



Epiphan Video

EC20 Camera

REST API Crestron Driver
ClearAlan Inc.

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Revision History

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Dependencies

This module requires v200 or later of the Crestron Database and Crestron Device Database.

The construct file used for the demo program was built on CH5 Version 2.16.1.

The module was tested on a CP3 and CP4 against an Epiphan EC20 running firmware version 2.0.16. Although previous EC20 firmware versions may work, they will not be supported.

General Notes

This module is used for connecting an Epiphan EC20 series camera to control the peripheral through a control system.

There are two demonstration programs available to showcase the module: *Demo_EpiphanEC20* and *Demo_EpiphanEC20_3series*, alongside a UI program *Demo_EpiphanEC20.ch5z*. The two SIMPL Windows programs are identical except for their target rack.

Load the applicable .lpz file to your control processor of choice and load the project either onto the processor as an HTML5 Web XPanel or on any 10" x60, x70, or x80 series Crestron touchpanel, connected at IPID 03.

If running as an HTML5 Web XPanel, ensure that your processor is up to date, and is compatible with CH5 web XPanels.

Setup of Crestron Hardware

The module is supported on both 3- and 4-series Crestron processors. When using the module as part of a program running on a 3-series processor, a 3-series firmware version of at least 1.8001 or newer is recommended, and the latest version available should be used for the best results.

Quick Start Guide

- 1) Ensure the **IP Address or HostName** parameter contains the IP address of the EC20 camera.
- 2) Ensure the **Username** and **Password** fields have been set correctly. The default username and password are "admin" – if they have been changed, ensure these match accordingly
- 3) In your program, latch the "Enable" signal when you would like the module to initiate the connection with the camera. The module manages the connection to the camera on its own; it will attempt to reconnect to the API if the connection is broken, and regularly polls the camera to ensure external changes in camera state are reflected on the output signals of the module accordingly.
- 4) Should difficulties arise with connecting to the camera, consult the troubleshooting steps outlined at the end of this help file.

Signal Map

1 Parameters:

Name	Type	Description	Notes
IP Address or HostName	String	IP address or hostname for connection.	If specifying this value at runtime is needed, the <i>IP_Address</i> signal can be used to replace this value.
Port	Decimal	Default Port for connection	If specifying this value at runtime is needed, the <i>Port</i> signal can be used to replace this value.
Power On With Preset Recall	Yes / No	If enabled, trigger a power on request when a preset is recalled	
Preset Save Hold Time	Time (s)	Duration, in seconds, where the user will have to hold a <i>Preset[x]</i> signal high to store its position	
PresetSaved fb Duration	Time (s)	Duration, in seconds, where the <i>PresetSaved.fb</i> is pulsed high to indicated preset stored	
Preset FB Timeout	Time(s)	Duration, in seconds, after which <i>Preset.fb</i> reverts to -1 following a preset save or recall when Preset FB Timeout Enable has been set to "Yes"	
Preset FB Timeout Enable	Yes / No	Choose to enable/disable functionality to have <i>Preset.fb</i> revert to -1 following a preset save or recall after a certain period of time.	
Username	String	Default username for connection	If specifying this value at runtime is needed, the <i>Username</i> signal can be used to replace this value.
Password	String	Default password for connection	If specifying this value at runtime is needed, the <i>Password</i> signal can be used to replace this value.

2 Setup

Inputs:

Name	Type	Description	Notes
Enable	Digital	Latch this signal high to enable the IP connection. The module will disconnect and stop all activity on a trailing edge.	If using any of the input signals in the Connection signal group to specify the connection details at runtime, it is recommended that this signal be latched high <i>after</i> those values are set.

3 Connection:

Inputs:

Name	Type	Description
Username	String	The username used by the module to connect to the device. Will supersede the value on the parameter field.
Password	String	The password field used by the module to connect to the device. Will supersede the value on the parameter field.
IP_Address	String	The IP address (or hostname) of the device. Will supersede the value on the parameter field. If using hostnames, ensure the DNS setup on the AV network will resolve the hostname/FQDN properly.
Port	Analog	The port of the driver used for communication represented as an analog signal. Will supersede the value on the parameter field.
Port_String	String	The port of the driver used for communication represented a serial signal. Will supersede the value on the parameter field.

Feedback:

Name	Type	Description
Connected	Digital	A high value indicates the control system has connected to the camera and is able to communicate properly with the REST API on the device.
Connection_Status	String	A string value from the module to display an accurate connection status from the control system to the peripheral.
Username.Feedback	String	The username used by the module to connect with the device.
Password.Feedback	String	The (unmasked) password used by the module to connect with the device.
IP_Address.Feedback	String	The IP address or hostname used by the module to connect with the device.
Port.Feedback	Analog	The TCP port number used by the module to communicate with the REST API, represented as an analog signal.
Port_String.Feedback	String	The TCP port number used by the module to communicate with the REST API, represented as a serial signal.

4 Power:

Inputs:

Name	Type	Description
Power.On	Digital	Powers on the camera on a rising edge. Note: communication with the camera may be interrupted for a period of time while the camera powers on. This is normal.
Power.Off	Digital	Powers off the camera on a rising edge. Note: Note: communication with the camera may be interrupted for a period of time while the camera powers off. This is normal.
Power.Toggle	Digital	Toggle the camera power from its last known state on a rising edge. Note: as the camera takes a period of time to power on and off, using this signal while the power on or off sequence is being completed is permitted, but be aware that the desired power state as a result of the toggle may take time to execute.

Feedback:

Name	Type	Description
Power.On.Feedback	Digital	A high value indicates the camera is powered on.
Power.Off.Feedback	Digital	A high value indicates the camera is powered off.

5 PTZ Control:

Note: All PTZ sensitivity/speeds used by the module are independent of the speeds set on the camera's web UI. If the PTZ speed signals are not used, the corresponding PTZ sensitivity feedback signals will indicate the "Default" value the module uses, which has been tested as a reasonable default for most use cases.

Should a custom P/T/Z speed be needed, the corresponding PTZ sensitivity signals can be set before the camera connects – simply drive them with an Analog Initialize at program start (or during your program startup sequence as desired).

Inputs:

Name	Type	Description
Tilt_Up	Digital	Press and hold to tilt the camera up.
Tilt_Down	Digital	Press and hold to tilt the camera down.
Pan_Left	Digital	Press and hold to pan the camera left.
Pan_Right	Digital	Press and hold to pan the camera right.
Zoom_In	Digital	Press and hold to zoom the camera in.
Zoom_Out	Digital	Press and hold to zoom the camera out.
Home	Digital	Set the camera to the home position on a rising edge
PanTilt_UpLeft	Digital	Press and hold to pan and tilt the camera up and to the left.
PanTilt_UpRight	Digital	Press and hold to pan and tilt the camera up and to the right.
PanTilt_DownLeft	Digital	Press and hold to pan and tilt the camera down and to the left.
PanTilt_DownRight	Digital	Press and hold to pan and tilt the camera down and to the right.
Pan.Speed	Analog	Sets the sensitivity of the pan controls. Values used are 1-24, where 24 is the fastest movement and 1 is the slowest.
Tilt.Speed	Analog	Sets the sensitivity of the tilt controls. Values used are 1-20, where 20 is the fastest movement and 1 is the slowest.

Zoom.Speed	Analog	Sets the sensitivity of the zoom controls. Values used are 1-7, where 7 is the fastest movement and 1 is the slowest.
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Feedback:

Name	Type	Description
Pan.Speed.Feedback	Analog	The current pan speed sensitivity
Tilt.Speed.Feedback	Analog	The current tilt speed sensitivity
Zoom.Speed.Feedback	Analog	The current zoom speed sensitivity

6 Focus Control:

Note: The focus speed used by the module is independent of the speeds set on the camera's web UI.

Inputs:

Name	Type	Description
Focus_Near	Digital	Press and hold to focus the camera in the near direction. Only functions when the <i>Focus_Mode</i> is set to "Manual" mode (ie. Has a value of 2).
Focus_Far	Digital	Press and hold to focus the camera in the far direction. Only functions when the <i>Focus_Mode</i> is set to "Manual" mode (ie. Has a value of 2).
Focus_Mode	Analog	Assign the focus mode: 1 = Auto 2 = Manual
Focus_Speed	Analog	Set the sensitivity of the focus controls. Values 1-7, where 7 is the fastest movement and 1 is the slowest.

Feedback:

Name	Type	Description
Focus_Mode.CurrentMode.Name	String	Indicates the current focus mode as a user-friendly name.
Focus.Mode.Feedback	Analog	The analog representation of the focus mode: 1 = Auto 2 = Manual
Focus.Speed.Feedback	Analog	The current focus speed sensitivity

7 Presets

Inputs:

Name	Type	Description
Preset[*]	Digital	Triggers the corresponding preset on a short press. Saves the corresponding preset when pressed and held for the configured amount of time in the corresponding module parameter. Numbering used corresponds directly with the preset numbering used on the web UI for calling/setting a preset.
PresetRecall	Analog	Recalls a preset at the given number on signal stimulus. Numbering used corresponds directly with the preset numbering used on the web UI.
PresetSave	Analog	Saves a preset at the given number on signal stimulus. Numbering used corresponds directly with the preset numbering used on the web UI.

Feedback:

Name	Type	Description
Preset[*].fb	Digital	A high value indicates the last preset recalled or saved using the module.
Preset.fb	Analog	Indicates the last preset recalled or saved using the module.
PresetSaved.fb	Digital	An indicator that a preset has been saved. Stays high for the configured timespan in the corresponding module parameter.
PresetSaved^.fb	Digital	A short pulse that indicates that a preset has been saved.

8 Tracking

Inputs:

Name	Type	Description
Tracking.On	Digital	Enables the camera tracking functions on a rising edge
Tracking.Off	Digital	Disables the camera tracking functions on a rising edge
Tracking.Toggle	Digital	Toggles on camera tracking functionality on a rising edge
Tracking.Mode	Analog	Sets the tracking mode used by the camera. Values: 1 = Presenter 2 = Zone
Tracking.AutoZoom.On	Digital	Enables camera tracking auto-zoom on a rising edge
Tracking.AutoZoom.Off	Digital	Disables camera tracking auto-zoom on a rising edge
Tracking.AutoZoom.Toggle	Digital	Toggles camera tracking auto-zoom on a rising edge

Feedback:

Name	Type	Description
Tracking.On.Feedback	Digital	A high value indicates that camera tracking is on
Tracking.Off.Feedback	Digital	A high value indicates that camera tracking is off
Tracking.Mode.Feedback	Analog	Reports the tracking mode. Values: 1 = Presenter 2 = Zone
Tracking.Mode.CurrentMode. Name	String	Indicates the current tracking mode as a user-friendly name
Tracking.AutoZoom.On. Feedback	Digital	A high value indicates tracking auto-zoom auto-zooming is on
Tracking.AutoZoom.Off. Feedback	Digital	A high value indicates tracking auto-zoom is disabled

9 Tally Light Control

Inputs:

Name	Type	Description
Tally.On	Digital	Pulse to turn on the tally light
Tally.Off	Digital	Pulse to turn off the tally light
Tally.Toggle	Digital	Pulse to toggle the tally light state
Tally.Action	Analog	Sets the Tally light behavior when <i>Tally.Toggle</i> is enabled. Values: 1 = Off 2 = Blinking 3 = On
Tally.Colour	Analog	Sets the Tally light color when <i>Tally.Toggle</i> is enabled. Values: 1 = Green 2 = Red

Feedback:

Name	Type	Description
Tally.On.Feedback	Digital	A value of high indicates that the tally LED is illuminated
Tally.Off.Feedback	Digital	A value of high indicates that the tally LED is not illuminated
Tally.Action.Feedback	Analog	Indicates the current setting for the Tally light behavior. Values: 1 = Off 2 = Blinking 3 = On
Tally.Action.CurrentAction. Name	String	Indicates the Tally light behavior as a user-friendly name.
Tally.Colour.CurrentColour. Feedback	Analog	Indicates the current setting for the tally light color. Values: 1 = Green 2 = Red
Tally.Colour.CurrentColour. Name	String	Indicates the current tally light color setting as a user-friendly name.

10 System

Feedback:

Name	Type	Description
Device.Name.Feedback	String	Indicates the connected device's name. This is the "Device ID" that is user-settable on the EC20 device webpage.
Serial.Number	String	Indicates the connected device's serial number.
Firmware.Version	String	Indicates the connected device's firmware version
Version.Info	String	Indicates the connected device's version number
Model.Number	String	Indicates the connected device's model number

11 Network

Feedback:

Name	Type	Description
IP.Address.Feedback	String	Indicates the connected device's IP Address
Netmask.Feedback	String	Indicates the connected device's subnet mask in a four octet format.
Gateway.Feedback	String	Indicates the connected device's gateway address
DNS.Feedback	String	Indicates the connected device's DNS address
MAC.Address.Feedback	String	Indicates the connected device's MAC address. Uppercase, colon separated format.

12 Debug

Inputs:

Name	Type	Description
Debug_Level	Analog	Indicates the debug level verbosity. There are 5 values that can be used. In order of increasing verbosity: 0 – “Fatal” – Typically, no debug messages except for rare occasions. 1 – “Error” – All the above, and includes debug messages that indicate that something has gone wrong that cannot be handled normally and are impacting normal operation. 2 – “Warning” – All of the above, and includes debug messages that indicate something out of the ordinary or an error that might impact normal operations, but in many cases can be ignored or handled by the module. 3 – “Information” – All of the above, and includes debug messages with information about normal operation. 4 – “Debug” – All of the above, and includes debug messages with information about normal module operation, sequencing, and processing of data to and from the camera. 5 – “Verbose” – All available debug messages are included in the output. Importantly, this level includes all REST communications to and from the device. Be prepared to enable/disable logging for a short window or capture the output of the text console to a file for later use. The debug output will be very difficult to follow in real time.
Enable_Debug	Digital	Latch this signal to enable debug messages to be printed to the text console of the Crestron 3- or 4-series appliance, or the error log in the case of a Crestron virtual control application. These debug messages are also available on the <i>Debug.Message</i> signal as described below for use within the SIMPL program.

Feedback:

Name	Type	Description
Debug_Level.Feedback	Analog	Indicates the current debug level setting. Unless set by the programmer using this module, this value defaults to 3, which is the “Information” debug level.
Debug.Message	String	Last reported debug message from the module.

Tips and Troubleshooting

A secure connection to the device is required

An IT group or 3rd party may require all devices on the network for the AV system use encrypted communications. The EC20 does support HTTPS connections, always on port 443.

Setting the **Port** parameter on the module or use the *Port* signal on the module to a value of 443 will cause the module to utilize HTTPS to connect to the device. HTTPS, in addition to the digest authentication used by the camera, should satisfy this requirement. For more information, please contact Epiphan directly.

Cannot connect to the device

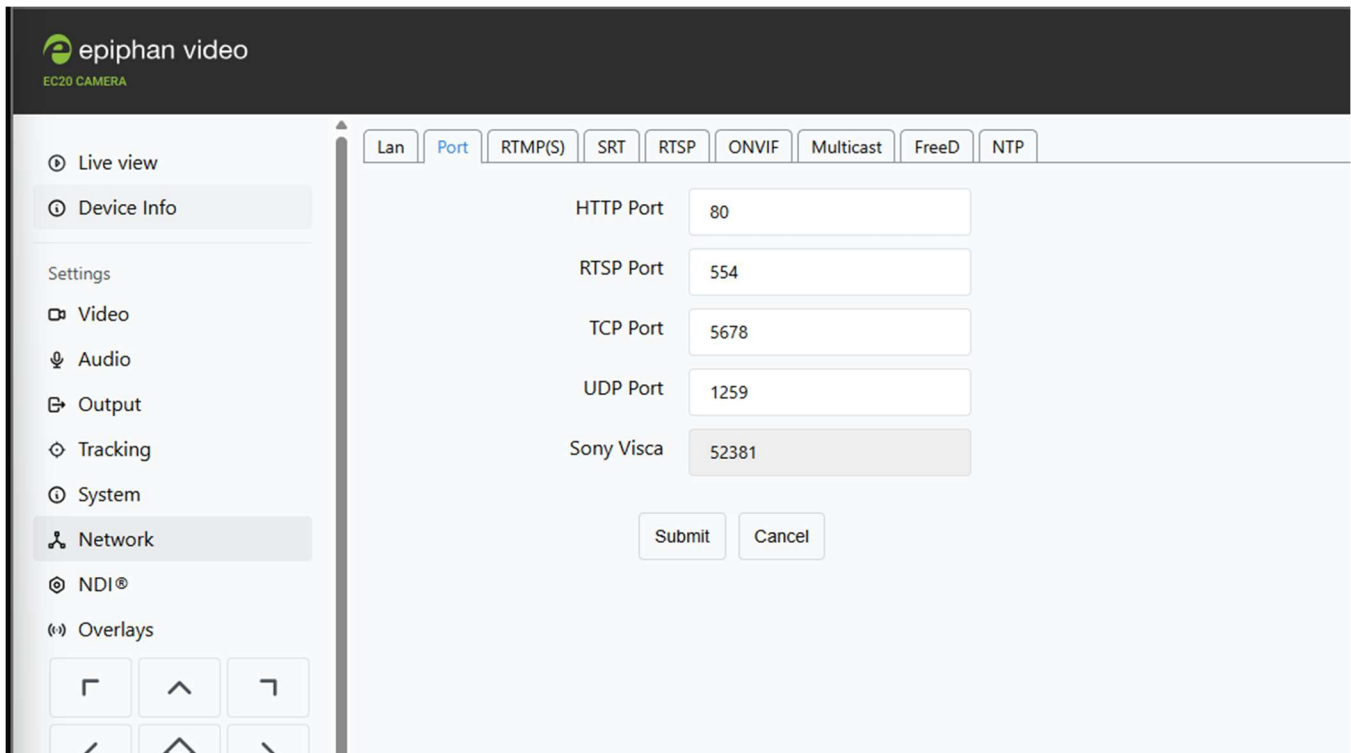
Depending on how the system has been commissioned, there are a few things to check:

1) Is the username and password correct?

Access the camera web UI by entering its IP address (or hostname if the network has been setup with an appropriate DNS configuration) in a web browser. The browser will prompt for a username and password – this can allow you to confirm if the username and password are valid. This same username and password can be used with the camera module.

2) Is the port being used by the module correct?

The module uses HTTP REST requests to communicate with the camera. This is, by default on port 80, but it is configurable. If it has been changed, the port value used by the module must match the “HTTP Port” field on the camera web UI, seen on the “Network” tab:



3) Is the camera able to communicate with the module?

The *Connected* signal indicates that regular communication is occurring with the camera and the username and password are correct. If you are sure the username, password, and port are set correctly, it is necessary to review if communication is occurring at all between the camera and the module.

Enable debugging on the module at a “Verbose” level and view the output using Toolbox or an SSH client. Reviewing the output of the debug messages, especially if the logs are set to “verbose” will indicate quickly if communication is occurring properly between the EC20 camera and the module. Regular operation will see REST requests exchanged between the module and the camera every few seconds.

If many “Error” messages are seen indicating a connection refusal or a timeout, this may indicate an issue with the AV network configuration. Troubleshoot this accordingly.

Once network configuration has been confirmed to not be an issue, if there is still an issue with device communications, please open a Support ticket with Epiphan, and include the debug logs captured, if available.