DATASHEET

Volume Dial 135-135 Interface Object for Crestron

Revision: 1.0
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Summary

This datasheet relates to Ultamation's 135-135 Volume Dial User Interface Module for Crestron control systems with GUIs that support 2-D slider objects.

The purpose of this control is to provide a realistic "dial" object for users to interact with on their touch-panel that is analogous to a physical volume dial often found on amplifiers, hi-fis and other audio equipment. The 2D dial allows selection of any discrete analogue value, by moving your finger around the dial, 135 degrees either side of the vertical centre line of the dial.

The module is not limited to volume control applications – Ultamation has had success using this module for other applications such as heating set point control.

Ultamation cannot provide any assistance in the control of specific audio equipment (or other equipment) via this module. Some equipment may not expose discrete analogue volume commands at all.

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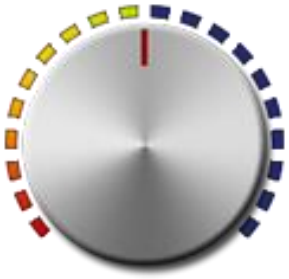
Programming Notes

Use of the 135-135 Volume Dial is extremely easy, but proper configuration of the touch panel objects is essential.



The User Interface

Two user interface objects are required:

- A 2-D slider object for the dial control.
- An animation object for the graphics.

The 2-D slider is a standard Crestron slider object, with the following properties:

Property	Setting
Analog Touch/Feedback Join	Set this to the desired analog join (touch panel OUTPUT) for the X component of the control. Once the control is set to 2-D mode, the Y component will automatically use the next join up.
Digital Press Join	Set this to the desired digital join (touch panel OUTPUT) to indicate the control is in use. This must be connected to the module's "modify" input.
Signed Touch	This MUST be ticked. Otherwise the control will produce erratic values.
Spring Return	This MUST NOT be ticked. If it is, the control will always select white (the centre of the control) when the user stops moving their finger.
Design	The control MUST be 2-D Set the indicator to "None" and make it transparent in the appearance properties tab.

The animation object should be set up so that each frame is rotated round by 1 increment from left to right. The number of increments can be custom, based on your application. We recommend 25 frames for smooth operation. The analogue join (touch panel INPUT) can be set as required.

This will result in the following joins being defined on your touch panel:

Join Type	Purpose
Digital Output	Enable signal on module.
Analogue Output	Guage_X# signal on module.
Analogue Output	Guage_Y# signal on module.
Analogue Input	Frame number for touchpanel animation object.

These joins are simply connected to the inputs of the 135-135 Volume Module.

The "enable" digital should only be connected to the signals from the user interface in order to provide the most efficient processing of the large amounts of data coming from the colour wheel control.

The module will output the following results while enable is high and Guage_X# or Guage_Y# change:

Signal	Purpose
Volume#	Analogue signal providing a full unsigned range (0d-65535d) of values, according to the position of the touches on the 2-D slider object.

The Volume# analogue output should be connected into an "Analog Scaler with I/O Limits" symbol (speedkey: ASCALEL) in order to provide the correct values for the animation object for the display of feedback. The symbol should be configured as follows:

Parameter	Value
InputLowerLimit	0%
InputUpperLimit	100%
OutputLowerLimit	0d
OutputUpperLimit	[number of animation frames] – 1
Format	0d (unsigned)

The output analogue should go to your touch panel definition, on the analogue join occupied by the animation object.

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Technical Notes

The module uses a combination of CORDIC arctan approximations to determine the angle of the user's finger from the centre line of the control. Unlike some techniques based on look-up tables, this provides an incredibly high resolution of values with good linear spread without the memory overhead of large tables.

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Examples:
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