



Installation and Operation Manual



GPI-24 *General Purpose 24 Input Interface*

Firmware Version 1.16 or above

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INTRODUCTION

Thank you for your purchase of a Broadcast Tools® GPI-24, General Purpose 24 Input Interface (referred to as the GPI-24 throughout this manual). We're confident that this product will give you many years of dependable service. This manual is intended to give you all the information needed to install and operate the Broadcast Tools® GPI-24.

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If you have any questions regarding your product or you need assistance, please contact your distributor from whom you purchased this equipment.

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Broadcast Tools® Products, as with any electronic device, can fail without warning. Do not use this product in applications where a life threatening condition could result due to failure.



NOTE:

This manual should be read thoroughly before installation and operation.

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INTRODUCTION

PRODUCT DESCRIPTION

The GPI-24 interfaces 24 optically isolated inputs to a users PC COM or USB port. Each input can be configured to generate user programmable ASCII, HEX or control character strings on each falling and/or rising input transition. Each string can be up to 40 characters long. Programming is performed using HyperTerminal or your favorite com program. The user has three additional pre-programmed selections. The “PIP” GPI format is used on most of our audio switchers, the AT-1616 format is used on one of our most popular serial GPIO interfaces and the short ASCII format, which is used by a number of radio automation suppliers. Additional features include; Plug-in euroblock screw terminals; optional StarGuide II/III relay card adapter; LED indicators for power and input activity. The GPI-24 is supplied with a Smart USB-RS-232 adapter cable, DB-9 straight-through serial cable and 9 vac wall transformer. The GPI-24 is powered by a surge protected internal power supply. Two GPI-24’s may be horizontally rack mounted via the optional 1-RU, RM-3 mounting shelf or up to 12 units on the RA-12 rack panel mounted vertically. DIN rail mounting via the optional DIN rail clips is available.

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DESCRIPTION

INSTALLATION

Please examine your GPI-24 carefully for any damage that may have been sustained during shipping. If any is noted, please notify the shipper immediately and retain the packaging for inspection by the shipper. The package contains the GPI-24, 9 VAC @ 1 amp wall power transformer, Smart USB-RS-232 adapter cable, DB-9 straight-thru serial cable and this manual.

Input connections:

Each input is optically isolated and internally power by 5 vdc. A valid input must be 20ms in duration or greater and is indicated by a “wink” on the “DATA led. Input connections are via TB-1, the double-decker plug-in euroblock screw terminal that is labeled “Inputs” 1 thru 24 with ground connections interspersed between them. To install, remove the plug, strip 1/8” of insulation from the wire. Insert the wire in to the desired terminal and tighten the setscrew. When finished, reinsert the plug into the appropriate connector.

DB-9 Female Serial connector:

The female DB-9 connector J2 is provided for customers wanting to use the provided straight-thru serial cable to connect to the COM port of their PC.

USB-RS-232 Adapter Cable:

The Smart USB to RS-232 adapter cable is provided for customers needing to use the USB port supplied with their PC. Remove the Smart USB to RS-232 adapter cable from the packaging and follow the installation instructions provided. When the Smart USB to RS-232 adapter is attached to the USB port of the PC and functioning properly, connect the male DB-9 connector to J2 (female DB-9) on the GPI-24.



CAUTION!

Installation of the GPI-24 in high RF environments should be performed with care. It is recommended that all cables connected to the GPI-24 be looped through ferrite cores to suppress RF. Surge protection with RF filtering is also suggested for the wall transformer. Shielded cable is suggested for all input connections. The shields and station ground should be tied to the CHI, “CHASSIS GROUND” screw terminal. For lightning protection devices, check out www.polyphaser.com and www.itwlinx.com.



NOTE:

All connections are noted on the top cover label.

PROGRAMMING

Follow the steps below to configure the GPI-24:

- 1 - Start HyperTerminal (or your favorite com program) configured for: **com port x, 9600,8,N,1**, flow control to **NONE**, Emulation set to **ANSI**.

NOTE: Step-by-step HyperTerminal setup instructions are available on-line at www.broadcasttools.com under **“Downloads”**.

- 2 - Connect the supplied 9VAC power supply connector in to the GPI-24’s power jack labeled “Power 9VAC”, then plug the transformer in to a power source of 120vac 60Hz. Verify that the green power led is illuminated. The text **“BTI GPI24 V01.16RESTARTED!”** should be displayed on your monitor if things are setup and/or working properly.

- 3 - Type ***0MM (in the blind)** to bring up the programming menu.
NOTE: If the menu on the next page doesn’t appear, press the **“Load Default”** push button behind the DB-9 serial connector. If the menu still doesn’t appear, you may have the wrong COM port assigned.

Choose which of the four data formats (7 though A) you require. Skip to that item and follow the information provided below.

Menu Item 1

Selecting menu item 1, presents the screen below. This allows the user to program up to 40 character strings in each location. The character strings are transmitted when the input is momentarily pulled to ground (falling edge). The characters may be ASCII or HEX. Enter string (1 to 40 characters) followed by pressing the **ENTER** key. For control characters or ‘\’, precede by ‘\’ to specify characters as 3 decimal characters, precede by ‘\d’

NOTE: To generate a carriage return, you would type **\d013**, or simply type the **back-slash (\)**, then press the **enter key twice**. When it displays on the setup page, it will look like you did it by typing **\d013**.

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Menu Item 2

Data entry is identical to menu item 1, except the character strings are transmitted when the input is returned (rising edge) high.

String examples:

StarGuide II/III receiver code: SP A,P,4\d013SP A,S,39\d013AM A,1\d013

IDC, SFX2100 receiver Code: SetAudioConfig -c 101\d013

Unity 4000 receiver code: SETAUDIO 1 S SR1 0\d013

ACS 8.2 code: *0011 (ID = 0 with Input 01 to output 1)

SS 16.4 code: *2164 (ID = 2 with Input 16 to output 4)

SS 16.16 code: *11616 (ID = 1 with Input 16 to output 16)

NOTE: In some instances, a carriage return may be entered before commands to purge any unwanted characters in the buffer.

Menu Item 3 through 6

Baud rate selection. 9600,8,N,1 is the default.

Programming:

Note: Any falling and/or rising edge input change causes the transmission of the input status.

Menu Item 7

This selects the new default format as listed on the menu.

Menu Item 8

This selects the new default format as listed on the menu.

Menu Item 9

This selects the new default format as listed on the menu.

Menu Item A

This selects the new default format as listed on the menu.

Menu Item B

If this item is ON, Invert bits for items 8 and 9, reverse order for item A.

Factory default is OFF.

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SPECIFICATIONS

Digital Inputs	24 - Optically Isolated inputs (5 vdc @ 8ma). 20ms min duration.
RS-232 Serial Port	9600, 2400, 38400, 57600 baud, 8 data bits, no parity, 1 stop bit. Other baud rates may be requested as a special order.
Interfacing	Inputs - Double-decker plug-in euroblock screw terminals and 26-pin IDC header. For use with the optional StarGuide II/III, DB-37 pin relay card. RS-232 serial port - Female DB-9. Handshaking disabled.
Logic	Microprocessor, non-volatile memory
Power	9 VAC @1 amp or 500 ma / 120 Vac 50-60 Hz, "Wall Wart" Supplied.
Mechanical	7.75" x 4.00" x 1.25" (WDH)
Weight	2 pounds
Options	StarGuide II/III DB-37 relay card adapter with IDC connector cable. RM-3, horizontal rack shelf for mounting two units in 1-RU. RA-12, vertical rack panel for mounting up to 12 units in 2-RU, (Total rack space occupied approximately 4-1/2-RU). DIN rail clips for DIN rail mounting. CE, 240 Vac 50-60 Hz wall wart.
Ethernet Option	Ethernet Serial Server. Broadcast Tools® ESS-1.

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