ibaPDA-Interface-Modbus-Serial

Serial Modbus Interface for Data Acquisition



Quick Guide

Issue 1.0

Measurement and Automation Systems



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Certification

The device is certified according to the European standards and directives. This device corresponds to the general safety and health requirements. Further international customary standards and directives have been observed.

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1 About this guide

This guide describes the configuration of the software interface ibaPDA-Interface-Modbus-Serial.

1.1 Target group

This guide addresses in particular the qualified professionals who are familiar with handling electrical and electronic modules as well as communication and measurement technology. A person is regarded to as professional if he/she is capable of assessing safety and recognizing possible consequences and risks on the basis of his/her specialist training, knowledge and experience and knowledge of the standard regulations.

1.2 Designations

The following designations are used in this guide:

Action	Designations
Menu command	Menu "Logic diagram"
Call of menu command	"Step 1 – Step 2 – Step 3 – Step x"
	Example:
	Select menu "Logic diagram – Add – New logic diagram "
Keys	<key name=""></key>
	Example: <alt>; <f1></f1></alt>
Press keys simultaneously	<key name=""> + <key name=""></key></key>
	Example:
	<alt> + <strg></strg></alt>
Buttons	<button name=""></button>
	Example:
	<ok>; <cancel></cancel></ok>
File names, Paths	"File name", "Path"
	Example:
	"Test.doc"

1.3 Used symbols

If safety instructions or other notes are used in this guide, they mean:

A DANGER

The non-observance of this safety information may result in an imminent risk of death or severe injury:

- By an electric shock!
- Due to the improper handling of software products which are coupled to input and output procedures with control function!

If you do not observe the safety instructions regarding the process and the system or machine to be controlled, there is a risk of death or severe injury!

A WARNING

The non-observance of this safety information may result in a potential risk of death or severe injury!

The non-observance of this safety information may result in a potential risk of injury or material damage!



Note

A note specifies special requirements or actions to be observed.



Important note

Note if some special features must be observed, for example exceptions from the rule.



Тір

Tip or example as a helpful note or insider tip to make the work a little bit easier.



Other documentation

Reference to additional documentation or further reading.

2 Introduction

ibaPDA-V6 offers two kinds of Modbus interface:

- Modbus over TCP
- Serial Modbus
 - Slave COM-port only since ibaPDA-V6.14.0
 - Master and slave COM port since ibaPDA-V6.15.0

This Quick Guide describes how to set up the serial connection.

3 Connecting the serial Modbus

First, you have to setup a COM port for the serial connection.

- Open the I/O manager of ibaPDA-V6 The interface "Serial" is visible in the tree, provided that the Serial Modbus license is enabled in the dongle.
- 2. Click on the interface "Serial"
- 3. Click the button on the right side to add a Modbus COM port.

眼 iba I/O Manager			
i 🗋 💕 📕 🍨 🕩	Hardware	Groups	Technostring Alarms 📳 🖺
 General HPCi Request ibaCapture-CAM ibaFOB-4io-D ibaFOB-6io-S ibaFOB-2io-X OPC Playback Serial TCP/IP ibaLogic TCP/IP VIP fx Virtual Wirtual Wirtual Wirtual 			Add Modbus COM port

ibs

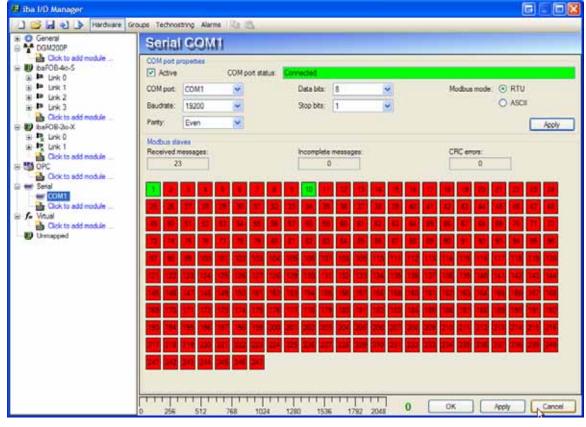
The Modbus COM port will look like this.

😻 iba I/O Manager		×
📄 💕 🛃 🌒 🌗 Hardware Groups	s Technostring Alarms 🎼 🗈	
General HPCi Request	Serial COM1 (Slave)	
	COM port properties Active COM port status:	
	COM port: COM1 V Data bits: 8 V Modbus mode: © RTU O Master	
🗄 🦥 OPC	Baudrate: 19200 🗸 Stop bits: 1 🔽 🔿 ASCII 💿 Slave	
	Parity: Even 🔽 RTU framing: 💿 Auto Apply	וכ
CICK to add module	🔿 Manual: 1 💸 ms	
TCP/IP ibaLogic	Modbus slaves Received messages: Sent messages: Incomplete messages: CRC errors:	
🗄 🔢 Unmapped	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	
	23 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56	
	57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84	
	85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112	
	169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196	
	197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224	
	225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247	
	0 256 512 768 1024 1280 1536 1792 2048 128 OK Apply Cancel	

Currently it is not active. You first have to setup all the COM port properties (port number, baudrate, parity, data bits and stop bits). You also have to choose between Modbus RTU and Modbus ASCII. Once everything is setup you can click the Apply button to apply the settings. The ibaPDA server will open the COM port and start listening to messages on the port.

4 Setting up a Modbus slave COM port

Once the port is active you will see something like this (example slave COM port):



The COM port status is reported at the top. In the Modbus groupbox you get some diagnostics about the Modbus messages coming in. The grid shows the status of all 247 possible modbus slaves. A red square means that there have been no messages received for that slave in the last minute. A green square means that there have been messages received for that slave.

5 Setting up a Modbus slave module

Now you can add a Modbus slave module.

👪 iba I/O Manager										
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General DGM200P	М	odbus slave (0))							
ibaFOB-4io-S	Click to add module									
i∎ ⊫ Link 0		Basic								
∎		Locked	False							
i∎ link 2 ∎ link 3		Enabled	True							
Click to add module		Name	Modbus slave							
ibaFOB-2io-X		Module No.	0							
ian ibar ob-200×		Timebase	1 ms							
∎ Ink 1		Show gain and offset	True							
Click to add module		Modbus								
OPC		Slave address	1							
Click to add module		Module Layout								
🖃 🛲 Serial		No. analog signals	32							
⊨		No. digital signals	32							
Modbus slave (0)										
Click to add module										

On the general tab of the Modbus slave module you have to enter the slave address of the slave you want to measure. IbaPDA acts as an active Modbus slave for that slave address. This means that ibaPDA will process the messages and send responses to the Modbus master. You can create multiple Modbus slave modules with the same slave address. On the general tab you can also specify the number of analog and digital signals of the module.

😝 iba I/O Manager								8 - 80
🗋 🈂 🛃 🌒 🌛 Hardware	Groups Technostring Alarms 🚵 🙇		_	_	_	-	_	
B O General B T DGM200P	Modbus slave (0)							
Click to add module	General 🔨 Analog 🔟 Digital							
H P Link 0	Name	Unit	Gan	Offset	Register	DataType	Active	Actual
(a) In Link T	0	10000	1 3	1 0	0	E 🗢 100	2	0
III III Link 2	1		11	1	0	1 DAT		1
Gick to add module	2			1 0	0	2 INT		1
B B baF06-2s X	3			1	0	DID C		1
田 戦 Link 0	4			1	0	4 p/T		256
Enk 1	5			1	0	5 DVT		0
B CPC	6			1	a	6 INT	2	0
Cick to add module	7		1 .	1 3	0	7 ptr		0
E Serial				1	0	8 21/7	2	0
Matus sine (5)	9			1	0	9 INT		0
Click to add module	10			1	0	10 INT	R	0

You have to specify the register number and datatype for each analog signal. The register number has to be between 0 and 65535. ibaPDA supports BYTE, INT, WORD, DINT, DWORD and FLOAT datatypes. The registers are 16 bit registers. So an INT signal occupies 1 register and a FLOAT signal occupies 2 registers. When you click the Register column header the register numbers will be incremented automatically from

8

the selected line in the grid to the last line in the grid. The actual column shows the current value for each signal.

🛿 iba I/O Manager			- 0	×	
🗋 🥁 🛃 🌛 Hardware	Groups Technostring Alarms 🖓 🙇			-	
B General B T DGM200P	Modbus slave (0)				
Click to add module	General Analog J Digital				
B P Link 0	Name	Btno.	Active	Actual	2
(a) 🏴 Link T	0	0	-		1
III III Link 2	1	1		.0	l
s P Lik 1	2	2		ò	
Gick to add module B BaFO6-2s X	3	3		0	
H B Lik 0	4	4	2	1	
윤 岐 Link 1	5	5	the later day in the later day	0	l
Click to add module	6	6	and show on the local division of the local	1	
Click to add module	7	3		0	
a 💷 Setal	1	3		1	
🖹 📾 COM1 Moctus alave (D)	9	9	a second s	0	
Click to add module	10	10		0	

The digital signals only require a bit number. The bit number has to be between 0 and 65535. When you click the bit number column header the bit numbers will be incremented automatically from the selected line in the grid to the last line in the grid.



6 Setting up a Modbus serial master

The Modbus COM port can be switched between master and slave mode via radio buttons.

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E C General C HPC Request	Se	ria	IG	QM	H)	M	isi(er)																
B Click to add module	COM port properties																							
B la Link 1	COM	pot	00	M1					1)ata b	es: [8				Modb	us mod	ie: (0 R1	ru -	۲	Mast	er ┥	•
i ⊯ III Link 2 iii III Link 3	Baue	inter	192	00		×				itop b	ts: [1			-			(D AS	CII	0	Slave		
Cick to add module B 6aL28-4.8	Part	Y;	Eve	00		Y																1	A	aply
Becze w Becze w		bus sh sived i S	nessa	ges:			Sent n	nessa 18	8000 i	ĩ			10075	olete m D	09999	yea:		o [RC on	pra: Q		1		
Reflective Memory 5555	1	2	3	4	5	g	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Cick to add module	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	48	47	48
😑 🐖 Setal	49	50	51	52	53	54	35	56	57	58	58	50	61	权	61	64	貊	55	67	68	69	70	71	72
COM1 (Master) Modbus slave 10 (1)	73	74	75	76	77	7章	79	90	81	82	83	84	85	BG	87	88	89	30	91	92	93	94	95	55
						the second se		_				-			_	_				-				

If the COM port is in slave mode then ibaPDA responds to requests from the Modbus master. If the COM port is in master mode then ibaPDA will periodically send requests to the Modbus slaves that have been configured.

The screenshot above shows ibaPDA as Modbus master with 2 configured slaves: 10 and 20. A slave can be in following states:

State	Master mode	Slave mode
Connected (green)	The slave responds to the peri- odic requests from pda.	The master is sending peri- odic requests to pda.
Disconnected (red)	The slave does not respond to pe- riodic requests from pda.	The master doesn't send any requests to this slave.
Disabled (gray)	This slave is not configured.	This slave is not configured.

7 Support and Contact

Support

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Note

If you require support, specify the serial number (iba-S/N) of the product.

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