TurboTwist2 D.A.R.E.™

(Dial-A-Rez™ Edition for Arcade1UP™* Machines)

!! WARNING !! Units which are damaged as result of user negligence are not covered by warranty, so be 100% certain that everything is wired as shown below, prior to applying power to any of the components. Also be aware that this product is not endorsed or authorized by your game's manufacturer and <u>any</u> modifications, including connecting unauthorized devices, to your Arcade1UP™* unit **WILL VOID YOUR MANUFACTURERS WARRANTY**. Any damages to your game as a result of this modification **will not be covered and repairs will be solely at your expense!**

Dial-A-Rez™ Feature:

This revolutionary **GroovyGameGear innovation** is the ultimate solution for the user to easily transform the TurboTwist 2's high-resolution, to one which is suitable for hardware/software which does not allow for changing the sensitivity of the control. Operation is simple. Connect a standard pushbutton, or SPST switch as shown below. Press the button, rotate the spinner knob to the desired resolution and release the button.

Each full revolution of the spinner <u>while the button is depressed</u>, increases the spinners target resolution by 100. I.e. ½ turn = 50 per revolution, 3/4 turn = 75, 2 full revolutions = 200 and so on.

Notes:

The resolution count is zeroed every time the button is pressed.

A stored resolution overrides a resolution selected from the jumper settings.

The stored resolution settings are retained through a power cycle.

Pressing the button without moving the spinner, returns the unit to the standard calibrated setting for Tempest* OR the settings indicated by the jumper.

Not all resolutions are possible, due to hardware limitations. Most of the resolutions possible with the Dial-A-Rez™ feature can also be set with jumpers or a switch. The complete set of possible TPR values are:

5, 6, 8, 10, 12, 15, 16, 20, 24, 25, 30, 40, 48, 50, 60, 75, 80, 100, 120, 150, 200, 240, 300, 400, 600, 1200

These numbers are based on decoders using 4x decoding. The actual translated value may change based on the decoding algorithm used by the host system hardware.

While these numbers do not represent the exact values of the controls used in older Arcade machines, they are very close and will greatly enhance gameplay when retro-fitting a high-resolution TurboTwist2™ spinner .

This device has been tested with multiple devices. However, hardware varies in design and capabilities, so compatibility with all 3rd party electronics is not guaranteed, and IDVT Inc. assumes no responsibility for any damages which could occur as result of an installers decision to use this product.

Basic Wiring Diagram

This product may be connected in multiple ways, and operates at the highest performance levels possible for each, thanks to our intelligent sensing algorithm

We <u>strongly</u> recommend the direct plug-in connection, as it offers the widest compatibility level between spinner only and spinner + trackball equipped units. The on-board UART connectors and wire harness only supports this method. See the instructions on the reverse side of this page for more details.

UART Wire Harness to panel wiring PCB.

From Original Trackball/Spinner Control
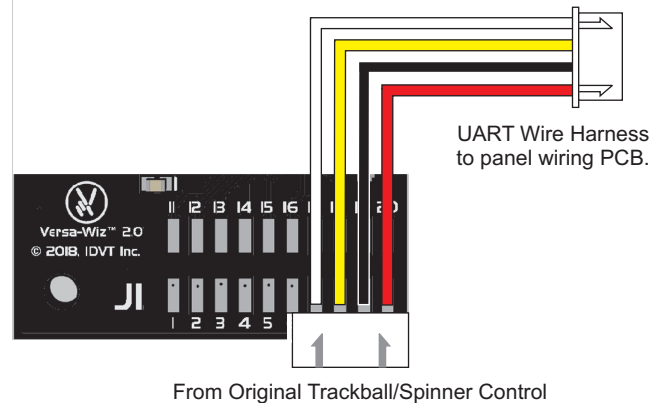
TurboTwist2 D.A.R.E.™ Optional Connections Diagram

Pins 1-2: +5v, Ground. Not used for UART connection.
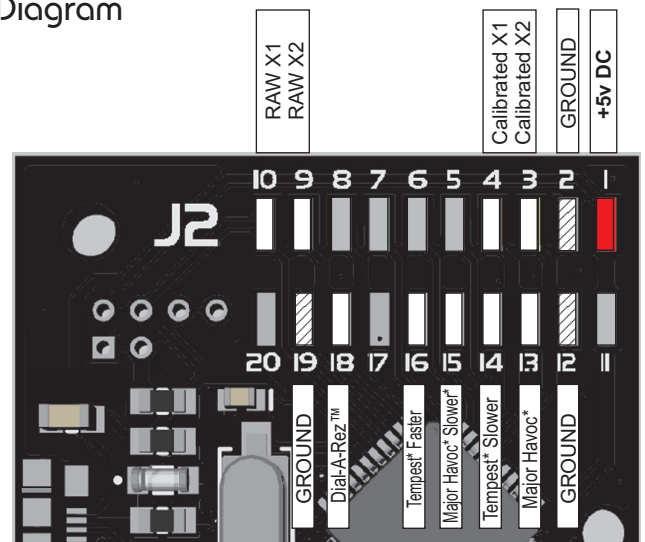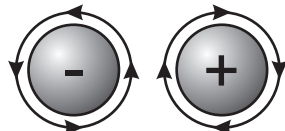**DO NOT REVERSE! Damage will result!**

Pins 3-4: Alternative Spinner Output. These may be reversed to achieve proper spin direction.

Pins 13-16: These are the TPR value selector pins. These may be jumpered to GROUND to provide the proper resolution for the game. An SPST toggle switch may be used to switch between the default calibration and one other. When a switch is so connected, and the switch is off (open) the default calibration is selected. When it is ON (closed) the calibration is changed to the other selection.

Pins 18-19: Dial-A-Rez™ button input.

Turn spinner knob CLOCKWISE to INCREASE TPR, and COUNTER-CLOCKWISE to DECREASE TPR.

TPR starts at 0 every time the Dial-A-Rez™ button is depressed.