Audio-Technica MX-381 Mixer Crestron Module Module Application Guide

Description

This module allows any Crestron 2-series or X-generation processor to control one or more (up to 16) Audio-Technica MX-381 automatic microphone mixers via a single RS-232 port. Many commands are supported, including:

- Setup threshold level, gate hold time, and individual channel gate attenuation levels
- Activate and deactivate input attenuation on a channel-by-channel basis
- Turn phantom power on and off on a channel-by-channel basis
- Activate and deactivate priority status for each channel
- Enable and disable low cut filter for each channel
- Force individual channels gates open
- Force individual channels gates closed
- Configure each channel direct output to be either before or after the gate
- Configure main output as mic or line level
- Activate or deactivate output limiter
- Turn NOMA (Number of Open Microphones Attenuated) on or off
- Configure master LED display to be before or after the master volume knob
- Lock or unlock the keys on the front panel of the mixer
- Put mixer in auto or manual mode
- Polling for the total number of slave mixers connected

There is no feedback provided by the mixer for most commands.

Compatibility			Processor Requirements	
2-Series Compatible	CNMSX Compatible	NOT System Builder Compatible	Ethernet NOT NEEDED	Compact Flash NOT NEEDED

Serial Cable Pinout
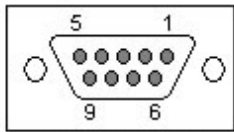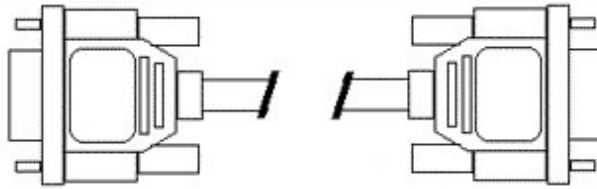
DB9 FEMALE
CRESTRON

DB9 MALE
AT-MX381

CRESTRON	AT-MX381
1	1
2 ——————————— 2	
3 ——————————— 3	
4	4
5 ——————————— 5	
6	6
7	7
8	8
9	9
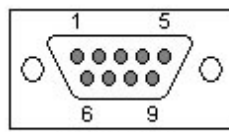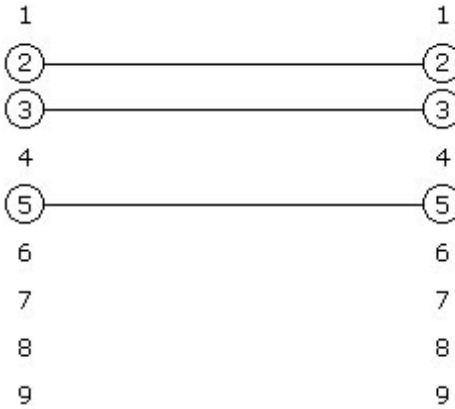
SERIAL SETTINGS	
COMM STD	RS232
BAUD RATE	38400
DATA BITS	8
STOP BITS	1
PARITY	NONE
HW HANDSHAKING	NONE
SW HANDSHAKING	NONE

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Module Application

Multiple mixers that have been linked together using the MiniDin8 "link" connectors on the mixers can be controlled from the single RS-232 port on the master device. The master device should have a link cable in it's LINK IN, running to the LINK OUT of the first slave, and so on. Power up the slave units first, and the master last.

The RS-232 cable from the Crestron processor **must be connected to the Master MX-381.** The serial ports on the slave mixers do not function.

The DB-25 logic port takes precedence over the RS-232 port. It is recommended that the DB-25 logic port not be used in conjunction with Crestron control.

You absolutely must insert one (1) instance of the Global Functions module in your program, even if you do not need to control any of the global functions. This module performs all of the ACK sequences for communicating with the mixers. **The Unit Functions module will not work without the Global Functions module.**

Signal and Parameter Descriptions

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

Global Functions Module

DIGITAL INPUTS

communications_check..pulse to test communications with mixer
poll_number_of_mixers..hold to ramp volume down over the period of time specified in the parameter Ramp Time.

SERIAL INPUTS

mixer_rx$...tie to rx$ of RS-232 port

DIGITAL OUTPUTS

communications_check_ok.......................................goes high after successful communications check
communications_check_error ....goes high after unsuccessful communications check

ANALOG OUTPUTS

number_of_slave_mixers...the total number of slave mixers is reported in this value after polling. 0 indicates only a master mixer has been found. 1 indicates one master and 1 mixer (2 total mixers). The highest possible value is 15 (1 master and 15 slaves)

SERIAL OUTPUTS

mixer_tx$...tie to cat$, then to tx$ of RS-232 port (see demo)

Unit Functions Module
DIGITAL INPUTS

send_setup_levels .... pulse to send all of the setup values established in the parameters (threshold value, gate hold time, and channel gate attenuation levels)

channel_x_input_attenuation_on .... enable input attenuation on selected channel

channel_x_input_attenuation_off .... disable input attenuation on selected channel

channel_x_phantom_power_on .... enable phantom power on selected channel

channel_x_phantom_power_off .... disable phantom power on selected channel

channel_x_priority_on.. give priority status to selected channel. When a channel has "priority," other microphone channels cannot lock out the microphone

channel_x_priority_off.. remove priority status from selected channel

channel_x_low_cut_filter_on .... enable low cut filter for selected channel

channel_x_low_cut_filter_off .... disable low cut filter for selected channel

channel_x_force_gate_open_on................................ override the auto mixer and force the selected microphone's gate open

channel_x_force_gate_open_off................................ stop holding gate open, allow auto mixer to operate

channel_x_force_gate_close_on................................ override the auto mixer and force the selected microphone's gate closed (will not work while the gate is forced open)

channel_x_force_gate_close_off .... stop holding gate closed, allow auto mixer to operate

channel_x_direct_output_switch_before_gate.............. set selected channel's direct output to send the signal before the gate

channel_x_direct_output_switch_after_gate .... set selected channel's direct output to send the signal after the gate

output_attenuator_line_level.................................... set the master output to line level

output_attenuator_mic_level.................................... set the master output to mic level

output_limiter_on .... enable output limiter

output_limiter_off.. disable output limiter

noma_on.. activate Number of Open Microphones Attenuated feature. This will work to reduce feedback by lowering the collective master volume as the total number of open microphones increases.

noma_off.. deactivate the Number of Open Microphones Attenuated feature.

last_mic_on_enable .... set the mixer to leave the last open microphone on, even after the channel is no longer above the threshold

last_mic_on_disable... set the mixer to close all channels if no channels are above the threshold

led_display_before_master_volume........................... set the LED display on the front panel of the mixer to display the level before adjustment from the master volume knob

led_display_after_master_volume............................. set the LED display on the front panel of the mixer to display the level after adjustment from the master volume knob

key_lock_on .... lock the front panel buttons (takes a few seconds to execute)

key_lock_off .... unlock the front panel buttons (takes a few seconds to execute)

mode_auto .... set the mixer to operate in automatic gate mode

mode_manual .... set the mixer to operate as a conventional mixer, with each channel controlled by its front panel gain and level controls (no automatic gating)

SERIAL OUTPUTS

mixer_tx$.. tie to cat$, then to tx$ of RS-232 port (see demo)

PARAMETERS

Address .... select the desired mixers Address from the drop down list

Threshold_Level .... select the desired threshold level from the drop down list. This is set only when the send_setup_levels input is pulsed.

Gate_Hold_Time .... select the desired gate hold time from the drop down list. This is set only when the send_setup_levels input is pulsed.

Channel_X_Gate_Attenuation_Level .... select the desired gate attenuation level for the selected channel from the drop down list. This is set only when the send_setup_levels input is pulsed.

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 http://www.thecontrolworks.com/customerlogin.aspx.

Distribution Package Contents

The distribution package for this module should include:

Audio-Technica_MX-381_Global_Functions_v1.umc .... Crestron user module to establish communications with mixers. **One and only one instance must be inserted**, no matter how many mixers you have.
Audio-Technica_MX-381_Unit_Functions_v1.umc .... Crestron user module to control individual parameters of each individual mixer. One instance is inserted for each mixer you are controlling.
Audio-Technica_MX-381_Demo_TPS-4500_v1.vtp .... Demo touchpanel for TPS-4500 touchpanel
Audio-Technica_MX-381_Demo_TPS-4500_v1.vtz .... Compiled demo touchpanel
Audio-Technica_MX-381_Demo_Program_v1.smw .... Demo program for PRO2 processor
Audio-Technica_MX-381_Demo_Program_v1.spz.......... Compiled demo program
Audio-Technica_MX-381_Crestron_Module_Help_v1.pdf . This help file

Revision History

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.

Hardware

Crestron PRO2 Processor v3.137
Crestron TPS-4500 Touchpanel.. v2.002
Audio-Technica MX-381 Mixers (2)

Software

Crestron SIMPL Windows .... Version 2.06.20
Crestron Vision Tools Pro-e .... Version 3.4.2.9
Crestron Database .... Version 17.6.0
Crestron Symbol Library .... Version 371
Crestron Device Library .... Version 371

ControlWorks Consulting, LLC Module License Agreement

Definitions:

ControlWorks, *We*, and *Us* refer to ControlWorks Consulting, LLC, with headquarters located at 701 Beta Drive, Suite 22 Mayfield Village, Ohio 44143-2330. *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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Provision of Support

We provide limited levels of technical support only for the most recent version of the Module as determined by Us. We do not provide support for previous version of the module, modifications to the module not made by Us, to persons who have not purchased the module from Us. In addition, we may decline to provide support if the Demo Program has not been utilized. We may withdraw a module from sale and discontinue providing support at any time and for any reason, including, for example, if the equipment for which the Module is written is discontinued or substantially modified. The remainder of your rights and obligations pursuant to this license will not be affected should ControlWorks discontinue support for a module.

Modification of Software

You may not decrypt (if encrypted), reverse engineer, modify, translate, disassemble, or de-compile the Module in whole or part. You may modify the Demo Program. In no event will ControlWorks Consulting, LLC be liable for direct, indirect, incidental or consequential damages resulting from You modifying the Software in any manner.

Indemnification/Hold Harmless

ControlWorks, in its sole and absolute discretion may refuse to provide support for the application of the Module in such a manner that We feel has the potential for property damage, or physical injury to any person. Dealer shall indemnify and hold harmless ControlWorks Consulting LLC, its employees, agents, and owners from any and all liability, including direct, indirect, and consequential damages, including but not limited to personal injury, property damage, or lost profits which may result from the operation of a program containing a ControlWorks Consulting, LLC Module or any component thereof.

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