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TIS#: 238, Issue 1 Date: 10/15/03 Issued by: Mark Demick

Subject

This document describes how to use the Eurotherm iTools OPC Server and iTools Controls with the Wonderware InTouch SCADA software to create InTouch windows displaying Eurotherm Series 2000 or Series 3000 instrumentation using the iTools Controls.

Software and Hardware Used

Eurotherm iTools V5.00, EuroMBus, Eurotherm iTools Controls Wonderware InTouch, Version 8.0.1 Eurotherm 3216, E1.06

Introduction

This Technical Information Sheet (TIS) describes how the Eurotherm iTools ActiveX Controls that are bundled with the Eurotherm iTools software and how to use them in the Wonderware WindowMaker development environment. There are two (2) controls available; Series2000Panel and OPCItemGrid.

The Series2000Panel control provides an exact replica of a Eurotherm controller's faceplate with operational pushbuttons in an ActiveX container application. The ActiveX container application utilized is InTouch. The OPCItemGrid control enables reading and writing the parameters of a Eurotherm controller grouped into folders. By changing the BrowseRoot attribute of the OPCItemGrid control, any instrument folder may be viewed and the parameters in that folder may be read or written – as applicable. No Wonderware tags need to be created to utilize these controls. Creating Wonderware tags can enhance the functionality as this document describes.

The communications mechanism used by the Eurotherm controls is OPC (Object linking and embedding for Process Control). The OPC Server used is EuroMBus from iTools V5. iTools may be downloaded from <u>www.eurotherm3.com/iTools</u>.

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It is assumed that the reader has as a prerequisite a competency in Wonderware InTouch development.

Configuring iTools

A Eurotherm 3216 with EIA-232 comms, a 3216 and 3504 simulation in iTools was used to provide the controller views. To create the simulated 3216 and 3504 in iTools under **File**, a **New Clone File** was created. This is shown in Figure 1 below. For the live controller view, a 3216 with the EIA-232 comms option was connected to a PC serial port, and the **Scan** icon in the iTools **Main Toolbar** was clicked. This caused iTools to automatically scan the serial network and locate and build the database for any Eurotherm controllers connected to serial ports.

Note that the live controller has yellow values while the simulated controllers have values displayed in white.

The images of the controllers in the Panel View pane in Figure 1 represent the Series2000Panel control. This control supports full faceplate functionality for the following Series 2000 product family; the 2216e, 2208e, 2204e, 2416, 2408 and 2404; and, for the Series 3000; 3216, 3508 and 3504.

In iTools, use your mouse to click on any of the pushbuttons in the controller faceplate views and notice that they emulate the functionality of a real controller.

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♥ iTools - [COM1.ID002-3216 -	Parameter Explorer (INPUT)]	
File Device Explorer View Options V	Vindow Help	
New File Open File Load Save Pr	🗊 🖬 🖓 X 🥵 K Int Scan Add Remove Access Views	•
🖽 Parameter Explorer 🚺 Flash Memory 🕮	D <u>e</u> vice Panel 📓 W <u>a</u> tch/Recipe 🛛 💏 OP <u>C</u> Scope ∞®iTool	s <u>S</u> ecure 🛛 🔐 Dev <u>i</u> ce Help
X	$\Leftarrow \bullet \bullet \bullet \bullet \blacksquare \blacksquare \boxdot \bullet$	
COM1.ID002-3216	Name Description Addre	
C:\Documents and Settings\MDemick'	Units Display Units 5	90 J TC (0) 16 °F (1)
	DecimalPoin Decimal Point Position 5 BangeHigh Bange High Limit	25 NNNN (0) 12 2192.0
	RangeLow Range Low Limit	11 -346.0
	FilterTime Input Filter Time 1	01 1.6
	CJCType CJC Type 122 SBrkType Sensor Break Type 55	91 AUTO (0) 78 ON (1)
⊡ IO1 □ OP2	CJCTemp CJC Temperature 2 P/(m)(chus P/(tempt))(chus	15 84.8
• • • • • • • • • • • • • • • • • • •	MVInValue Electrical Input Value 2	02 0.0
	CommsPVV Comms PV Value 2	0.0
E STATUS		
QCODE ACCESS		
DENT		
i≟ 🛄 Diag		
Browse Rind	INPLIT - 13 parameters (2 hidden)	
		EUROTHERM
EUDOTUEDM	CUROTUS PM	
85	OP2	
417 4	175	- WSP 350
REM	16.2	
3218	3218	_ 0 Out 100.0 100
		AMAN PROG RUN/HOLD 254
COM1.ID002-3216	and Settings\MDemick\My Documents\Work\Controls\iToo	C:\\Controls\iTools\3504spp.UIC
Level 2 (Engineer) 3216 v. E1.06		



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Configuring Wonderware InTouch

In a new or existing application, open the **Wizard/ActiveX Installation** dialog box to install the two (2) iTools controls. Go to the **Special/Configure/Wizard/ActiveX Installation**... menu item to open this dialog box as shown in Figure 2. Click on the ActiveX Control Installation tab to activate that property sheet.

Wizard/Act	iveX Installation	n	X
Wizard Installation	ActiveX Control Installation		
Installed ActiveX of	ontrols:		
Series2000Panel Tabular Data Con Wonderware Acti Wonderware Alar Wonderware PID	Control trol ve TagBrowser m Database View Control m Viewer Control Control	Remove	2
Available ActiveX	controls:		
OleInstall Class olkrfctl		Install	
Outlook Express I OWS Post Data PathBvr Class	Mime Editor		
	Close	Cancel	

Figure 2

To install the iTools controls, search for Series2000Panel and OPCItemGrid Control in the **Available ActiveX controls** list and press **Install** for each one of them. As you click on **Install** for each one, the control name is moved to the **Installed ActiveX controls** list. In Figure 2 the Series2000Panel Control has been installed and the OPCItemGrid Control can be moved to Installed by clicking on the Install button. Press the **Close** button to complete installation of the iTools controls. The two (2) iTools controls are now available for use in WindowMaker by clicking on the Wizard dialog tool in the **Wizards/ActiveX** toolbar.

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You can select more than one (1) control at a time by using either the **Shift** – for consecutive entries – or the **Ctrl** key – for selections not consecutively listed.

To place one of the iTools controls on a WindowMaker window, click the Wizard Dialog tool in the **Wizards/ActiveX Toolbar**. The **Wizard Selection** dialog box appears. In the list of wizards, click the **ActiveX Controls** category. All available ActiveX controls will be shown the display area as in Figure 3.

Select the ActiveX control that you want to use and then click **OK**, or double-click the control. The dialog box will close and your window reappears. The cursor will change to the corner symbol, \sqrt{w} , when you return to the window. Click the location in the window where you want to paste the ActiveX control. Drag the red handles in the control to resize as desired.



Figure 3

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Series2000Panel Control

Figure 4 shows a Series2000Panel control and the Properties dialog box for that control. Double-click the Series2000Panel control to open the Properites dialog box and configure it's properties. Click on the General tab to activate that property sheet.

The **Prog ID** is always the name of the Eurotherm OPC Server;

Eurotherm.ModbusServer.1

Type it in exactly as above. The **Device Name** represents the instrument that will be displayed in the Series2000Panel control and is derived from the OPC path from EuroMBus for instruments that are either connected or simulated. The **Device Name** can either be typed in or an InTouch message memory tag can be created to input the **DeviceName** dynamically. If typed in directly as shown in Figure 4, the Series2000Panel control will display and remotely operate that controller.

Main	
Series2000Panel4 Properties	
Control Name General Properties Events Prog ID Eurotherm.ModbusServer.1 Device Name COM1.ID002-3216 Update Intervals When Key Pressed 100 When No Key Pressed 500 ms	EUROTHERM OP1
✓ Panel Enabled OK Cancel Apply Help	



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The **Device Name** for the Series2000Panel control consists of the OPC path name up to but not including any of the parameter folder names. To view EuroMBus select

Options/Advanced/Show Server in iTools. Figure 5 displays the hierarchical tree view of connected or simulated instruments in EuroMBus, here a live 3216 and its parameter folders and the simulated 3216 and 3504 are shown. Therefore, the Device Name for the live 3216 would be; **COM1.ID002-3216**; and, for the simulated 3216;

SIMULATION._MDEMICKCloneFile1. Enter the text exactly as displayed in EuroMBus.



Figure 5

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To dynamically change the Eurotherm controller that the Series2000Panel control displays and operates a memory message tag can be created that is used to write to the Device Name property. Click on the **Properties** tab to activate that property sheet as shown in Figure 6. The memory message tag DeviceName has been entered in the **Associated Tag** column for the **Device Name** property. The green arrow pointing to the left indicates that the tagname can change the property's value, but the property cannot change the tagname's value.

Series2000P	angl1 Prope	erties	j	X	
Control Name Gene	eral Properties Eve	ents			
Property	Range	Tag Typ	Associated Tag		
AutoBeaconStatus	False	Discrete		~	
BackColor	0x00C0C0C0	Integer			
Caption	SIMULATIONMDE	Message			
CaptionFont	MS Shell Dig	None			
CloneFile		Message			
CurrentKey	0	Integer			
Cursor	0	Integer			
DeviceName	SIMULATIONMDE	Message	🛏 DeviceName		
FastInterval	100	Integer			
HoldBeaconStatus	False	Discrete			
InstrumentType	3216	Message			
LowerDisplay	104	Message			
ManualBeaconStatu	False	Discrete			
OP1BeaconStatus	False	Discrete		~	
Advanced					
0	Cancel	/	Apply Help		

Figure 6

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OPCItemGrid Control

iTools displays instrument parameters in the Parameter Explorer. Instrument parameters are grouped into logical folders, the 3216 Input folder parameters from iTools shown in Figure 7.

Name	Description	Address	Value	Lo Limit	Hi Limit Comment
Туре	Input Type	12290	J TC (0)	J TC (0)	CMS (10)
Units	Display Units	516	°C (0)	°C (0)	PERC (4)
DecimalPoir	Decimal Point Position	525	NNNN (0)	NNNN (0)	NN.NN (2)
RangeHigh	Range High Limit	12	1200.0	-210.0	1200.0
RangeLow	Range Low Limit	11	-210.0	-210.0	1200.0
PVOffset	PV Offset	141	0.0	-1999.0	3000.0
FilterTime	Input Filter Time	101	OFF (0)	OFF (0)	100.0
CJCType	CJC Type	12291	AUTO (0)	AUTO (0)	0°C (1)
SBrkType	Sensor Break Type	578	ON (1)	OFF (0)	LAT (2)
CJCTemp	CJC Temperature	215	73.2	-1999.0	9999.0
PVInValue	PV Input Value	1	73.2	-1999.0	9999.0
MVInValue	Electrical Input Value	202	0.0	-10.0	80.0
CommsPVV	Comms PV Value	203	0.0	-1999.0	9999.0

Figure 7

The OPCItemGrid control displays the Eurotherm controller parameters within a folder as in Figure 7. By dynamically modifying the BrowseRoot control property, the OPCItemGrid control can automatically display all the parameters in a controller's folders.

In Figure 8 is the OPCItemGrid control, a **ComboBox** control at the top of the window and two (2) memory message tags. The **ComboBox** has been configured as a **Drop Down** style and contains a selection of parameter folder names to be displayed. A Window script is used to fill the ComboBox with the folder name selections and build the BrowseRoot string for the OPCItemGrid control.

The tmpString is a memory message tag required to enter in the OPC Path up the parameter folders and including a dot. It points to a particular controller – either real or simulated. When a parameter folder is selected in the **ComboBox** control, it appends the parameter folder name in parenthesis to tmpString as can be seen in the BrowseRoot memory message tag.

In Figure 8 the tmpString is set to the live 3216 controller – **COM1.ID002-3216.** . This value could also be the Initial Value in the **Tagname Dictionary** as shown in Figure 9. To view the simulated 3216, tmpString would be; **SIMULATION._MDEMICKCloneFile1.** .

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Input Type Input Type 12290 J TC (0) J TC (0) CMS (10) Units Display Units 516 *F (1) *C (0) PERC (4) Decimal Point Position 525 NNNN (0) NNNN (0) NN.NN (2) InHigh Linear Input High 12306 80.00 -10.00 80.00 InLow Linear Input Low 12307 0.00 -10.00 80.00 RangeHigh Range High Limit 12 2192.00 -346.00 1200.00 RangeLow Range Low Limit 11 -346.00 -210.00 2192.00 PVOffset PV Offset 141 0.00 -1999.00 3000.00 FilterTime Input Filter Time 101 1.60 OFF (0) 100.00 CUCType 12291 AUTO (0) AUTO (0) 0°C (1) SBrik Type Sensor Break Type 578 ON (1) OFF (0) LAT (2) CJCTemp CJC Temperature 215 84.85 -1999.00 99999.00 9999.00	Name	Description	Address	Value	Lo Limit	Hi Limit Wired From	
Type Type T2200 0 FC (0) 0 FC (0) 0 FC (0) 0 FC (0) Units 516 * F (1) * C (0) PERC (4) DecimalPoir Decimal Point Position 525 NNNN (0) NNNN (0) NN.NN (2) InHigh Linear Input High 12306 80.00 -10.00 80.00 InLow Linear Input Low 12307 0.00 -10.00 80.00 RangeHigh Range High Limit 12 2192.00 -346.00 1200.00 RangeLow Range Low Limit 11 -346.00 -210.00 2192.00 PVOffset PV Offset 141 0.00 -1999.00 3000.00 FilterTime Input Filter Time 101 1.60 OFF (0) 100.00 QLCType CJC Type 12291 AUTO (0) AUTO (0) 0°C (1) SBrkType Sensor Break Type 578 ON (1) OFF (0) LAT (2) CJCTemp CJC Temperature 215 84.85 -1999.00 9999.0	Type	Input Type	12290	J TC (0)	LUTC (0)	CMS (10)	
Onite Display Onite Of the construction Of the c	Unite	Dieplay Unite	516	°E (1)	°C (0)	PERC (A)	
Occumal of Documal for the formation Documal f	DecimalPoir	Decimal Point Position	525	NNNN (0)	NNNN (0)	NN NN (2)	
Inlow Linear Input Low 12307 0.00 -10.00 80.00 RangeHigh Range High Limit 12 2192.00 -346.00 1200.00 RangeLow Range Low Limit 11 -346.00 -210.00 2192.00 PVOffset PV Offset 141 0.00 -1999.00 3000.00 FilterTime Input Filter Time 101 1.60 OFF (0) 100.00 CJCType CJC Type 12291 AUTO (0) AUTO (0) 0°C (1) Sthrt Type Sensor Break Type 578 ON (1) OFF (0) LAT (2) CJCTemp CJC Temperature 215 84.85 -1999.00 9999.00 PVInValue PV Input Value 1 84.88 -1999.00 9999.00 MVInValue Electrical Input Value 202 0.00 -10.00 80.00 CommsPVV; Comms PV Value 203 0.00 -1999.00 9999.00	In High	Linear Input High	12306	80.00	-10.00	80.00	
Range High Range High Lint 2192.00 -346.00 1200.00 RangeLow Range Low Limit 11 -346.00 -210.00 2192.00 PVOffset PV Offset 141 0.00 -1999.00 3000.00 FilterTime Input FilterTime 101 1.60 OFF (0) 100.00 CJCType CJC Type 12291 AUTO (0) AUTO (0) 0°C (1) SBrkType Sensor Break Type 578 ON (1) OFF (0) LAT (2) CJCTemp CJC Temperature 215 84.85 -1999.00 9999.00 PVInValue PV Input Value 1 84.88 -1999.00 9999.00 MVInValue Electrical Input Value 202 0.00 -10.00 80.00 Comms PVV Comms PV Value 203 0.00 -1999.00 9999.00	InLow	Linear Input Low	12307	0.00	-10.00	80.00	
RangeLow Range Low Limit 11 -346.00 -210.00 2192.00 PVOffset PV Offset 141 0.00 -1999.00 3000.00 FilterTime Input Filter Time 101 1.60 OFF (0) 100.00 CJCType CJC Type 12291 AUTO (0) AUTO (0) 0°C (1) SBrk Type Sensor Break Type 578 ON (1) OFF (0) LAT (2) CJCTemp CJC Temperature 215 84.85 -1999.00 9999.00 PVInValue PV Input Value 1 84.88 -1999.00 9999.00 MVInValue 202 0.00 -10.00 80.00 -10.00 80.00 Comms PVV; Comms PV Value 203 0.00 -1999.00 9999.00 9999.00	RangeHigh	Range High Limit	12	2192.00	-346.00	1200.00	
PVOffset PV Offset 141 0.00 -1999.00 3000.00 FilterTime Input Filter Time 101 1.60 OFF (0) 100.00 CJCType CJC Type 12291 AUTO (0) AUTO (0) 0°C (1) SBrkType Sensor Break Type 578 ON (1) OFF (0) LAT (2) CJCTemp CJC Temperature 215 84.85 -1999.00 9999.00 PVInValue PV Input Value 1 84.88 -1999.00 9999.00 MVInValue 202 0.00 -10.00 80.00 Comms PVV Comms PV Value 203 0.00 -1999.00 9999.00	RangeLow	Range Low Limit	11	-346.00	-210.00	2192.00	
Input Filter Time 101 1.60 OFF (0) 100.00 CJC Type CJC Type 12291 AUTO (0) AUTO (0) 0°C (1) SBrk Type Sensor Break Type 578 ON (1) OFF (0) LAT (2) CJC Temp CJC Temperature 215 84.85 -1999.00 9999.00 PVInValue PV Input Value 1 84.88 -1999.00 9999.00 MVIn Value 202 0.00 -10.00 80.00 Comms PVV Comms PV Value 203 0.00 -1999.00 9999.00	PVOffset	PV Offset	141	0.00	-1999.00	3000.00	
CJC Type CJC Type 12291 AUTO (0) AUTO (0) 0°C (1) SBrk Type Sensor Break Type 578 ON (1) OFF (0) LAT (2) CJC Temp CJC Temperature 215 84.85 -1999.00 9999.00 PVInValue PV Input Value 1 84.88 -1999.00 9999.00 MVIn Value Electrical Input Value 202 0.00 -10.00 80.00 Comms PVV Comms PV Value 203 0.00 -1999.00 9999.00	FilterTime	Input Filter Time	101	1.60	OFF (0)	100.00	
SBrk Type Sensor Break Type 578 ON (1) OFF (0) LAT (2) CJC Temp CJC Temperature 215 84.85 -1999.00 9999.00 PVInValue PV Input Value 1 84.88 -1999.00 9999.00 MVInValue Electrical Input Value 202 0.00 -10.00 80.00 CommsPVV; Comms PV Value 203 0.00 -1999.00 9999.00	CJCType	CJC Type	12291	AUTO (0)	AUTO (0)	0°C (1)	
CJC Temp CJC Temperature 215 84.85 -1999.00 9999.00 PVInValue PV Input Value 1 84.88 -1999.00 9999.00 MVInValue Electrical Input Value 202 0.00 -10.00 80.00 Comms PVV Comms PV Value 203 0.00 -1999.00 9999.00	SBrkType	Sensor Break Type	578	ON (1)	OFF (0)	LAT (2)	
PV Input Value 1 84.88 -1999.00 9999.00 MVInValue Electrical Input Value 202 0.00 -10.00 80.00 CommsPVV(Comms PV Value 203 0.00 -1999.00 9999.00	CJCTemp	CJC Temperature	215	84.85	-1999.00	9999.00	
MVInValue Electrical Input Value 202 0.00 -10.00 80.00 CommsPVV Comms PV Value 203 0.00 -1999.00 9999.00	PVInValue	PV Input Value	1	84.88	-1999.00	9999.00	
CommsPVV Comms PV Value 203 0.00 -1999.00 9999.00	MVInValue	Electrical Input Value	202	0.00	-10.00	80.00	
<	CommsPVV	Comms PV Value	203	0.00	-1999.00	9999.00	
	<		1111				>
		COO		102 2210	<u> </u>		
TmpString COM1_ID002-3216	Tmr	ostring CC	ערד דיואר	リリノー・コノーロ			

Figure 8

To configure the OPCItemGrid control, double click on the control and select the General tab to activate that property page. Enter in the Prog ID as shown in Figure 10. The Browse Root text box will be left blank and in this property page but will become associated with the BrowseRoot memory message tag on the Properties property page as shown in Figure 11.

Tagname Dictionary	×
C Main 🖲 Details C Alarms C Details	& Alarms C Members
New Restore Delete Save	<< Select >> Cancel Close
Tagname: tmpString	Type: Memory Message
Group: \$System	C Read only 🕜 Read Write
Comment:	
🔲 Log Events	🗖 Retentive Value
Maximum Length: 131 Initial Value: CC	M1.ID002-3216.
Alarm Comment	

Figure 9

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OPCItemGrid1 Properties	×
Control Name General Properties Events	
Prog ID Eurotherm.ModbusServer.1	
Browse Root	
Update Interval 2000 ms	
T Read Only	
OK Cancel Apply Help	

Figure 10

By changing the BrowseRoot tag, it is possible to use one (1) OPCItemGrid control to display parameter folders for multiple instruments.

OPCItemGrid	11 Propertie	es		×	
Control Name Gene	eral Properties Eve	ents			
Property	Range	Tag Typ	Associated Tag		
ApplyLimitsWhenEdit	False	Discrete		~	
AutoList	True	Discrete			
BorderStyle	1 - Single	Integer			
BrowseRoot	_	Message	🛏 BrowseRoot		
CellMargin	1	Integer			
ColCount	8	Integer			
Color	0x80000005	Integer			
CtI3D	True	Discrete			
Cursor	0	Integer			
DecimalPlaces	2	Integer			
DefaultCoWidth	64	Integer			
DefaultDrawing	True	Discrete			
DefaultRowHeight	15	Integer			
DragCursor	-12	Integer		~	
,			Advance	d	
OK	OK Cancel Apply Help				

Figure 11