Mechanical Overview

Introduction

This section will contain information regarding mechanical and plastic moulding for Series 3/3a, Workabout and HC machines that is deemed to be of especial importance to developers who are considering producing peripherals for these particular Psion platforms.

The Psion Series 3/3a range

S3a/Series 3 Reduced External Expansion Port

The Psion Series 3/S3a personal digital assistants have two SSD slots and provide access to external peripheral units through a single reduced internal expansion port, port C, on the left edge of the machine. The reduced external serial interface expansion port from the Series 3/3a forms six wires. The purpose of each is described in the table below. In addition to data, clock and power an active high interrupt line is provided. This allows the peripheral device to generate an interrupt within the host series 3/3a. The level of interrupt that is generated depends on both the machine and the expansion port that is used. Either ASIC4 or ASIC5 can act as the other end of the Psion Serial Interface. With exception of the interrupt line all used signals should be connected directly to the appropriate pins on ASIC4/5.

Pin	Name	Description	Connect to
1	MSD	Data line	ASIC4/5 SDAT
2	MCLK	Serial clock	ASIC4/5 SCLK
3	Vcc	+5 volt supply	Vcc
4	GND	Signal ground	GND
5	SSD/INT	Interrupt Line	Interrupt source/GND

Pin	Name	Description	Connect to
6	SCK/EXON	Not used in this scenario	Do not connect

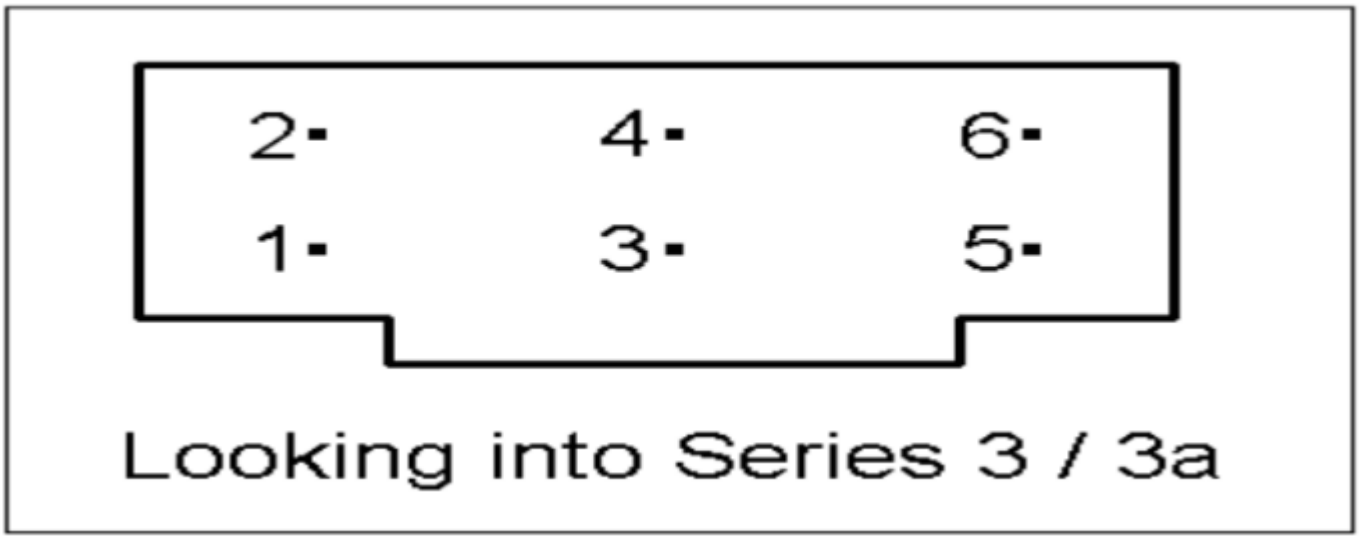
Signal Definition

MSD and MCLK form a single master SIBO serial protocol channel. This is normally channel 7 on a Series 3 and channel 5 on an S3a. The serial channel clock can be continuously enabled to provide a free running clock for expansion devices. The frequency is fixed at 1.536MHz regardless of the system clock frequency. SDKs/INT and SCK/EXON are both dual function pins. SDKS and SCK form a single slave SIBO serial protocol channel. This can be combined with MSD and MCLK to form a bi-directional high speed data link. SDS/INT can also be used to as an active high interrupt input. The function of SDS/INT can be programmed in ASIC2 or ASIC9. A rising edge on the SCK/EXON input will bring the system out of the standby state into the operating state. VCC is a +5 volt supply that is switched off when the system is in the standby state and is switched on when the system is in the operating or idle state. The maximum current that can be drawn is 25mA. Opening the pack doors on either an S3a or a Workabout will cut power to external peripherals.

Physical Connector

The reduced expansion port is made up of a 6-way two row connector spaced on a 2x3 way 0.1 inch pitch. The diagram below shows the physical connector numbering:

The male plug is connected to a 0.5m long plastic moulded 3-link cable assembly (part no. 25020013) which is terminated in a six-pin in-line connector which connects to a 6-way 1.5mm pitch transition header (part no. 47000106).



The Psion Workabout

The Workabout Expansion Interfaces

The Psion Workabout provides a rugged and easy-to-use computer system for a wide range of mobile corporate needs. The machine can be readily adapted to support various peripheral units such as barcode scanners and modems attached to the expansion ports. The Workabout has a 26-way extended internal expansion interface and a special 11-pin reduced external expansion interface.

Workabout Extended Internal Expansion Interface

The pin-out of the Workabout 26-way internal Torson connector is outlined below:

Torson 26 way connector pin	Workabout Signal name
1	GND
2	NICD (not used)
3	RUN
4	Vh (not used)
5	Vcc1

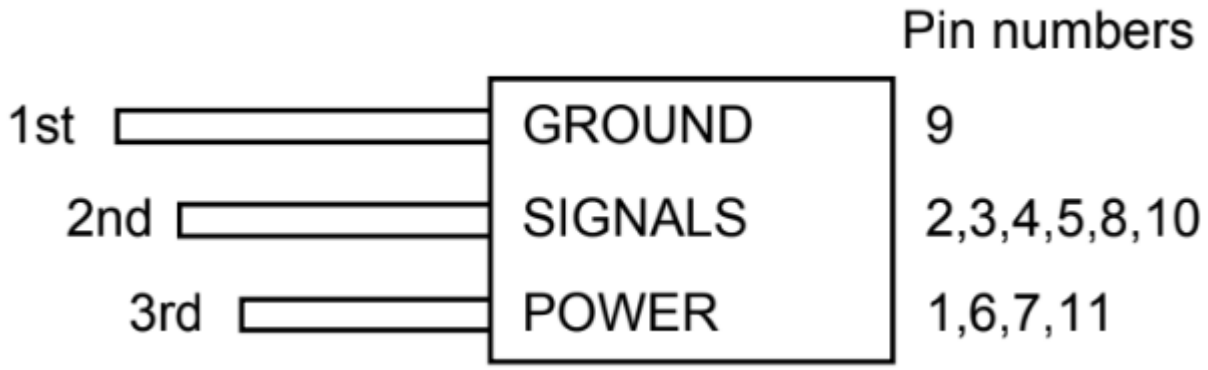
Torson 26 way connector pin	Workabout Signal name
6	Vcc2
7	CODEN (not used)
8	AMPEN (not used)
9	VOL0 (not used)
10	VOL1 (not used)
11	SCK (not used)
12	SYNC (not used)
13	SYNC (not used)
14	SIN (not used)
15	SOUT (not used)
16	ESDOE (not used)
17	SCK2
18	SD2
19	EINT1 (active low)
20	SCK3
21	SD3
22	EINT2 (active low)
23	THM (not used)
24	EXON
25	N/C
26	GND

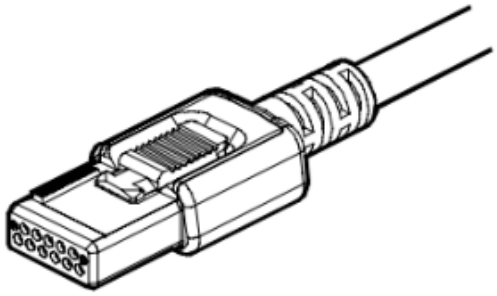
- Vcc1 is 3.0V nominal power supply. Current available from Workabout is limited to 100mA.
- Vcc2 is 5V nominal power supply. Current available from Workabout is limited to 200mA.
- RUN is low when powered down and high when powered up. It is used to power down or reset the peripheral module.
- SCK2 and SCK3 are serial data clocks. The clocks are left running continuously at 1.536MHz when the serial port is in use. They are used to clock the UART in ASIC5 in the RS232 AT/TTL and AT/Barcode modules respectively.
- SD2 and SD3 are bi-directional serial data lines used in the RS232 AT/TTL and AT/Barcode modules respectively.
- EINT1 and EINT2 are active low signals for interrupt input.
- EXON is an active high signal used to turn on the Workabout.

- All of the above logic signals are at 3.0V or 3.3V levels, depending upon the logic supply Vcc1.
- Lines currently described as unused relate to a yet unspecified codec interface.

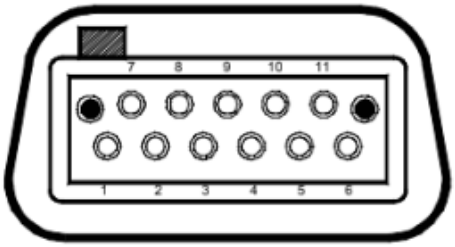
Workabout Reduced External Expansion Interface

For the Workabout reduced external expansion interface, a new 11-pin Low Insertion Force (LIF) connector has been designed for connecting the computer to the Cradle System. The computer mounted male LIF may be weather proofed, the cable mounted female LIF cannot. Currently the LIF connector cover can be moulded with a polarising pin in one of two positions. The facility exists to manufacture the cover with the polarising pin in two more positions, giving four possible variants. If more than four versions are required it is possible to have the cover and the socket bezel moulded in a range of colours to differentiate between variants. The polarising options are presented below:

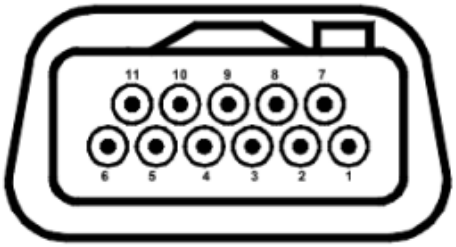




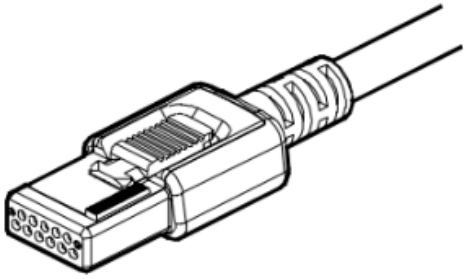
Polarising Pin A - Vehicle Interface Box for the HC only



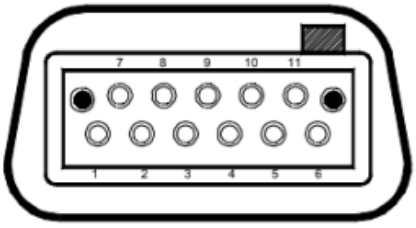
Cable mounted LIF (Female plug)



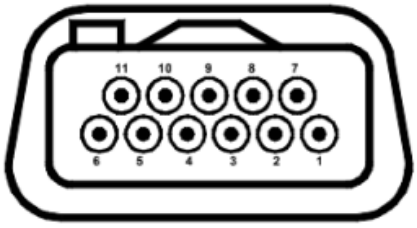
Computer mounted LIF (Male socket)



Polarising Pin B - HC and Workabout LIF



Cable mounted LIF (Female plug)



Computer mounted LIF (Male socket)

Pin Definition for LIF - PFS

Connector

> More to come...

Revision #2
Created Sun, Jun 2, 2019 9:31 AM by Alex
Updated Sun, Jun 2, 2019 11:16 AM by Alex