

XTA Electronics Ltd.

The Design House
Vale Business Park
Worcester Road
Stourport-on-Severn
Worcs. DY13 9BZ, England
Tel: 01299 879977 (Intl. +44 1299 879977)
Fax: 01299 879969 (Intl. +44 1299 879969)
Web: www.xta.co.uk
E-mail: tech@xta.co.uk



March 2007

...install and configure the GPI option kit for 4 Series

The GPI (General Purpose Interface) allows the recall of memories via an external switch box, alleviating the need for a computer system when only memory changes are needed.

Contents of this Kit:

The following parts are contained in the GPI Kit. One GPI Interface card; one 15pin D-type to 9pin D-type adaptor; one male 15pin D-type with hood; one application note.

Firmware Installation:

Note that the interface will only operate correctly with 4 Series firmware version **V1.80** or later. Latest firmware can be downloaded from www.xta.co.uk (Installation instructions are contained in the Readme.TXT within the ZIP file)

A 1 to 1 9-pin D-type serial cable and or USB to RS232 converter will be required to connect the COM port of the PC to the unit. For further details on interfaces, please refer to the official XTA Interface Guide for a list of approved Interfaces. This can be downloaded from the website.

Hardware Installation:

Ensure that the unit is switched off and that the power cord is removed from the mains supply! Position the unit so that the front panel is facing you, remove the seven retaining screws from the top cover and place the screws and cover to one side. Now locate the RS232 card and remove the retaining bolts (5mm) from the rear of the unit and unclip the connector from the main circuit board and put the GPI card put in its place. Be sure to tighten the retaining screws but be careful not to strip the thread. Plug the ribbon cable into the CN4 connector on the microprocessor circuit- board. The installation of the card is now complete - please replace the top cover.

What can I do with the GPI interface?

The interface has two modes of operation, 'Simple' and 'Complex'. In 'Simple' mode the interface allows the recall of 7 memories and in 'Complex' mode 31 memories can be recalled. In both cases the user can select whether input memories, graphic memories or output (X-over) memories or combination of any memory type is recalled or, if desired, all memory types at the same time. The mode of operation and memory recall options can be set in the GPI Interface menu located in the INTERFACE Sub Menu on the loudspeaker management system.

What do I need to plug in to recall a memory?

On the following page there are two example circuit diagrams of GPI switches. The first is a self-powered version, which is it takes its power from the unit and is therefore not fully isolated from the unit. The second diagram is a powered version, this gives full isolation from the unit, it should be noted however that **no more than 10v** should be used to activate the opto isolators as damage could occur.

To recall more than the first 7 memories, 'Complex' mode must be used. Details of the operation of this mode are covered in the next section.

Note that either individual momentary action or latching switches may be used. Additionally, a rotary switch may be used for the 'Simple' mode, but this will mean that the seven memories will only be accessible in a linear fashion. Individual switches allow "Random Access" of the memories in any order, which might be more useful. The type of switch used to build a remote interface is not crucial, but XTA suggest the following as suitable:

Farnell Components Order Code **176-477** (*Momentary Push-button Variety*)

Farnell Components Order Code **176-478** (*Latching Push-button Variety*)

Farnell Components Order Code **176-487** (*Mounting Bracket for Interlocking Set*)

Farnell Components Order Code **176-516** (*Interlocking Cam*)

Farnell Components Order Code **176-491** (*Round Caps*)

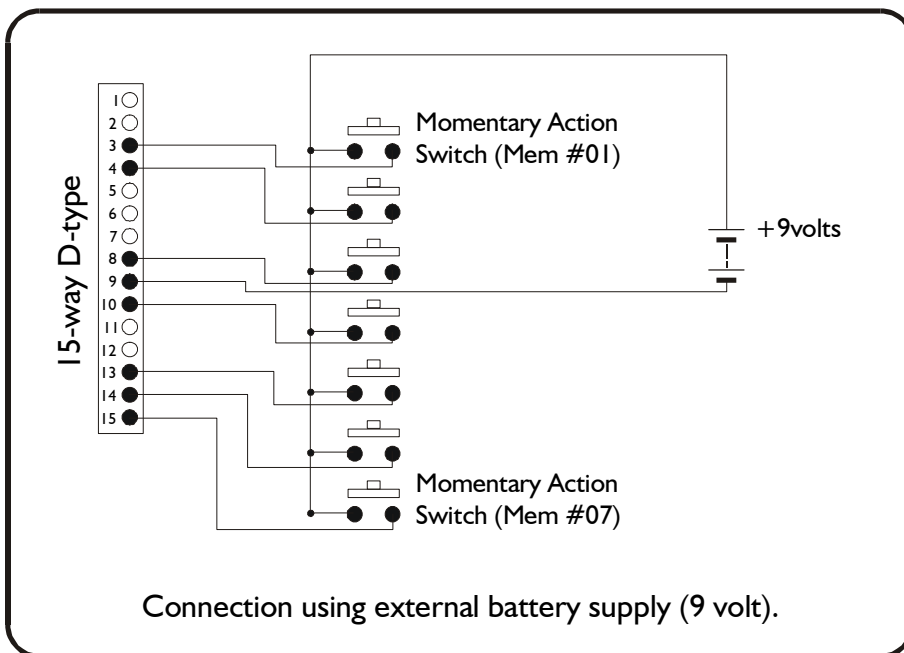
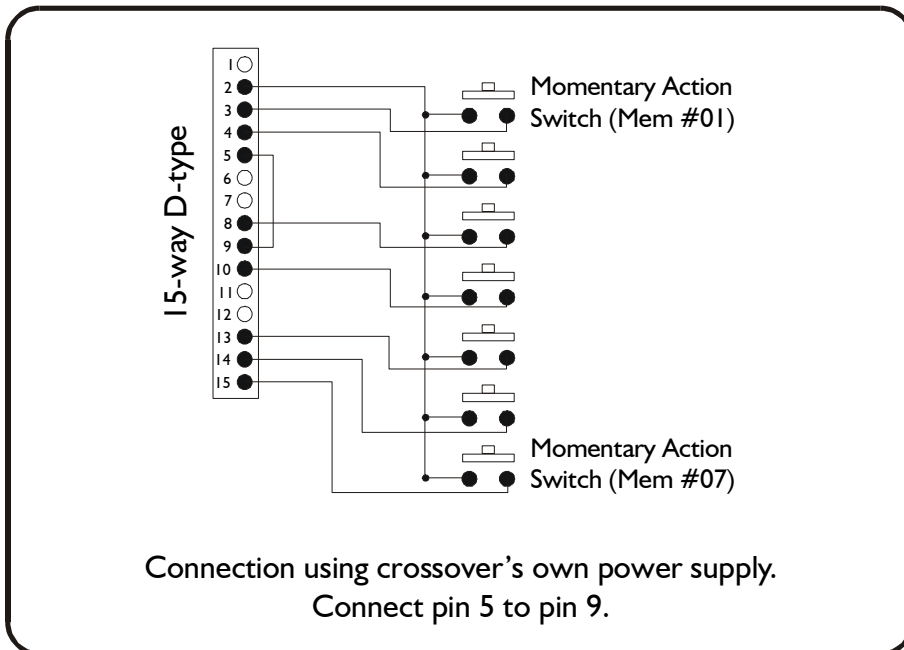
Farnell Components Order Code **176-492** (*Rectangular Caps*)

For a rotary switch we suggest:

Farnell Components Order Code **422-381** (*Rotary Non-Shorting*)

Note that the rotary switch must be a 'break before make' variety, or unpredictable operation may occur.

Examples of two typical interfaces that may be used to operate the interface in 'Simple' mode.

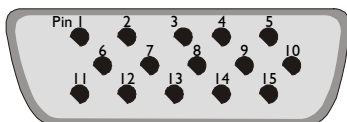


How Do I Trigger a Memory Recall?

As can be seen from the schematic diagrams, the 'Simple' mode of operation just involves connecting a single pin of the socket to a positive supply, derived either from the unit (non-isolated – ground must also be connected from pin 5 to pin 9), or from an external supply. In the case of the external supply, its ground must be connected to pin 9 to complete the circuit. In both cases, only a momentary action switch is required, but latching ones may be used if a physical indication of the remote memory selected is required.

For the remote recall of more than the first 7 memories, the 'Complex' mode must be used. This involves presenting a 5-bit binary number on the pins originally used for initiating individual memories in 'Simple' mode. Use the 'lowest' five pins (for memories 01 to 05 in 'Simple' mode). The following table details how to recall memories in 'Complex' mode. A '1' below a pin number corresponds to a positive voltage (at least 2.5V, but no more than 10v) on that pin; a '0' means ground (or open circuit). So, for example, to recall memory 13 pins 8, 10, and 3 need to be 'pulled high' with a positive voltage. As with the 'Simple' mode, this need only be a momentary action, but may be latched (permanent) if some form of remote static indication is required.

15-Pin Interface Connections					
Memory Number	Pin13	Pin10	Pin8	Pin4	Pin3
01	0	0	0	0	1
02	0	0	0	1	0
03	0	0	0	1	1
04	0	0	1	0	0
05	0	0	1	0	1
06	0	0	1	1	0
07	0	0	1	1	1
08	0	1	0	0	0
09	0	1	0	0	1
10	0	1	0	1	0
11	0	1	0	1	1
12	0	1	1	0	0
13	0	1	1	0	1
14	0	1	1	1	0
15	0	1	1	1	1
16	1	0	0	0	0
17	1	0	0	0	1
18	1	0	0	1	0
19	1	0	0	1	1
20	1	0	1	0	0
21	1	0	1	0	1
22	1	0	1	1	0
23	1	0	1	1	1
24	1	1	0	0	0
25	1	1	0	0	1
26	1	1	0	1	0
27	1	1	0	1	1
28	1	1	1	0	0
29	1	1	1	0	1
30	1	1	1	1	0
31	1	1	1	1	1



Pin Numbering of 15-pin connector (as viewed from the rear of the unit)

How Do I Configure The Interface?

The GPI Interface sub-menu is contained within the Interface Sub Menu and can be accessed by pressing 'MENU' and using the 'BACK' and 'NEXT' keys to locate the Interface Sub Menu...

```
MAIN Menu:.....  
  INTERFACE Sub Menu
```

Press 'ENTER' to access the External Interface sub-menu...

```
INTERFACE Sub Menu:..  
  External Interface
```

Press 'NEXT' twice to display the GPI Interface Sub Menu...

```
INTERFACE Sub Menu:..  
  GPI Interface
```

Press the 'ENTER' key to access and configure the GPI Interface:

Firstly, choose operation mode of the interface by using the 'BACK' and 'NEXT' keys to choose from 'COMPLEX', 'SIMPLE' or 'OFF'. The use of the formats is explained in the following sections. 'COMPLEX' allows recall of up to 31 memories; 'SIMPLE' allows 7 to be accessed.

```
GPI InterFace  
  GPI Mode : OFF * OR Simple * OR Complex *
```

Press 'ENTER' when ready...

Next, the 4 Series GPI configuration will ask if you would like to set an offset.

This allows an offset to be made, so specific or higher allocation memories can be accessed.

For example, if you were using the GPI in simple mode (7 memories), but you wanted to get

access to memories 8, 9 and 10, you could set an offset of 3, so the 7 memories accessible would be 4, 5, 6, 7, 8, 9 and 10.

Also, manufacturer presets appear in allocation 257 and above, so setting an offset of 256 means that the first GPI recall button will recall memory allocation 257 (Preset 1).

Setting the offset to 0 would just default to recalling the memory allocations 1 to 7.

```
GPI InterFace  
  Memory OFFset : 0 *
```

Press 'ENTER' when ready...

Next, you can choose what the GPI recalls, as you can set the GPI interface to recall everything (default) in a given memory or tailor it just to recall certain information from within a memory. For example, you may wish to leave the output crossover settings as they are, as to avoid accidental recalling of incorrect configurations and just recall input information or graphic and input data, regardless of whether the memory contains Crossover data or not!

```
GPI Interface
Recall: Everything * OR
      Input & Xover * OR
      Graphic & Input * OR
      Graphic & Xover * OR
      Graphic Only * OR
      Input Only * OR
      Crossover Only *
```

Press 'ENTER' when ready...

Finally, a warning message is displayed.

```
= GPI Interface Changed=
Press [ENTER] to CONFIRM
```

Press 'ENTER' again to confirm the changes, or press 'QUIT' to cancel all changes and revert to the default screen.

The GPI kit is now ready to use!

FAQ

Have I Lost My Serial RS232 9-pin COM Port?

No. The circuitry for the RS232 port is included on the GPI card. An adapter is included in the GPI kit that plugs into the 15-pin connector, and converts it to the original 9-pin which may be used in exactly the same way as before.

The menu options relating to the standard interface have not changed and should be set accordingly.

The port may be used for loading firmware upgrades, preset updates, and AudioCore remote control applications as normal.

PLEASE NOTE: **V1.80** 4 Series firmware or greater is required to operate the GPI interface.

Help?

If you have any questions about the GPI interface, please e-mail support at: tech@xta.co.uk