Partner: TOA
Model: AM-CF1
Device Type: Web Conference Audio System

GENERAL INFORMATION	
SIMPLWINDOWS NAME:	TOA AM-CF1 v1.0
CATEGORY:	Conferencing
VERSION:	1.0
SUMMARY:	This module controls communication with a TOA AM-CF1 device via IP.
GENERAL NOTES:	The following device behaviors were noted during development: • When Standby is on, the device does not allow for control of nearly every function (except either turning Standby off or setting Status Notify state). • When Speaker Out is muted, the device does not allow for control of Output Gain. • When Standby goes on, the device automatically unmutes Mic In. • There is approximately a 5-second delay between when a preset is triggered and when the device responds that the preset recall was successful. As such, there is a corresponding delay between setting a preset and feedback updates. • When Mic In mute is on and Beam Steering Status Notify is also on, the notifications continue to come in but the value of the X/Y position is no longer updated. Once Mic In mute is set back to off, notification X/Y value updates return to normal. The following are additional operation notes that are important to consider: • It is recommended to leave the Debug_Enable signal low unless actively debugging/troubleshooting. • It is recommended to leave the Beam Steering Status Notify state set to off if not specifically using the X/Y coordinate information. If this feature must be used, it is recommended to set it at its highest update interval (1 second). • Though it can be changed, it is recommended to leave the Response_Timeout at the default (1). • At the request of TOA, signals have been provided to allow for overriding any of the module parameters at run time. If these signals are unused, the module will use the parameter properties by default. If you need to change any of these signals, the module will need to be reinitialized for the changes to take effect. In this case, set all the values you wish to change all at once, then pulse Reinitialize once. • There are no queries available for Status Notify and Beam Steer Notify status. As such, it is not possible to know the current state of these at initialization time. The module will automatically set a default value for these the first time it is run (Status Notify to On and Beam Steer Notify to Off). Following this, the module will keep track of the states of these as they are set by the program and recall the last known state upon subsequent reinitializations.

GENERAL INFORMATION *continued*

CRESTRON HARDWARE REQUIRED:	Crestron 3-Series processor **only**. This module utilizes SIMPL# and will therefore not work in a 2-Series processor.
SETUP OF CRESTRON HARDWARE:	Crestron processor and TOA AM-CF1 being controlled must be able to communicate directly via IP.
VENDOR FIRMWARE:	N/A
VENDOR SETUP:	N/A

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PARAMETERS

IP Address	Setting to indicate the IP Address to use to connect to the device.
IP Port	Setting to indicate the IP Port to use to connect to the device. (Default: 3000 | Acceptable Values: 1 - 65535)
Username	Setting to indicate the Username to use to log into the device. (Default: admin) *Note: if changing the username to something other than the default, it cannot be longer than 16 characters.*
Password	Setting to indicate the Password to use to log into the device. (Default: admin) *Note: if changing the password to something other than the default, it cannot be longer than 16 characters.*
Gain Step Size	Setting to indicate the step size to use when adjusting Speaker Gain up or down. (Default: 3 | Acceptable Values: 1 - 31)
Poll Frequency	Setting to indicate the frequency (in seconds) to poll the device for status. (Default: 5 seconds | Acceptable Values: 5 – 60 seconds)
Response Timeout	Setting to indicate how long to wait for a response to a command before considering it a failed response. (Default: 1 second | Acceptable Values: 1 – 60 seconds) *Note: it is not recommended to change this value. The parameter has only been included at TOA's request.*

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CONTROL

Connect	D	Pulse to connect to the device. *Note: the module will automatically connect and initialize when the program starts. This signal is only included as a convenience in case you would like to manually manage disconnection and connection.*
Disconnect	D	Pulse to disconnect from the device. Once manually disconnected, the module will not attempt to automatically reconnect until the Connect signal is triggered. *Note: the module will automatically connect and initialize when the program starts. This signal is only included as a convenience in case you would like to manually manage disconnection and connection.*
Reinitialize	D	Pulse to re-establish communication with the device and retrieve all pertinent information from the device for proper operation of the module 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	Set high to enable internal SIMPL# trace messages to be printed in Debugger. These messages may be useful while debugging to see what processes are occurring within the module. *Note: it is highly recommended to leave this signal low unless actively debugging as it causes additional and unnecessary traffic for normal operation.*
Enable_Poll	D	Set high to enable polling for current status to occur at the interval set in the Poll Frequency parameter or via the Poll_Frequency parameter override signal. *Note: it is recommended to leave polling enabled unless there is a specific reason not to.*
IP_Address	S	Use this signal if you would like to override the value set in the IP Address parameter. This is useful in a configurable system where the IP Address may not be known or set until runtime. *Note: in order for the value sent in on this signal to take effect, you must pulse the Reinitialize signal after setting this (and all other parameter override signals).*
IP_Port	A	Use this signal if you would like to override the value set in the IP Port parameter. This is useful in a configurable system where the IP Port may not be known or set until runtime. *Note: in order for the value sent in on this signal to take effect, you must pulse the Reinitialize signal after setting this (and all other parameter override signals).* (Acceptable Values: 1 – 65535)
Username	S	Use this signal if you would like to override the value set in the Username parameter. This is useful in a configurable system where the Username may not be known or set until runtime. *Note: in order for the value sent in on this signal to take effect, you must pulse the Reinitialize signal after setting this (and all other parameter override signals).*
Password	S	Use this signal if you would like to override the value set in the Password parameter. This is useful in a configurable system where the Password may not be known or set until runtime. *Note: in order for the value sent in on this signal to take effect, you must pulse the Reinitialize signal after setting this (and all other parameter override signals).*

CONTROL *continued*

Gain_Step_Size	A	Use this signal if you would like to override the value set in the Gain Step Size parameter. This is useful in a configurable system where the Gain Step Size may not be known or set until runtime. *Note: in order for the value sent in on this signal to take effect, you must pulse the Reinitialize signal after setting this (and all other parameter override signals).* (Acceptable Values: 1 – 31)
Poll_Frequency	A	Use this signal if you would like to override the value set in the Poll Frequency parameter. This is useful in a configurable system where the Poll Frequency may not be known or set until runtime. *Note: in order for the value sent in on this signal to take effect, you must pulse the Reinitialize signal after setting this (and all other parameter override signals).* (Acceptable Values: 5 – 60)
Response_Timeout	A	Use this signal if you would like to override the value set in the Response Timeout parameter. This is useful in a configurable system where the Response Timeout may not be known or set until runtime. *Note: in order for the value sent in on this signal to take effect, you must pulse the Reinitialize signal after setting this (and all other parameter override signals).* (Acceptable Values: 1 – 60)
Output_Gain_Level_Value	A	Analog value to use when setting the Output Gain Level. (Acceptable Values: 0 – 65535 | Device Range: -60 dB – 0 dB)
Output_Gain_Level_Set	D	Pulse to set the Output Gain Level to the current value set on the Output_Gain_Level_Value signal.
Output_Gain_Level_Raise	D	Pulse to raise the Output Gain Level by an increment that has been set on the Gain Step Size parameter or the Gain_Step_Size parameter override signal.
Output_Gain_Level_Lower	D	Pulse to lower the Output Gain Level by an increment that has been set on the Gain Step Size parameter or the Gain_Step_Size parameter override signal.
Mic_In_Mute_On	D	Pulse to mute the Mic In state.
Mic_In_Mute_Off	D	Pulse to unmute the Mic In state.
Mic_In_Mute_Toggle	D	Pulse to toggle the current Mic In state.
Speaker_Out_Mute_On	D	Pulse to mute the Speaker Out state.
Speaker_Out_Mute_Off	D	Pulse to unmute the Speaker Out state.
Speaker_Out_Mute_Toggle	D	Pulse to toggle the current Speaker Out state.

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CONTROL *continued*

Preset_Recall_Value	A	Analog value to use when setting the preset to recall. (Acceptable Values: 1 – 2)
Preset_Recall_Set	D	Pulse to set the preset to the current value set on the Preset_Recall_Value signal.
Standby_On	D	Pulse to turn on the Standby state.
Standby_Off	D	Pulse to turn off the Standby state.
Standby_Toggle	D	Pulse to toggle the current Standby state.
Status_Notification_On	D	Pulse to turn on the Status Notification state.
Status_Notification_Off	D	Pulse to turn off the Status Notification state.
Status_Notification_Toggle	D	Pulse to toggle the current Status Notification state.
Mic_Beam_Steering_Mode	A	Analog value to use for the mode when setting the Mic Beam Steering state. Acceptable Values: - Auto: 1 - Manual: 2
Mic_Beam_Steering_Unit	A	Analog value to use for the unit when setting the Mic Beam Steering state. Acceptable Values: - Inches: 1 - Centimeters: 2
Mic_Beam_Steering_Direction	A	Analog value to use for the direction when setting the Mic Beam Steering state. (Acceptable Values: 0 – 65535 | Device Range: -90 degrees – +90 degrees)
Mic_Beam_Steering_Distance	A	Analog value to use for the distance when setting the Mic Beam Steering state. (Acceptable Values: 0 – 65535 | Device Range (inches): 8 inches – 240 inches | Device Range (centimeters): 20 centimeters – 600 centimeters)
Mic_Beam_Steering_Set	D	Pulse to set the mic beam steering state using the analog values that are currently set on the Mic_Beam_Steering_Mode, Unit, Direction, and Distance signals.

CONTROL *continued*

Mic_Beam_Steering_Status_Mode	A	Analog value to use for the mode when setting the Mic Beam Status state. Acceptable Values: - Off: 1 - On: 2
Mic_Beam_Steering_Status_Interval	A	Analog value to use for the interval when setting the Mic Beam Status state. (Acceptable Values: 0 – 65535 | Device Range: Immediate – 1 Second) *Note: module will automatically scale the value sent in to the closest usable increment.*
Mic_Beam_Steering_Status_Set	D	Pulse to set the mic beam steering status state using the analog values that are currently set on the Mic_Beam_Steering_Status_Mode, and Interval signals.
Bluetooth_Mode_On	D	Pulse to turn on the Bluetooth state.
Bluetooth_Mode_Off	D	Pulse to turn off the Bluetooth state.
Bluetooth_Mode_Toggle	D	Pulse to toggle the current Bluetooth state.

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FEEDBACK

Is_Communicating	D	High to indicate that TCP communication has been established with the device and the module has received at least one response to a query. Once communication has been established, the module will attempt to initialize automatically.
Is_Logged_In	D	High to indicate the module is currently logged into the device using the provided username/password credentials.
Is_Initialized	D	High to indicate that the module has received all necessary information from the device that it needs to function properly.
Current_IP_Address	S	Serial value indicating the IP Address being used by the module.
Current_IP_Port	A	Value indicating the IP Port being used by the module.
Current_Username	S	Value indicating the Username being used by the module.
Current_Password	S	Value indicating the Password being used by the module.
Current_Gain_Step_Size	A	Value indicating the Gain Step Size being used by the module.
Current_Poll_Frequency	A	Value indicating the Poll Frequency being used by the module.
Current_Response_Timeout	A	Value indicating the Response Timeout being used by the module.
Current_Output_Gain_Level	A	Value indicating the current Output Gain Level.
Current_Output_Gain_Level_Text	S	Value indicating the current Output Gain Level in text format for display on a touchpanel.
Is_Mic_In_Muted	D	High to indicate the Mic In state is muted.
Is_Speaker_Out_Muted	D	High to indicate the Speaker Out state is muted.
Current_Preset	A	Value indicating the currently recalled preset.
Is_Standby_Enabled	D	High to indicate the Standby state is on.
Current_Status_Notification_Mode	A	Value indicating the current Status Notification mode. Possible Values: - Unknown: 0 - Off: 1 - On: 2

FEEDBACK *continued*

Current_Mic_Beam_Steering_Mode	A	Value indicating the current Mic Beam Steering mode. Possible Values: - Auto: 1 - Manual: 2
Current_Mic_Beam_Steering_Mode_Text	S	Value indicating the current Mic Beam Steering mode in text format for display on a touchpanel.
Current_Mic_Beam_Steering_Unit	A	Value indicating the current Mic Beam Steering unit. Possible Values: - Inches: 1 - Centimeters: 2
Current_Mic_Beam_Steering_Unit_Text	S	Value indicating the current Mic Beam Steering unit in text format for display on a touchpanel.
Current_Mic_Beam_Steering_Direction	A	Value indicating the current Mic Beam Steering direction. (Possible Values: 0 – 65535 | Device Range: -90 degrees – +90 degrees)
Current_Mic_Beam_Steering_Direction_Text	S	Value indicating the current Mic Beam Steering direction in text format for display on a touchpanel.
Last_Changed_Mic_Beam_Steering_Direction_Text	S	Value indicating the last set input value of the Mic Beam Steering direction in text format for display on a touchpanel.
Current_Mic_Beam_Steering_Distance	A	Value indicating the current Mic Beam Steering distance. (Possible Values: 0 – 65535 | Device Range (inches): 8 inches – 240 inches | Device Range (centimeters): 20 centimeters – 600 centimeters)
Current_Mic_Beam_Steering_Distance_Text	S	Value indicating the current Mic Beam Steering distance in text format for display on a touchpanel.
Last_Changed_Mic_Beam_Steering_Distance_Text	S	Value indicating the last set input value of the Mic Beam Steering distance in text format for display on a touchpanel.

FEEDBACK *continued*

Current_Mic_Beam_Steering_X	A	Value indicating the current Mic Beam Steering X coordinate. (Possible Values: 0 – 65535 | Device Range (inches): -240 inches – +240 inches | Device Range (centimeters): -600 centimeters – +600 centimeters)
Current_Mic_Beam_Steering_X_Text	S	Value indicating the current Mic Beam Steering X coordinate in text format for display on a touchpanel.
Current_Mic_Beam_Steering_Y	A	Value indicating the current Mic Beam Steering Y coordinate. (Possible Values: 0 – 65535 | Device Range (inches): 0 inches – 240 inches | Device Range (centimeters): 0 centimeters – 600 centimeters)
Current_Mic_Beam_Steering_Y_Text	S	Value indicating the current Mic Beam Steering Y coordinate in text format for display on a touchpanel.
Current_Mic_Beam_Steering_Status_Mode	A	Value indicating the current Mic Beam Steering Status mode. Possible Values: - Off: 1 - On: 2
Current_Mic_Beam_Steering_Status_Mode_Text	S	Value indicating the current Mic Beam Steering Status mode in text format for display on a touchpanel.
Current_Mic_Beam_Steering_Status_Interval	A	Value indicating the current Mic Beam Steering Status interval. (Possible Values: 0 – 65535 | Device Range: Immediate – 1 Second)
Current_Mic_Beam_Steering_Status_Interval_Text	S	Value indicating the current Mic Beam Steering Status interval in text format for display on a touchpanel.
Current_Bluetooth_Mode	A	Value indicating the current Bluetooth mode. Possible Values: - Off: 0 - Pairing: 1 - Connected: 2

TESTING

OPS USED FOR TESTING:	CP3: 1.601.3934.19631
SIMPL WINDOWS USED FOR TESTING:	4.11.06
CRES DB USED FOR TESTING:	85.00.001.00
DEVICE DATABASE:	111.00.001.00
SYMBOL LIBRARY USED FOR TESTING:	1099
SAMPLE PROGRAM:	TOA AM-CF1 v1.0 Demo IP CP3
REVISION HISTORY:	v1.0 – Initial Release

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