
Jog Wheel Interface Object for Crestron

Revision: 1.0
Date: 09 October 2013

Summary

This datasheet relates to Ultamation's Jog Wheel 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 "jog wheel" object for users to interact with on their touch-panel that is analogous to a physical jog wheel often found on amplifiers, hi-fis and other audio equipment. The 2D dial allows the increment and decrement of values at specific steps in the rotation of the 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.

Programming Notes

Use of the Jog Wheel 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 "Select" 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 8 frames for smooth operation. The analogue join (touch panel INPUT) can be set as required.

DATASHEET



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

Join Type	Purpose
Digital Output	Select signal on module.
Analogue Output	Gauge_X# signal on module.
Analogue Output	Gauge_Y# signal on module.
Analogue Input	Frame number for touchpanel animation object.

These joins are simply connected to the inputs of the Jog Wheel Module.

The “Select” 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 “Res_Deg#” signal is used to set the resolution in degrees of the jog wheel. For example, setting this signal to 5d will cause a “jog” to occur every time the touch moves more than 5 degrees around the control.

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

Signal	Purpose
Step_Up	Pulses whenever the touch on the control moves further than the set resolution in the clockwise direction.
Step_Down	Pulses whenever the touch on the control moves further than the set resolution in the anti-clockwise direction.
Angle_Deg#	Analogue signal providing a range of values between 0d and 360d, representing the current angle of the control. Each step up or down will increment or decrement the value of this signal by the set resolution value.

The Angle_Deg# 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.

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.

Licence

This module (including software, images and any and all other associated assets distributed as part of the purchased download package) is licenced on a PER PROJECT basis. The module may be used freely within the SINGLE project for which a licence has been purchased. i.e. You may implement multiple instances of software modules, or use a UI module on multiple touch panels (not restricted to a single type).

For this purpose, Ultamation define a PROJECT as a single “conceptual” system as viewed by an end-user (not necessarily the commissioning “client”).

Examples:

A large residential system with multiple processors and touch panel types is a SINGLE PROJECT.

A common system, rolled out across many apartments in a Multi-Dwelling-Unit project would be considered as MULTIPLE PROJECTS.

A generic system, deployed to multiple teaching rooms in an educational establishment would be considered as MULTIPLE PROJECTS.

Each PER PROJECT purchase must indicate the project name at checkout.

Abuse of this licence will result in an unconditional invoice for a LIFETIME licence for the module being issued.

This LIFETIME licence is provided as an alternative form where a purchaser expects to use the module across multiple projects. After purchasing a LIFETIME licence, the module can be implemented in any PROJECT being delivered by the purchaser. Licences (PER PROJECT or LIFETIME) are assigned to the purchaser ONLY and are not transferrable. PER PROJECT licences will not be refunded against a future LIFETIME licence purchase.