# GW-7434D Modbus TCP Server/DeviceNet Master Gateway

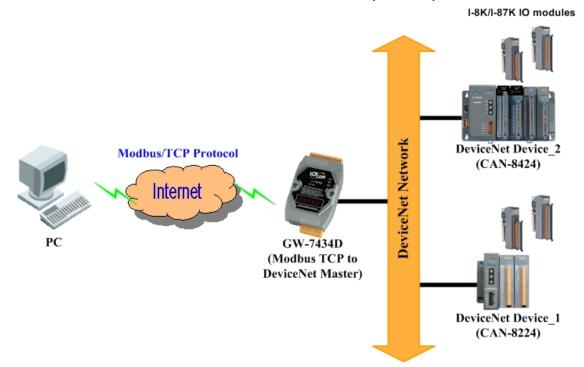
## Quick Start User Guide

#### 1. Introduction

This manual introduces the user to the methods used to implement the GW-7434D module into their applications in a quick and easy way. This will only provide with the basic instructions. For more detailed information, please refer to the GW-7434D user manual located on the ICPDAS CD-ROM or download it from the ICPDAS web site:

CAN\_CD:\DeviceNet\Gateway\GW-7434D\Manual or http://www.icpdas.com/products/Remote\_IO/can\_bus/GW-7434D.htm

The goal of this manual is focused on helping users to quickly familiarize themselves with the GW-7434D module. Here, we use one GW-7434D and two DeviceNet devices as the example that will demonstrate how to use the GW-7434D modules. The architecture of this example is depicted below.

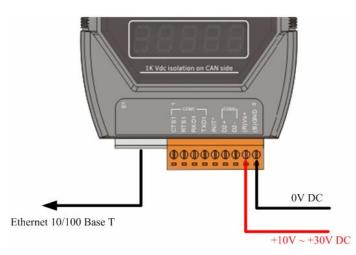


After configuring and letting the GW-7434D start to communicate with these two

DeviceNet devices by Utility tool, users can get the data of these two devices via communicating with the GW-7434D with Modbus TCP protocol.

#### 2. Hardware Installation

- **Step1:** Here, we use two DeviceNet devices, the attributes of them are shown below. They are CAN-8424 and CAN-8224 separately.
  - Device 1: MACID: 0x01, support Poll IO connection, Baud-rate: 125Kbps Produced connection size: 2 bytes Consumed connection size: 2 bytes
  - Device 2: MACID: 0x02, support Poll IO connection, Baud-rate: 125Kbps Produced connection size: 16 bytes Consumed connection size: 8 bytes
- **Step2:** Connect the (R)Vs+ and (B)GND pins of the GW-7434D module to the DC power supply (10~30V<sub>DC</sub>).



- **Step3:** Connect the Ethernet ports of the GW-7434D and the PC to the hub with standard network cable respectively.
- **Step4:** Connect the CAN ports of the GW-7434D with these two DeviceNet devices

#### 3. Configure the GW-7434D with these two DeviceNet devices

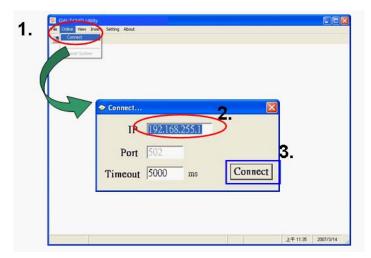
Before starting the GW-7434D gateway tests, users need to configure the parameters of it via the "Configuration Wizard" and "GW-7434D Utility" tools. The details of this procedure are shown below. For more information about setting steps, please refer to section 5 of the GW-7434D's user's manual.

0 COM1	
Host PC	Operation
IP Host IP	Step 4:
Mask Host Mask	to COM1 of the 7188E/8000E.
Gateway Host Gateway	Step 5: Press the [Open] button.
7188E Setting (Recomend)	Information of the
IP Enter IP	7188E/8000E Information of PC
Mask Enter Mask	Configure
Gateway Enter Gateway	Exit
	Host PC     IP   Host IP     Mask   Host Mask     Gateway   Host Gateway     7188E Setting (Recomend)     IP   Enter IP     Mask   Enter Mask

Step1: Configure the network parameters via "Configuration Wizard"

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

- **Step2:** After configuring the network setting of the GW-7434D, users can use the GW-7434D Utility tool to configure it with these two DeviceNet devices.
- **Step3:** Click the "Connect" button to connect with the GW-7434D. These steps are shown in the following figure.



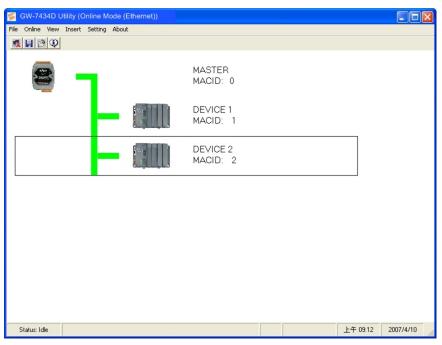
**Step4**: Click right of the mouse button to add these two devices into GW-7434D's scan-list table.

	GW-7434D Utility (Online Mode (Ethernet))		
	File Online View Insert Setting About		1.
		MASTER	Right click
	-	MACID: 0	/ mouse button to
		DEVICE 1	/ <sub>∕</sub> insert device
2.		MACID: 1	
Input the device's		C	Insert Device
description and MAC	Insert Device		
ID then press OK			
button	Description DEVICE	2 ОК	
	Device MACID 2	Cancel	
	Status: Idle		上午 10.37 2007/4/10
	GW-7434D Utility (Online Mode (Ethernet))		
	File Online View Insert Setting About		
	<b></b>		
	(S)(D)	DEVICE 1	
	Alliandia	MACID: 1	
	<b>F</b>	DEVICE 2	
		MACID: 2	

**Step5**: Now users need to configure the connection parameters between the GW-7434D and these two parameters by double click the left of mouse button on the device's picture.

	Device Configuration		×	
Select I/O Connection type	MAC ID : 1 Description : DEVICE 1	_	OK. Cancel	]
connection type			Actual Device	
	Actual chosen ID connection Polling C Bit-Strobe C CDS C Cyclic	2		
	Connection Object Instance Attributes Explicit Packet Rate 200		$\geq$	
Г	Produced connection size 2 Consumed	connection size 2	Used	l for configuring
Select I/O data type	Available predefined connection data types		othe	r devices
	Data Type Descriptions BYTE ABBAY Input	Data Length		
	BYTE ARRAY Input BYTE ARRAY Output	1		
			Add to configured I/O data	
		Addt. O Type O Len O Addr = 0 0B 2 0		
			Delete configured I/O data	
Input device I/O dat	a		A	dd or delete
length			s	elected I/O data

**Step6**: After configuring these two devices, the GW-7434D will start to communicate with two devices. And the Utility will start to monitor the status of the GW-7434D.



Step7: Finally, users need to map these two devices' IO connection data path into GW-7434D's Input/Output Data Area. So that users can get/set IO data from/into IO Data Area via Modbus/TCP function 16 command, force multiple registers, to get/set these two DeviceNet devices' IO data.

Image: Second	Right click mouse button and select
MASTER MACID: 0	Bus Parameters Master Settings Start All Devices
DEVICE 1 MACID: 1	Stop All Devices Memory Mapping
DEVICE 2 MACID: 2	
Internal Memory Configuration	Internal Memory Configuration
DeviceMet Device     Comm.     Desc.     Type    Len   Firm.     To     Color       1     DEVICE 1     Poling     Input     IB     2     20001     20002       2     DEVICE 2     Poling     Input     IB     16     20033     20049	OK     Model Device     Comm     Device (Comm     Device     Comm     Device (Comm     OK       OK     MODEl Device     Comm     Device (Comm     Device (Comm
Input Memory Adds. Output Memory Adds.	Input Memory Adds. Output Memory Adds.
	Revet Ore     0     1     2     3     4     5     6     7     8     10     11     12     13     14     15     16     17     10     10     11     12     12     12     12     14     15     16     17     10     10     11     12     13     14     15     16     17     10     10     11     12     13     14     15     10     11     12     13     14     16     10     11     12     13     14     16     17     10     10     11     12     13     10     11     10     10     11     10     10     11     11     11     11     11     10

**Step 8:** After clicking "Save setting", the GW-7434D Utility generates one record file (default file is called MBTCPDNM.ini). You can run the GW-7434D Utility to load the record file to review all settings of specific GW-7434D. If you forget to store these settings, you can still obtain the information for the GW-7434D via Ethernet.

SW-7434D Utility (Online Mode (Ethe	ernet))				
File Online View Insert Setting About					
Save Setting Save Setting As Exit		MASTER			
9		MACID: 0			
		DEVICE 1 MACID: 1			
		DEVICE 2 MACID: 2			
Status: Idle				上午 10:41	2007/4/10

#### 4. Get/Set the IO data of these two DeviceNet devices.

Then users can get/set the IO data of these two devices by the Utility tool. Or users can get/set the IO data of these devices via using Modbus TCP function code 4 and 16 commands to set/get data to/from GW-7434D's IO Data Area, The details of this procedure are shown below.

#### 4.1 Get/Set Data By using the GW-7434D Utility tool

🐝 GW-7434D Utility (Online Mode (Ethernet)) File Online View Insert Setting About 🌉 🔡 🔁 🕄 MASTER Bus Parameters... MACID: 0 Master Settings... Start All Devices Stop All Devices DEVICE 1 MACID: 🖻 Set / Get IO M Input Memory Get Data 00 01 02 03 04 05 06 07 08 09 10 11 12 12 Auto Display Mode · Hex ⊖ Dec Output ut Memory 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 1 Set Data 00 01 02 03 04 05 06 07 08 09 10 11 12 0 Clear All Setting 09:20 2007/4/10 Status: Idle 0 Display Mode Hex 0 0 C Dec

Step1: Open the "Set/Get IO Memory Data" window.

Step2: Users can get the Device1, 2 bytes polling input data, and Device2, 16 bytes polling data, on the Input Memory Table, 0000~0001 and 0100~0115 after click the "Get Data" button or "Auto button".

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	-	Get Data
00	FF	FF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		Ger Data
01	F5	FF	F1	FF	E8	FF	E4	FF	0	0	0	0	0	0	0	0	0	_	
02	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
03	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	(	Auto
04	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		$\searrow$
05	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		Stop
06	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		otop
07	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
09	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		- Display Mode
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		Hex
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	C Dec
1	1																+	_	

**Step3**: By pressing the "Set Data" button, users also can set the data on the Output Memory Table into GW-7434D's output data area.

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16 4	Carl Date
00	33	44	FF	1F	FF	2F	FF	ЗF	FF	4F	0	0	0	0	0	0	0	Set Data
01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
02	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
03	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Clear All
04	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Setting
05	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
06	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
07	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
08	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
09	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Display Mode
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Hex
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 .	CDec

### 4.2 Get/Set Data By using the MBTCP tool

The address of the Input/Output Data Area is form 0x00 to 0xFF, 256 words. Users can get /set these two devices data by using Modbus/TCP function code 4 and 16 commands to set/get data to/from GW-7434D's IO Data Area. The following tables are the setting of the address mapping on the section 3, step7.

Device	Connection Type	Data Type	Data Length	Mapping Address of IO Data Area
Device 1	Poll	Input	2 Bytes	Input Area: 0x00~0x01
Device_1	FOII	Output	2Bytes	Output Area: 0x00~0x01
Device 2	Poll	Input	16 Bytes	Input Area: 0x20~0x2F
Device_2	FUI	Output	8 Bytes	Output Area: 0x02~0x09

#### Note: Here the setting of the GW-7434D's Net ID is 0x01.

**Step1**: Using Modbus/TCP function code 4, read input registers, to read devices' input data from GW-7434D's Input Data Area.

MBTCP Ver. 1.1.4				
ModbusTCP IP: 192.168.255.1 Port: 502 Connect Disconnect T Data Log	Protocol Description FC4 Read multiple input registers (3xxxx) for Al [Request] Byte 0: Net ID (Station number) Byte 1: FC=04 Byte 2-3: Reference number Byte 4-5: Word count			
Start     Stop       Timer mode (fixed period)     Interval     100 ms     Set       Start     Stop     Stop     Stop       [Byte0]     [Byte1]     [Byte2]     [Byte3]     [Byte4]     [Byte4]       [Byte0]     [Byte1]     [Byte2]     [Byte3]     [Byte4]     [Byte4]       [Byte0]     [Byte1]     [Byte2]     [Byte3]     [Byte4]     [Byte4]	5] [Byte0] [Byte1] [Byte2] [B	Total Packet bytes 51   Packet Quantity received 1   Max 0   Min 1000     Send Com	Input Da	
Clear L	00 0 FF F 00 0 00 0 00 0	4 FE FF FF 00 00 00 00 00 00 00 00 0 00 00 00 00 0		nput Data
		 		f Device_2
	Function code 4, Read input registers		L	

**Step2**: Using Modbus/TCP function code 16, force multiple registers, to write output data into GW-7434D's Output Data Area.

MBTCP Ver. 1.1.4		
ModbusTCP IP: 192.168.255.1 Port: 502 Connect Disconnect Data Log	Protocol Description     FC16 Write multiple registers (4xxxx) for AD     Byte 0:   Net ID (Station number)     Byte 1:   FC=10 (hex)     Byte 2-3:   Reference number     Byte 4-5:   Word count     Byte 6:   Byte count (B=2 × word count)     Byte 7-(B+6):   Register values	
Polling Mode (no wait)       Start     Stop       Timer mode (fixed period)     Interval	Statistic Clear Statistic   Command Packet Quantity   Total Packet bytes 23 Difference   Packet Quantity sent 1 0   Polling or Timer mode (Date/Time) Polling Mode Timing (ms)   Start time Start Time	Output Data of Device_1
Start     Stop       [Byte0] [Byte1] [Byte2] [Byte3] [Byte4] [Byte1     [Byte3] [Byte3] [Byte4] [Byte1       1 2 0 0 0 11     1 10 00 00 00 05 0A FF FF FF (0)       [Byte0] [Byte1] [Byte2] [Byte3] [Byte4] [Byte4     [Byte4] [Byte3] [Byte4] [Byte4       01 02 00 00 00 11 -     01 10 00 00 00 05 0A Ff	Stop time     Stop Time     Min     1000     000       5]	and
Clear L	.ists EXIT Program	Response: Setting OK
	Function code 16, force multiple registers	