GENERAL INFORMATION

SIMPLWINDOWS NAME:	Tandberg MXP Full Control v3.0
CATEGORY:	Conferencing
VERSION:	3.0
SUMMARY:	Control all standard videoconference functions
GENERAL NOTES:	This module will provide full control of all standard videoconference functions on Tandberg 3000MXP, and 6000MXP codecs. Since certain features are not available on all codec models, some functions included on this module may not function on the model you are using. All functions were tested and verified functional on a Tandberg 6000MXP codec with version F6.3 NTSC software loaded, with Multisite, Presenter, and Security options installed. The Tandberg 6000MXP also had the Tandberg Video Switch (TVS) connected. All feedback provided by this module is true feedback as provided by the Tandberg system.
	Before performing any other functions, you should pulse the Initialize input. This will setup the Tandberg to provide the proper feedback to the Crestron system, and will poll for the current status of all settings. The initialization process will take approximately four seconds. The Initialize_Busy output will be high while the initialization is in progress. If no valid responses are received from the codec, the No_Communications output will be pulsed for one second. The initialization process should only need to be done once after the codec has been powered on.
	This module has been divided into sections based on categories of control. The categories are:
	1. Camera control
	2. Video Inputs
	3. Audio Inputs
	4. Still
	5. Receive Input
	6. PIP
	7. Volume and Privacy
	8. Manual Dialing
	9. Directory Dialing
	10. DuoVideo controls
	11. Multipoint controls
	12. Other controls
	13. Input and Output Gains and Mutes
	14. Directory Edit
	15. IR Emulation
	16. Keyboard
	17. Source Text
	18. System Status
	19. Tandberg Video Switch Status

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For camera control, you must first select the near or far end camera for control. Then the camera movement and preset buttons will act on the near or far end camera currently selected for transmission. Note that focus controls are not available for the near end camera. Also note that you do not have the ability to store presets on the far end system. To store a preset on the near end system, press and hold the desired preset button for 2 seconds. The Preset_Saved output will pulse, and the preset will be saved.

For video/audio switching, you have the ability to select any near end video source for transmission. You also have the ability to turn on/off any of the near end audio inputs. For far end control, you can select any of the far end video sources to be transmitted live, and you can select any far end source to be sent as a still image.

For manual dialing control, you have the ability to select from any of the available call qualities discretely, or you can use the Dial_Call_Quality_Up/Down inputs to scroll through the available qualities. You can also make the call restricted. You have the ability to enter either one or two numbers for the call. The actual numbers to be dialed should be entered using the Keyboard_* inputs toward the bottom of this module. Since you can dial both numeric and alphanumeric IP addresses, a full keyboard has been implemented.

You also have the ability to designate what type of call to place (Auto, ISDN, IP, custom 1-3). If you select auto, the codec will attempt to determine the correct call type.

For Directory dialing, you have the ability to dial any of the entries that have been entered into the Tandberg local and global directories. The local directory can contain up to 99 entries, and the global directory can contain up to 199 entries. When you pulse the Request_Directory input, the Crestron system will read both directories and store them in the Crestron system. While the read is in progress, the Request_Directory_In_Progress output will be high, and the Request_Directory_Progress output could be routed to a gauge on a touch panel to show the relative progress. After the directory has been read, it will be automatically sorted alphabetically. The Sort_In_Progress output will be high while sorting is in progress.

After reading and sorting the directory, you can now display the directory on screens containing up to twenty entries per page. You can use the Directory_First/Prev/Next/Last inputs to scroll between pages. Use the Directory Entries Per Screen to enter the number of entries to be displayed per screen. To display twenty entries per screen, enter 20D.

When you press one of the entries using the Directory_* inputs, the current settings for that entry will be shown at the Directory_Name_Text, Directory_Number_1_Text, Directory_Number_2_Text, and Dial_Call_Quality_Text outputs. To dial the last entry selected, pulse the Directory_Dial input.

The duo video functions control the duo video feature of the codec. This feature allows two simultaneous live sources to be sent to the far end. Whichever duo video source you select will be simultaneously sent to the far end where it will be shown on the Dual output of the Tandberg. Once activated, the duo video can be canceled by pulsing the Duo_Video_Off input.

The multipoint controls allow control of both external bridge multipoint calls, as well as the use of the multisite feature of the Tandberg system. Pulsing the MCU_Request_Status input will cause the Tandberg system to send us the multipoint status of the codec. Based on what type of multipoint call is in progress, different multipoint controls should be displayed on the touch panel. See the demo program for an example of which functions are valid for each mode.

This module will provide a list of up to 50 multipoint sites involved in a conference, displayed on screens of up to 10 sites per screen. Set up the number of sites per screen using the MCU_Entries_Per_Screen parameter. To display 9 entries per screen, enter 9D. You can scroll through the screens using the MCU_Screen_First/Previous/Next/Last inputs. For each site, there will be a

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corresponding site name (MCU_Site_Name_*_Text), MCU Number (MCU_Number_*_Text), and MCU Site Number (MCU_Site_Number_*_Text).

In a multipoint bridge conference, you can choose to request to be chairman. If you are granted the chairmanship, you can then choose to View a site, transmit a site to all other sites, or drop a site from the conference. You can also request the floor, such that your site is transmitted to all other sites.

In a Tandberg hosted multisite call, if your site is holding the conference (with up to five other sites connected), you can choose to have a voice-switched or continuous presence conference. You can request the floor in any of the sites in a Tandberg hosted multisite conference.

The MCU_Status_Text output will indicate the name of the site that you are currently viewing. The MCU_State_Onair_is_On output will be high when your site is being transmitted to another site.

The Directory edit functions allow you to modify the Tandberg local dialing directory. You cannot modify entries made in the Tandberg global directory. Display and select the directory as was done for your directory-dialing page. The Global_Directory_Selected, and Local_Directory_Selected outputs will indicate if the entry selected was in the global or local directory. If it is in the local directory, you can display the settings currently stored, and allow them to be modified. To modify a setting, first select the parameter to be changed using the Directory_Edit_Name/Number_1/Number_2 inputs. Then use the Keyboard_* inputs at the bottom of this module to change the current settings. When finished, pulse the Directory_Edit_Save_Entry input. You could also choose to delete the last entry selected, or to add a new entry. After making any of these changes, the directory will automatically be resorted. The Local_Directory_Entries_Free output will indicate how many (out of 99 total) entries are available.

The IR_* functions will directly emulate the functions available on the Tandberg IR remote. The Keyboard functions give full implementation of a computer style keyboard, including the shift and caps lock features. Separate sections are provided for the alphabetic portion and the numeric portion. This keyboard will be used for entering all phone numbers, IP addresses, directory names, etc. Based on what field you had selected for editing (Number 1, Number 2, directory name, etc.) text you typed will be directed into that field. All available IR commands have been implemented.

Status outputs are provided for a number of parameters. These include the names of the near and far end sources. The type of Tandberg system being used. The LAN and ISDN bandwidth available. Individual call status for each of the 4 channels. A consolidated Call_Status_Text output, which will contain messages for all 4 lines. Digital outputs indicating when each of the 4 lines is connected, and an Incoming_Call indicator, which will pulse when an incoming call is detected when auto answer is off. There are also outputs indicating status of the Tandberg Video Switch (TVS) including whether a TVS is connected, if there are cameras connected to the TVS and text fields indicating the type of cameras connected to the TVS. If there is no TVS connected there are also outputs indicating which camera inputs are enabled and text fields indicating the type of camera connected.

This module is e-Dial compatible.

CRESTRON HARDWARE REQUIRED:	C2-COM, ST-COM
SETUP OF CRESTRON HARDWARE:	RS232 Baud: 9600 Parity: None Data Bits: 8

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Partner: Tandberg
Model: MXP
Device Type: Codec
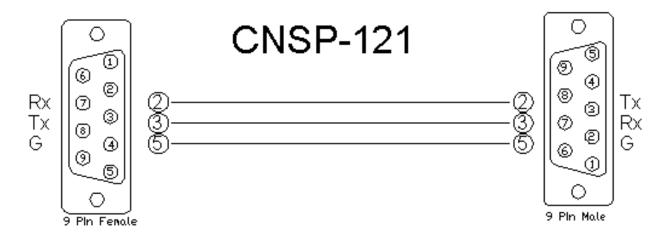
	Stop Bits: 1
VENDOR FIRMWARE:	F6.3 NTSC
VENDOR SETUP:	Use Data Port 1 to communicate with the Crestron system. The Tandberg codec should have data port 1 set to "control mode"
CABLE DIAGRAM:	CNSP-121

CNSP-121

9 Pin Female

9 Pin Male

CONTROL:

Initialize	D	Pulse to set up the Tandberg for proper communications with the Crestron system. Initialize_Busy will be high while this is in progress.
Near_End_Camera	D	Pulse to select the currently active near end camera for control.
Far_End_Camera	D	Pulse to select the currently active far end camera for control.
Camera_Up/Dn/Lt/Rt	D	Press and hold to pan/tilt the near or far end camera.
Camera_Zoom_In/Out	D	Press and hold to zoom the near or far end camera in/out.
Camera_Focus_In/Out	D	Press and hold to focus the far end camera only.
Camera_Preset_0-14	D	Pulse to select any of the 15 available presets to be recalled. Press and hold for 2 seconds to store the current camera position into the selected preset. Only near end presets can be stored.
Camera_Home	D	Pulse to send the near end camera to the home position.
Video_Input_*	D	Pulse to select the near end video source for transmission.

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Audio_Input_*_On/Off/Toggle	D	Pulse to turn on/off each of the near end audio sources.
Send_Still_Current	D	Pulse to send a still image of the currently transmitted live source.
Send_Still_Input_*	D	Pulse to send a still image of any of the available near end sources.
View_Still_On/Off	D	Pulse to turn the still image view on/off.
Receive_Still_Current	D	Pulse to receive a still image from the current far end source.
Receive_Still_Input_*	D	Pulse to receive a still image from any of the far end sources.
Receive_Input_*	D	Pulse to select any of the far end video sources for transmission.
PIP_On/Off/Toggle	D	Pulse to turn the picture-in-picture on/off.
Privacy_On/Off/Toggle	D	Pulse to turn privacy (near end mic mute) on/off.
Volume_Up/Down	D	Press and hold to ramp the near end receive volume up/down.
Volume_Mute_On/Off/Toggle	D	Pulse to mute or unmute the near end receive volume.
Dial_Call_Quality_*	D	Pulse to select the desired quality for a call. Selecting auto will cause the codec to automatically negotiate the best quality possible.
DIal_Call_Type_*	D	Pulse to select the desired call type. You can specifically designate a call to be ISDN or IP for use with a gateway. Or you can select "auto" and have the codec attempt to determine the correct call type. You can also select one of the custom call types, which will correspond to the custom call types set up on the codec.
Dial_Call_Restricted_On/Off/Toggle	D	Pulse to make the call restricted/non-restricted.
Dial_Call_Quality_Up/Down	D	Pulse to cycle through the available call qualities.
Dial_Call_Select_Number_1-2	D	Pulse to select number 1 or 2 for entry.
Dial_Call_Dial	D	Pulse to dial the call.
Dial_Call_Redial	D	Pulse to redial the last call placed.
Dial_Call_Hang_Up_All	D	Pulse to hang up all active calls.
Dial_Call_Hang_Up_1-4	D	Pulse to individually hang up each of the 4 lines.
Request_Directory	D	Pulse to read the local and global directories from the Tandberg system.

		Request_Directory_In_Progress will be high while the directory is being read.
Sort_Directory	D	Pulse to sort the directory. Sort_Directory_In_Progress will be high while sorting.
Directory_First	D	Pulse to display the first page of directory entries.
Directory_Previous	D	Pulse to display the previous page of directory entries.
Directory_Next	D	Pulse to display the next page of directory entries.
Directory_Last	D	Pulse to display the last page of directory entries.
Directory_1-20	D	Pulse to select any of the entries currently being displayed.
Directory_Dial	D	Pulse to dial the last entry selected.
DuoVideo_On/Off	D	Pulse to activate/deactivate duo video.
DuoVideo_Source_*	D	Pulse to select the source to be sent as duo video. This will also automatically turn duo video on.
DuoVideo_Source_Swap	D	Pulse to swap the two sources currently being sent.
MCU_Request_Status	D	Pulse to request the current MCU status.
MCU_Screen_First	D	Pulse to display the first screen of mcu sites.
MCU_Screen_Previous	D	Pulse to display the previous screen of mcu sites.
MCU_Screen_Next	D	Pulse to display the next screen of mcu sites.
MCU_Screen_Last	D	Pulse to display the last screen of mcu sites.
MCU_View_Site_1-10	D	Pulse to select to view any of the mcu sites currently displayed. Only available if you are the chairman.
MCU_Transmit_Site_1-10	D	Pulse to select to transmit any of the mcu sites currently displayed. Only available if you are the chairman.
MCU_Drop_Site_1-10	D	Pulse to drop any of the mcu sites currently displayed. Only available if you are the chairman.
MCU_Request_Floor	D	Pulse to request your site to be the floor (to be seen by all other sites).
MCU_Continuous_Presence	D	Pulse to select the conference to be continuous presence.

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MCU_Voice_Switched	D	Pulse to select the conference to be voice switched.
MCU_Request_Chair	D	Pulse to request to be chairman.
MCU_End_View	D	Pulse to end viewing the last site that was selected for viewing.
MCU_Enter_Password	D	Pulse to enter the MCU password.
MCU_Enter_ID	D	Pulse to enter the MCU ID.
Filter_On/Off/Toggle	D	Pulse to turn the filter on/off.
Speaker_On/Off/Toggle	D	Pulse to turn the speaker on/off.
Selfview_On/Off/Toggle	D	Pulse to turn the selfview on/off.
Do_Not_Disturb_On/Off/Toggle	D	Pulse to activate do-not-disturb. When active, incoming calls will be ignored.
Multisite_Receive_On/Off/Toggle	D	Pulse to activate/deactivate multisite receive. When deactivated incoming multisite calls will be ignored
Stream_Local/Far_End/Auto	D	Pulse to select whether to stream the local or far end video.
Stream_On/Off/Toggle	D	Pulse to start/stop streaming video to an external IP address
Access_Code_*	D	Pulse to enable access codes and enter the access code.
Snapshot_Source_*	D	Pulse to select which source will be the default source for snapshots.
Presentation_Mode_*	D	Pulse to select which presentation mode to use.
Auto_Answer_On/Off/On_+_Mic_Off	D	Pulse to turn auto-answer on, off or on with mic mute.
Auto_PIP_On/Off	D	Pulse to turn auto-pip on and off.
Number_of_Monitors_1/2	D	Pulse to select your system to be single or dual monitors.
Screen_Saver_Enable/Disable	D	Pulse to enable or disable the Tandberg screensaver.
Screen_Saver_On/Off	D	Pulse to immediately turn the screensaver on/off.
Encrypt_Off/Auto	D	Pulse to turn encrypt off or set to auto.
Vol_Up/Down/Mute_In_1-6/Out_1-3	D	Press and hold to adjust the levels of any of the audio inputs or outputs. Pulse to turn

		mute on and off.
Directory_Edit_Name	D	Selects the name field for editing.
Directory_Edit_Number_1-2	D	Selects number 1 or 2 for editing.
Directory_Edit_Delete_Entry	D	When pulsed, will delete the last entry selected.
Directory_Edit_Save_Entry	D	When pulsed, will save the edited fields into the last directory entry selected.
Directory_Edit_Add_Local_Entry	D	When pulsed, will add the edited fields as a new entry in the directory.
Directory_Edit_Clear_Settings	D	When pulsed will clear the name/number1/number2 fields so a new entry can be entered.
IR_*	D	Directly emulates all functions available on the Tandberg Infra-red remote control.
Keyboard_Clear	D	Pulse to clear the previously entered text.
Keyboard_Shift	D	Pulse to activate the shift function. The next keyboard character entered will be shifted, and the shift will be automatically cleared.
Keyboard_Caps_Lock	D	Pulse to activate/deactivate the caps lock feature. This will only have an effect on the alphabetic keys.
Keyboard_*	D	Includes all standard computer keyboard functions.
Numeric_Keypad_*	D	Contains the keys included in the numeric keypad portion of a computer keyboard.
From_Device$	S	Serial signal to be routed to a 2-way RS232 port.

FEEDBACK:

Initialize_Busy	D	High while the initialization is in progress (about 4 seconds).
No_Communications	D	Pulses for 1 second if proper communications are not established during initialization.
Near/Far_End_Camera_is_Active	D	Indicates which camera has been selected for control.
Camera_Preset_*_is_Selected	D	Indicates the last preset saved/recalled.
Camera_Preset_Saved	D	Pulses when a preset has been saved.
Video_Input_is_*	D	Indicates which video source is currently selected for transmission.

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Audio_Input_*_is_On/Off	D	Indicates which audio sources are currently on/off.
View_Still_is_On/Off	D	Indicates if view still is on or off.
Receive_Input_is_*	D	Indicates which far end source is currently being transmitted.
PIP_is_On/Off	D	Indicates if the picture-in-picture is on or off.
Privacy_is_On/Off	D	Indicates if privacy is active or inactive.
Volume_Level	D	Indicates the current receive volume level for display on a bargraph.
Volume_Mute_is_On/Off	D	Indicates if the receive volume is muted.
Dial_Call_Quality_*_is_Selected	D	Indicates which call quality has been selected.
Dial_Call_Type_*_is_Selected	D	Indicates which call type has been selected.
Dial_Call_Restricted_is_*	D	Indicates if restricted has been selected for the call.
Dial_Call_Quality_Text	S	Text indicating which call quality has been selected.
Dial_Call_Select_Number_1/2_is_Selected	D	Indicates which number has been selected for entry.
Dial_Call_Number_1/2_Text	S	Text displaying the numbers as they are entered.
Request_Directory_In_Progress	D	High while the Tandberg directory is being read.
Request_Directory_Progress	A	Progress bar while the Tandberg directory is being read. Could be routed to a bargraph on a touch panel.
Sort_Directory_In_Progress	D	High while the directory is being sorted.
Directory_1-20_Text	S	Indicates the name of up to 20 directory entries per page.
Directory_Name_Text	S	Indicates the name of last directory entry selected.
Directory_Number1/2_Text	S	Indicates the two numbers stored with the last entry selected.
Directory_Network_Text	S	Indicates the network type stored with the last entry selected.
Duo_Video_is_On/Off	D	Indicates if Duo video is active or inactive.
Duo_Video_Source_is_*	D	Indicates which source is the current duo video source.

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MCU_State_is_Off	D	Indicates that no mcu call is currently in progress.
MCU_State_is_Multisite_*	D	Indicates which type of mcu call is in progress.
MCU_State_Chair_is_Supported	D	Indicates that chairman is supported in the current mcu call.
MCU_Status_Text	S	Shows the name of the site currently being viewed at the near end.
MCU_Site_Name_1-10_Text	S	Shows the name of up to 10 sites involved in the conference.
MCU_Number_1-10_Text	S	Shows the mcu number of up to 10 sites involved in the conference.
MCU_Site_Number_1-10_Text	S	Shows the site number of up to 10 sites involved in the conference.
MCU_State_is_Onair_On	D	High when the local sites video is being viewed by another site.
MCU_State_is_Continuous_Presence	D	High if a continuous presence conference is in progress.
MCU_State_is_Voice_Switched	D	High if a voice switched conference is in progress.
MCU_State_is_Chair_Granted	D	High if the chairmanship has been granted to the near end site.
MCU_Requesting_Password	D	High to indicate that the MCU Password is being requested.
MCU_Requesting_ID	D	High to indicate that the MCU ID is being requested.
Filter_is_On/Off	D	Indicates if the filter is on or off.
Speaker_is_On/Off	D	Indicates if the speaker is on or off.
Selfview_is_On/Off	D	Indicates if selfview is on or off.
Do_Not_Disturb_is_On/Off	D	Indicates if do-not-disturb is active or inactive.
Multisite_Receive_is_On/Off	D	Indicates if multisite receive is active or inactive.
Stream_Local/Far_End/Auto_is_On	D	Indicates the current stream video source.
Stream_is_On/Off	D	Indicates if video streaming is active or inactive.
Access_Code_is_On/Off	D	Indicates if the access code is on or off.
Access_Code_Text	S	Serial signal indicating the access code being entered.

Access_Code_Accepted/Rejected	D	Will pulse high to indicate that the access code has been accespted or rejected.
Snapshot_Source_is_*	D	Indicates which source has been selected for the default snapshot source.
Presentation_Mode_is_*	D	Indicates which presentation mode has been selected
Auto_Answer_is_On/Off/On_+_Mic_Off	D	Indicates if auto answer is on or off.
Auto_PIP_is_On/Off	D	Indicates if auto pip is on/off.
Number_of_Monitors_is_1/2	D	Indicates if the system is set up for single or dual monitors.
Screensaver_is_Enabled/Disabled	D	Indicates if the screensaver is currently enabled or disabled.
Screensaver_is_On/Off	D	Indicates if the screensaver is currently on or off.
Vol_In/Out_1-6_Level	A	Indicates the levels of each of the 6 audio inputs and 3 audio outputs. Can be routed to bargraphs on a touch panel
Vol_Mute_In/Out_1-6_is_On/Off	D	Indicates if mute is active for any of the audio inputs/outputs.
Directory_Edit_Name_is_Selected	D	High if the directory name field has been selected for editing.
Directory_Edit_Number_1/2_is_Selected	D	High if the directory number 1 or 2 field has been selected for editing.
Local_Directory_Entries_Free	A	Indicates the number of entries free in the directory.
Global_Directory_Selected	D	High if the last entry selected was from the global directory.
Local_Directory_Selected	D	High if the last entry selected was from the local directory.
Keyboard_Shift_is_On	D	High while the shift feature is active.
Keyboard_Caps_Lock_is_On	D	High while the caps lock feature is active.
Near_Source_1-5_Text	S	Indicates the name of the near end video sources as read from the Tandberg system.
Far_Source_1-5_Text	S	Indicates the name of the far end sources as read from the Tandberg system.
System_Type_Text	D	Indicates the model of the Tandberg codec connected to the Crestron system.
ISDN_Bandwidth	A	Indicates the available ISDN bandwidth set up on the Tandberg system.

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LAN_Bandwidth	A	Indicates the available LAN bandwidth set up on the Tandberg system.
Natural_Presentation_Available	D	Indicates that the Tandberg Natural Presentation Package has been installed on the system.
MCU_Available	D	Indicates that the Tandberg MCU option has been installed on the system.
Netwok_is_*	D	Indicates the network type that is available.
Call_Status_Text	S	Displays any call status messages received for all 4 lines.
Call_Status_Channel_*_Direction_Text	S	Indicates the direction of the call individually for each of the 4 lines.
Call_Status_Channel_*_Type_Text	S	Indicates the type of the call individually for each of the 4 lines.
Call_Status_Channel_*_Status_Text	S	Indicates the status of the call individually for each of the 4 lines.
Line_1-4_Connected	D	High if the corresponding line is connected
Incoming_Call	D	Pulses high when an incoming call is received if auto answer is off
System_Powered_Up	D	Pulses high to indicate that the Tandberg has powered up.
Tandberg_Video_Switch(TVS)_is_*	D	Indicates whether a Tandberg Video Switch (TVS) is connected or not.
TVS_HD_Camera_*_is_Connected	D	Indicates which TVS HD cameras are connected.
TVS_VISCA_Camera_*_is_Connected	D	Indicates which TVS VISCA cameras are connected.
TVS_Camera_*_Type_Text	S	Indicates the type of camera connected to the TVS.
No_TVS_Camera_*_Enabled	D	Indicates which camera inputs are enabled when a TVS is not connected.
No_TVS_Camera_*_Type_Text	S	Indicates the type of camera connected to the main inputs.
To_Device$	S	Serial signal to be routed to a 2-way RS232 port

PARAMETERS:

Directory Entries Per Screen	P	Enter the number of directory entries to display per screen. Default is 8d, max is 20d.
MCU Entries Per Screen	P	Enter the number of MCU entries to display per screen. Default is 9d, max is 10d.

Max Characters	P	Enter the number of characters per directory entry. Default is 21, max is 24d.

TESTING:

OPS USED FOR TESTING:	4.000.0226
SIMPL WINDOWS USED FOR TESTING:	2.10.32
CRESTRON DB USED FOR TESTING:	20.00.013.00
DEVICE DB USED FOR TESTING:	20.01.002.00
SAMPLE PROGRAM:	Tandberg MXP Full Control v3.0 Demo
REVISION HISTORY:	V. 1.0 – Original Release. V2 – Fixed "View Still Off" function V3.0 – Added control for the Tandberg Video Switch. Made System Builder compatible.