Indestructible Knob Sensor Companion Module

Datasheet – Revised 28 March 2022

Features

- Detects 360 degree rotation of a single Indestructible Knob through an FX51-SEN sensor
- Clockwise and counterclockwise rotation are both accepted
- Minimum rotation threshold to be detected: 30 degrees
- Debounce timeout configurable between 100ms and 1600ms to select rapid response or smoothed output to user input
- Voltage Input: **12V Only**
- AUX Output:
    - VIN (12V, 2A Max) when rotating
    - GND when idle
- I2C Connector: JST-PH 2mm
- 802.11b WiFi diagnostics and updates

Kit Contents

- FX205 Sensor Module
    - No RFID Reader Installed
- Custom I2C cable
    - Crossover wiring to support FX205 to FX51-SEN connection

Switch Settings

Set the "Address" switches to select a debounce timeout interval:

A	B	C	D	Value	A	B	C	D	Value
OFF	OFF	OFF	OFF	100ms	OFF	OFF	OFF	**ON**	900ms
ON	OFF	OFF	OFF	200ms	**ON**	OFF	OFF	**ON**	1000ms
OFF	**ON**	OFF	OFF	300ms	OFF	**ON**	OFF	**ON**	1100ms
ON	**ON**	OFF	OFF	400ms	**ON**	**ON**	OFF	**ON**	1200ms
OFF	OFF	**ON**	OFF	500ms	OFF	OFF	**ON**	**ON**	1300ms
ON	OFF	**ON**	OFF	600ms	**ON**	OFF	**ON**	**ON**	1400ms
OFF	**ON**	**ON**	OFF	700ms	OFF	**ON**	**ON**	**ON**	1500ms
ON	**ON**	**ON**	OFF	800ms	**ON**	**ON**	**ON**	**ON**	1600ms

Disclaimer

Instructions

- Mount the FX51-SEN on the indestructible knob using the two included screws.
- Connect the included I2C cable between the JST connectors on the FX205 module and the FX51-SEN. Either connector on the FX51-SEN can be used.

  Use the correctly labeled sides for each connection. If manufacturing your own cable, use this pinout:

  FX205 side: green, yellow, black, red
  FX51-SEN side: yellow, green, red, black

  Red: 3.3VDC Green: I2C SDA
  Black: GND Yellow: I2C SCL

- Determine the debounce timeout interval. This is the period after which players stop rotating the knob the sensor will wait before turning off the output signal, and can be used to smooth out players' input.

  For the most responsive detection, set this interval to 100ms. For the most smoothing, set the interval to 1600ms.

  A table of switch values is provided on the left. Set the switches in the Address block accordingly for your choice; ON is to the right, and OFF is to the left.

  The factory default value is 900ms (OFF/OFF/OFF/ON) Settings changes require a restart to take effect.

- Connect a 12V power supply capable of supplying at least 750mA to the VIN and GND terminals.

- Rotate the knob. The blue light will illuminate on the processor, and the GND signal on the AUX output will change to VIN (12V) while the knob continues to spin.

Diagnostics

Press and hold the SET button for 2 seconds to enable Wi-Fi diagnostics. Connect to the "FX205 Firmware Update" network with a laptop or tablet, then navigate to http://192.168.4.1 to see diagnostic info or apply updates.