

**Partner: Polycom**  
**Model: HDX 9000**  
**Device Type: Video Conference**



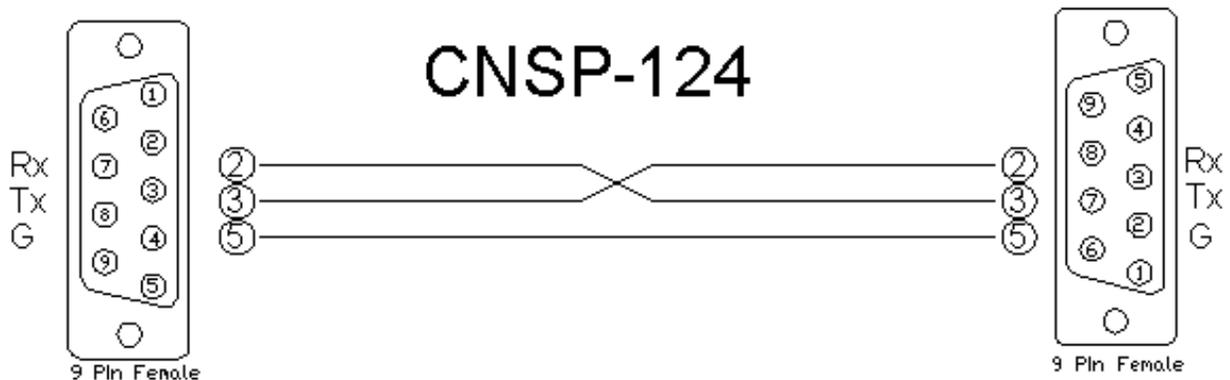
## GENERAL INFORMATION

<b>SIMPLWINDOWS NAME:</b>	Polycom HDX9000 v3.5
<b>CATEGORY:</b>	Conferencing
<b>VERSION:</b>	3.5
<b>SUMMARY:</b>	Controls the Polycom HDX9000 and HDX 8000 via RS232.
<b>GENERAL NOTES:</b>	<p>This module is for control of the Polycom HDX 9000 via RS232.</p> <p>This module as tested with the HDX 9000 and HDX 8000.</p> <p>This module also provides true feedback. Pulsing the Initialize input will send commands to the HDX9000 telling it what feedback we want automatically. The ten camera presets are internal to the Polycom.</p> <p>This module allows a telephone call to be placed. Using the Audio_Keypad (0-9, *, #) when the phone is on the hook (hung up) will cause the digits to be displayed at the Audio_Dial_String_Text output. When Audio_Dial is pressed, the phone will be taken off the hook, and the number displayed will be sent to the Polycom. After the phone is off the hook, any additional digits entered will be sent directly to the Polycom. This is primarily for navigating thru voicemail systems.</p> <p><b>NOTE: THERE IS NO LONGER ANY WAY TO TAKE THE AUDIO ONLY PHONE OFF HOOK TO GET A DIAL TONE.</b></p> <p><b>NOTE: IF THE FAR END HANGS UP AN AUDIO ONLY CALL, THE NEAR END MUST ALSO PULSE THE "Audio_On_Hook" INPUT. OTHERWISE THE LINE WILL REMAIN OPEN AND YOU WILL NOT BE ABLE TO PLACE ANOTHER AUDIO ONLY CALL.</b></p> <p>This module allows video calls to be placed. Phone numbers as well as numeric and alphanumeric IP addresses can be entered and dialed. Therefore, an entire alphabetic keypad is provided to allow the number/name of the site to be entered. For each call placed, a call speed can be selected. This module provides for 20 different call speeds. Since the Polycom system supports so many different call speeds, parameter fields are provided where you can type in the 20 call speeds you want to use. So for a speed of 384, enter 384 in the parameter field. For a speed of 2x56, enter 2x56 in the parameter field.</p> <p>The module allows one or two number calls to be placed manually. Phone numbers are entered, and dialed as follows:</p> <ol style="list-style-type: none"><li>1. Select a call speed.</li><li>2. Select Select_Number_1, and type in the first phone number.</li><li>3. If there is a second number, select Select_Number_2 and type in the second number. Otherwise, leave this field blank. You have the option of copying the first number to the second number. You can always reselect either number and re-enter it.</li><li>4. When both number fields are displaying the correct numbers, press Video_Dial. Your call will be placed.</li></ol> <p>This module allows the Polycom internal address book to be accessed and displayed on the Crestron touch panel. You can specify how many entries are displayed per page using the Entries Per Screen parameter. This must be a number between 1d and 25d. You can move between pages using the First/Previous/Next/Last_Page inputs. The address book will be downloaded and stored in the Crestron Processor. When you pulse Addressbook_Dial, the last entry selected will be dialed.</p> <p>The module will also display the global address book. In order to use the global address book functions, there must be a global address book server and its address must be registered with the HDX.</p>

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	<p>This module also allows you to limit the number of characters that will be displayed for the site name. Use the corresponding parameter field to set up the value. This will allow you to prevent sending too much text to an indirect text field on a touch panel.</p> <p>NOTE: PIP WILL ONLY BE DISPLAYED WHILE A CALL IS IN PROGRESS.</p> <p>NOTE: THIS MODULE IS FOR 2-SERIES AND HIGHER PROCESSORS.</p>
<b>CRESTRON HARDWARE REQUIRED:</b>	C2COM, ST-COM, C2I- *ENET
<b>SETUP OF CRESTRON HARDWARE:</b>	<p>RS232:</p> <p>Baud: 9600</p> <p>Parity: None</p> <p>Data Bits: 8</p> <p>Stop Bits: 1</p> <p>TCP/IP:</p> <p>Port: 24</p>
<b>VENDOR FIRMWARE:</b>	Release - 3.0.1-10628
<b>VENDOR SETUP:</b>	You must set one of the com ports on the HDX to control mode.
<b>CABLE DIAGRAM:</b>	CNSP-124



**CONTROL:**

<b>Initialize</b>	D	Pulse to activate the initialization routine.
<b>Get_Addressbooks</b>	D	Pulse to download the addressbooks that are enabled with the Enable_<Local/Global>_addressbook. It is recommended that the addressbooks are downloaded once a day. To do this use a When symbol in SIMPL Windows.

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<Near/Far>_End_Camera	D	Pulse to select the camera to control.
Camera_<Up/Down/Left/Right>	D	Press and hold to move the selected camera.
Camera_Zoom_<In/Out>	D	Press and hold to zoom the selected camera in and out.
Camera_Preset_<preset #>	D	Pulse to select the preset.
Camera_Preset_Save	D	Pulse to activate save mode. After activating save mode, press any of the Camera_Preset_<preset #> buttons to store the preset.
Near_End_Camera_<camera #>	D	Pulse to select the near end source to send.
Far_End_Camera_<camera #>	D	Pulse to select the far end source to receive.
Volume_Up/Down	D	Press and hold to adjust the volume.
Volume_Mute_<state>	D	Pulse to turn the volume mute on and off.
Privacy_<state>	D	Pulse to activate and deactivate privacy.
PIP_<state>	D	Pulse to select PIP On/Off/Auto.
<Sleep/Wake>	D	Pulse to enter and exit sleep mode on the Polycom.
Visual_Concert_FX_<Play/Stop>	D	Pulse to turn the visual concert on and off.
Auto_Answer_<On/Off>	D	Pulse to turn auto answer on and off.
Mute_Auto_<On/Off>	D	Pulse to turn the auto mute on answer on and off.
Far_End_Camera_Control_<Enable/Disable>	D	Pulse to turn the Far End Camera Control on and off.
Multi_Point_Mode_<state>	D	Pulse to select the Multi Point Mode state.
PIP_Location_<location>	D	Pulse to change the position of the PIP window.
PIP_Swap	D	Pulse to swap the PIP sources.
PPCIP	D	Pulse to activate the PPCIP function.
Get_Far_End_Camera_Control_State	D	Pulse to get the far end camera control state.
Get_Multi_Point_Auto_State	D	Pulse to get the multi-point auto state.
Reboot_Codec	D	Pulse to reboot the Polycom HDX.

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IR_<All Functions>	D	Pulse to activate any of the IR remote functions.
Audio_On_Hook	D	Pulse to put the telephone on hook or hang up the phone.
Audio_Key_*	D	Pulse to enter a phone number to be dialed.
Audio_Dial	D	Pulse to take the telephone off the hook and dial the number entered.
Audio_Answer	D	Pulse to answer an incoming call.
Audio_Ignore_Incoming_Call	D	Pulse to ignore the incoming audio call.
Audio_Flash	D	Pulse to flash the audio phone.
Audio_Call_Type_*	D	Pulse to select the type of audio only call to make.
Do_Not_Show_DTMF_Presses_In_Dial_String_Text	D	Pulse to set the module to NOT show the DTMF presses in the Audio_Dial_String_Text output. (This is the way all Crestron conferencing modules have worked in the past.)
Show_DTMF_Presses_In_Dial_String_Text	D	Pulse to set the module to show the DTMF presses in the Audio_Dial_String_Text output. (This is the default setting.)
Video_Select_Number_*	D	Pulse to select the number to enter.
Video_Select_Addressbook_Name	D	Pulse to select the address book name to enter.
Video_Select_None	D	Pulse to deselect all fields for entry.
Video_Copy_Num1_Num2	D	Pulse to copy the first number to the second number.
Video_Clear_Num1+Num2	D	Pulse to clear both first and second number fields.
Video_Speed_<speed number>	D	Pulse to select one of the 20 speeds that were entered in the corresponding parameter fields.
Video_Key_Enter	D	If pressed while Num1 is active, it will select Num2. If pulsed while Num2 is active, it will dial the call.
Video_Dial	D	Dials the numbers currently entered immediately.
Video_Answer	D	Pulse to answer an incoming video call.
Hang_Up_Video_Call_*	D	Pulse to hang up the desired video call.
Hang_Up_All_Video_Calls	D	Pulse to hang up all connected video calls.
Ignore_Incoming_Video_Call	D	Pulse to ignore the incoming video call.

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Video_Keyboard_*	D	Full alphanumeric keyboard used for entering phone numbers and address book names based on which field was selected using the Select_* inputs above.
Local_Addressbook_Top	D	Pulse to go to page one of the main addressbook.
Global_Addressbook_Return	D	Pulse to return to the previous addressbook level.
Local_Addressbook_First_Page	D	Pulse to display the first page of the local address book.
Local_Addressbook_Previous_Page	D	Pulse to display the previous page of the local address book.
Local_Addressbook_Next_Page	D	Pulse to display the next page of the local address book.
Local_Addressbook_Last_Page	D	Pulse to display the last page of the local address book.
Local_Addressbook_Select_<entry number>	D	Pulse to select an entry from the list.
Local_Addressbook_Dial	D	Pulse to dial the last entry selected.
Local_Addressbook_Clear_Selected	D	Pulse to deselect the previously selected address book entry.
Enable_Local_Addressbook	D	Hold high to enable downloading the local addressbook when the Get_Addressbooks input is pulsed.
Global_Addressbook_Top	D	Pulse to go to page one of the main addressbook.
Global_Addressbook_Return	D	Pulse to return to the previous addressbook level.
Global_Addressbook_First_Page	D	Pulse to display the first page of the global address book.
Global_Addressbook_Previous_Page	D	Pulse to display the previous page of the global address book.
Global_Addressbook_Next_Page	D	Pulse to display the next page of the global address book.
Global_Addressbook_Last_Page	D	Pulse to display the last page of the global address book.
Global_Addressbook_Select_<entry number>	D	Pulse to select an entry from the list.
Global_Addressbook_Dial	D	Pulse to dial the last entry selected.
Global_Addressbook_Clear_Selected	D	Pulse to deselect the previously selected address book entry.
Enable_Global_Addressbook	D	Hold high to enable downloading the global addressbook when the Get_Addressbooks input is pulsed.
From_Device	S	Serial signal to be routed from a 2-way serial com port.

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**PARAMETERS:**

<b>Audio Dialer Max Characters</b>	P	Maximum characters to be displayed in the audio dialer phone number.
<b>Video Dialer Speed *</b>	P	Used to specify which call speeds are desired. Enter only speeds that your Polycom system supports. Enter 0 (Zero) for any unused fields.
<b>Addressbook Max Characters Name</b>	P	Maximum number of characters to display for the address book names. Range is 1 to 50. Default is 26.
<b>Addressbook Max Characters Speed</b>	P	Maximum number of characters to display for the address book speed. Range is 1 to 10. Default is 6.
<b>Addressbook Max Characters Number</b>	P	Maximum number of characters to display for the address book number. Range is 1 to 50. Default is 26.
<b>Addressbook Entries Per Screen</b>	P	Number of entries to display per page. Range is 1 to 25. Default is 10.
<b>Password</b>	P	Enter the password if login is required.

**FEEDBACK:**

<b>Initialize_Busy</b>	D	High while the initialization is in progress.
<b>Get_Addressbooks_Busy</b>	D	High to indicate that the address book(s) are being downloaded.
<b>Controlling_&lt;Near/Far&gt;_End_Camera</b>	D	High to indicate which camera is being controlled.
<b>Camera_Preset_&lt;preset#&gt;_Selected</b>	D	High to indicate the last preset activated on the module.
<b>Camera_Preset_Save_Active</b>	D	Indicates that the module is in camera preset save mode.
<b>Near_End_Camera_&lt;camera #&gt;_Selected</b>	D	High to indicate the source being sent.
<b>Far_End_Camera_&lt;camera #&gt;_Selected</b>	D	High to indicate the source being received.
<b>Volume_Level_Bar</b>	A	True feedback indicating the current volume level.
<b>Volume_Mute_is_&lt;state&gt;</b>	D	High to indicate that the volume level is at 0.
<b>Privacy_is_&lt;state&gt;</b>	D	True feedback indicating the current state of privacy.
<b>PIP_is_&lt;state&gt;</b>	D	True feedback indicating the last PIP mode activated.
<b>&lt;Sleep/Wake&gt;_is_Active</b>	D	True feedback indicating the current sleep mode state.
<b>Visual_Concert_FX_&lt;Playing/Stopped&gt;</b>	D	High to indicate the current state of the visual concert function.

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<b>Auto_Answer_is_&lt;On/Off&gt;</b>	D	High to indicate the current state of the auto answer function.
<b>Mute_Auto_is_&lt;On/Off&gt;</b>	D	High to indicate the current state of the mute auto function.
<b>Far_End_Camera_Control_is_&lt;state&gt;</b>	D	High to indicate the current state of the Far End Camera Control function.
<b>Multi_Point_Mode_is_&lt;state&gt;</b>	D	High to indicate the current state of the Multi Point Mode.
<b>PIP_Location_is_&lt;location&gt;</b>	D	High to indicate the current position of the PIP window.
<b>PIP_Swap_is_Active</b>	D	High to indicate the state of the PIP Swap function.
<b>PPCIP_is_Active</b>	D	High to indicate the state of the PPCIP function.
<b>Audio_Phone_is_Off_Hook</b>	D	High to indicate that the telephone is off hook.
<b>Audio_Phone_is_On_Hook</b>	D	High to indicate that the telephone is on hook.
<b>Audio_Dial_String_Text</b>	S	Serial signal displaying the phone number being entered.
<b>Audio_Call_In_Progress</b>	D	High to indicate that an audio only call is in progress.
<b>Incoming_Audio_Call</b>	D	High to indicate that there is an incoming audio only call.
<b>Audio_Caller_ID_Phone_Number_Text</b>	S	Serial string indicating the phone number of the incoming audio only call or the currently active audio only call.
<b>Audio_Caller_ID_Name_Text</b>	S	Serial string indicating the name of the incoming audio only call or the currently connected audio only call.
<b>Audio_Call_Status_Text</b>	S	Serial signal indicating the status of the audio call in progress.
<b>Audio_Call_Type_Is_*</b>	D	High to indicate the selected audio call type for outgoing audio only calls.
<b>Show_DTMF_Presses_In_Dial_String_Text_Is_*</b>	D	High to indicate whether DTMF press digits will appear in the Audio_Dial_String_Text output or not.
<b>Video_Number_*_Selected</b>	D	Indicates which field has been selected for entry.
<b>Video_Speed_*_Selected</b>	D	Indicates which speed has been selected for the call.
<b>Video_Number_*_Text</b>	S	Serial signal displaying the first and second numbers entered. Can be routed to an indirect text field as well as to an address book module for preset storage/recall.
<b>Addressbook_Name_Text</b>	S	Serial signal displaying the address book name. Can be routed to an indirect text field as well as to an address book module for preset storage/recall.

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Video_Quality	A	Analog signal indicating which call speed was selected. Can be routed to an address book module for preset storage/recall.
Incoming_Video_Call	D	High to indicate that there is an incoming video call.
Incoming_Video_Caller_ID_Phone_Number_Text	S	Serial signal indicating the phone number of the incoming video call.
Incoming_Video_Caller_ID_Name_Text	S	Serial signal indicating the name of the incoming video call.
Incoming_Video_Call_Status	S	Serial signal indicating the status of the incoming video call.
Video_Caller_ID_Phone_Number_Call_*_Text	S	Serial signal indicating the phone number of the connected video call.
Video_Caller_ID_Name_Call_*_Text	S	Serial signal indicating the name of the connected video call.
Video_Call_*_Status_Text	S	Serial signal indicating the status of the connected video call.
Video_Keyboard_is_Shifted	D	High to indicate that the next key pressed will be the shifted character.
Video_Keyboard_Caps_Lock_is_On	D	High to indicate that all letters typed will be upper case.
Local_Addressbook_Current_Page	A	Indicates which page of the local address book is being displayed.
Local_Addressbook_Total_Pages	A	Indicates the total number of pages in the local address book.
Local_Addressbook_Name_<entry number>_Text	S	Serial signal containing the site names for the current page.
Local_Addressbook_Name_Selected_Text	S	Serial signal containing the name of the currently selected entry.
Global_Addressbook_Current_Page	A	Indicates which page of the global address book is being displayed.
Global_Addressbook_Total_Pages	A	Indicates the total number of pages in the global address book.
Global_Addressbook_List_Title_Text	S	Serial signal indicating the name of the global address book or the name of the group being displayed.
Global_Addressbook_Name_<entry number>_Text	S	Serial signal containing the site names for the current page.
Global_Addressbook_Name_Selected_Text	S	Serial signal containing the name of the currently selected entry.
To_Device	S	Serial signal to be routed to a 2-way serial com port.

## TESTING:

OPS USED FOR TESTING:	PRO3: 1.501.0013
SIMPL WINDOWS USED FOR TESTING:	4.03.20

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<b>DEVICE DB USED FOR TESTING:</b>	72.00.001.00
<b>CRESTRON DB USED FOR TESTING:</b>	54.05.005.00
<b>SAMPLE PROGRAM:</b>	Polycom HDX9000 v3.5 Demo
<b>REVISION HISTORY:</b>	<p>V. 1.0 – Original Release</p> <p>V. 2.0 – 8-1-2008 – Made the module System Builder compatible.</p> <p>V3.0 – 6-25-2009 - Changed the address book commands for the new Polycom firmware version. Added commands for the global address book.</p> <p>V3.2 – 7-29-2010 – Fixed an issue with the Global Addressbook.</p> <p>V3.3 – 9-27-2011 – Fixed several issues and added some new functionality.</p> <ol style="list-style-type: none"><li>1) Fixed an issue with the audio DTMF tone command.</li><li>2) Found that there was an issue with the command we were using to take the audio phone off hook. That command no longer takes the audio phone off hook. There is no replacement command.</li><li>3) Added functionality to allow DTMF press digits to be displayed in the Audio_Dial_String_Text output. There are inputs on the module to enable and disable this functionality.</li><li>4) Added functionality for incoming calls, both audio and video.</li></ol> <p>V3.3.2 – Fixed several issues and added a new function.</p> <ol style="list-style-type: none"><li>1) Fixed an issue when Enable_DTMF_In_Dial_String is high and the audio phone is off hook. The displayed string was deleting the wrong character when the length of the string was at the maximum length.</li><li>2) Changed the code for the audio dialer to allow the clear key to clear the displayed string when the audio phone is off hook.</li><li>3) Added the Audio phone flash command.</li><li>4) Fixed an issue where in some situations the Visual Concert feedback can get out of sync.</li></ol> <p>V3.3.3 – Fixed an issue with audio call feedback when long caller id information is received.</p> <p>V. 3.3.4 – Made a change to the global addressbook and add a new output.</p> <ol style="list-style-type: none"><li>1) Changed the way we handle selecting an entry in the global addressbook. Instead of sending a new request for the details of the selected entry when the entry is selected the module now stores the data from the original request.</li><li>2) Added an output on the module to indicate that a global addressbook request has been sent to the Polycom. There are several things that can cause it to take several seconds to get the requested addressbook entries from the Polycom. These include corporate network traffic and location of the corporate global addressbook server. This only applies to the global addressbook.</li></ol> <p>v. 3.3.6.3 – Changed the way the module handles the address books to accommodate address book groups.</p> <p>v. 3.5 – Made two changes to the module.</p> <ol style="list-style-type: none"><li>1) Incorporated 3-series best practices for processing responses from the Polycom.</li><li>2) Added a parameter field for a password to allow the module to login to the Polycom when required.</li></ol>