

## JST CONNECTION SYSTEM

### 1. BACKGROUND

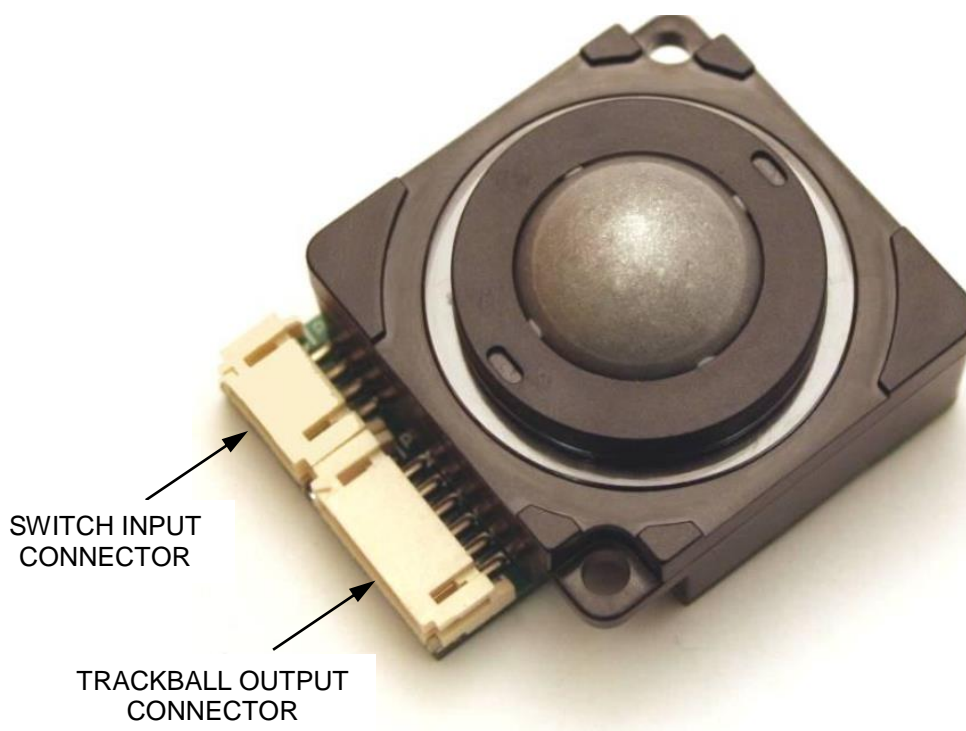
Cursor Controls Ltd utilises JST connectors (Japan Solderless Terminal) across its entire standard product range and the following document should be used as a guide when working with these connectors.

JST connectors are widely used in human interface devices such as desktop mice, trackballs, keyboards, and various other consumer computer peripherals.

Based in Japan, JST is one of the world's leading companies in the manufacture and supply of electrical/electronic terminals, connectors, and associated tooling and machinery and has provided unrivalled levels of quality and reliability since the company's inception in 1957.

This document details the types of JST connectors used by Cursor Controls Ltd, standard cable assemblies that can be purchased off the shelf, and how to create your own cable assembly for connection to a trackball.

Figure.1 below details a typical trackball utilising JST connectors.



**Figure.1** – X19 Series trackball

## 2. STANDARD JST CONNECTORS

Cursor Controls Ltd utilise the JST **PH Connector Series** for standard trackballs.

The PH Series is a thin, low profile 2.0mm pitch connector that is 8mm in height and 4.5mm in width. The connection system offers the following;

- Reliable contact
- Fully shrouded header
- Printed circuit board retention mechanism
- Surface mount model (SMT)

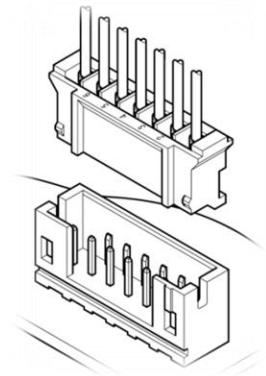






Table.1 below details the mating JST housings for the various PH connectors used by Cursor Controls Ltd as well as the recommended crimping specification.

**IMPORTANT: Please refer to the trackball datasheet to determine which JST connectors are used for the trackball you are integrating.**

Hand crimping tools WC240 and YRS240 are available directly from JST if required - please see section 4 of this document for further details.

SWITCH INPUT CONNECTOR				
CONNECTOR TYPE		MATING JST HOUSINGS		JST CRIMP
S4B-PH-SM3-TB		Discrete wiring	PHR-4	SPH-002T-P0.5S
		Insulation Displacement (IDC)	04CR-6H	
			04KR-6S	
TRACKBALL OUTPUT CONNECTOR				
S6B-PH-SM3-TB		Discrete wiring	PHR-6	SPH-002T-P0.5S
		Insulation Displacement (IDC)	06CR-6H	
			06KR-6S	
S8B-PH-SM3-TB		Discrete wiring	PHR-8	SPH-002T-P0.5S
		Insulation Displacement (IDC)	08CR-6H	
			08KR-6S	
S10B-PH-SM3-TB		Discrete wiring	PHR-10	SPH-002T-P0.5S
		Insulation Displacement (IDC)	10CR-6H	
			10KR-6S	

**Table.1 – JST trackball connectors**

### 3. STANDARD CABLE OFFERINGS

Cursor Controls Ltd offer a number of standard cable assemblies - please see the table below for details.

<b>SWITCH INPUT CABLES (FOR CONNECTION TO S4B-PH-SM3-TB)</b>		
<b>PART NO.</b>	<b>DESCRIPTION</b>	<b>LENGTH(MM)</b>
T9902125	4 WAY JST – SWITCH INPUT	500MM
<b>TRACKBALL OUTPUT CONNECTOR (FOR CONNECTION TO S6B-PH-SM3-TB)</b>		
T9902209	6 WAY JST – USB TYPE A	2200MM
<b>TRACKBALL OUTPUT CONNECTOR (FOR CONNECTION TO S8B-PH-SM3-TB)</b>		
T9902204	8 WAY JST – USB TYPE A	2000MM
<b>TRACKBALL OUTPUT CONNECTOR (FOR CONNECTION TO S10B-PH-SM3-TB)</b>		
T9902127	10 WAY JST – PS2 PLUG	2000MM
T9902128	10 WAY JST – USB TYPE A	2000MM
T9902142	10 WAY JST – PS2 PLUG	800MM
T9902174	10 WAY JST – USB TYPE A	1000MM
T9902175	10 WAY JST – USB TYPE A	700MM
T9902181	10 WAY JST – PS2 PLUG	400MM
T9902200	10 WAY JST – USB TYPE A	400MM
T9902233	10 WAY JST – USB TYPE A	200MM
T9902249	10 WAY JST – PS2 PLUG	500MM

**Table.2** – Off the shelf cable assemblies

#### 4. JST CRIMPING TOOLS

For customers wanting to make their own cable assemblies, JST provide a number of manual and automated crimping tool options. Cursor Controls recommend the following hand tools for the crimps specified in Section 2 of this document:

<p><b>WC-240 HAND CRIMPING TOOL</b></p>	<p>Ergonomically designed, parallel action hand tool, designed specifically to crimp SPH-002T-P0.5S contacts.</p>
	
<p><b>YRS-240 STRIP FEED HAND CRIMPING TOOL</b></p>	<p>Parallel action, ratchet style hand tool designed to crimp the applicable contact in strip form, while maintaining the reliability and performance of JST's semi-automatic tooling. To suit H-002T-P0.5S contacts.</p>
	

#### 5. SUBCONTRACT CABLE MANUFACTURERS

Cursor Controls can supply production quantities of standard cables for USB, PS/2 and RS232 outputs in addition to unterminated cable assemblies.

In an instance where a large quantity of cables is required, CCL would recommend using a subcontract manufacturing facility with semi or fully automatic crimping and insertion machines. This is generally the most cost-effective solution for high volume production.

Additional information regarding JST connectors can be found on the JST's website – [www.jst.com](http://www.jst.com).

## 6. DOCUMENT HISTORY

ISSUE	DATE	AUTHOR	REMARKS
A	20.01.17	N.S	Document released

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