

ICP DAS Co., Ltd. Technical Document

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• Step 1. Controller COM Port Setting

Controller COM Port Setting 📏

To set up the controller COM port for the serial module.

Please use ICP DAS I/O modules. The default communication values can be found in the Data Sheet, manual or I/O Module web page. Fill in the data according to the port number and module specifications of the actual connected module.

This Example: The UA communication server uses the ttyO2 serial port to connect to the M-7055D module. [UA Serial Port] ttyO2: RS-485; ttyO4: RS-232; ttyO5: RS-485

<u>M-7055D Data Sheet</u> > COM Port data:

COM Port	s					
Ports		1 x RS-485				
Baud Rate		1200 ~ 115200 bps				
Data 格式		(N, 8, 1)				
通知协定	I-7000	DCON				
畑市励た	M-7000	Modbus RTU, DCON				

System Setting Module	Setting IoT	Platform Setting	Convert Setting	Advanc				
I/O Status File Setting								
System Setting COM Port Inter	face Setting							
Controller Service Setting	COM Port	A Port Interface Setting Page						
Time Setting		Serial Port	ttyO2	~				
Network Setting		Baud Rate	9600	~				
Account Setting								
Boot		Data Bits	8 bits	~				
COM Port Interface Setting		Parity	None	~				
Web Secure		Stop Bits	1 bit	~				
EZ-UAQ Utility								
		Silent Interval(ms)	500					
			Save					
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 Step 2. Mo Module S 	dule Setting								
	Thi	s step is t	o set up the Mo	odule tha	at connected v	with the UA S	Series.		
1. Select the 2. Click the [S 3. Select the 4. Click the [serial port: ttyO Gwitch] button to M-7055D modu ①] button to a	2 o change le of the N dd the m	to the [Select T VI-7000 Series. odule.	he Modu	ule] mode.				
Modbus	s RTU Modu	le List							
Serial Port	tt	yO2 🔺	1. Select t	he seria	port: ttyO2				
Import Mod	ule Profile	3. Sel	ect the modu M-7055D	le	2. Click [S	witch] butto	on		
	b.		Module Nam	e / Nickna	ame		Edit		
•	1 ~	5	Select The Modu	le	- G				
	3		M-70	55D		5.	Edit		
5. click [Edit]	button to config	gure the n	nodule content	and the	Modbus map	ping table.			
Module C	ontent Setting			If	use ICP DAS	S module, s	system will		
	No.	3		au Ta	u <mark>to setup t</mark> l a <mark>ble; if not</mark> , u	he Modbus	s Mapping o check the		
	Module Name	M-7055E)	M th	odbus addre e module use	ss or I/O nu er manual.	umber from		
	Slave ID	178			Modbus Mapı Set module	ping Table S in the ord	etting: er of Data		
	Timeout(ms)	500			Model, Star Number, the	rt Address n click "Add"	and Data '.		
	Write Retry	1]	Ex	: M-7055D ha Coil Status	as 8 Data Mo (0x)" (Mapp	odels of "01 ing: DO), so		
Modbus N	Mapping Table	Setting			select Mod Number "8'	el "01", Star ", and click "	rt Add. "O", Add".		
	Data Model	01 Coil S	Status(0x)	~	C	Coil Status(0x)	-		
	Start Address	0			Add	ress 0			
	Data Number	1			Num Tyj	iber 8 pe Bool			
	Create Tables	Add				Edit			
		ν ΠΔς Γο	Itd Technical	Docume	ent				

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Addre	ess Add M-70551	lress: Displa D system au	ay and edit the tomatically se	e Modł ts the	ous M Modb	apping Ta ous Addre	ıble ss N	e. Mapping Tabl	e as follo	ows:		
M	odbus N	/lapping T	Table		Ad	dress	N	lickname	Scali	ing	Bitwise	
	Coil Sta	tus(0x)	Input Sta	atus(1x))	Holding Registers(4x) Input Regis					sters(3x)	
	Address	0	Address	0								
1	Number	8	Number	8								
	Туре	Bool	Туре	Bo	ol							
		Edit		Ed	it							
	Modbu 01 Coil	us Mappir Status(0)	ng Table x)			Addres	S	Nicknam	e So	caling	ı Bitv	
		Tab	ole Display Sl	how	Hide							
	Address	; V	ariable name			Data Type			De	scriptior	١	
	0	DO0				Bool		Me	eeting roo	m Light	A	
	1	DO1				Bool		Rð	&D room L	_ight B		
	2	DO2				Bool						
	3	DO3				Bool						
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• Step 3. OPC UA Connection

OPC UA Connection >

[IoT Platform Setting] > [OPC UA Connection] > [Local Server]

This step sets the OPC UA connection name, port (system default: 48010), login identity... and fill them in according to customer needs. In addition, the UA series supports security verification of certificate private keys and provides OPC UA Server certificates, which can also be set and enabled here.

Server Na	ame	ICPDAS_OPC_UA_Se	erver
F	Port	48010	
Server Certificate			
Common N	ame	Server Name	
Organiza	ation	Organization	
Organization	Unit	Unit	
Loc	cality	LocationName	
Ş	State		
Cou	untry	TW	
Certificate Validity (Ye	ears)	20	
Key Le	ngth	1024	~
Security Setting			
Security Policy	✓ N ✓ Ba ✓ Ba	asic128Rsa15 Sign, Sign and E asic256 Sign, Sign and E	Encrypt 🗸
Jser Identity Tokens			
Anonymous Login	🗹 Ei	nabled	
User Password Login	🗹 E	nabled	
UserName			
Password			
Certificate Login	E	nabled	
		Save	

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• Step 4. OPC	Certificate	Set the C Server/Cli ion. You ca	DPC UA Certifi ient to add cr an skip it if it is	cate for th edentials s not need	ne security and to each othe ded for the pro	d encryption r to enhance oject:	e the security					
 Upload: Obtain the C PC. In this st File format r 	 1. Upload: Obtain the OPC UA Client trust certificate file of the device from the connected party, save it to the PC. In this step, select this file and upload it to the UA controller. File format must be DER. Extension name must be "der / cer / crt". 											
	Trusted Certificate	Select F	File icpdasuaser	ver.der	Upload							
Before using	e.g.	Cert	tificate_19 server.der, as	2.168.2	255.102ta 🙀 icpdas	uaserver.	der					
I/O Status	File Setting	_										
File Setting Project Fil OPC UA C MQTT Cer Log File D	OPC UA Certificate Certificate rtificate		A Server e the File Trusted Certi C UA Server Certi the file to th Trusted Certi ad the file fre	ificate R e contro ificate S om cont	temove temove ller telect File roller townload		Upload					
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Step 5. En Enable Conv In this step, only, please	able Convertin erting Module	ng Modu This step neck the e neck the I/	le o is for enablin nabled box of O one by one	ng the Mc	odbus RTU / O ule. If user wa	PC UA conve nt to enable	rsion. some I/O				
I/O Statu	s File Setting	.ing 101 P	lationn Setting	Convert Settin	ig Auvanceu Se	eung Logger	setting				
Convert Set	ting Modbus RTU (Mast	^{er)}	U Module List		1.	Check					
Modbus T Modbus A MQTT EtherNet/	ICP (Master)	No. 1	*Module Na M-ī	me / Nickname	2. Save	Edit Edit < 1_/1	All Enabled				
Save Pro the Step Box animation va	iect > The se c will show an a anished, the proj	etting of the nimation ect is save	his example is as below pict ed completely	finished ure, that	now. Click the means the pr	e next step [S roject is savir	S ave Project ng. When th				
Step 7. Run Run th This step car Run the proj	the Project e project This a also via the [Sy ect.	step exec stem Sett	cutes the proj ing > Control	ect. er Service	e Setting > Ru	n Project] to	Stop and				
	Run the proje	ect Plea	ase wait.	Run th	ne project	Success.	l				
When the w controller is and back to t	rords " Please w a running new pr the first screen v	ait" disap oject succ view of the	pears, the ne cessfully. Ther e Web UI.	w words 1 the Step	"Success" app Box will disa	pears, that n ppear auton	neans the U natically nov				
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View real-tim Click the men status of each	ne I/O sta u [I/O S I/O of th	atus tatus] > [Modb ne module.	us RTU M	/lodule]	on the	left > M-7	055D to v	view the	real-ti
System Setting	Module	Setting IoT Platf	orm Setting	Conve	rt Setting	Advanced S	etting Lo	gger Setting	
I/O Status	ula	Deleted Cetting							
(Master) No. Name	Serial Port	Number	of variables	10 points per s	second)				
3 M-7055D	ttyO2	Display Updat	e Time (ms)	1000					
< 1 /	1 >	I/O Status					I/O	Scaling	Bitw
Modbus TCP Mod	ule	Variable Name	Data	Туре	Va	alue	Descriptio	on	Statu
(Master) No. Name	LAN	DIO	Bo	lool					G00
1 DL-302] LAN	DI1	Во	lool					G00
< 1 /	1>	DI2	Bo	loc					G00
		DI3	Bo	lool					G00
Modbus ASCII Mo (Master) No. Name	dule Serial Port	DI4	Bo	loc					G00
< 1 /	0 >	DI5	Bo	lool					G00
		DI6	Во	lool					G00
MQTT Module No. Name	LAN	DI7	Bo	lool					Goo
1 MQ-7255	LAN	DO0	Bo	lool		<u>м</u>	eeting room Lig	jht A	Goo
< 1 /	1 >	DO1	Bo	lool		Ri	&D room Light	В	G00

As long as the line wiring and network connection are good and the project executes successfully, the I/O status will display "Good" status. Check the value box of the DO channel (as shown in the blue box in the figure), and the corresponding indicator light of the physical module will also turn on.

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• Verify if the The UA series has If the user wants software " UaExp https://www.unit	e OPC UA Cor s finished setting to verify whethe pert ". Please do fied-automation	the OPC the OPC the OPC wnload th .com/prod	is Correct UA function an CUA conversion ie "UaExpert" s ducts/developr	id viewin n is corre oftware <u>nent-toc</u>	g the I/O data ect, he can use from the offic ols/uaexpert.h	i in the "I/O s the OPC UA ial website: <u>tml</u>	Status" menu. . client			
Operation instructions of the UaExpert software: 1. After setting UA-5231, run the UaExpert										
 After setting UA-5231, run the UaExpert Mouse right-click on Server at the top left of the screen, then click Add. 										
	View Server	Add	t Settings H	elp Data A	Server	Node Id	D			
2. When the foll	owing window a	Advance Filter: No F Local Local Network Microso	lick Advanced PDAS_OPC_UA_S red ilter vork oft Terminal Serv oft Windows Net	erver ices twork						

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3. In the field Endpoint Url, specify the OPC UA Server to be connected											
The format opc.tcp:// is Next is the I The last is th Click OK afte	3. In the field Endpoint Url, specify the OPC UA Server to be connected The format is opc.tcp://192.168.73.30:48010 opc.tcp:// is the fixed beginning format of OPC UA connection; Next is the IP of OPC UA Server, which is the IP of UA-5231; The last is the port, UA-5231 is 48010 by default. Click OK after setting.										
	Configurat	ion Name 🛛	CPDAS_OPC_UA	_Server							

Configuration Name	ICPDAS_OPC_UA_Server						
Discovery Adv	anced						
Server Information							
Endpoint Url	opc.tcp://192.168.73.30:48010]					

Note:

After clicking OK, if the "BadCertificateUntrusted" message is displayed,

click "Trust Server Certificate" at the bottom right, and then click the "Continue" button.

Certific Certific Certific Co C C C C C C C C C C C C C C C C C C	BadCertificateUr	itrusted		
ertifi	cate Chain			
Marr		Truct Statue		
vari	IL Company	PC University		
10	U U U U U U U U U U U U U U U U U U U	-PC Unitastea		
ertifi	cate Details			
Sub	ect			
(Common Name	UaServerC@KM-PC	1	
(Organization	Unified Automation GmbH		
(OrganizationUnit			
1	ocality	Nuremberg	-	
\$	State	Bavaria	1	8
(Country	DE		
1	DomainComponent			
Issu	er	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1		
(Common Name	UaServerC@KM-PC		
(Organization	Unified Automation GmbH		
(OrganizationUnit			
1	ocality	Nuremberg		
\$	State	Bavaria		
(ountry	DE		
1	DomainComponent			
Valia	lity	M-12 No. 11 20 21 2014	-	
1	alid From	Mi 12. Nov 14:20:31 2014	(1)	
Acce	ept the server certific	ate temporarily for this session	Trust Server Certificate]

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4. Specify the module connected with UA Server in the lower-left corner of the screen to view its status

First click the arrow on the left of the module name, as shown as **Circle 1** in the figure below. All the tags of the module will be displayed. Select all tags and mouse drag them to the right window **Data Access View** to see all the tag status. **Note that whether the column of "Statuscode" shows Good.** If not, please check whether the UA-5231 setting is wrong.

• Modbus RTU Example

Project 6	F X	Data Ao	ess Vi	ew						e
🗸 🃁 Project	(3)	# S	rver	Node Id	Display Name	Value	Datatype	Source Timestamp	Server Timestamp	Statuscode
✓		1 UA-	5231	NS2 String MRTU_No.3_M-7055D.Coil_Status.DO0	Coil_Status.DO0	true	Boolean	下午 04:22:36.018	下午 04:22:36.018	Good
🔕 UA-5231		2 UA-	5231	NS2 String MRTU_No.3_M-7055D.Coil_Status.DO1	Coil_Status.DO1	true	Boolean	下午 04:23:06.378	下午 04:23:06.378	Good
✓		3 UA-	5231	NS2 String MRTU_No.3_M-7055D.Coil_Status.DO2	Coil_Status.DO2	false	Boolean	下午 04:20:48.822	下午 04:20:48.822	Good
📁 Data Access View		4 UA-	5231	NS2 String MRTU_No.3_M-7055D.Coil_Status.DO3	Coil_Status.DO3	true	Boolean	下午 04:25:32.062	下午 04:25:32.062	Good
		5 UA-	5231	NS2 String MRTU_No.3_M-7055D.Coil_Status.DO4	Coil_Status.DO4	false	Boolean	下午 04:20:48.822	下午 04:20:48.822	Good
		6 UA-	5231	NS2 String MRTU_No.3_M-7055D.Coil_Status.DO5	Coil_Status.DO5	true	Boolean	下午 04:25:33.821	下午 04:25:33.821	Good
		7 UA-	5231	NS2 String MRTU_No.3_M-7055D.Coil_Status.DO6	Coil_Status.DO6	false	Boolean	下午 04:20:48.822	下午 04:20:48.822	Good
Address Space	×	8 UA-	5231	NS2 String MRTU_No.3_M-7055D.Coil_Status.DO7	Coil_Status.DO7	true	Boolean	下午 04:25:36.081	下午 04:25:36.081	Good
Mo Highlight	~	9 UA-	5231	NS2 String MRTU_No.3_M-7055D.Input_Status.DI0	Input_Status.DI0	false	Boolean	下午 04:29:24.924	下午 04:29:24.924	Good
Root Chiects		10 UA-	5231	NS2 String MRTU_No.3_M-7055D.Input_Status.DI1	Input_Status.DI1	false	Boolean	下午 04:29:24.924	下午 04:29:24.924	Good
MRTU_No.1_M-7026-G		11 UA-	5231	NS2 String MRTU_No.3_M-7055D.Input_Status.DI2	Input_Status.DI2	false	Boolean	下午 04:29:24.924	下午 04:29:24.924	Good
1 & MRTU_No.2_M-7026		12 UA-	5231	NS2 String MRTU_No.3_M-7055D.Input_Status.DI3	Input_Status.DI3	false	Boolean	下午 04:29:24.924	下午 04:29:24.924	Good
MRTU_No.3_M-7055D 2		13 UA-	5231	NS2 String MRTU_No.3_M-7055D.Input_Status.DI4	Input_Status.DI4	false	Boolean	下午 04:29:24.924	下午 04:29:24.924	Good
> Coil_Status.DO0		14 UA-	5231	NS2 String MRTU_No.3_M-7055D.Input_Status.DI5	Input_Status.DI5	false	Boolean	下午 04:29:24.924	下午 04:29:24.924	Good
> Coil_Status.DO1		15 UA-	5231	NS2 String MRTU_No.3_M-7055D.Input_Status.DI6	Input_Status.DI6	false	Boolean	下午 04:29:24.924	下午 04:29:24.924	Good
> Coil_Status.DO2		16 UA-	5231	NS2 String MRTU_No.3_M-7055D.Input_Status.DI7	Input_Status.DI7	false	Boolean	下午 04:29:24.924	下午 04:29:24.924	Good
> Coil_Status.DO3										
> Coll_Status.DO4										
Coll_Status.DOS										
Coil Status DO7										
> Input Status.DIO										
> Input Status.DI1										
> Input_Status.DI2										
> Input_Status.DI3										
> Input_Status.DI4										
Input Status, DI5	\sim	<								>