M2M RTU Center

User Manual

Warranty

All products manufactured by ICP DAS are warranted against defective materials for a period of one year from the date of delivery to the original purchaser.

Warning

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Chapter 1 Introduction

The M2M RTU Center provided by ICP DAS is a M2M (Machine to Machine) management software that has a strong core technology for handling data and lets the user save the trouble of dealing with large IO data. The RTU Center supports the G-4500 RTU, GT-540 and other RTU products in ICP DAS that allow users to manage these RTU devices remotely. It can monitor the local IO data, local GPS data and IO data of Modbus RTU modules. With M2M RTU Center software, users can establish the remote system by the OPC Client of user's SCADA software with our NAPOPC DA Server or EZ Data logger software of ICP DAS. That provides an easy way to complete user's project.

NAPOPC.M2M OPC Server is a free OPC DA Server (The "OPC" stands for "OLE for Process Control" and the "DA" stands for " Data Access") provided by ICP DAS. EZ Data Logger is small data logger software. It can be applied to small remote I/O system. With its user-friendly interface, users can quickly and easily build a data logger software without any programming skill.

The M2M RTU Center with G-4500 RTU or GT-540 applications can be divided into 2 parts: One part is the fixed intelligent remote management equipment such as water monitor system, vending machine system, remote machine monitor, home security, POS system, power measurement system and etc. Another kind of application is movement management equipment such as vehicle management system, maritime system, taxi dispatch system, and etc. Anyway, the M2M RTU Center can save the cost and development time for users.

Features:

- RTU series Management tool
- Up to 10 M2M RTU devices can be managed in one RTU Center software in free version.
- Up to 1024 M2M RTU devices can be managed in one RTU Center software in official version.
- Help users to connect to any Modbus device to GPRS/Ethernet by M2M RTU devices
- Easy and quick to build a Remote monitor system
- Windows-based software
- Support NAPOPC.M2M server, EzDatalog and M2M API tool of ICP DAS

RUN-TIME LICE	NSE
Free Version	Up to 10 M2M RTU devices can be managed in one RTU Center software.
Official version	Up to 1024 M2M RTU devices can be managed in one RTU Center software.
To order M2M RT	II Center license please contact your distributor

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Chapter 2 Hardware Requirement

2.1 Software architecture

When users want to use the following software or others to their system with RTU products of ICP DAS, M2M RTU Center must be executed at the same time.

Device	Description
NAPOPC.M2M	OPC server
EZ Data Logger software	Version 4.24 or higher
.NET Framework software	Version 2.0 or higher







2.2 Application architecture

2.3 System requirement

• Software requirement:

Operating system Version	Support
Windows 2000	\checkmark
Windows XP	\checkmark
Windows 7	\checkmark
Windows 10	\checkmark

• Hardware requirement:

Hardware Items	Requirement
CPU	1.0 GHz or higher
Memory	512 MB or higher
Hardware space	100 MB or higher
Other	CD-ROM or DVD-ROM

Support Hardware

Product Type	Description
G-4500 Series RTU	Intelligent GPRS Remote Terminal Unit
GT-540	Smart GPRS Remote Terminal Unit
GRP-540	4G Gateway

Flowchart for using RTU devices



Chapter 3 Installing .NET Compact Framework

It needs the runtime environment with .NET Framework 2.0 or above to execute the M2M RTU Center in the PC. If there has .NET Framework 2.0 or above in the PC, the section 3.1 can be omitted.

Microsoft .Net Framework Version 2.0:

http://www.microsoft.com/downloads/details.aspx?FamilyID=0856eacb-4362-4b0d-8edd-aab15c5e04f5&DisplayLang=en

Microsoft .Net Framework Version 3.5:

http://www.microsoft.com/downloads/details.aspx?familyid=333325FD-AE52-

4E35-B531-508D977D32A6&displaylang=en

The install figure is as follows:

Press "Next" to the next step.

Microsoft .NET Framework 2.0 Setup	
Welcome to Microsoft .NET Framework 2.0 Setup	
This wizard will guide you through the installation process.	
	Next > Cancel

 Select the "I accept the terms of the License Agreement" and "Install" to the next step.

M2M RTU Center User Manual

End-User License	e Agreement			~
MICROSOFT SOFT	WARE SUPPLEMENT	AL LICENSE TERMS	(
validly licensed cop	y of the software.	ou may use a copy		. viin each
				Print

The installation process would be going



• After finishing the installation, press "Finish" to exit the program.

🖗 Microsoft .NET Framework 2.0 Setup	
Setup Complete	
Microsoft NET Framework 2.0 bas been successfully installed	
Pilet osoit and i francework 2.0 has been successfully installed.	
It is highly recommended that you download and install the latest service packs and security updates for this product.	
For more information, visit the following Web site:	
Product Support Center	
	Finish

Chapter 4 RTU Center operation

OPC Server: Launch M2M RTU Center from the start menu "Start \rightarrow All Programs \rightarrow ICPDAS \rightarrow ICP DAS OPC Suite \rightarrow NAPOPC.M2M \rightarrow M2M_RTU_Center".

4.1 Main menu

The main menu of RTU Center includes the following sections:

Tool Menu 🛛 📥	RTU Center				
	<u>File Settings H</u> elp				
8 Function Items		🖹 💙 🌏	🔮 🔗 🙋		
	···· 😝 🔢		Parameter	Status	
			Device Name Module	16 GT-540	
			Station ID	16	
			Describe		
Station	_				
Information					
information					
Deteiled					
Detalled					
Information <					
	Date / Time	Message			
	2010/02/12 15:15:31	Server Started(Local IP: 19	92.168.0.104, Local PORT: 10000)		
Connection					
•••••••					
information					
Status Line 🗲	Server Started Local IP: 192	1.168.0.104 Local PORT: 10000			
Status Lille		1			

Tool menu:

- File: Save or open station information of the user.
- Settings: Modify the local IP or local Port.
- Help: Describe the version of RTU Center and other information.

8 function items:

- Open file: Open the station information of the user.
- Save file: Save the station information of the user.
- New Device: Add a new device.

- Delete Device: Delete the assigned device.
- Modify IP: Modify the local IP
- Modify Port: Modify the local Port
- About: The version of RTU Center and other information.
- Exit: Exit the RTU Center.

Station Information

Manage total stations interface. It will turn green light from red light when the station connect to RTU Center successfully.



Detailed Information

It shows the detailed information when you select one module

jie Setinge Help	ک چے چ	
1 😝 16	Parameter	Status
Local IO	Modbus Module Name	Local IO
M-7080B	Modbus Slave ID	255
M-7051	Date&Time	2010/01/11 14:43:13
M-7045	DI Count	3
W TOTO	DO Count	3
- M-7024 -	Al Count	8
M-7017C	AO Count	0
	Counts	0
	Data Valid	1
	DIU	1
	DI1	U
	012	0
•	D00	1
Note of a second state	001	0
select one module	AID	76
	AI1	- Chi Bh
	AD	Bh Dotailed information
	AB	
	AIA	6h
	AIS	6h
	Al6	6h
	AI7	6h
	CDC	\$CREMC 000014 027 V 2451 7053 N 12100 9834 E 0.00

Connection Information

Total stations connect to RTU Center information.

Status Line

Show the related information during the operation procedure including:

- The status of Server of PC
- The local IP of PC
- The local Port of PC

4.2 NEW Device

It adds a new device. The description is below:

(1) Choose Function Item > New Device.

File Settings	Help		_				
0		Ê	7		\checkmark	C	
6				Paramete	er	1	Status
				Device Na	ame		16
				Module			GT-540

(2) Device Properties

Device Maille		🥪 ок
Module Setting		
Module	3-4500 💌	Cancel
Station ID	(1 ~ 65535)	
Describe		

Text field:

<1> Device Name: Input your Device name

<2> Module: Select your connection module like G-4500 or GT-540...etc.

<3> Station ID: Input the station ID. It can't repeat the same station ID in the RTU

Center. The station ID must match your connection module. (Range: 1 ~ 65535)

<4> Describe: It shows in field of "Detailed Information"

Operation:

<1> OK: Exit the window and add a new device

<2> Cancel: Exit the window and don't add

(3) It will add to "Station Information" after press the "OK" button

4.3 Delete Device

It deletes a device. The description is below:

(1) Select the device that you want to delete.

File Settings	Help						
P		Ê	3		\checkmark	U	
€16				Paramete	er	N.	Status
(2.500 (2.000))				Device Na	ame		16
				Module			GT-540

(2) Choose Funcion Item > Delete Device.

file <u>S</u> ettings	<u>H</u> elp						
B		Ê	7		\checkmark	6	
@ 16				Paramete	ər	N.	Status
				Device Na	ame		16
				Module			GT-540

4.4 Modify IP

192.168.0.104

Text field:

<1> Local IP: Show your old IP address

<2> Modify IP: Show your new IP address

Operation:

- <1> Modify: Exit the Modify IP window and modify the IP address
- <2> Cancel: Exit the Modify IP window and don't save

4.5 Modify Port

Modify Port :	
L	

Text field:

<1> Local Port: Show your old Port address.

<2> Modify Port: Show your new Port address.

Operation:

<1> Modify: Exit the Modify Port window and modify the Port address.

<2> Cancel: Exit the Modify Port window and don't save.

4.6 Control module I/O

It controls an IO of module. The description is below:

(1) Double-click the module that you want to control, like Local IO or M-7000 module.

He Settings Hein					
	A 🕥 🙆		5		
Local IO M-7051 M-7045 M-7016 M-7024 M-7017C		Parameter Modbus Module Name Modbus Slave ID Date&Time DI Count DO Count AI Count Counts Data Valid DI0 D11 D12 D00 D01 D02 AI0 AI1 AI2 AI3 AI4 AI5 AI6 AI7	Status Local IO 255 2010/01/11 3 8 0 1 1 0 1 0 1 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 1 0 1 1 1 1 1 1 1 1 0 1 0 <tr< td=""><td></td><td></td></tr<>		
		GPS	6n \$GPRMC,000014.027,∨	,2451.7053,N,12100.9834,	
Control DO 🗲	-Write Digital Output (Red Led: ON,	Oray Led: OFF)	D0 4. D0 5 D0 12 D0 13	D0 6 D0 7 D0 14 D0 15	Exit
	Read back Output value	Read back Output value	Read back Output value AO 2 (Hex) Read back Output value AO 6 (Hex)	Read back Output value AO 3 (Hex) Read back Output value AO 7 (Hex)	
	Read back Output value AO 8 (Hex) Read back Output value AO 12 (Hex)	Read back Output value AO 9 (Hex) Read back Output value AO 13 (Hex)	Read back Output value AO 10 (Hex) Read back Output value AO 14 (Hex)	Read back Output value AO 11 (Hex) Read back Output value AO 15 (Hex)	
	Counter 0: 00000	0000 Set Zero	Counter 1: 00000	00000 Set Zero	
	Counter 2: 00000	00000 Set Zero	Counter 3: 00000	00000 Set Zero	

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Control DO: If your module had DO counts, you can control them.

Text field

<1> DO0 ~ DO15 :

♦ Red: the voltage logic is high

♦ Gray: the voltage logic is low

 $\diamond\,$ Disable: your module doesn't have this DO count.

Operation

<1> DO0 ~ DO15 Gray : Set the DO output on

<2> DO0 ~ DO15 Red : Set the DO output off

Control AO: If your module had AO counts, you can control them.

Text field

<1> Read back AO0 ~ AO15: Get the AO value.

<2> Output Value AO0 ~ AO15: Want to set the AO value.

Operation

<1> AO0 ~ AO15 : Set the AO value

Control Counter: If your module had Counter counts, you can control them.

Text field

<1> Counter0 ~ Counter7: Get the Counter value.

Operation

<1> Set Zero Coutner0 ~ Set Zero Coutner 7 : Set the counter value to zero

4.7 Modify the module parameters

M2M RTU Center		
<u>File Settings H</u> elp		
🖻 🗟 💣 🄇	, 🌏 🔗 🙋	
<u> </u>	A Parameter	Status
₽ ⊖2	Device Name	2
💮 3 Parameters	Module	G-4500
6 4 Close the connection	Station ID	2
	Describe	
	Connected Priority	Only Ethernet
- m 7	Connected Mothod	Ethernet
68	Date&Time	2010/06/02 09:30:43
<u> </u>	Remote Client IP	192.168.0.98
	Remote Client PORT	3413
A 11	Send once time (unit: sec)	5
	Heartbeat time (unit: sec)	0
	Modbus module num	5

• Parameters

(1) Right-click the module that you want to modify and select the "Parameters" item.



Modify Station ID: Modify the station ID of the module. Text field

<1> Old Station ID: the old station ID of module.

<2> New Station ID: the New station ID of module.

Operation

<1> Save to Device : Set the new Station ID to the assign module.

Modify Update Interval: Modify the Update Interval of the module. Set module report time interval. The module calculate time interval according to report base time. (Unit: sec)

Text field

<1> Old Update Interval: the old Update Interval of module.

<2> New Update Interval: the New Update Interval of module.

<3> Old Heartbeat Time: the old Heartbeat Time of module.

<4> New Heartbeat Time: the New Heartbeat Time of module.

Operation

<1> Save to Device : Set the new Update Interval to the assign module.

(3) Device Time

Parameter- 16		×
Main Parameter Device Time		Exit
Device Time Device Time: 2010/01/11 14:43:13	Command Set	Set as Now

Text field :

Device time: show the time of module. Users also can change the time in this field to key in the specific time.

Operation:

- (1) "Set as Now": Set the PC time to module. After setting the time successfully, the information of module time.
- (2) Set: Set the module time according the "Device Time" field. After setting the time successfully, the information of module time would be updated.

\cdot Close the connection

(1) Right-click the module that you want to modify and select the "Close the connetion" item.

(2) Close the assign connection.

-10032302.CSV	Parameter	Description	Defrech File Nem
-10052507.CSV	File Name	10032302.CSV	Refresh File Name
-10052508.CSV	File Size (Unit: byte)	2248	
-10041500.CSV			
-10032900.CSV			Save File
00010100.CSV			
-10033000.CSV			
-10033001.CSV			
-10040100.CSV			Del File
-10040300.CSV			
-10041600.CSV			
-10041700.CSV			
-10041800.CSV			Exit
-10041900.CSV			
-10042000.CSV			
-10042100.CSV			
-10042200.CSV			
- 10042300.CSV			
- 10032901.CSV			
-10042400.CSV			
10042500.05V			-
10042600.057			
File Name list	File parame	ter	

· Upload SD File

(1) Right-click the module that you want to modify and select the "Upload SD File" item.

(2) Upload SD File

Text field

<1> File name list: List all the file names.

<2> File parameter: List this file parameter. Like: File name and File size.

Operation

- <1> Refresh File Name : Refresh the File name list from the remote module.
- <2> Save File : Upload and Save the assign File from the remote module.
- <3> Del File : Delete the assign SD File on the remote module.
- <4> Exit : Exit upload sd file program.

Version Record

Version	Ву	Date	Description
1.00	Yide	2010/02/12	
1.01	Yide	2010/03/28	
1.02	Yide	2010/06/02	
1.03	Bird	2011/11/02	