GENERAL INFORMATION

SIMPLWINDOWS NAME:	CanonCRN v1.1 Comm IP
CATEGORY:	Misc.
VERSION:	1.1.0
SUMMARY:	This module controls IP communication with a Canon CR-N300 or CR-N500 remote video camera.
GENERAL NOTES:	This module acts as the primary communication interface to a single Canon CR-N300 or CR-N500 video camera. If the control program needs to control multiple devices, a separate module is required for each device.
	The camera must be configured to use Basic Authentication for the module to authenticate. The camera settings can be accessed by opening a browser window and navigating to the IP address of the camera. The authentication method is found under the "Server" tab in "System" settings. The username and password used for Basic Authentication are supplied as parameters to the module.
	Module developer contact: Control Concepts, Inc. (201) 797-7900 support@controlconcepts.net
CRESTRON HARDWARE REQUIRED:	Crestron 3-Series or 4-Series processor.
SETUP OF CRESTRON HARDWARE:	N/A
VENDOR FIRMWARE:	N/A
VENDOR SETUP:	N/A

Partner: Canon U.S.A., Inc.
Models: CR-N300, CR-N500
Device Type: Remote Video Camera

PARAMETERS:

IP_Address	The network address of the device to control.
Secure_IP_Port	The network port for secure HTTPS device communication. The default port is 443. The module does not communicate using HTTP.
Username	The username required for HTTPS Basic Authentication to the device.
Password	The password required for HTTPS Basic Authentication to the device.

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Partner: Canon U.S.A., Inc.
Models: CR-N300, CR-N500
Device Type: Remote Video Camera

CONTROL:

Connect	D	Pulse to establish communication with the device and start the module "heartbeat" which is used to maintain communication with the device by periodically sending a simple request to confirm the device is still communicating with the control system.
Disconnect	D	Pulse to terminate communication with the device and stop the module "heartbeat".
Reconnect	D	Pulse to re-establish communication with the device. This signal is provided as a convenience should it be desired to reinitialize at any point. Initialization will automatically occur when the program starts.
Enable_Debug	D	Pulse to toggle the internal trace messages printed in SIMPL Debugger. These messages may be useful while debugging to see what processes are occurring within the module. Note it is highly recommended to leave debugging disabled unless actively debugging as it causes much additional signal traffic in Debugger.
Camera_Standby_Enter	D	Pulse to put the camera in power saving mode. Commands to control the camera will not work while the camera is in standby mode.
Camera_Standby_Exit	D	Pulse to put the camera in its normal operation (called "idle") mode.
Camera_Standby_Toggle	D	Pulse to toggle the standby/idle state of the camera.
Pan_Left	D	Latch high to turn the camera lens left while the signal is high. Pulse the signal to turn the camera in short increments.
Pan_Right	D	Latch high to turn the camera lens right while the signal is high. Pulse the signal to turn the camera in short increments.
Pan_Stop	D	Pulse to halt pan movement.
Set_Pan_Angle	D	Pulse to set the camera pan position specified by the **Pan_Angle** analog input.
Pan_Angle	A	Integer value specifies the pan angle to set as a percentage. Range is 0 to 65535.
Set_Pan_Speed	D	Pulse to set the pan movement speed specified by the **Pan_Speed** analog input.
Pan_Speed	A	Integer value specifies the speed of pan movement as a percentage. Range is 0 to 65535.
Pan_Speed_Manual	D	Pulse to set the pan speed mode to manual.
Pan_Speed_Auto1	D	Pulse to set the pan speed mode to auto1.
Pan_Speed_Auto2	D	Pulse to set the pan speed mode to auto2.

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Tilt_Up	D	Latch high to turn the camera lens up while the signal is high. Pulse the signal to turn the camera in short increments.
Tilt_Down	D	Latch high to turn the camera lens down while the signal is high. Pulse the signal to turn the camera in short increments.
Tilt_Stop	D	Pulse to halt tilt movement.
Set_Tilt_Angle	D	Pulse to set the camera tilt position specified by the **Tilt_Angle** analog input.
Tilt_Angle	A	Integer value specifies the tilt angle to set as a percentage. Range is 0 to 65535.
Set_Tilt_Speed	D	Pulse to set the tilt movement speed specified by the **Tilt_Speed** analog input.
Tilt_Speed	A	Integer value specifies the speed of tilt movement as a percentage. Range is 0 to 65535.
Tilt_Speed_Manual	D	Pulse to set the tilt speed mode to manual.
Tilt_Speed_Auto1	D	Pulse to set the tilt speed mode to auto1.
Tilt_Speed_Auto2	D	Pulse to set the tilt speed mode to auto2.
Home_Position	D	Pulse to move the camera to pan position = 0, and tilt position = 0.
PanLeft_TiltUp	D	Latch to turn the camera left and up simultaneously while the signal is high. Pulse the signal to turn the camera in short increments.
PanRight_TiltUp	D	Latch to turn the camera right and up simultaneously while the signal is high. Pulse the signal to turn the camera in short increments.
PanLeft_TiltDown	D	Latch to turn the camera left and down simultaneously while the signal is high. Pulse the signal to turn the camera in short increments.
PanRight_TiltDown	D	Latch to turn the camera right and down simultaneously while the signal is high. Pulse the signal to turn the camera in short increments.
PanTilt_Stop	D	Pulse to stop pan and tilt movement.
Set_PanTilt_Angle	D	Pulse to set the pan and tilt positions specified by **Pan_Angle** and **Tilt_Angle** analog inputs.
Zoom_In	D	Latch to move from wide-angle to telephoto while the signal is high. Pulse the signal to zoom in short increments.
Zoom_Out	D	Latch to move from telephoto to wide-angle while the signal is high. Pulse the signal to zoom in short increments.

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Set_Zoom_Position	D	Pulse to set the zoom position specified by the **Zoom_Position** analog input.
Zoom_Position	A	Integer value specifies the zoom position to set as a percentage. Range is 0 to 65535.
Focus_Near	D	Latch to focus near-field while the signal is high. Pulse the signal to focus in short increments.
Focus_Far	D	Latch to focus far-field while the signal is high. Pulse the signal to focus in short increments.
Focus_Mode_Manual	D	Pulse to set the focus mode to manual.
Focus_Mode_Auto	D	Pulse to set the focus mode to automatic.
Focus_Speed_Slow	D	Pulse to set the speed of focus motion to slow.
Focus_Speed_Medium	D	Pulse to set the speed of focus motion to medium.
Focus_Speed_Fast	D	Pulse to set the speed of focus motion to fast.
Exposure_Mode_Manual	D	Pulse to set the exposure mode to manual.
Exposure_Mode_Auto	D	Pulse to set the exposure mode to automatic.
Manual_Shutter_Mode_Auto	D	Pulse to set the manual exposure shutter mode to automatic.
Manual_Shutter_Mode_Speed	D	Pulse to set the manual exposure shutter mode to speed.
Manual_Shutter_Mode_Slow	D	Pulse to set the manual exposure shutter mode to slow.
Manual_Shutter_Mode_Clearscan	D	Pulse to set the manual exposure shutter mode to clearscan.
Set_Manual_Shutter_Speed	D	Pulse to set the manual exposure shutter speed specified by the **Manual_Shutter_Speed** analog input.
Manual_Shutter_Speed	A	Integer value specifies the manual exposure shutter speed to set as a percentage. Range is 0 to 65535.
Iris_Mode_Manual	D	Pulse to set the manual exposure iris mode to manual.
Iris_Mode_Auto	D	Pulse to set the manual exposure iris mode to automatic.
Set_Manual_Iris	D	Pulse to set the manual exposure iris position specified by the **Manual_Iris** analog input.

Manual_Iris	A	Integer value specifies the manual exposure iris position to set as a percentage. Range is 0 to 65535.
Gain_Mode_Manual	D	Pulse to set the manual exposure gain mode to manual.
Gain_Mode_Auto	D	Pulse to set the manual exposure gain mode to automatic.
Set_Manual_Gain	D	Pulse to set the manual exposure gain value specified by the **Manual_Gain** analog input.
Manual_Gain	A	Integer value specifies the manual exposure gain to set as a percentage. Range is 0 to 65535.
WhiteBalance_Mode_Manual	D	Pulse to set the white balance mode to manual.
WhiteBalance_Mode_Auto	D	Pulse to set the white balance mode to automatic.
WhiteBalance_Mode_Kelvin	D	Pulse to set the white balance mode to Kelvin.
WhiteBalance_Mode_Daylight	D	Pulse to set the white balance mode to daylight.
WhiteBalance_Mode_Tungsten	D	Pulse to set the white balance mode to tungsten.
WhiteBalance_Mode_WB_A	D	Pulse to set the white balance mode to WB_A.
WhiteBalance_Mode_WB_B	D	Pulse to set the white balance mode to WB_B.
Set_ColorTemp_Kelvin	D	Pulse to set the white balance Color Temperature mode specified by the **ColorTemp_Kelvin** analog input.
ColorTemp_Kelvin	A	Integer value specifies the Color Temperature value to set as a percentage. Range is 0 to 65535.
Set_WhiteBalance_Manual_RGain	D	Pulse to set the red gain value of the Manual white balance mode specified by the **WhiteBalance_Manual_RGain** analog input.
WhiteBalance_Manual_RGain	A	Integer value specifies the red gain value for white balance Manual mode to set as a percentage. Range is 0 to 65535.
Set_WhiteBalance_Manual_BGain	D	Pulse to set the blue gain value of the Manual white balance mode specified by the **WhiteBalance_Manual_BGain** analog input.
WhiteBalance_Manual_BGain	A	Integer value specifies the blue gain value for white balance manual mode to set as a percentage. Range is 0 to 65535.
Save_Preset	D	Pulse to save the current camera settings to the preset index specified by the **Preset_Index** analog input.

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Recall_Preset	D	Pulse to recall the stored camera preset specified the **Preset_Index** analog input.
Preset_Index	A	Integer value specifies the preset index to set. The camera can store a maximum of 100 presets, range is 1 to 100.
Send_PassThru	D	Pulse to send the custom command to the camera specified by the **PassThru_Command** serial input.
PassThru_Command	S	Text value specifies a custom command to send directly to the camera.
Set_IP_Address	D	Pulse to set the network IP address specified by the **IP_Address** serial input to the module. The **Reconnect** digital input must be pulsed for the module to reconnect with the new IP address.
IP_Address	S	Text value specifies the device IP address the module should connect to.
Set_Secure_Port	D	Pulse to set the secure network IP port specified by the **Secure_Port** analog input to the module. The **Reconnect** digital input must be pulsed for the module to reconnect with the new port.
Secure_Port	A	Integer value specifies the device secure network port the module should connect to. The default secure port is 443.

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Certified Module

Partner: Canon U.S.A., Inc.
Models: CR-N300, CR-N500
Device Type: Remote Video Camera

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FEEDBACK:

Is_Communicating	D	Digital high indicates that the module is successfully communicating with the device and has received at least one heartbeat response, or not communicating with the device when the signal is low.
Is_Initialized	D	Digital high indicates the device status is synchronized with the module, or not synchronized when the signal is low.
Debug_Enabled	D	Digital high indicates the module is in debug mode, or not in debug mode when the signal is low. While in debug mode, the module will print verbose debug information to SIMPL Debugger.
Device_Name	S	Text value indicates the friendly name reported by the device.
MAC_Address	S	Text value indicates the MAC address reported by the device.
Firmware_Version	S	Text value indicates the firmware version reported by the device.
Protocol_Version	S	Text value indicates the protocol version reported by the device.
Camera_Operation_Is_Standby	D	Digital high indicates the device is in standby mode, or not in standby mode when the signal is low.
Current_Pan_Angle	A	Integer value indicates the pan angle as a percentage, where the min value is the left limit, and the max value is the right limit. Range is 0 to 65535.
Current_Pan_Speed	A	Integer value indicates the speed of pan movement as a percentage. Range is 0 to 65535.
Pan_Speed_Is_Manual	D	Digital high indicates the pan speed mode is manual, or not manual when the signal is low.
Pan_Speed_Is_Auto1	D	Digital high indicates the pan speed mode is auto1, or not auto1 when the signal is low.
Pan_Speed_Is_Auto2	D	Digital high indicates the pan speed mode is auto2, or not auto2 when the signal is low.
Current_Tilt_Angle	A	Integer value indicates the tilt angle as a percentage, where the min value is the lower limit, and the max value is the upper limit. Range is 0 to 65535.
Current_TIlt_Speed	A	Integer value indicates the speed of tilt movement as a percentage. Range is 0 to 65535.
Tilt_Speed_Is_Manual	D	Digital high indicates the tilt speed mode is manual, or not manual when the signal is low.
Tilt_Speed_Is_Auto1	D	Digital high indicates the tilt speed mode is auto1, or not auto1 when the signal is low.

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Partner: Canon U.S.A., Inc.
Models: CR-N300, CR-N500
Device Type: Remote Video Camera

Tilt_Speed_Is_Auto2	D	Digital high indicates the tilt speed mode is auto2, or not auto2 when the signal is low.
Current_Zoom_Position	A	Integer value indicates the current zoom position as a percentage. Range is 0 to 65535.
Focus_Mode_Is_Manual	D	Digital high indicates the focus mode is manual, or not manual when the signal is low.
Focus_Mode_Is_Auto	D	Digital high indicates the focus mode is automatic, or not automatic when the signal is low.
Focus_Speed_Is_Slow	D	Digital high indicates the focus speed is slow, or not slow when the signal is low.
Focus_Speed_Is_Medium	D	Digital high indicates the focus speed is medium, or not medium when the signal is low.
Focus_Mode_Is_Fast	D	Digital high indicates the focus speed is fast, or not fast when the signal is low.
Exposure_Mode_Is_Manual	D	Digital high indicates the exposure mode is manual, or not manual when the signal is low.
Exposure_Mode_Is_Auto	D	Digital high indicates the exposure mode is automatic, or not automatic when the signal is low.
Manual_Shutter_Mode_Is_Auto	D	Digital high indicates the manual exposure shutter mode is auto, or not auto mode when the signal is low.
Manual_Shutter_Mode_Is_Speed	D	Digital high indicates the manual exposure shutter mode is speed, or not speed mode when the signal is low.
Manual_Shutter_Mode_Is_Slow	D	Digital high indicates the manual exposure shutter mode is slow, or not slow mode when the signal is low.
Manual_Shutter_Mode_Is_Clearscan	D	Digital high indicates the manual exposure shutter mode is clearscan, or not clearscan mode when the signal is low.
Manual_Shutter_Speed_Min	A	Integer value indicates the minimum range of the manual exposure shutter speed reported by the device.
Manual_Shutter_Speed_Max	A	Integer value indicates the maximum range of the manual exposure shutter speed reported by the device.
Current_Manual_Shutter_Speed_Raw	A	Integer value indicates the current manual exposure shutter speed (unscaled) reported by the device.
Current_Manual_Shutter_Speed_Scaled	A	Integer value indicates the current manual exposure shutter speed as a percentage. Range is 0 to 65535.
Iris_Mode_Is_Manual	D	Digital high indicates the manual exposure iris mode is manual, or not manual when the signal is low.

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Iris_Mode_Is_Auto	D	Digital high indicates the manual exposure iris mode is automatic, or not automatic when the signal is low.
Manual_Iris_Min	A	Integer value indicates the minimum range of the manual exposure iris opening reported by the device.
Manual_Iris_Max	A	Integer value indicates the maximum range of the manual exposure iris opening reported by the device.
Current_Manual_Iris_Raw	A	Integer value indicates the current manual exposure iris opening (unscaled) reported by the device.
Current_Manual_Iris_Scaled	A	Integer value indicates the current manual exposure iris opening as a percentage. Range is 0 to 65535.
Gain_Mode_Is_Manual	D	Digital high indicates the manual exposure gain mode is manual, or not manual when the signal is low.
Gain_Mode_Is_Auto	D	Digital high indicates the manual exposure gain mode is automatic, or not automatic when the signal is low.
Manual_Gain_Min	A	Integer value indicates the minimum range of the manual exposure gain reported by the device.
Manual_Gain_Max	A	Integer value indicates the maximum range of the manual exposure gain reported by the device.
Current_Manual_Gain_Raw	A	Integer value indicates the current manual exposure gain (unscaled) reported by the device.
Current_Manual_Gain_Scaled	A	Integer value indicates the current manual exposure gain as a percentage. Range is 0 to 65535.
WhiteBalance_Mode_Is_Manual	D	Digital high indicates the white balance mode is manual, or not manual when the signal is low.
WhiteBalance_Mode_Is_Auto	D	Digital high indicates the white balance mode is automatic, or not automatic when the signal is low.
WhiteBalance_Mode_Is_Kelvin	D	Digital high indicates the white balance mode is Kelvin, or not Kelvin when the signal is low.
WhiteBalance_Mode_Is_Daylight	D	Digital high indicates the white balance mode is daylight, or not daylight when the signal is low.
WhiteBalance_Mode_Is_Tungsten	D	Digital high indicates the white balance mode is tungsten, or not tungsten when the signal is low.
WhiteBalance_Mode_Is_WB_A	D	Digital high indicates the white balance mode is WB_A, or not WB_A when the signal is low.
WhiteBalance_Mode_Is_WB_B	D	Digital high indicates the white balance mode is WB_B, or not WB_B when the signal is low.

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ColorTemp_Kelvin_Min	A	Integer value indicates the minimum range of the white balance Color Temperature Kelvin mode reported by the device.
ColorTemp_Kelvin_Max	A	Integer value indicates the maximum range of the white balance Color Temperature Kelvin mode reported by the device.
Current_ColorTemp_Kelvin_Raw	A	Integer value indicates the current white balance Color Temperature value (unscaled) reported by the device.
Current_ColorTemp_Kelvin_Scaled	A	Integer value indicates the current white balance Color Temperature value as a percentage. Range is 0 to 65535.
WhiteBalance_Manual_Min	A	Integer value indicates the minimum range of the white balance Manual mode reported by the device.
WhiteBalance_Manual_Max	A	Integer value indicates the maximum range of the white balance Manual mode reported by the device.
Current_WhiteBalance_Manual_RGain_Raw	A	Integer value indicates the current white balance Manual R Gain value (unscaled) reported by the device.
Current_WhiteBalance_Manual_RGain_Scaled	A	Integer value indicates the current white balance Manual R Gain value as a percentage. Range is 0 to 65535.
Current_WhiteBalance_Manual_BGain_Raw	A	Integer value indicates the current white balance Manual B Gain value (unscaled) reported by the device.
Current_WhiteBalance_Manual_BGain_Scaled	A	Integer value indicates the current white balance Manual B Gain value as a percentage. Range is 0 to 65535.
Current_Preset_Index	A	Integer value indicates the last recalled preset index. The camera can store a maximum of 100 presets, range is 1 to 100.

TESTING:

OPS USED FOR TESTING:	CP3 v1.8001.4878.29356 MC4 v2.7000.00031
SIMPL WINDOWS USED FOR TESTING:	4.2000.00
CRES DB USED FOR TESTING:	212.0500.002.00
DEVICE DATABASE:	200.19000.002.00
SYMBOL LIBRARY USED FOR TESTING:	1168
SAMPLE PROGRAM:	CanonCRN v1.1 Demo IP CP3.smw
REVISION HISTORY:	v1.0 – Initial Release v1.1 – Resolved issue with multiple camera modules in one program