AJA HELO
Module Application Guide

Description

This module allows you to control many aspects of recording and streaming and recording using the AJA HELO H.264 Stream/Record device using the network-based REST-API

Supported Processors

Any 3-Series Processor with an Ethernet connection is supported.

Compatibility			Processor Requirements	
3 COMPATIBLE	NOT COMPATIBLE SERIES	SystemBuilder NOT COMPATIBLE	Ethernet REQUIRED	USB REMOVABLE MEDIA NOT REQUIRED

Contents

Module Application

The processor must be able to connect to the HELO using TCP port 80 (HTTP); if the processor is unable to connect to the HELO on port 80, the module will not function.

Signal and Parameter Descriptions

Bracketed signals such as "[signal_name]" are optional signals

DIGITAL INPUTS

[enable_debug].. This signal should normally be left low or undefined; when high information including data being send and received by the module will be printed to the processor's console output to aid in troubleshooting and debugging.

[start_polling]... Pulse this input to cause the module to poll the HELO for status. When the HELO is idle polling occurs approximately once every 5 seconds; when the HELO is recording or streaming polling occurs approximately once per second. Polling will continue until [stop_polling] is pulsed.

[stop_polling] .... Pulse this input to stop polling previously initiated by the [start_polling] input.

[reboot] .... Pulse to request the HELO to reboot itself; there are some error conditions (such as removing a drive while recording is in progress) that require you to reboot the HELO to restore normal operation.

[front_panel_lock_on] .... Pulse to lock (disable) controls on the front of the HELO.

[front_panel_lock_off]... Pulse to unlock (enable) controls on the front of the HELO.

[power_up_state_idle] .... Pulse to configure the HELO to enter the idle state (neither recording nor streaming) when powered up or after a reboot

[power_up_state_record] .... Pulse to configure the HELO to enter the record state when powered up or after a reboot

[power_up_state_stream].. Pulse to configure the HELO to enter the streaming state when powered up or after a reboot

[power_up_state_record_and_stream] .... Pulse to configure the HELO to enter the recording and streaming states when powered up or after a reboot.

[link_stream_and_record_start/stop_on] and _off]....... Pulse to link or unlink streaming and recording start/stop. When linked, starting recording or streaming will start both recording and streaming

[link_stream_and_record_profiles_on] and _off] .... Pulse to link or unlink streaming and recording profiles. When linked, the same profile will be used to control both recording and streaming settings]

[stream_dropped_frames_continue] and _stop] .... Pulse to configure the behavior when frames are dropped while streaming. Continue will continue the stream, while Stop will immediately end the stream.

[stream_autorecover_on] and _off]........................... Pulse to configure the recovery behavior; when On, if the stream is interrupted for any reason the HELO will automatically attempt to restart it.

[stream_request_stop_streaming] .... Pulse to stop a stream currently in progress.

[stream_request_start_streaming]........................... Pulse to request the HELO to begin streaming if not currently streaming.

[record_loss_of_video_stop] .... Pulse to configure the HELO to stop recording if it loses the currently selected video input.

[record_loss_of_video_record_test_pattern]............... Pulse to configure the HELO to continue recording using a test pattern if the selected video input is lost.

[record_dropped_frames_continue] and _stop]............ Pulse to configure the behavior when frames are dropped while recording. Continue will continue the

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recording, while Stop will immediately end the recording.

[record_request_stop_recording] .... Pulse to stop a recording currently in progress.

[record_request_start_recording] .... Pulse to request the HELO to begin recording if not currently recording.

[input_select_sdi] .... Pulse to select the SDI input for recording and/or streaming.

[input_select_hdmi] .... Pulse to select the HDMI input for recording and/or streaming.

[input_select_test_pattern] .... Pulse to record and/or stream a test pattern/

[audio_input_select_sdi] _hdmi] _analog] _none] .... Pulse to select the corresponding audio input for recording and/or streaming. Note that the SDI and HDMI inputs must have valid video present to be used for audio input

[audio_analog_input_level_0dB] _+6dB] _+12dB] .... Pulse to configure the input sensitivity for the analog audio input on the HELO.

[closed_captioning_source_none] .... Pulse to configure the HELO to neither stream nor record closed captioning information that may be present in the video input.

[closed_captioning_source_auto] .... Pulse to configure the HELO to automatically choose the source for Closed Captioning information to be recorded and/or streamed when the SDI input is selected.

[closed_captioning_source_ancillary_data] .... Pulse to configure the HELO to use only the SDI input ancillary data (VANC) for recording and/or streaming Closed Captioning information.

[closed_captions_source_line21] .... Pulse to configure the HELO to use only Closed Captioning information found in line 21 of the Vertical Blanking Interval (VBI) for recording and/or streaming (this option is valid only for SD SDI inputs)

[av_mute_on] .... Pulse to mute audio and video. While muted, no audio nor video inputs will be recorded or streamed.

[av_mute_off] .... Pulse to unmute audio and video, allowing them to be recorded or streamed.

[av_mute_toggle] .... Pulse to alternated between the audio and video mute states.

ANALOG INPUTS

[recall_preset#_(1-20)] .... On change will recall the corresponding preset stored on the HELO. Presets may be configured from the "Presets" section of the HELO web configuration page.

[streaming_select_profile#_(0-9)] .... On change this will recall the corresponding streaming profile on the HELO. Streaming profiles may be configured from the "Streaming Profiles" section of the HELO web configuration page.
Note: Streaming profiles are offset by 1 from the Web Configuration page.

[record_select_profile#_(0-9)] .... On change this will recall the corresponding recording profile on the HELO. Recording profiles may be configured from the "Recording Profiles" section of the HELO web configuration page.
Note: Recording profiles are offset by 1 from the Web Configuration page.

[audio_delay_(0-300)_ms] .... On change this will set the audio delay (relative to video) to the corresponding duration from 0 to 300 miliseconds.

SERIAL INPUTS

[ip_address_or_hostname_override$]......................... In most cases this input will be left defined. This input may be used to programmatically override the IP Address or Hostname parameter, for example, in template- or configuration-based systems.

[recording_filename_prefix_set$].............................. Used to specify the prefix to use when recording files. Filenames are typically in the format <prefix>_<clip_number>_

DIGITAL OUTPUTS

[polling_active_fb].. Latched high to indicate that polling is currently occurring (see [start_polling], previously, for more information on polling)

[polling_inactive_fb] .... Latched high to indicate that polling is currently inactive; while polling is inactive module outputs will only update in response to a corresponding input change.

[front_panel_lock_on_fb] _off_fb]............................ Latched high to indicate that the HELO front panel is currently locked (controls disabled) or unlocked (controls enabled)

[power_up_state_idle_fb], _record_fb]
_stream_fb], record_and_stream_fb] .... Latched high to indicate the state the HELO will enter when powered up or after a reboot has completed.

[link_stream_and_record_start/stop_on_fb], _off_fb].... Latched high to indicate if recording and streaming start and stop are linked or function independently.

[link_stream_and_record_profiles_on_fb], _off_fb] .... Latched high to indicate of recording and streaming profiles are linked or selected independently.

[stream_dropped_frames_continue_fb], _stop_fb] .... Latched high to indicate the behavior of the HELO if frames are droped during streaming.

[stream_autoreciver_on_fb], _off_fb]........................ Latched high to indicate if the HELO will attempt to automatically recover from a disruption while streaming

[stream_state_uninitialized_fb] .... Indicates that the HELO streaming subsystem is uninitialized (this value state has not been observed by ControlWorks)

[stream_state_idle_fb]... Indicates that the HELO streaming subsystem is not currently streaming but is available.

[stream_state_streaming_fb] .... Indicates that the HELO is currently streaming.

[stream_state_failing_in_idle_fb]............................... Indicates that the HELO is not currently streaming and something would prevent a stream from beginning. Note: It is common to see this state immediately before and after streaming.

[stream_state_failing_in_stream_fb].......................... Indicates that the HELO is currently streaming but something is preventing successful streaming. Note: It is common to see this state immediately before and after streaming.

[stream_state_shutdown_fb].................................... Indicates that the HELO streaming subsystem is shutdown and not available. (This state has not been observed by ControlWorks)

[record_loss_of_video_stop_fb], _test_pattern_fb]........ Latched high to indicate the disposition of a recording if the video input is lost while the recording is in progress.

[record_dropped_frames_continue_fb], _stop_fb] .... Latched high to indicate the disposition of a recording if frames are dropped while the recording is in progress.

[record_media_ready_fb], _not_ready_fb] .... Latched high to indicate if the primary media is ready or not ready to be recorded upon. Note: "Primary" is as configured in the recording profile and may change from profile to provile.

[record_secondary_meaid_ready_fb], _not_ready_fb] ... latched high to indicate if the secondary media is ready or not ready to be recorded upon.

[record_state_uninitialized_fb] .... Indicates that the HELO recording subsystem is uninitialized (this value state has not been observed by ControlWorks)

[record_state_idle_fb].. Indicates that the HELO recording subsystem is not currently streaming but is available.

[record_state_streaming_fb]..................................... Indicates that the HELO is currently recording.

[record_state_failing_in_idle_fb]................................ Indicates that the HELO is not currently recording and something would prevent a stream from beginning.
Note: It is common to see this state immediately before and after streaming.

[record_state_failing_in_stream_fb]............................ Indicates that the HELO is currently recording but something is preventing successful recording.
Note: It is common to see this state immediately before and after recording.

[record_state_shutdown_fb] .... Indicates that the HELO recording subsystem is shutdown and not available. (This state has not been observed by ControlWorks)

[primary_record_state_initializing_fb], _idle_fb],
recording_fb], _stopped_fb], _shutting_down_fb] .... Latched high to indicate the status of the primary record destination.

[secondary_record_state_initializing_fb], _idle_fb],
recording_fb], _stopped_fb], _shutting_down_fb] .... Latched high to indicate the status of the primary record destination.

[video_input_select_sdi_fb], _hdmi_fb],
_test_pattern_fb] .... Latched high to indicate that the corresponding video input will be recorded and/or streamed.

[audio_input_select_sdi_fb], _hdmi_fb], _analog_fb],
_none_fb] .... Latched high to indicate that the corresponding audio input will be recorded and/or streamed. Note that the HDMI and SDI inputs will require a corresponding, valid, video input to be usable.

[audio_analog_input_level_0dB_fb], _+6dB_fb],
_+12dB_fb]... Latched high to indicate the corresponding input sensitivity for the analog audio input.

[closed_captioning_source_none_fb], _audio_fb],
_ancillary_data_fb], _line_24_fb]............................... Latched high to indicate the corresponding source of closed captioning data will be used for recording and/or streaming.

[av_mute_on_fb], _off_fb].. Latched high to indicate the current state of the audio/video mute.

[happy]... Latched high as long as the programmer is happy.

ANALOG OUTPUTS

[recall_preset#_(1-20)_fb] .... Indicates the index of the current or most recently recalled system preset. Valid values are 1 through 20, inclusive.

[streaming_select_profile#_(0-9)_fb]......................... Indicates the index of the current streaming profile. Valid values are 0 through 9, inclusive, and are offset by one from the AJA user interface.

[current_media_available_space%_fb] .... Reports the available space reported by the HELO from 0% to 100% (0d to 65535d) with 0% indicating that there is no available space.

[recorder_select_profile#_(0-9)_fb] ....Indicates the index of the current recording profile. Valid values are 0 through 9, inclusive, and are offset by one from the AJA user interface.

[audio_delay_(0-300)_ms_fb] ....Indicates the delay, relative to video, for audio. Valid values range from 0d (0ms delay) to 300d) (300ms delay).

SERIAL OUTPUTS

[encoder2_stream_uri_fb$].......................................Indicates the URI of the stream.
Note: This value is only propagated when a stream is active; at other times it may be empty/blank.

[streaming_select_profile_name_fb$].........................Indicates the name as configured for the currently selected streaming profile.

[stream_duration_duration_fb]..................................Indicates in HH:MM:SS format the duration for the current stream.

[recording_filename_prefix_fb$] ....Indicates the currently configured prefix to be prepended to filenames during recording. Default is "clip".

[recording_filename_fb$]..Indicates the complete name of the file being recorded.
Note: This data is only propagated/accurate while a recording is in progress. When a recording is not in progress it may be blank or contain the name of the previous recording.

[record_select_profile_name_fb$].............................Indicates the name as configured for the currently selected streaming profile.

[recording_current_clip_name_fb$]...........................Indicates the name of the clip currently being recorded.
Note: This data is only propagated/accurate while a recording is in progress. When a recording is not in progress it may be blank or contain the name of the previous recording.

[recording_duration_fb$]...Indicates in HH:MM:SS format the duration for the current clip.

PARAMETERS

IP Address or Hostname ....Enter the IP address or hostname of the AJA HELO. This parameter may be overridden by the [ip_address_or_hostname_override$] input if that is set.

Support

This module is supported by ControlWorks Consulting, LLC. Should you need support for this module please email support@controlworks.com or call us at 440-449-1100. ControlWorks normal office hours are 9 AM to 5 PM Eastern, Monday through Friday, excluding holidays.

Before calling for support, please ensure that you have loaded and tested operation using the included demonstration program and touchpanel(s) to ensure that you understand the correct operation of the module. It may be difficult for ControlWorks to provide support until the demonstration program is loaded.

Updates, when available, are automatically distributed via Email notification to the address entered when the module was purchased. In addition, updates may be obtained using your username and password at https://www.store.controlworks.com/Customers/Login.aspx

Distribution Package Contents

The distribution package for this module should include:

AJA_HELO_Demo_V1.1_(ControlWorks).smw	Demonstration Program
AJA_HELO_v1.1_(ControlWorks).umc	Main User Module
AJA_HELO_Engine_v1.1_(ControlWorks).usp	SIMPL+ for use inside main module
AJA_HELO_Engine_v1.1_(ControlWorks).ush	SIMPL+ header file, for use inside main module
aja_helo.clz [1.1.7556.16351]	SIMPL# module for use in SIMPL+ module
AJA_HELO_V1.1_TSW-1060_(ControlWorks).vtp	Demonstration TSW-1060 file
AJA_HELO_v1.1_(ControlWorks)_Help.pdf	This help file.

Revision History

V1.1 caleb@controlworks.com 2020.09.08
    -Recompile for Database 200.

V1.0 lincoln@controlworks.com 2019.10.09
    -Initial Version

Development Environment

This module version was developed on the following hardware and software. Different versions of hardware or software may or may not operate properly. If you have questions, please contact us.

AJA Hardware	Software Version
AJA HELO	4.0.0.54-4r
Crestron Hardware	**Firmware Version**
Crestron AV3 Processor	v1.600.3781.34251
Software	**Software Version**
Crestron SIMPL Windows	4.14.20
Crestron Vision Tools Pro-e	3.7.2.8
Crestron Database	200.00.004.00
Device Database	200.00.015.00

ControlWorks Consulting, LLC Module License Agreement

Definitions:
ControlWorks, *We*, and *Us* refer to ControlWorks Consulting, LLC, with headquarters located at 8228 Mayfield Road #6B Rear, Cleveland, Ohio 44026. *You* and *Dealer* refer to the entity purchasing the module. *Client* and *End User* refer to the person or entity for whom the Crestron hardware is being installed and/or will utilize the installed system. *System* refers to all components described herein as well as other components, services, or utilities required to achieve the functionality described herein. *Module* refers to files required to implement the functionality provided by the module and may include source files with extensions such as UMC, USP, SMW and VTP. *Demo Program* refers to a group of files used to demonstrate the capabilities of the Module, for example a SIMPL Windows program and VisionTools Touchpanel file(s) illustrating the use of the Module but not including the Module. *Software* refers to the Module and the Demo Program.

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