HRT-711 Quick Start Guide

1. Introduction

The hardware wiring and detailed operation of HRT-711, users can refer to the user manual in the ICP DAS companion CD-ROM (CD:\hart\gateway\HRT-711\manual\HRT-711 usermanual.pdf").

The quick start is used to help users quickly understand HRT-711 how to convert Modbus communication to HART. The below demo will use a HRT-711 module (as HART master), one HART slave device and one PC to make a simple application as below Figure 1. The PC is prepared for the setting and operation of HRT-711.



Figure 1: Application example

2. Hardware configuration

Pin Assignment:



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Pin Name	Group	Description		
HART+		Positive of HART		
HART-		Negative of HART		
+VS	Dowor Sourco	V+ of Power Supply(+10 ~ +30 VDC)		
GND	Fower Source	GND of Power Supply		
TXD		Transmit Data of RS-232		
RXD	Configuration	Receive Data of RS-232		
GND		GND of RS-232		
E1	Modbus/TCP	Ethernet RJ45 connector for Modbus/TCP		

DIP Switch:

If user set the DIP switch in the backplane of HRT-711 to be "Default" position, HRT-711 will run in the default mode.



Jumper:

Jumper	Description
JP2	Enable/Disable hardware WDT. (Default setting is enable)
	NOTE: Please do not disable the hardware wDT.
102	For updating firmware. (Default setting is on 1 and 2)
JFJ	NOTE: Please do not switch to 2 and 3 when in normal operation.
JP4	The jumper can provide HART bus with 250 Ω (1/4 W) resistor. When the pin 1&2 of JP4 is closed, the resistor will connect to HART bus. When the pin 2&3 of JP4 is closed or JP4 without jumper connected, it will disconnect the resistor from HART bus. By default, the pin1&2 of JP4 is closed

LED Indicator:



LED	Status	Description			
	Dlink	Blink every 0.2 second : Receiving Ethernet packet			
ETH	BIINK	Blink every 3 second : The network function is normal			
	Off	Ethernet Error			
		Blink every 1 second :			
		The HRT-711 is in the initialing procedure			
	Blink	Blink every 0.5 second :			
HART		The HRT-711 is handling the burst frame sent from HART			
		device			
	Solid	The HRT-711 is in the normal status			
	Off	Firmware is not loaded			
EDD	Blink	HART communication error			
	Off	HART communication is good			

RS-232 connection:

Without CA-0910





HART network wiring:



3. Install HG_Tool Utility

[Install .NET Compact Framework]

(1) When executing utility, the .NET Framework 2.0 or above must be installed first. If the .NET Framework 2.0 or above exists in the PC, please omit the step.

(2) User can download and Install .NET Compact Framework from the below website.

Microsoft .Net Framework Version 2.0: <u>http://www.microsoft.com/downloads/details.aspx?FamilyID=0856eacb-4362-4b0d-8edd-aab15c5e04f5&DisplayLang=en</u> Microsoft .Net Framework Version 3.5:

http://www.microsoft.com/downloads/details.aspx?familyid=333325FD-AE52-4E35-B531-508D977D32A6&displaylang=en

[Install HRT-711 Utility]

(1) Users can download the installation file of "HRT-711 Utility" from the CD- ("CD:\hart\gateway\hrt-711\utilities\") or ICP DAS web site: "ftp://ftp.icpdas.com.tw/pub/cd/fieldbus_cd/hart/gateway/hrt-711/utilities/"

(2) Execute the "HRT-711 Utility x.x.x.exe" file to install the utility.

(3) After finishing the installation of the HRT-711 Utility, users can run the utility. (refer to the path in the below figure)

ICPDAS		(C) (M)				
tellage		B 108,740				
Boordig Technology, Inc.		access				
C Mound MC Paperod ICE -11		B Rad Then have 1				
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Based He		C Martine Table				
C Record Straight		mo-case				
Record Social 198		E 108-1214				
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4. Communication test

Step 1: Connect PC, HRT-711 and HART slave device according to figure1.

Step 2: Swtich the DIP switch to the "Init" position.

Step 3: Turn on the power of the HRT-711.

Step 4: Wait for the "HART" LED indicator to be always on status. If the led always flashes, please check the HART network wiring. It means the HRT-711 can't connect to the HART slave devices.

Step 5: Execute the HRT-711 utility.

Step 6: Click "HART to Modbus"

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Please click t	he following figure for related configuration
Ethernet	
HART	

Step 7: Select HRT-711 and ComPort in the communication settings.

*	Communication Settings	Device Information	Device Configuration
Com Port Setting Device : HRT-711 Setting Port Num : COM1		OK Car	ice vostic
Connect Disconnect	Through Mode	Format Translation	

- Step 8: Click "Connect" button.
- Step 9: Wait for the traffic light changes into "green" light. If the traffic light always keeps in the "yellow" light, it means the PC can't connect to HRT-711, please check the RS-232 connection.
- Step 10: Click the "Device Information" icon. Then select the default command or user command and right-click the mouse to choose the "Basic Operation" option to get the information of the corresponding HART command.



The information of HART command 0

- Step 11: Close all window to back to the main form in Step 6, and then click the Ethernet to configure network.
- Step 12: Switch the DIP switch to the "Normal" position then power cycle the module.
- Step 13: When the Ethernet LED on the RJ-45 is on, click Search Servers to search all ICPDAS devices.
- Step 14: Double click HRT-711 in the list to assign network parameters. Then click OK to apply new setting when finish configuration.

Configure Server (I	IDP)					
Server Name :	HRT-711					
DHCP:	0: OFF	•	Alias:	HRT-711	(7 Chars)	
IP Address :	192.168.255.1		MAC:	00:0d:e0:8f:ff:ff		
Sub-net Mask :	255.255.0.0		Warning!!			
Gateway :	192.168.0.1		correct co	nfiguration befor	re any chang	get jing!
				ОК	Canc	el

Step 15: Users now can read HART device process variable from Modbus. There are many Modbus/TCP client software to test. (Ex: <u>Modbus</u> <u>Utility</u>) The following figure is an example to read Cmd 3 process variables.

MBICP Ver. 1.1.4		X				
ModbusTCP IP: 192.168.255.1 Port: 502 Connect Disconnect Data Log	Protocol Description FC1 Read multiple coils status (0xxxx) for D (Prefixed 6 bytes of Modbus/TCP protocol) Byte 0: Transaction identifier - copied by Byte 1: Transaction identifier - copied by Byte 2: Protocol identifier=0 Byte 3: Protocol identifier=0 Byte 4: Length field (upper byte)=0	IO V server - usually 0 server - usually 0				
Polling Mode (no wait) Start Stop Timer mode (fixed period) Interval 100 ms Set Start Stop	Statistic Packet Command Quantit Total Packet bytes 12 Packet Quantity sent 1 0 0 Polling or Timer mode (Date/Time) Start time Start Time Stop time Stop Time	Clear Statistic y Response Total Packet bytes 29 Packet Quantity received 1 Polling Mode Timing (ms) Max 0 Min 1000 000				
[Byte0] [Byte1] [Byte2] [Byte3] [Byte4] [Byte5] 1 2 0 0 0 6 1 4 5 14 0 a [Byte0] [Byte1] [Byte2] [Byte3] [Byte4] [Byte5] [Byte0] [Byte1] [Byte2] [Byte3] [Byte4] [Byte5] [D1 02 00 00 00 06> 01 04 05 14 00 0A [D1 02 00 00 00 06> 01 04 05 14 00 0A						
Clear	Lists	EXIT Program				