve in GW-7433D.
- **2** \rightarrow Setting the CANopen slave device's station's ID.
- **3** \rightarrow Set the guarding time of the CANopen slave.
- 4 \rightarrow Key-in the PDO COB-ID (in hex format) of this CANopen slave.
- **5** \rightarrow Set the RTR mode. In the TxPDO is "1", and RxPDO is "0".
- 6 → Select the length of PDO data. Users have to select the correct DLen for each PDO, otherwise some error will happen on the GW-7433D. In this case, users have to reset the parameters by checking the item "Initialize module" shown on the figure Connection setting of GW-7433D.

- ✓ Select the type of data. If DI is selected, this field will present "P_DIx". If AI is selected, this field will present "P_Aix". The letter "P" means PDO. DI or AI indicate the type of data. The "x" means the number of data.
 (Note: The unit of DI is one byte, AI is two bytes).
- B → Delete button. If users want to delete the PDO configuration, click this button.

- CARependerweesenag												8			
	TaPD0 Set	ing (Hex)	L	RxPD0 Setting	Heal		Read SDD	Setting (Hev)		Write S	500 Setting (H	iexi			
Device Number 1	NO COB-0 1 UPT01 2 UPT01	RTR	DLen 1	6yee0 2 P_011	Byter1 P_Di 2	Byte2	Byte?	Bjdø4	Byle5	Byte6	Byte7	÷			
Module ID(1=64) 1	4				100000	10000	-			1					
Guarding Time(ns) 500	16 77		1	S CANoper	DeviceSet	ting									
Dimmin 1	9					1	Let	00 Setting	[Hex]	1	RiPD0 Sets	ng (Hex)	Υ	Read \$00 Set	ting
Бя	12			Device Nu	sber	a	NO. 1	CC08-60	RTR.	DLen	0ym0 2 P_011	Byte1 P_D12	Dyte2	Ryte2	TB
	14 15 16			Module ID(1-64)	1	3								
	17 10 19		,	Guarding T	ine(ns)	500	5 16 7								
	20 21 22			-	animis -		9 10								
	20 24				Exit		11 12 13								
			-			-	14								E
							1.16								

1 → Please move the mouse to "NO." column, and select user want to delete row, then click it.

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2 \rightarrow When user finishes the

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step, then click the "Delete" button.

(2). RxPDO Setting

User can set the RxPDO parameters by TxPDO's way, as follow figure. (note: the Cycle column select always "NO").



(3). Read TxSDO Setting.

Key-in the index (in hex format) and subindex (in hex format) of the object of the CANopen slave, and select the data type to be DI or AI value. Then it will present "S_DIx" or "S_AIx". The letter "S" means SDO. DI or AI indicates the type of data. The "x" means the number of data.

(Note: The unit of DI is one byte, AI is two bytes)



(4). Write RxSDO Setting

User can set the RxSDO parameters by TxSDO's way, as follow figures.



9 \rightarrow Exit the "CANopenDeviceSetting" window.

Step4: When exit the "CANopenDeviceSetting" window, the "MappingModules" window Will pop-up again, as follow figure.

🖣 MappingModules	
Workstation	Device Amount
ID	
Com Port	СОМ1 🔽 🖵 🦉
Baudrate	115200 🔹
DATA Bit	8
Parity	None
STOP Bit	1
Listen mode	
CANopen Param	eters
Baud Rate (bps)	500 -
Length MAX (m)	100(m)=328(ft)
Note : Repeater is ne	eded every 1000(m)
SYNC (0~255)	0.
SYNC Time (ms)	0
Ethernet Paramet	ers
Г IP 192	168 255 3
Г MASK 255	255 0 0
E Gateway 192	168 255 4
Save A	I Setting

Then user can click the "Save All Setting" button to write the parameters into the GW-7433D's EEPROM, and the GW-7433D will auto-run the firmware to communication with CANopen slave devices.

After finish the step of above steps, the "ShowMapping" window will be display. As follow figure.

ShowMapping DO Mapping		DI Me		Ϋ́	Al Mapp	oing	Ύ Α (- C
Modbus Address 0~ 63	Byte0	Byte1 S_DO 1	Byte2	Byte3	Byte4	Byte5	Byte6	Byte7
1	1							
2	3	4						
								5

CANopen slave device mapping to the Modbus TCP table

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- → The "DO Mapping "tab is present the DO register mapping of CANopen slave device to the Modbus TCP.
- **2** \rightarrow The column is Modbus TCP DO address, the row range is 0 ~63.
- 3 → The row is CANopen slave device's data byte address mapping to Modbus TCP address.
- 4 → The row is CANopen slave device's data byte address mapping to Modbus TCP address.
- **5** \rightarrow Close the "ShowMapping" window.

The "DI Mapping," "AI Mapping" and "AO Mapping" of mapping type the same as the "DO Mapping" of mapping type. In these tabs, the PDO and SDO arrayal of bytes are form PDO bytes to SDO bytes.

When user over view the "ShowMapping" window finish, Plase close the "ShowMapping" window, when user close it then the GW-7433D Utility will display the "MappingModules" window, then user have to close the "MappingModules" window, the GW-7433D Utility will display the "GW-7433D Utility ver(1.0.0)" window and click the "Disconnect with GW-7433D" button to close the window to finish the GW-7433D Utility setting. As follow figure.

🖻 MappingModules 🛛 🔀	
Baudrate 15200 DATA Bit 8	
STOP Bit # GW-7433D Utility (ver 1.0.1)	
Listen mode CANopen Para Baud Rate (bps) Length MAX (m) Note : Repeater is SYNC (0~255) SYNC (main free free free free free free free fre	
Ethornot Pereme	
□ IP 192 100 233 3 □ MASK 255 255 0 0	
Gateway 192 168 255 4	
Save All Setting	

