Appendix E Using the KEP*Direct* OPC Quick Client

In This Appendix....

- Creating a KEPDirect Quick Client Project

- Using the RJ12 Serial Port in ASCII Mode

Creating a KEP Direct Quick Client Project

KEP**Direct** Quick Client can be used to assist in the test and development of KEPware's OPC Data Access 1.0 and 2.0 Servers.

Connecting the Client to the OPC Server A server connection provides a link between the Quick Client and the KEP **Direct** OPC server. To add a server connection to the Quick Client, you can use either the Edit menu>New Server Connection or click on the New Server icon in the toolbar menu.

COPC Quick Client - Untitled File Edit View Iools Help Color Content of the second s	Server Properties	
	Registered Servers: Image: Control of the servers version 1.0 Image: Control of the servers version 2.0 Image: Control of the servers version 2.0	Value Timestamp
Ready	OK Cancel Help	Item Count: 0

Specify the Prog ID of the OPC Server the client should connect to. You can browse for registered servers by expanding any of the branches. Double–clicking on any registered server will automatically update the Prog ID field. For more information on the registered servers, click on the **Help** button to display the "Server Connection" section of the on–line help file. Once a connection to the OPC server has been established, additional "Server Operations" can be accessed by right clicking on the highlighted server in the right window column or by using the **Tools** menu>Server selection.

Creating a Client Group A group is used to organize a collection of items with a common set of properties. To add a Group to the Quick Client, you can use the <u>E</u>dit menu>New Group or click on the **New Group** button in the toolbar menu.

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Eile Edit View Iools Help Group Prop	erties		×
General General			1 Timestamp
_			
<u>N</u> ame:	mygroup		
Update	<u>B</u> ate (ms.): 100		
Time <u>B</u> i	as (min.): 0		
Percent	Deadband: 0		
Langua	ge ID: 1033		
Update	Notification: OPC 2.0	▼ ✓ Active State	
Ready		OK Cancel	Help

A The group specifies the following properties: group <u>Name</u>, <u>Update <u>Rate</u></u>, <u>Time</u> <u>Bias</u>, <u>Percent</u> <u>D</u>eadband, <u>Language</u> ID, <u>Active</u> State and the typeof data connection that should be made to the server. For detailed information on the group properties, click on the <u>Help</u> button to display the "**Group**" section of the on–line help file. Once a Group has been created, additional "Group Operations" can be accessed by right clicking on the highlighted branch Group or by using the Tools menu>Group selection.

Selecting a Group Item

Items represent data that may be accessed via the OPC server. An item specifies the following properties: **Access Path**, **Item ID**, **Data Type** and **Active** state. For detailed information these properties, click on the <u>Help</u> button to display the **Item** section of the on–line help file. To add an **Item** to the Quick Client Group, you can either use the Edit menu>New Item or click on the New Item icon on the toolbar.

& OPC Quick Client - Untitled *		- IX
<u>E</u> ile <u>E</u> dit ⊻iew <u>I</u> ools <u>H</u> elp	Add Items 🗙	
► C KEPServet x.V4	Item Properties OK	
Howare.KEPServerex.V4	Access Bath: Cancel	iestamp
	Item ID: Channel1.Device1.Slot2.Ouput0	
	Data Iype: Boolean	
	Active 🔽	
	Browsing Branch Filter: Leaf Filter: Type: Access:	
	Channell Channell Channell Channell Channell Channell Channell Channell	
	⊕ ⊕ System ⊕ ⊕ Hints ⊕ ⊕ Sin2	Þ
Date Time	Browse flat address space on selected branch Add Leaves	
	Valigate item before adding it to the list	
Ready	iltern L	iount: 0 🥢

If the OPC Server was configured to automatically generate OPC tags, the generated tags would be browsable from the OPC client. If automatic tag generation was not selected, create an item by:

- 1) browsing the OPC Server branch tags
- 2) highlighting the desired tag in the right column
- 3) clicking on the "Add Leaves" button
- 4) clicking on the "Green Check Mark" button to validate the item
- 5) and clicking on the "OK" button.

After clicking on the **OK** button, the following window will display the created items.

COPC Quick Client - Untitled * File Edit View Tools Help				
File Edit ⊻iew Iools Help □ □ □ □ □ □ □	2 ×			
KEPware.KEPServerEx.V4	Item ID	Data Type	Value	Timestamp
mygroup	Channel1.Device1.Slot2.Ouput0	Boolean	Unknown	15:56:17:713
				F
Date Time	Event			
8/14/01 3:56:18 PM	Added 1 items to group 'mygroup'.			
Ready				Item Count: 1 //

Item Operations Item operations can be accessed by right clicking on the desired item or by using the <u>T</u>ools menu>Group selection.

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<u>F</u> ile <u>E</u> dit <u>V</u> iew	<u>T</u> ools <u>H</u> elp					
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E-:: KEPware.K	KEPServerEx.V4	Item ID		Data Type	Value	Timestamp
	up	Channel1.Device1.Sk	New Item		Unknown	N/A
			Set <u>A</u> ctive Set <u>I</u> nactive			
			Synchronous Cache <u>R</u> ead Synchronous <u>D</u> evice Read Synchronous <u>W</u> rite			
			Asynchronous 2.0 Read Asynchronous 2.0 Cache Re Asynchronous 2.0 Device R Asynchronous 2.0 Write			
			Си <u>к</u> Сору	Ctrl+X Ctrl+C		
		•	Paste	Ctrl+V		Þ
Date	Time	Event	<u>D</u> elete	Del		
1 8/14/01	4:01:56 PM	Added group 'mygroup	Properties			
1 8/14/01	4:14:08 PM	Added 1 items to group	'mygroup'.			
0 8/14/01	4:16:39 PM	Added 1 items to group				
1 8/14/01	4:16:45 PM	Removed 1 items from	group 'mygroup'.			-
Perform an asynchr	ronous 2.0 write on the sel	ected items				Item Count: 1

After clicking on the desired item operation, a window similar to the following will be displayed. In this example, a logic 1 value (Boolean data type) is being written to a discrete output to turn it on. The item operations can be used to read discrete/analog inputs and write to discrete/analog outputs, etc.

🍓 OPC Quick Client -	Untitled *				_ _
Eile Edit View Ior	synchronous 2.0 Write			×	
🗅 😂 🔒 📩 🖄					
E KEPware KEPS	Item ID	Current Value	Write Value	OK	Timestamp
- 🔄 mygroup	Channel1.Device2.Output0	0	0	Apply	16:02:52:722
				Cancel	
					Þ
Date					
1 8/15/01					
0 8/15/01					
0 8/15/01	1				
Ready					Item Count: 1

Using the RJ12 Serial Port in ASCII Mode

The EBC RJ12 serial port can be configured for generic ASCII communications (refer to the "Advanced Settings" section in Chapter 3 to confirm or change the RJ12 serial port settings). Both the transmit buffer and receive buffer of the driver are 127 bytes in size. Thus, the corresponding tags can be a maximum of 127 bytes. Incoming bytes are appended to the receive buffer.

Port specifiers precede the serial port address. It defines which port the serial port address corresponds to. To define an EBC address the mnemonic EBC is used and the mnemonic SP0 specifies serial port 0. For addressing the EBC serial port, no base or slot information is needed.

As shown below in the **Hints** dialog, there are several port address parameters. In many cases the default values can be used. A detailed list explaining the parameters are found by clicking on the <u>Help</u> button in the **Hints** window. Then click on the **Index** button in the Terminator I/O, I/O Addressing window. Then locate the "H2, H4, Terminator I/O Serial Port Addressing" help section.

- Ic	Fints EBC:SP0.BAUD DWord EBC:SP0.DATABITS Byte EBC:SP0.DATABITS Char EBC:SP0.DATABITS Char EBC:SP0.DATAIN String EBC:SP0.DATAINS(I)[c] Byte EBC:SP0.DATAIN[I][c] Byte EBC:SP0.DATAOUT[i][c] Byte EBC:SP0.DATAOUT[i][c] Char EBC:SP0.DATAOUT[Cance Help	
	DDE <u>s</u> can rate: 100	milliseconds		
D 🗹	o not allow clients to <u>o</u> verride data type.			

The communication parameter defaults are:

- 9600 baud
- 8 data bits (7 may be selected)
- no parity (odd or even may be selected)
- 1 stop bits (2 may be selected)

The following tags were created in the KEP *Direct* OPC server for this example.

- EBC:SP0:MODE
- EBC:SP0:DATAIN

KEPServerEx - [untitled.opf *]						_ 🗆 ×
<u>File E</u> dit <u>V</u> iew <u>U</u> sers <u>T</u> ools <u>H</u> elp						
🗅 🖆 🔛 🖗 🛅 🛅 🔂 😭 🗤 👌	(🖻 🖻 🗙 👗					
🖃 🔗 Channel1	Tag Name	Address	Data Type	DDE Scan	Scaling	Description
Device1	Set_Port_to_ASCII			100	None	
	🗹 Output0	S2:D00	Boolean	100	None	
	ASCII_Data_Input	EBC:SPO.DAL	String	100	None	
<u> </u>	•					•
Ready				Clients:	1 Active tags:	3 of 3 //

The tags created above were browsed and selected as items within the Quick Client as shown below. The **EBC.SP0.MODE** address must be set to a value of 1 to select the ASCII communications mode. The ASCII string **ASCII String Input Test Successful** was entered via the RJ12 serial port. The ASCII Sting displays in the **ASCII_Data_Input** Item ID's Value column.

<u>File E</u> dit <u>V</u> iew	<u>I</u> ools <u>H</u> elp				
🗅 烯 🛃 📩	i 💕 💕 😭 👗 🗅	a 🖻 🗙			
⊟-:;;iii KEPware.h	EPServerEx.V4	Item ID	Data Type	Value	Timestamp
🔄 mygra	up	Channel1.Device1.Set_Port_to_ASCII_Mode	Byte	1	09:32:36:9
		Channel1.Device1.ASCII_Data_Input	String	ASCII String Input Test Sucessful	
		Channel1.Device1.Output0	Boolean	1	09:30:22:0
		x			1
Date	Time	∡ Event			<u></u>
Date 1 8/17/01	Time 9:30:22 AM		ed for 1 items on group 'mys	roup' (HR = 0000000)	<u>1</u> 2
		Event	ed for 1 items on group 'mys	лоцо ² (НР = 0000000),	1
1 8/17/01	9:30:22 AM	Event Asynchronous 2.0 write transaction 000612A8 complete			<u></u>