



Win200 ActiveX Interface 18V06

Programming Guide

SYSTEM200

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Purpose of Documentation This documentation describes the purpose and usage of the Win200 ActiveX interface to connect customer applications to the Indramat MUI.

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1 Overview

1.1 Interface description

To visually and functionally integrate applications into the Win200 System the WIN200 DESKTOP COMPONENT CONCEPT was developed.

The here described Interface is basically derived from this concept, but has less functionality. Target of this approach is to connect an application to Win200 with less effort than a full integration would need. In particular there is no knowledge needed about the GFT Grit tool which is used to develop the Win200 desktop.

This interface therefore allows an application to communicate with the Win200 desktop with relative small effort.

This is important to support e.g. existing applications which do not fit the Win200 Desktop Component Concept.

Note: This interface does not allow a visual integration of stand alone applications into the Win200 desktop

1.2 Characteristics

The command interface meets the following needs:

- Using the Microsoft ActiveX technology allows any development tool for the client application to use the interface (Visual Basic, Visual C++...)
- The standalone application is able to jump into specific locations in the Win200 desktop
- The interface provides synchronous and asynchronous execution of commands to the Win200 desktop (IW200CommandServer)
- The interface provides events for the client application in case of changes like parameter settings or language selection (IW200Events).
- Up to two independent client applications can connect to the Win200 desktop via the control

2 Command Interface IW200CommandServer

2.1 Description

The **IW200CommandServer** interface is derived from the ICommandServer interface of the Win200 Desktop Component concept. However, there is no knowledge about the ICommandServer interface needed to understand and to work with the **IW200CommandServer** interface.

IW200CommandServer is used to call specific commands of the Win200 desktop.

2.2 Methods

ExecuteCommand()

IDL Syntax `HRESULT ExecuteCommand([in] BSTR bstrScreenID, [in] BSTR bstrCommandID, [in] BSTR bstrCommandArgs, [in] long lUserParam, [out] VARIANT_BOOL* pboSuccess);`

Description This routine does synchronous execution of a command. The routine blocks until the Win200 desktop has finished the execution. It returns if a timeout has expired.

Note: A list of valid ServerIDs, CommandIDs and CommandArgs is provided at the end of this chapter (2.4)

Parameters	<code>bstrServerID</code>	ID of the target screen (e.g. "NC-Parameter")
	<code>bstrCommandID</code>	ID of the command to execute
	<code>bstrCommandArgs</code>	Additional Parameters.
	<code>lUserParam</code>	User defined Parameter
	<code>pboSuccess</code>	Flag indicating success of execution

Return Codes	<code>S_OK</code>	Routine was successful
	<code>E_FAIL</code>	Routine failed

Example `ExecuteCommand ("NC-Parameters", "Show",
"{DeviceNumber}\n{TheProcessNumber}", 5, boSuccess);`

TriggerCommand()

IDL Syntax	<code>HRESULT TriggerCommand([in] BSTR bstrScreenID, [in] BSTR bstrCommandID, [in] BSTR bstrCommandArgs, [in] long lUserParam, [out] VARIANT_BOOL* pboSuccess);</code>	
Description	This routine does asynchronous execution of a command. The routine immediately returns before the Win200 desktop has finished the execution. End of execution will be signalled via Events. (see IW200Events)	
	<hr/>	
	Note: A list of valid ServerIDs, CommandIDs and CommandArgs is provided at the end of this chapter (2.4)	
	<hr/>	
Parameters	<code>bstrServerID</code>	ID of the screen for trigger (e.g. "NC-Parameter")
	<code>bstrCommandID</code>	ID of the command to trigger
	<code>bstrCommandArgs</code>	Additional Parameters.
	<code>lUserParam</code>	User defined Parameter
	<code>pboSuccess</code>	Flag indicating success of trigger
Return Codes	<code>S_OK</code>	Routine was successful
	<code>E_FAIL</code>	Routine failed

2.3 Properties

Connect()

IDL Syntax	<code>[propget] HRESULT Connect([out, retval] long *pVal);</code> <code>[propput] HRESULT Connect([in] long newVal);</code>	
Description	Sets and gets the connection state of the ActiveX control to the Win200 desktop. Possible values are: <code>W200_CONNECT</code> Connect to desktop <code>W200_DISCONNECT</code> Disconnect from desktop	
Return Value [propget]	<code>long *pVal</code>	Current status of connection
Return Value [propput]	None	
Parameters [propget]	None	
Parameters [propput]	<code>long newVal</code>	New status of connection
Return Codes	<code>S_OK</code>	Routine was successful
	<code>E_FAIL</code>	Routine failed

Status()

IDL Syntax [propget] HRESULT Status([out,retval] long *pVal);

Description Gets the status of the ActiveX control. Possible values are:

W200_READY	Ready
W200_NO_CONNECTION	No valid connection to desktop
W200_WRITE_FAILED	Sending command to desktop failed
W200_OPEN_FAILED	Could not establish connection
W200_CONNECTION_LOST	Connection to desktop is lost

Note: The IW200Events-Method "ErrorOccured()" will also report these values to the client.

Return Value [propget] long *pVal Current status of connection

Parameters [propget] None

Return Codes S_OK Routine was successful
E_FAIL Routine failed

2.4 List of Commands

Overview

This list describes the valid parameters for the Methods of the IW200CommandServer interface (2.2)

The following ServerIDs ("Target Screens") are available:

- NCTProgram
- NCTParameters
- PLCProgram
- WinHMI

NCPProgram

CommandID "Show"

Description Brings up NC Program Screen

CommandArgs **/D=%DeviceNumber** Number of Device (00..16)

Example `ExecuteCommand ("NCPProgram", "Show", "/D=00";...);`

NCPParameters

CommandID "Show"

Description Brings up NC Parameter Screen

CommandArgs **/D=%DeviceNumber** Number of Device ("00".. "16")

/P=%ParameterType "A" = Systemparameters

"B" = Processparameters

"C" = Axisparameters

/N=%ProcessNumber with "A" void

with "B" Number of Process ("00" .. "06")

with "C" Number of Axis ("01" .. "32")

Example `ExecuteCommand ("NCPProgram", "Show", "/D=00 /P=A",...);`
`ExecuteCommand ("NCPProgram", "Show", "/D=00`
`/P=C /N=20",...);`

PLCProgram

CommandID "Show"

Description Brings up PLC Program Screen

CommandArgs **/D=%DeviceNumber** Number of Device (00..16)

Example `ExecuteCommand ("PLCProgram", "Show", "/D=00",...);`

WinHMI

CommandID "Show"

Description Brings up Machine Overview

CommandArgs	/OP=#%OP-Number /OP=\$OP-ID	Number of Operation (2..9) Name of Operation: "MachineOverview" "Diagnosis" "Operation" "ToolManagement" "Maintenance" "Production" "Control" "CustomScreens"
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Example `ExecuteCommand ("WinHMI", "Show", "/OP=#3", ..);`
`ExecuteCommand ("WinHMI", "Show", "/OP=$Diagnosis", ..);`

Note: Depending on the active device, some OPs may be invalid, e.g. Tool Management on a ISP200

3 Event Interface IW200Events

3.1 Description

The **IW200Events** interface allows the ActiveX control to notify the client of Win200 desktop status changes. It is designed as an outgoing interface which must be implemented by the client application.

3.2 Methods

SysMsg()

IDL Syntax `void SysMsg([in] BSTR bstrDevice, [in] long lMsgNumber, [in] IUnknown* pUnk)`

Description This routine provides information about important system events like PLC program changing or NC parameter changing.

The client application can do client specific things on such an event and then return to the Win200 desktop.

Note: see (3.3) for a list of available events and how the client program should react in case of these events

Note: The Win200 Desktop Prototype (W200_Fake) is able to send any system message to the client. This can be used to test other messages which may be defined in the future

Parameters

<code>bstrDevice</code>	Device which caused the event. In case of global events like Language changing the string will be empty
<code>lMsgNumber</code>	Number of the system event
<code>pUnk</code>	reserved for further use

Return codes This routine does not return a value.

CommandTriggered()

IDL Syntax `void CommandTriggered ([in] BSTR bstrServerID, [in] BSTR bstrCommandID, [in] long lUserParam, [in] VARIANT_BOOL boSuccess);`

Description This routine notifies the client if an asynchronous command execution has finished.

Parameters

<code>bstrServerID</code>	ID of the triggered screen
<code>bstrCommandID</code>	ID of the triggered command

<code>lUserParam</code>	User defined parameter which was passed to "TriggerCommand"
<code>boSuccess</code>	Flag indicating success of execution

Note: the status values reported by `ErrorOccured()` can also be queried if the client uses the property `Status()` of the `IW200CommandServer-Interface`.

3.3 List of Events

Overview

This list shows the events set by the `IW200Events` interface and describes how the client application should react. The reaction of client application is important for proper operation between the client application and the devices.

Note: This list is derived from the System Message list of the `INDRAMAT` Function Interface.
See Function Interface documentation for additional information.

Events

W200MSG_DESKTOP_EXIT

Description Exit Win200 desktop
Client reaction Terminate connection to Win200 Desktop

W200MSG_FIRMWARE_BEGIN

Description Start of firmware download into the device
Client reaction Interrupt communication with all devices

W200MSG_FIRMWARE_END

Description End of firmware download
Client reaction Resume communication

Note: Process and axis configuration data etc. may have changed

W200MSG_NCPAR_BEGIN

Description Start of parameter download into the device
Client reaction Interrupt communication with all devices

W200MSG_NCPAR_END

Description End of parameter download
Client reaction Resume communication

Note: Process and axis configuration data etc. may have changed

W200MSG_PLCPROG_BEGIN

Description Start of PLC program download into the device
Client reaction Interrupt communication with all devices

W2000MSG_PLCPROG_END

Description End of PLC program download
Client reaction Resume communication

W200MSG_LANGUAGE_BEGIN

Description Language change on the Indramat user interface has been initialized.
Client reaction No interruption of communication with devices necessary

W200MSG_LANGUAGE_END

Description Language change on the Indramat user interface has been completed
Client reaction Get new language

W200MSG_PROCESSERR_ON

Description A mechanism error occurs. The event serves to visualize the mechanism error of the device
Client reaction No interruption of communication with devices necessary

W200MSG_PROCESSERR_OFF

Description A mechanism error is cleared
Client reaction (Information to the effect that the mechanism error on the device has disappeared)

W200MSG_SYSTEMERR_ON

Description A system error occurs. The event serves to visualize the system error of the device
Client reaction No interruption of communication with devices necessary

W200MSG_SYSTEMERR_OFF

Description A system error is deleted
Client reaction (Information to the effect that the system error on a specific Indramat device has disappeared)

W200MSG_MEMORY_BEGIN

Description Begin of deleting the data memory in the device
Client reaction Interrupt communication with all devices

W200MSG_MEMORY_END

Description	Data memory in the device is deleted
Client reaction	Resume communication

Note: Configuration data has been deleted

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