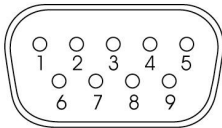




The information in this section can be used to design Specialty Input Devices compatible with the Omni. The input device manufacturer must ensure that the SID design is safe under all conditions, in particular, single component failures must be detected and the input device put into a safe condition. PG Drives Technology accept no responsibility for losses of any kind resulting from an unsuitable SID design.

I 9-way D Type Pin-out

OMNI 9 WAY D-TYPE



VIEWED FROM BELOW

Pin	Analog Function	Digital Function
1	Joystick Speed	Forward
2	Joystick Direction	Reverse
3	Joystick Reference	Left
4	-	Right
5	Detect	Detect
6	Fifth Switch	Fifth Switch
7	12V, 100mA	12V, 100mA
8	Joystick Ground	0V
9	Connected to 7	Connected to 7

The pins of the 9-way D type connector will have a different function depending on whether the Omni is configured for an analogue or a digital type input device.



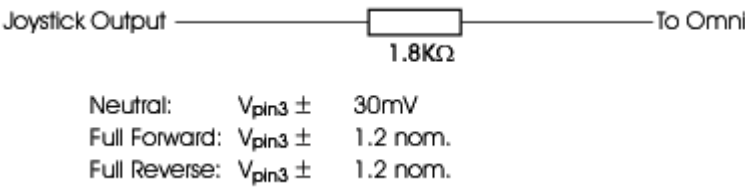
**The mating 9-way D type connector (socket) should always be fitted with gold contacts and a suitable backshell with locking screws. These locking screws should be used to mechanically hold the connector firmly in place.**

## 2     Analog Signal Levels

The analogue inputs are compatible with PGDT JC200BR3K1Y and Flightlink I5X1SSG251020 joysticks.

### 2.1     Pin 1 - Joystick speed

This is the joystick signal that determines the forward/reverse component of wheelchair movement. The joystick has a 1.8K $\Omega$  resistor in series with the speed output as shown below. All voltage levels apply to the actual joystick output, i.e. no load values. The Omni has an input resistance of 100K $\Omega$  to 0V.

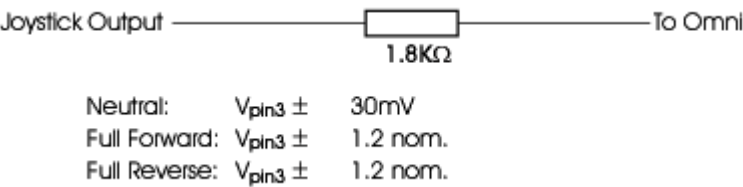


For optimum performance, The Omni should be calibrated for individual joysticks. The voltage swing of 1.2V is a nominal value, actual values of between 1.1V and 1.3V will be accepted by a calibration sequence.

If the voltage swing with respect to  $V_{pin3}$  exceeds 3.0V, then the Omni will assume a fault condition.

2.2 Pin 2 - Joystick direction

This is the joystick signal which determines the turning component of wheelchair movement. The joystick has a 1.8KΩ resistor in series with the direction output as shown below. All voltage levels apply to the actual joystick output, i.e. no load values. The Omni has an input resistance of 100KΩ to 0V.

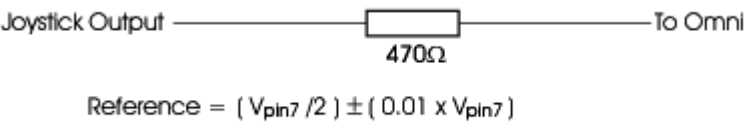


For optimum performance, The Omni should be calibrated for individual joysticks. The voltage swing of 1.2V is a nominal value, actual values of between 1.1V and 1.3V will be accepted by a calibration sequence.

If the voltage swing with respect to  $V_{pin3}$  exceeds 3.0V, then the Omni will assume a fault condition.

2.3 Pin 3 - Joystick reference

This is the joystick center point reference. The joystick has a 470Ω resistor in series with the reference output as shown below. All voltage levels apply to the actual joystick output, i.e. no load values. The Omni has an input resistance of 200KΩ to 0V.



## **2.4 Pin 5 – Detect**

This pin should be linked to 0V inside the input device. This link allows the Omni to detect if the SiD is connected. If the link is not fitted, the Omni should be configured to ignore the absence of the link.

## **2.5 Pins 7 and 9 – 12V 100mA**

These pins are connected together inside the Omni and provide a 12V supply to the joystick. The total combined current capability is 100mA.

## **2.6 Pin 8 – Joystick ground**

A 0V supply for the joystick.

# **3 Digital Signal Levels**

## **3.1 Pins 1,2,3 and 4 - Direction**

Low signal < 0.7V

High signal > 1.4V

Impedance: 132K $\Omega$  to 3V

## **3.2 Pin 6 – Fifth Switch**

Low signal < 0.7V

High signal > 1.4V

Impedance: 100K $\Omega$  to 5V

## **3.3 Pin 5 – Detect**

This pin should be linked to 0V inside the input device. This link allows the Omni to detect if the input device is connected. If the link is not fitted, the Omni should be configured to ignore the absence of the link.

### **3.4 Pins 7 and 9 – 12V 100mA**

These pins are connected together inside the Omni and provide a 12V supply to the input device. The total combined current capability is 100mA.

### **3.5 Pin 8 – 0V**

A 0V supply for the input device.

## **4 User Switch**

This section refers to the 3.5mm/1/8" jack sockets on the underside of the Omni. See the connections diagram in chapter 1 for more details.

If the Omni is configured for a normally closed User switch, there should be a permanent low signal and a high signal will be interpreted as a switch operation. If the Omni is configured for a normally open User switch, the opposite will apply.

### **4.1 Signal levels**

Low signal < 0.8V

High signal > 4.0V

Impedance: 10K $\Omega$  to 5V

## **5 On/Off Switch**

This section refers to the 3.5mm/1/8" jack socket on the underside of the Omni. See the connections diagram in chapter 1 for more details.

A normally open switch should be connected. A low signal is interpreted as a switch transition and will switch the Omni on or off.

### **5.1 Signal levels**

Low signal < 0.8V

High signal > 4.0V

Impedance: 10K $\Omega$  to 5V

## **6 Sip and Puff Input**

This section refers to the pneumatic inlet on the underside of the Omni Module. See the connections diagram in chapter 1 for more details.

Approximate pressure levels for full hard sips and puffs are:

Full puff 1PSI or 69mbar

Full sip -1.2PSI or -83mbar