

User Manual

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GW-7828

(Modbus RTU Slave to M-Bus Master Gateway)



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Important Information

Warranty

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Contact us

If you encounter any problems while operating this device, feel free to contact us via mail at: service@icpdas.com. We will reply as soon as possible.

1. Introduction



The M-Bus ("Meter-Bus") is a standard for remote reading of meters. It is usable for most types of consumption meters as well as for various sensors and actuators. The GW-7828 is specially designed for M-Bus slave device. It offers Modbus RTU communication by three kinds of interface, RS-232, RS-422 and RS-485. On hardware the GW-7828 has two rotary switches for serial port and M-Bus port baud rate. GW-7828 supports Modbus RTU function code 0x03 and 0x04 to read data of M-Bus meters. Through this design, it is easy to communicate with any standard M-Bus slave.

1.1 Features

- Supports M-Bus standard: EN-13757, CJ/T -188
- Supports Modbus RTU function code 0x03 and 0x04 to read Meter data
- Baud rate: Adjustable by rotary switch serial port from 300 to 115200 bps, and M-Bus from 300 to 2400 bps. Two baud rates are set individually.
- Default serial port data format: Data bit 8, Parity None, Stop bit 1
- Default M-Bus port data format: Data bit 8, Parity Even, Stop bit 1
- Supports up to 100 M-Bus slaves
- M-Bus over current protection
- Short-circuit protection on the M-Bus
- Update firmware from serial port
- Provides PWR, MTX and MRX 3 LED indicators
- Watchdog inside

1.2 Specification

Module	GW-7828
M-Bus Interface	
Channel	1
Baud Rate (bps)	300 bps ~ 2400 bps
Data bit	5, 6, 7, 8
Stop bit	1, 2
Parity	None, Even, Odd, Space, Mark
Isolation	3750 Vrms for photo-couple
ESD Protection	Contact ±4 kv class B
Current Protection	short-circuit protection
UART Interface	
Channel	1 RS-232 / RS-422 / RS-485 (can't be used simultaneously)
Baud Rate (bps)	300 bps ~ 115200 bps
Data bit	5, 6, 7, 8
Stop bit	1, 2
Parity	None, Even, Odd, Space, Mark
ESD Protection	Contact ±4 kv class B
Power	
Power Supply	Unregulated +10 ~ +30 Voc
Protection	Power reverse polarity protection, Over-voltage brown-out protection
Power Consumption	1.8 W @ 24 VDC (with 1 slave device) 11.8 W @ 24 VDC (with 100 slave devices)
Mechanical	
Installation	DIN-Rail
Dimension (W x L x H)	72mm x 122mm x 33mm
Environment	
Operating Temperature	-25 to +60°C
Storage Temperature	-40 to +80°C
Relative Humidity	10 to 90% RH, Non-condensing

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2. Getting Started

■ Appearance and pin assignments



2.1 LED Indicator

The GW-7828 module provides three LED indicators, including indicators for power status and module status. The Following is an overview of the purpose and function of each LED indicator together with a description.

LED Name	LED Status	LED Description
Power (Yellow)	ON	The power of the module is ON
Power (Yellow)	Flashing	M-Bus overload (short or too much M-Bus slaves) Need reboot to recover the status.
MTX (Green)	Flashing	M-Bus communication normal Tx
MRX (Green)	Flashing	M-Bus communication normal Rx

*

2.2 Rotary Switch

The GW-7828 module provides two rotary switches that are used to change UART Baud Rate and M-Bus Baud Rate. The following is an overview of the purpose and function of each rotary switch position together with a description.

	Switch	Baud rate (bps)	Format
	0	300	
	1	600	
	2	1200	
	3	2400	
67897	4	4800	M-Bus Port:8,e,1
₹(JL)č	5	9600	Serial Port:8,n,1
103 m	6	19200	
	7	38400	
	8	57600	
	9	115200	
	A~F	User defined	User defined

Note: M-Bus only supports baud rate from 300 to 2400 bps.

2.3 DIP Switch

The DIP switch is used to update firmware and configure M-Bus Meter setting. The functions of each mode will be explained in detail in later chapters. After changing the configuration of the DIP switch, the GW-7828 needs to reboot to enable the new setting.

	Init Pin	Mode Pin	Description
┛┟╾┙┟╾┥	OFF	OFF	Operation Mode
	OFF	ON	Configure Mode
ON 1 2	ON	OFF	Firmware Update Mode
	ON	ON	Reserved

3. Configuration and Communicate test

The configuration for the module parameters or communication setting on the GW-7828 module can be performed via M-Bus utility. The M-Bus utility can be downloaded from the following website:

http://ftp.icpdas.com.tw/pub/cd/fieldbus_cd/mbus/gateway/gw-7828/software/

The figure below is an illustration of module wiring. Connect the PC COM port to the RS-232 port and connect M-Bus meter to M-Bus port of the GW-7828. Set the DIP switch to the configuration mode and then power it on.



3.1 Connect

🖳 M-Bus Utility v1.2	2	
Configure Gateway	/ Reader	
Module :	COM Port 👻	
COM Port:	COM3 👻	
Baud rate:	115200 💌	Connect

Execute the M-Bus utility. There will be a connection diagram as first.

Click "Configure" tab page, choose the corresponding COM port in PC then click "Connect" button to connect with module. Please be noted that the UART baud rate of GW-7828 will be 115200bps when it is in configuration Mode.

3.2 Baud Rate and Data Format Settings

The first page of the utility lists baud rate and data format configuration of the serial port and the M-Bus port and it also shows the Modbus RTU node ID of the GW-7828. User could add a new baud rate and data format setting as need in this page.

	eter	Curr	nort Data For	rmat	
Firmware ve 1 00	rsion	Data hit	Dority hit	Cton hit	Node ID (Hex)
		Dala Dil 5678	ranty bit		T Pel
Rotary swite	ch mapping	table	1,0,0,1,0	1012	
N	I-Bus Baud	Rate		R\$232/422/485	Baud Rate
0 : 300,8,e,1	8:	57600,8,e,1	0:	300,8,n,1 8	: 57600,8,n,1
1: 600,8,e,1	9:	115200,8,e,1	1:	600,8,n,1 9	: 115200,8,n,1
2 : 1200,8,e,	,1 A :	User Defined	Set 2:	1200,8,n,1	: User Defined Set
3: 2400,8,e,	,1 B:	User Defined	Set 3 :	2400,8,n,1 E	3 : User Defined Set
4 : 4800,8,e,	,1 C:	User Defined	Set 4 :	4800,8,n,1 C	: User Defined Set
5 : 9600,8,e,	,1 D:	User Defined	Set 5 :	9600,8,n,1 D): User Defined Set
6 · 19200.8	e.1 E:	User Defined	Set 6:	19200,8,n,1 E	: User Defined

Note: The GW-7828 only supports 300 bps ~ 2400 bps baud rate currently.

3.3 M-Bus Meter Settings

In the "Meter" page of the utility, user could configure the M-Bus communication setting by using "Import" or "Add" functions. The usages of these functions are listed as following sections.

Im	port E											
		xport Ad	d Save	Delete	Delete All							
	Folder	Serial	Protocol	Address	Medium	Value	Unit	Cycle	Description	Register		
	1	02043151	EN-13757	-	12. Heat (inlet)			30		29		
						16 Bit Integer	10-ª °C		Flow Temper	0000		
						16 Bit Integer	10-ª °C		Return Temp	0001		
						16 Bit Integer	10 ⁻² K		Temperature	0002		
						64 Bit Integer	J/h		Power	0003		
						64 Bit Integer	J		Energy	0007		
						64 Bit Integer	10-• m³		Volume	000B		
						32 Bit Integer	10 ⁻³ m³/h		Volume Flow	000F		
						32 Bit Integer	10 ⁻³ m³/h		Volume Flow	0011		
						32 Bit Integer	hours		Operating Time	0013		
						32 Bit Integer	hours		Operating Time	0015		
						32 Bit Integer	time & date		Time Point	0017		
						8 digit BCD			Fabrication No	0019		
						4 digit BCD			Extension of	001B		
						4 digit BCD			Bus Address	001C		
	2	48466171	EN-13757	-	4. Heat (outlet)			-		11		
						8 digit BCD	10 ³ Wh		Energy	001D		
						8 digit BCD	10 ⁻³ m ³		Volume	001F		
						6 digit BCD	10 ⁻³ m ³ /h		Volume Flow	0021		
						8 digit BCD	W		Power	0023		
						4 digit BCD	10-1 °C		Flow Temper	0025		
						A digit BCD	10-1 °C		Return Term	0026		

3.3.1 Import

There are two ways to add M-Bus Meter setting into GW-7828. One is using "Import" to import an existed configuration file and save to GW-7828. The configure steps are as following: <u>Step1:</u> Press "Import" button.

M-Bus Utility v1.2	A Real		Are		m.
G₩-7828 Mete	er				
					1
Import	Export Ad	d Save	Delete	Delete All	ļ
Folder	Serial	Protocol	Address	Medium	Value

Step2: Open an existed configuration file of XML format.

Select file					? 🗙
查詢(]):	🍚 本機磁碟 (C:)	<u> </u>) 🏚 📂 🖽 🕇	•
 我最近的文件 () しょう () よう () よう	MSOCach msys My_Outle Program I RECYCL sources Spacekace System V TC Temp Test	ne pok_Files Files ER e olume Information		Texas I ti VxCAI VxCAI VxCan VxCan Setting	Instrument: N_Logger NLogger dW7 OWS <mark>1.xm1</mark>
	<				>
網路上的芳鄰	檔名(N):	Setting1.xml		~	開啓(0)
	檔案類型(<u>T</u>):	XML Files (*.xml)		*	取消

Step3: The configuration will be loaded into the utility as following:

·									
шроп	Export A	ldd Save	Delete	Delete All					
Fo	older Serial	Protocol	Address	Medium	Value	Unit	Cycle	Description	Register
1	02043151	EN-13757	-	12. Heat (inlet)			30		29
					16 Bit Integer	10-ª ℃		Flow Temper	0000
					16 Bit Integer	10-ª ℃		Return Temp	0001
					16 Bit Integer	10 ⁻³ K		Temperature	0002
					64 Bit Integer	J/h		Power	0003
					64 Bit Integer	1		Energy	0007
					64 Bit Integer	10 - ⁴ m³		Yolume	000B
					32 Bit Integer	10 ⁻³ m ³ /h		Volume Flow	000F
					32 Bit Integer	10 ⁻³ m ³ /h		Volume Flow	0011
					32 Bit Integer	hours		Operating Time	0013
					32 Bit Integer	hours		Operating Time	0015
					32 Bit Integer	time & date		Time Point	0017
					8 digit BCD			Fabrication No	0019
					4 digit BCD			Extension of	001B
					4 digit BCD			Bus Address	001C
2	48466171	EN-13757	-	4. Heat (outlet)			-		11
					8 digit BCD	10³ ₩h		Energy	001D
					8 digit BCD	10 ⁻³ m ³		Volume	001F
					6 digit BCD	10 ⁻³ m³/h		Volume Flow	0021
					8 digit BCD	W		Power	0023
					4 digit BCD	10 ⁻¹ ℃		Flow Temper	0025
					A digit BCD	10-1 %		Potero Toron	0026

Step4: Press "Save" button and confirm to save configuration.



<u>Step5:</u> After saving success diagram showed, set the DIP switch to operation mode and reboot the module.



3.3.2 Export

-	Folder	Serial	Protocol	Address	Medium	¥alue	Unit	Cycle	Description	Register
	1	10153802	EN-13757	1	7. Water			60	-	4
						8 digit BCD			Fabrication No	0000
	-					8 digit BCD	10 ⁻³ m ³		Yolume	0002
	2	01006089	EN-13757	2	12. Heat (inlet)			60		23
	-					32 Bit Integer	10³ ₩h		Energy	0004
	-					32 Bit Integer	10 ⁻³ m ³		Volume	0006
						32 Bit Integer	10 ⁻³ m ³		Volume	0008
	-					16 Bit Integer	C		Flow Temper	4000
	-					16 Bit Integer	C		Return Temp	000B
						16 Bit Integer	10-¹ K		Temperature	000C
						32 Bit Integer	hours		On Time	000D
						32 Bit Integer	hours		Operating Time	000F
						32 Bit Integer	10 ⁻³ m³/h		Volume Flow	0011
						32 Bit Integer	10 ¹ ₩		Power	0013
						32 Bit Integer	time & date		Time Point	0015
						32 Bit Integer			Units for H.C	0017
						32 Bit Integer			Units for H.C	0019

User could export the existed module configuration to a XML file by the "Export" function.

<u>Step1:</u> Press "Export" button. Then select path and input file name to export the configuration.

另存新檔	? 🔀
儲存於①:	🥌 本機磁碟 (C:) 💽 🕜 🍺 🗁 🖽 🗸
 我最近的文件 	32788R22FWJFWGCCBC31GNU Tools ARMCPMotorLogHP LJ2400seriescygwinI-7565-H1H2_Utidatasheeti-87123-olddffa3d3a385f6b333aa5184364f0c425ICPDASDocuments and SettingsICPUsbConverterDownloadsIntelDrive InformationispTOOLS6_1EFIsc_envPtpRootMinGW
網路上的芳鄰	ば名(1): (儲存(3)) 存檔類型(1): XML Files (*.xml)

3.3.3 Add

The second way to add meter configuration to GW-7828 is using "Add" function. The "Add" function can add meter of EN-13757 protocol or CJ/T-188 protocol into GW-7828. Refer below operation example for detail setting step.

🖳 M-Bus Utility v1	.2				(m)							
GW-7828 N	leter											
Import	Import Export Add Save Delete Delete All											
Folder	Serial	Protocol	Address	Medium	Value							

<u>Step1:</u> Press "Add" button and select the protocol of the meter. There are two protocols, EN-13757 and CJ/T188 for select. Input the meter serial number and M-Bus network polling cycle time. Then press "OK" to connect to the meter.

Note: The meter serial number of EN-13757 is 8 numbers, and the serial number of CJ/T188 is 14 numbers.

🖳 Add Meter
Protocol: EN-13757
Address:
Serial Num 02043151
Medium: 0. Other
Cycle (S). 60 for all meter
OK Cancel

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										_
- 5000 14.4-	_									
W-7828 Mete	r									
· · · · · · ·										
Ітроп	хрон Аа	a Save	Delete	Delete XII						
Folder	Serial	Protocol	Address	Medium	Value	Unit	Cycle	Description	Register	
1	02043151	EN-13757	-	12. Heat (inlet)			30		29	
					16 Bit Integer	10 ⁻³ ℃		Flow Temper	0000	
					16 Bit Integer	10 ⁻³ ℃		Return Temp	0001	
					16 Bit Integer	10 ⁻² K		Temperature	0002	
					64 Bit Integer	J/h		Power	0003	
					64 Bit Integer	1		Energy	0007	
					64 Bit Integer	10⊸ m³		Yolume	000B	
					32 Bit Integer	10 ⁻³ m³/h		Volume Flow	000F	
					32 Bit Integer	10 ⁻³ m³/h		Volume Flow	0011	
					32 Bit Integer	hours		Operating Time	0013	
					32 Bit Integer	hours		Operating Time	0015	
					32 Bit Integer	time & date		Time Point	0017	
					8 digit BCD			Fabrication No	0019	
					4 digit BCD			Extension of	001B	
					4 digit BCD			Bus Address	001C	
2	48466171	EN-13757	-	4. Heat (outlet)			-		11	
					8 digit BCD	10³ ₩h		Energy	001D	
					8 digit BCD	10 ⁻³ m ³		Volume	001F	
					6 digit BCD	10 ⁻³ m ³ /h		Volume Flow	0021	
					8 digit BCD	W		Power	0023	
					4 digit BCD	10-1 ℃		Flow Temper	0025	
					A digit BCD	10-1 %		Return Teron	0026	

<u>Step2:</u> The meter information shows as below.

Step3: After add all meters on the utility list, press "Save" to save these parameters to the GW-7828.

3.3.4 Save

After adding meters setting or importing configuration, use "Save" function to save configuration into the GW-7828.

Step1: Press "Save" button.

	M-Bus Utility v1.2	a manager		A		100			
		1							
0	GW-7828 Meter								
Import Export Add Save Delete Delete All									
	F-11 -1	Sec.1	Dura ta a a l	A J J	Malimu	17.1			

<u>Step2:</u> Confirm to save the configuration.

	-	a Save	Delete	Delete All					
 Folder	Serial	Protocol	Address	Medium	Value	Unit	Cycle	Description	Register
1	02043151	EN-13757	-	12. Heat (inlet)			30		29
					16 Bit Integer	10-ª °C		Flow Temper	0000
					16 Bit Integer	10 ⁻³ °C		Return Temp	0001
					16 Bit Integer	10- ³ K		Temperature	0002
				Confirm	on the langest	-	x	Power	0003
								Energy	0007
								¥olume	000B
				(?	Save the mete	er configuratior	17	Volume Flow	000F
								Volume Flow	0011
								Operating Time	0013
								Operating Time	0015
					22(1)		v	Time Point	0017
					o aign DOD	-		Fabrication No	0019
					4 digit BCD		_	Extension of	001B
					4 digit BCD			Bus Address	001C
2	48466171	EN-13757	-	4. Heat (outlet)			-		11
					8 digit BCD	10 ³ Wh		Energy	001D
					8 digit BCD	10-3 m3		Volume	001F
					6 digit BCD	10 ⁻³ m ³ /h		Volume Flow	0021
					8 digit BCD	W		Power	0023
					4 digit BCD	10-1 °C		Flow Temper	0025
					4 digit BCD	10-1°C		Return Temp	0026
					4 digit BCD	hours		Onerating Time	0027

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<u>Step3:</u> After saving success diagram showed, set the DIP switch to operation mode and reboot the module.



3.3.5 Delete

The "Delete" function will delete one meter setting each time. Take the following setting as an example.

 Folder	Serial	Protocol	Address	Medium	Value	Unit	Cycle	Description	Register
1	10153802	EN-13757	1	7. Water			60		4
					8 digit BCD			Fabrication No	0000
					8 digit BCD	10 ⁻³ m ³		Yolume	0002
2	01006089	EN-13757	2	12. Heat (inlet)			60		23
					32 Bit Integer	10³ ₩h		Energy	0004
					32 Bit Integer	10 ⁻³ m ³		Volume	0006
					32 Bit Integer	10 ⁻³ m ³		Volume	0008
					16 Bit Integer	C		Flow Temper	∆000
					16 Bit Integer	C		Return Temp	000B
					16 Bit Integer	10-1 K		Temperature	000C
					32 Bit Integer	hours		On Time	000D
					32 Bit Integer	hours		Operating Time	000F
					32 Bit Integer	10 ⁻³ m ³ /h		Volume Flow	0011
					32 Bit Integer	10 ¹ ₩		Power	0013
					32 Bit Integer	time & date		Time Point	0015
					32 Bit Integer			Units for H.C	0017
					32 Bit Integer			Inits for H C	0019

Step1: Press "Delete" button.

💀 M-	Bus Utility v1.2	A Real		Are		-
GV	N-7828 Meter					
	Import Expo	rt Add	Save	Delete	Delete All	
	Folder	Serial	Protocol	Address	Medium	Value

Step2: Select the serial number of meter which wanting to be deleted.

🖷 Select delete	ed meter 📃 🗖 🔀
Serial Num.	1 101 53802
Protocol:	1.10153802 2.01006089
Medium:	Water
OK	Cancel

<u>Step3:</u> Confirm to delete meter which is selected.



Step4: it will show the meter information after deleting as below.

mport	EXTLO] [D-1-4-411				
				Save	Delete	Delete All				
Fo	lder	Serial	Protocol	Address	Medium	Yalue	Unit	Cycle	Description	Register
1		01006089	EN-13757	2	12. Heat (inlet)			60		23
						32 Bit Integer	10³ ₩h		Energy	001B
						32 Bit Integer	10 ⁻³ m ³		¥olume	001D
						32 Bit Integer	10 ⁻³ m ³		¥olume	001F
						16 Bit Integer	C		Flow Temper	0021
						16 Bit Integer	C		Return Temp	0022
						16 Bit Integer	10-¹ K		Temperature	0023
						32 Bit Integer	hours		On Time	0024
						32 Bit Integer	hours		Operating Time	0026
						32 Bit Integer	10 ⁻³ m ³ /h		Volume Flow	0028
						32 Bit Integer	10¹ ₩		Power	002A

Step5: After delete meter configuration completely, press "Save" to save change to GW-7828.

3.3.6 Delete All

The "Delete All" function can delete all meters setting on the utility list.

Step1: Press "Delete All" button.

H-Bus Utility v1.2			A		-					
	_									
GW-7828 Meter										
Import Expo	rt Add	Save	Delete	Delete All						
Folder	Serial	Protocol	Address	Medium	Value					

Step2: Confirm to delete all meters' configuration.

Folder Se	rial	Protocol	Address	Medium	¥alue	Unit	Cycle	Description	Register
1 10	153802	EN-13757	1	7. Water			60		4
					8 digit BCD			Fabrication No	0000
					8 digit BCD	10 ⁻³ m ³		Yolume	0002
2 01	006089	EN-13757	2	12. Heat (inlet)			60		23
					32 Bit Integer	10³ ₩h		Energy	0004
					32 Bit Integer	10 ⁻³ m ³		Yolume	0006
					32 Bit Integer	10 ⁻³ m ³		Volume	0008
					16 Bit Integer	C		Flow Temper	A000
					16 Bit Integer	r.		Return Temp	000B
_			Confirm			\mathbf{X}		Temperature	000C
-			_					On Time	000D
-			<u>р</u>)elete Δ11 meta	er configurati	012		Operating Time	000F
-						.011: 13/h		Volume Flow	0011
								Power	0013
			是	(Y)	否(N)	é date		Time Point	0015
-								Units for H.C	0017
								Units for H.C	0019

<u>Step3:</u> Finally press "Save" to save changing configuration.

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3.4 M-Bus Meter Communicate Test

🖳 M-Bus Utility v1.2		
Configure Gateway	Reader	
Module :	COM Port 👻	
COM Port:	COM3 🗸	
Baud rate:	115200 👻	Connect

After the meter is configured, the user can re-execute the M-Bus utility and then click "Gateway Reader" to read the meter data and check if the settings are correct.



After executing the "Gateway Reader", select the COM port and timeout related options, and press the "Start Reader" button to import the configuration file exported in Section 3.3.2.

M-Bu Config	us Utility v1.2 gure Gateway Rea	der								
COI	M COM6	▼ 115200	▪ bps №	lodbus ID 1	Timeout	200 ms	Polling C	ycle 10 s	ec Close	
	Num	Protocol	Serial ID	Medium	Data Type	Format	Register	Value	Unit	
•	1	EN-13757	02043151	12. Heat (inl			29			
					Flow Tempe	16 Bit Integer	0000	2575	10-2 ℃	
					Return Tem	16 Bit Integer	0001	2585	10-² ℃	
					Temperature	16 Bit Integer	0002	-9	10-2 K	
					Power	64 Bit Integer	0003	0	J/h	
					Energy	64 Bit Integer	0007	36501	1	
					Volume	64 Bit Integer	000B	4720	10-8 m ³	
					Volume Flow	32 Bit Integer	000F	0	10 ⁻³ m ³ /h	
					Volume Flow	32 Bit Integer	0011	0	10 ⁻³ m ³ /h	
					Operating Ti	32 Bit Integer	0013	4722	hours	
					Operating Ti	32 Bit Integer	0015	795	hours	
					Time Point	32 Bit Integer	0017	12:54-27/8/	time & date	
					Fabrication	8 digit BCD	0019	02043151		
					Extension of	4 digit BCD	001B	0080		
					Bus Address	4 digit BCD	001C	0000		
	-									

It can test whether the value read matches the setting.

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4. Meter Configuration Label Description

Fo	older	Serial	Protocol	Address	Medium	Value	Unit	Cycle	Description	Register
1		10153802	EN-13757	1	7. Water			60		4
						8 digit BCD			Fabrication No	0000
						8 digit BCD	10 ⁻³ m ³		¥olume	0002
2		01006089	EN-13757	2	12. Heat (inlet)			60		23
						32 Bit Integer	10³ ₩h		Energy	0004
						32 Bit Integer	10 ⁻³ m ³		Volume	0006
						32 Bit Integer	10 ⁻³ m ³		Volume	0008
						16 Bit Integer	C		Flow Temper	∆000
						16 Bit Integer	C		Return Temp	000B
						16 Bit Integer	10-1 K		Temperature	000C
						32 Bit Integer	hours		On Time	000D
						32 Bit Integer	hours		Operating Time	000F
						32 Bit Integer	10 ⁻³ m ³ /h		Volume Flow	0011
						32 Bit Integer	10 ¹ ₩		Power	0013
						32 Bit Integer	time & date		Time Point	0015
						32 Bit Integer			Units for H.C	0017
						32 Bit Integer			Units for H.C	0019

After adding meters' configuration, the meters' information will be showed as below.

There are some labels to record the meters' information for user's reference. User can find the meaning of the labels in the following section.

4.1 Serial

The "Serial" column records serial number of meters. Each meter that complies with the EN-13757 specification will have a set of 8-digit serial numbers, while meters that comply with the CJ / T-188 specification will have a set of 14-digit serial numbers. The meter serial number will be displayed in each meter data in the first column of the "Serial" field.

EN-13757	CJ/T-188
Serial 10153802 01006089	Serial 00380000001

4.2 Protocol

The "Protocol" field is used to indicate which specification of the meter following. GW-7828 supports two protocols EN-13757 and CJ/T-188.

EN-13757	CJ/T-188
Protocol	Protocol
EN-13757	CJ/T-188

4.3 Address

The "Address" field is expected to record address of the meter, which is reserved now.

4.4 Medium

The "Medium" field records medium of meters. It will show the medium of meters according to the definition in EN-13757 protocol or CJ/T-188 protocol.

Medium
7. Water
12. Heat (inlet)

4.5 Value

The "Value" field records value type of meters' data. It will show the value type of meters' data according to the definition in EN-13757 protocol or CJ/T-188 protocol.

Value
8 digit BCD
8 digit BCD
32 Bit Integer
32 Bit Integer
32 Bit Integer
16 Bit Integer

4.6 Unit

The "Unit" field records unit of meters' data. It will show the unit of meters' data according to the definition in EN-13757 protocol or CJ/T-188 protocol.

Unit
10 ⁻³ m ³
10³ ₩h
10 ⁻³ m ³
10 ⁻³ m ³
C
C
10-1 K
hours
hours
10 ⁻³ m³/h
10 ¹ ₩
time & date

4.7 Cycle

The "Cycle" field records the minimum cycle time (unit is sec.) for polling all meters' data. Please be noted that the cycle time parameter is for all meters of the M-Bus network.

Cycle	
60	

4.8 Description

The "Description" field records meaning of meters' data. It will show the real meaning of meters' data according to the definition in EN-13757 protocol or CJ/T-188 protocol.

Description
Fabrication No
Yolume
Energy
Yolume
Yolume
Flow Temper
Return Temp
Temperature
On Time
Operating Time
Volume Flow
Power

4.9 Register

The "Register" field records the total word count and the Modbus address of every data at GW-7828. Take the below as an example, this is a water meter (Medium) of EN-13757 protocol (Protocol) with serial number 10153802 (Serial). It has total 4 words data length (Register) and 1st data is 8 digit BCD type (Value) from Modbus address 0x0000 ~ 0x0001 (Register) and 2nd data is also 8 digit BCD type (Value) from Modbus address 0x0002 ~ 0x0003 (Register). The GW-7828 will update the meter data as fast as per 60 second one time (Cycle).

	Folder	Serial	Protocol	Address	Medium	¥alue	Unit	Cycle	Description	Register
•	1	10153802	EN-13757	1	7. Water			60		4
						8 digit BCD			Fabrication No	0000
						8 digit BCD	10 ⁻³ m³		Yolume	0002

Note: If GW-7828 updates all meters data faster than setting cycle time 60 second, the all meters data will be update every 60 second. But if slower than 60 seconds, GW-7828 will update all meters data as soon as possible.

Appendix A. Firmware Update

The firmware on the GW-7828 module can be updated via COM Port. The latest firmware file (*.fw file) and the latest version of the firmware update utility (FW_Update_Tool.zip) are available from the web link below. A notification will not be sent when a new version is released.

http://ftp.icpdas.com.tw/pub/cd/fieldbus_cd/m-bus/gateway/GW-7828/firmware/ http://ftp.icpdas.com.tw/pub/cd/fieldbus_cd/m-bus/gateway/GW-7828/software/

Following shows the firmware update process for GW-7828 using firmware update utility.

Step 1: Move DIP switches to the firmware update mode (Init ON) and reboot the module.

Step 2: Run firmware update utility, FW_Update_Tool_vX.XX.exe (X denotes version number).

FW_Update_Tool v1.07	×	
1. Download Interface COM COM Port : C USB COM1	www.icpdas.com	
– 2. Firmware Path D:\GW-7828_100.fw	Browser	
3. Firmware Update Click "Firmware Update" button to start firmware updating !! Firmware Update		
	Exit	

• Download the Firmware:

- (1) Click the "**Browser...**" button to select the location of the firmware file. The name of the firmware file is GW-7828_XXX.fw (X denotes version number).
- (2) Click the "Firmware Update" button to being the firmware update process. Once the firmware has been successfully updated, a notification "Firmware Update Success" will be displayed.

Appendix B. Revision History

This chapter provides revision history information to this document.

The table below shows the revision history.

Revision	Date	Description
1.0.0	January 2020	First Release