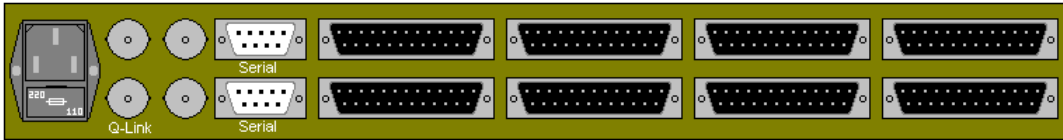


Application Note AN-0004

PI-1600A Parallel Interface Application Guide

The PI-1604A/1608A parallel interface provides an intermediate stage between the serial data format of the Q-link, and the parallel button-per-crosspoint data required in some installations.

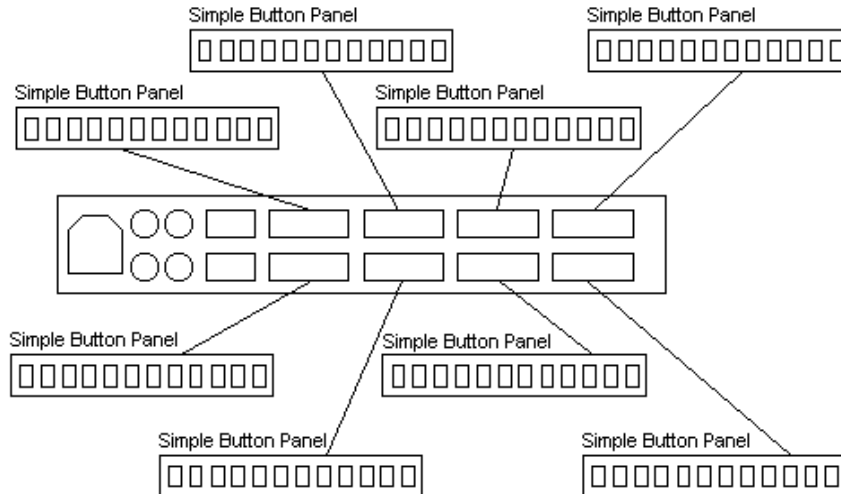


Typical uses of the PI-1604A/1608A are for custom panels, tally outputs, or for a lower cost solution where a large group of simple panels are needed.

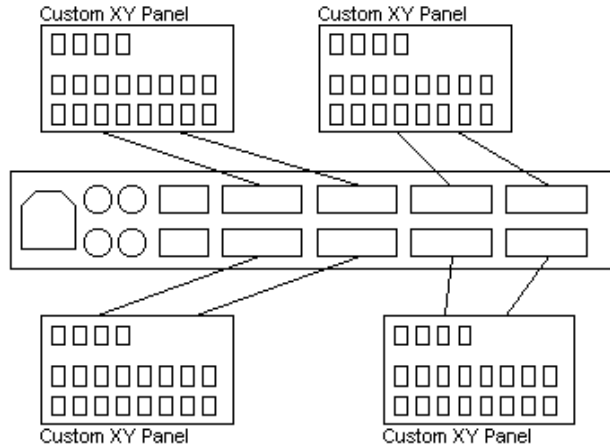
The PI-1604A/1608A talks to the Quartz control system on the Q-link. Parallel control of the system is provided on D-type connectors (D25). Two versions of the PI-1600 are available. The PI-1604A has one board fitted and provides four D25 connectors. The PI-1608A has a second board fitted to provide a total of eight D25 connectors.

How each D25 port is to behave is determined by the system setup stored in the master unit, usually one of the matrix frames. Typical uses would be for source keypads, destination keypads, or binary control ports from an editor.

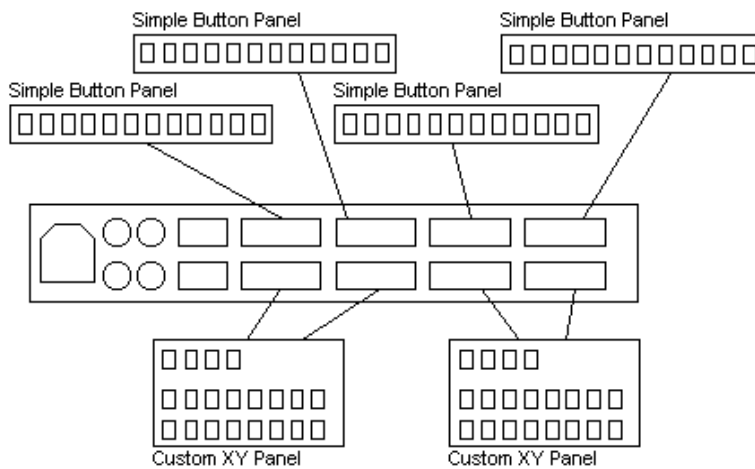
In the diagram below a PI-1608A is used with standard CP-1601-P remote parallel panels. This can be useful where a large number of simple panels are required in one location. The ports are configured as type 16 Sources.



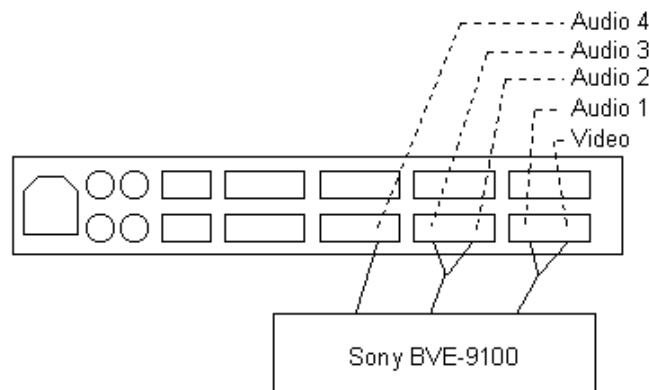
In the next diagram a PI-1608A is used with custom panels to make four XY panels. These are shown controlling 4 destinations and 16 sources. Note that an XY panel uses at least two ports, one for source buttons, and the second for destination buttons.



In the following diagram a PI-1608A is used to control a combination of standard and custom panels.



In the next diagram a PI-1604A is used to allow a Sony BVE-9100 to control a Quartz router. The ports are configured as type 8 bit Binary multi level (active high) or (active low).



In binary mode each D25 connector can be configured as multi-level or multi-dest. In multi-level mode, shown above, the connectors 16 active control pins are divided into two groups of eight with the first group (pins 1-8) controlling or switching a level (level x), and the second group (pins 9-16) controlling the next level (level x+1). In multi-dest mode the connectors 16 active control pins are again divided into two groups of eight with the first group controlling or switching a destination (dest x), and the second group controlling the next destination (dest x+1). In either case the connectors can be configured in active high (0x00 = source 1) or active low (0xff = source 1) modes.

PI-1604A/1608A D25 pin-out

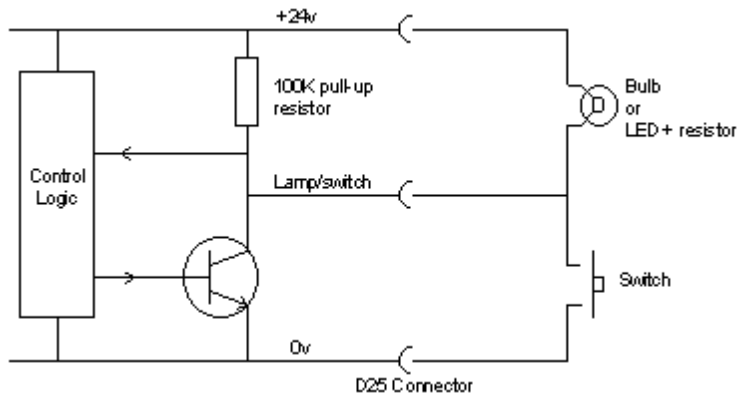
The PI-1604A/1608A uses D25 connectors, each carrying 16 signals, plus power and ground. They use the following pin-out.

Pin	Signal Name	Pin	Signal Name
1	Lamp/bulb 1	14	Lamp/bulb 14
2	Lamp/bulb 2	15	Lamp/bulb 15
3	Lamp/bulb 3	16	Lamp/bulb 16
4	Lamp/bulb 4	17	n/c
5	Lamp/bulb 5	18	n/c
6	Lamp/bulb 6	19	n/c
7	Lamp/bulb 7	20	n/c
8	Lamp/bulb 8	21	n/c
9	Lamp/bulb 9	22	+5v
10	Lamp/bulb 10	23	+24v
11	Lamp/bulb 11	24	0v
12	Lamp/bulb 12	25	Gnd
13	Lamp/bulb 13		

When using the PI-1604/8 connectors in Binary mode, configured from WinSetup, the connector pins are more correctly labelled as follows.

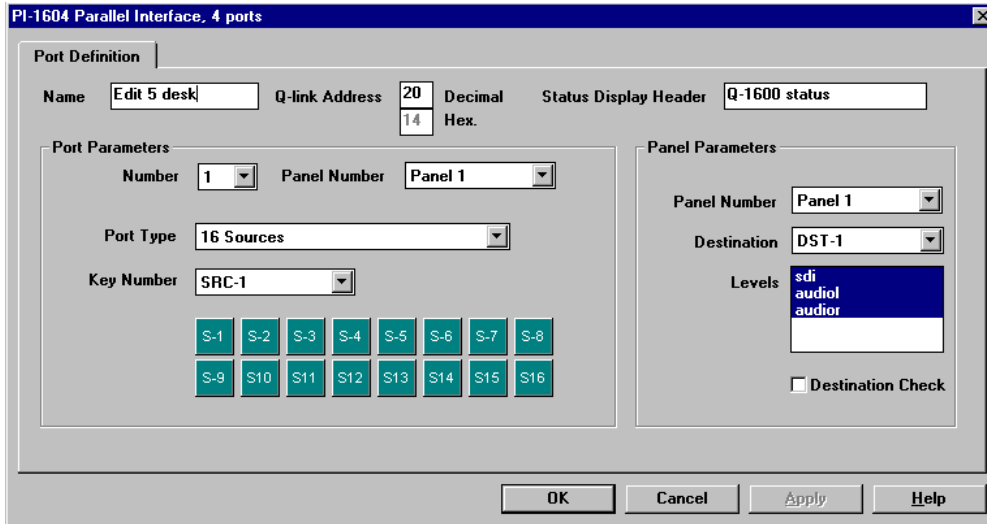
Pin	Signal Name	Pin	Signal Name
1	D0 (level or dest x)	14	D5 (level or dest x+1)
2	D1 (level or dest x)	15	D6 (level or dest x+1)
3	D2 (level or dest x)	16	D7 (level or dest x+1)
4	D3 (level or dest x)	17	n/c
5	D4 (level or dest x)	18	n/c
6	D5 (level or dest x)	19	n/c
7	D6 (level or dest x)	20	n/c
8	D7 (level or dest x)	21	n/c
9	D0 (level or dest x+1)	22	+5v (40mA total)
10	D1 (level or dest x+1)	23	+24v (500mA total)
11	D2 (level or dest x+1)	24	0v
12	D3 (level or dest x+1)	25	Gnd
13	D4 (level or dest x+1)		

A simplified example of the PI-1604A/1608A drive electronics. When a switch is pressed the control logic within the PI-1604/8 senses the change. The drive transistor is then turned on to hold the lamp on.



Using WinSetup to Configure a Parallel Interface

The Quartz WinSetup software allows the routing system to be configured to your exact requirements. The dialog to configure the PI-1604A is shown below. A brief description is given below but refer to the WinSetup help for more detailed information.



Name: The PI-1604A/1608A can have a name to help identify it at a later date. This field is optional.

Q-Link address: The PI-1604A/1608A QLink address will have been allocated automatically but can be changed manually if required. The address is shown in decimal notation (white box) and hexadecimal notation (grey box). The rotary switch inside the router must be set to match the lower digit of the hexadecimal value.

Port Parameters: The parallel interface has 4 or 8 D25 Ports, each with 16 pins. Each pin controls a lamp and/or switch. For each port assign a Panel Number. If ports 1-8 are given panel numbers 1-8 then they will all work independently of each other. If several ports are given the same panel number then they will work together to make a larger panel.

For each port assign the Port Type.

Port Type

16 Sources

16 Destinations

16 Tally Sources

Joystick multi-source

2 x 8 Sources

8 bit Binary multi dest (active high)

8 bit Binary multi dest (active low)

VTR to VTR

8 bit Binary multi level (active high)

8 bit Binary multi level (active low)

Joystick multi-dest

VTR Control

Lock

Description

A source port type will handle 16 source buttons. The buttons can be mapped using the key map.

A destination port type will handle 16 destination buttons. The buttons can not be mapped.

Like SRC16 but tally only. Cannot be mapped.

Not used (was SRC32)

Joystick for multi-srce (camera micro-switch override). Cannot be mapped.

Dual source keys (2 blocks of 8). Can be mapped using the key map. First block of eight controls the default destination; the second block controls the default destination plus 1.

8 bit binary inputs, active high, multi-dest. Cannot be mapped.

8 bit binary inputs, active low, multi-dest. Cannot be mapped.

VTR to VTR assignment panel. Cannot be mapped.

8 bit binary inputs, active high, multi-level. Cannot be mapped.

8 bit binary inputs, active low, multi-level. Cannot be mapped.

Joystick for multi-dest (test signal override). Cannot be mapped.

VTR control (upto 4 VTR's). When VTR stop bit is active on VTR parallel port the router switches from VTR-OUT to VTR-in, but only if VTR-OUT was selected. The key map data is used to set DEST,VTR-OUT,VTR-IN,SPARE and repeats 4 times.

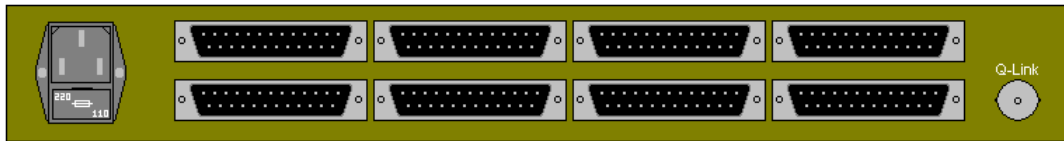
This port can be used to lock all other PI-1600 ports.

The key Number allows the individual connector pins to be assigned for some port types.

Panel Parameters: For each panel number being used set the default destination (start destination), and levels to be controlled.

Appendix A: Older Product

The PI-1604/1608 was replaced by a new design, PI-1604A/1608A, that was phased in during January 2000. The original design used the processor module PU-0002 with the NEC processor. The rear view of the unit is shown below.



The older PI-1604 product can support a CP-1601A-LP local panel on the front of the unit, and this works in parallel with the rear panel's bottom left hand D25 connector.