



IQGPI

General Purpose Control Interface (IQCGPI-R / IQGPI00 / IQGPI01)

Operator's Manual

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About this Manual

This manual covers the following products:

- IQCGPI-1-B-R: Single width module
- IQCGPI-1A-B-R: Single width module
- IQGPI00: Single width module (Unbalanced)
- IQGPI01: Single width module (Balanced)

Packing List

The product is supplied in a dedicated packing carton provided by the manufacturer and should not be accepted if delivered in inferior or unauthorized materials. Carefully unpack the carton and check for any shipping damage or shortages.

Any shortages or damage should be reported to the supplier immediately.

Enclosures:

- IQGPI Module
- Operator's Manual CD

Software Version Amendments

Notes about Versions Fitted

Firmware: The IQGPI is fitted with version 5.13 or higher of the firmware.

Manufacturer's Notice

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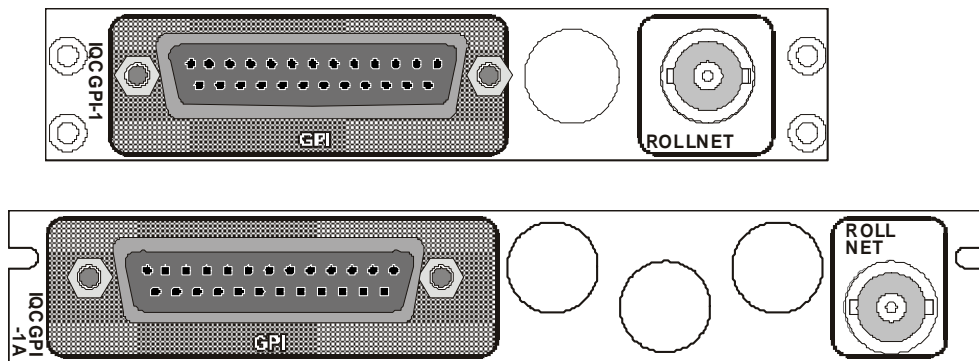
Module Description

The IQGPI is a configurable control module for external devices and all RollCall compatible products.

This module uses the latest Snell intelligent control software developed from the RollPod technology. This will allow the GPI to become a central controller for the most demanding network configuration. GPIs can be assigned to RollCall commands as before but now with the aid of a PC program the GPI can literally interact with the RollCall network environment, unleashing complex interactivity between external devices and/or other Snell products.

All IQGPI modules are configured by means of the RollPod Designer application. However, if the RollPod Designer cannot offer the functionality required by the IQGPI, its configuration can be customized by Snell.

Rear Panel Views



Versions of the module cards available are:

IQCGPI-1-B-R	12 GPIs	GPI to RollCall Translator (Balanced)	Single width module
IQCGPI-1A-B-R	12 GPIs	GPI to RollCall Translator (Balanced)	Single width module
IQGPI00	23 GPIs	GPI to RollCall Translator (Unbalanced)	Single width module
IQGPI01	12 GPIs	GPI to RollCall Translator (Balanced)	Single width module

Enclosures

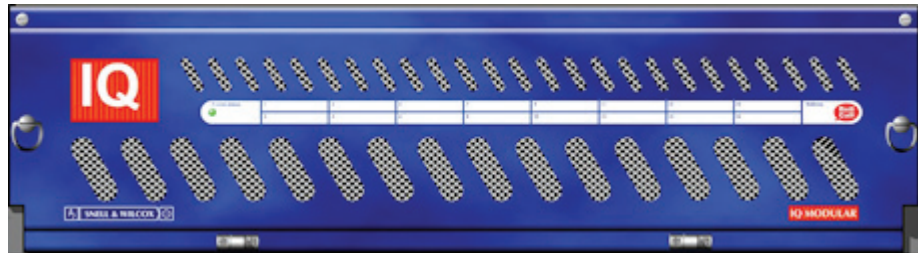
'A' Style Enclosures

Rear panels with the suffix **A** can only be fitted into 'A' style enclosures as shown below.

Enclosure order codes IQH3A-S-0, IQH3A-S-P



Enclosure order codes IQH3A-E-0, IQH3A-E-P, IQH3A-0-0, IQH3A-0-P

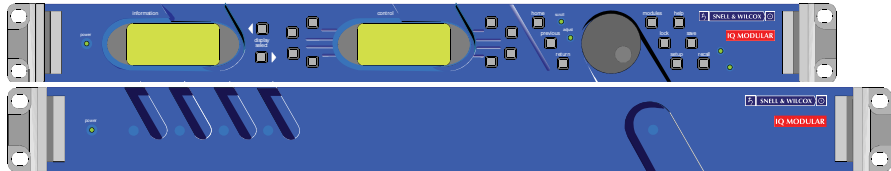


Enclosure order code IQH1A-S-P

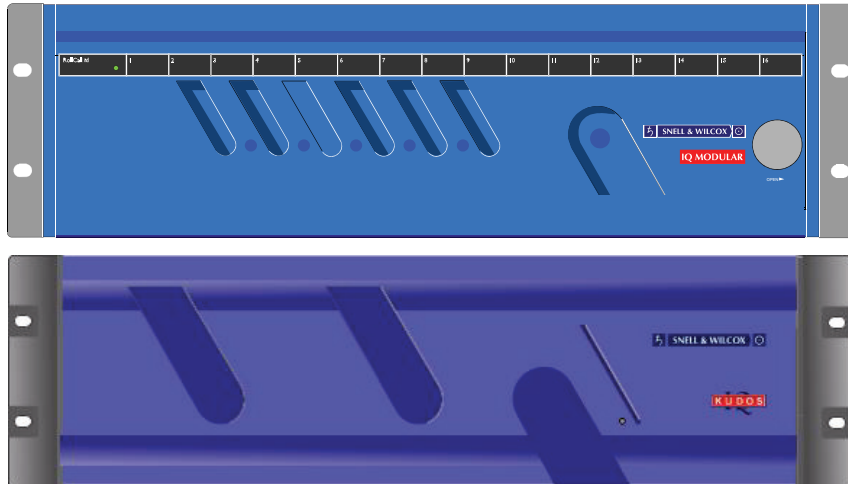


'O' Style Enclosures

Rear panels *without* the suffix **A** may only be fitted into the 'O' style enclosures shown below.



Enclosure order codes IQH1S-RC-O, IQH1S-RC-AP, Kudos Plus Products



Enclosure order codes IQH3N-O, IQH3N-P

Features

- 12 Port Versions offer 11 optically isolated I/O interfaces, plus 1 which is non-isolated.
- 23 Port Version offers 23 GPI non-isolated unbalanced I/O interfaces.
- Direct connection to the RollCall™ network.
- Control products on the RollCall™ Network via external events, or vice-versa.
- Customizable solution allows programming of multiple events from a single trigger
- Outputs may drive Relays or LED's
- 200mA 5V Power Supply available on connector

Technical Profile

Features

Inputs

GPI Optically isolated - Balanced 12 via 25 way D type, 11 floating and 1 ground referenced

GPI non-isolated 23 via 25 way D type

Outputs

GPI

User Power Supply via 25way D-type 200mA, 5V Foldback protected

Communication

RollNet via BNC connector

Indicators

PSU Overload

Specifications

Optically Isolated Inputs/Outputs

Voltage isolation	Floating GPI's only 2000VAC
Sink current (output)	< 120mA
Output voltage	At 100mA 1V typ.
Input voltage	Absolute max. rating -0.5V to +18V
Logic 1 input voltage	+3V or greater
Logic 0 input voltage	+1V or less
Input current	at +5V 600 uA typ.

Non Isolated Inputs/Outputs

Sink current (output)	< 200mA
Output voltage	at 100mA 1V typ.
Input voltage	Absolute max. rating -0.5V to +18V
Logic 1 input voltage	+3V or greater
Logic 0 input voltage	+1V or less
Input current	at +5V < 150uA

Power Source

Voltage	5 V \pm 0.5 V
Maximum Current	200 mA. Foldback protected
Maximum Load	short-circuit

Power Consumption

Module Power Consumption	4.35 W max
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EMC Performance Information

Environment	Commercial and light industrial E2
Peak Mains Inrush Current following a 5 second mains interruption	No mains input
Performance Information	No performance degradations or cable length limitations

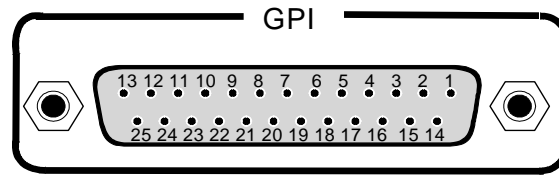
Connections

The IQGPI is an interface between a control panel and RollCall.

The balanced versions (IQCGPI-R & IQGPI01) have 11 balanced, and 1 unbalanced interfaces configurable to input or output. The Unbalanced version (IQGPI00) has 23 unbalanced interfaces configurable to inputs or outputs. A 25 way D type connector interface is implemented. The balanced version is interface compatible with the previous version of the GPI.

The IQGPI controls a RollNet network, enabling access with an array of push buttons, thus producing a quick customized user interface.

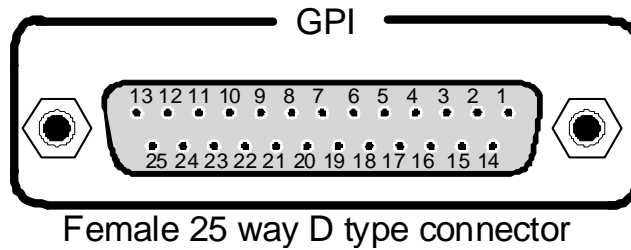
Balanced Connector



Female 25 way D type connector

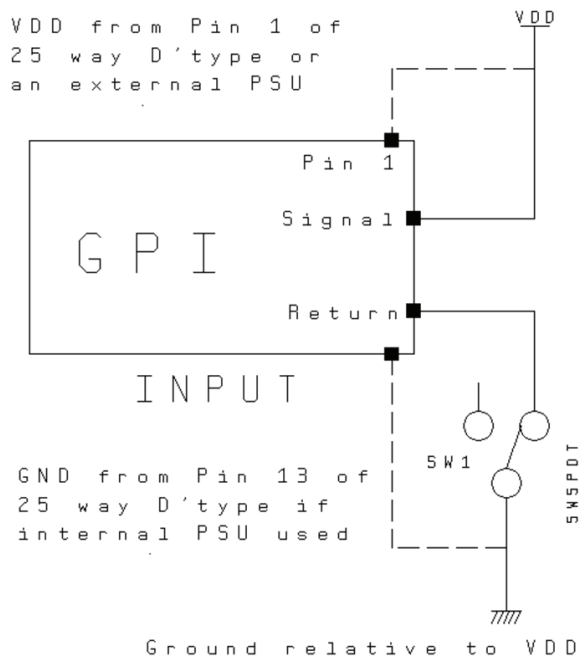
Pin No	Pin No	Name	Description
1		VPP	Positive Power Supply
	14	RET0	Return 0
2		SIG0	Signal 0
	15	RET1	Return 1
3		SIG1	Signal 1
	16	RET2	Return 2
4		SIG2	Signal 2
	17	RET3	Return 3
5		SIG3	Signal 3
	18	RET4	Return 4
6		SIG4	Signal 4
	19	RET5	Return 5
7		SIG5	Signal 5
	20	RET6	Return 6
8		SIG6	Signal 6
	21	RET7	Return 7
9		SIG7	Signal 7
	22	RET8	Return 8
10		SIG8	Signal 8
	23	RET9	Return 9
11		SIG9	Signal 9
	24	RET10	Return 10
12		SIG10	Signal 10
	25	SIG11	Signal 11, unbalanced
13		Ground	Ground

Unbalanced Connector

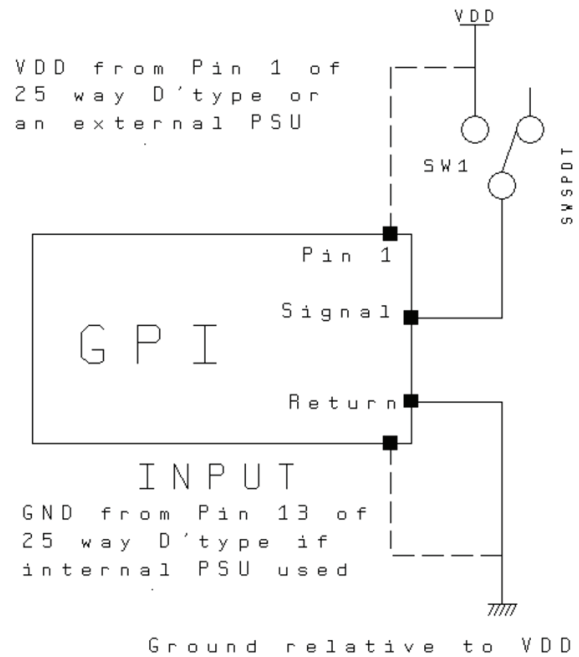


Pin No	Pin No	Name	Description
1		VPP	Positive Power Supply
	14	SIG12	Signal 12
2		SIG0	Signal 0
	15	SIG13	Signal 13
3		SIG1	Signal 1
	16	SIG14	Signal 14
4		SIG2	Signal 2
	17	SIG15	Signal 15
5		SIG3	Signal 3
	18	SIG16	Signal 16
6		SIG4	Signal 4
	19	SIG17	Signal 17
7		SIG5	Signal 5
	20	SIG18	Signal 18
8		SIG6	Signal 6
	21	SIG19	Signal 19
9		SIG7	Signal 7
	22	SIG20	Signal 20
10		SIG8	Signal 8
	23	SIG21	Signal 21
11		SIG9	Signal 9
	24	SIG22	Signal 22
12		SIG10	Signal 10
	25	SIG11	Signal 11
13		Ground	Ground

Examples of external circuit connection for a GPI Port configured as Input



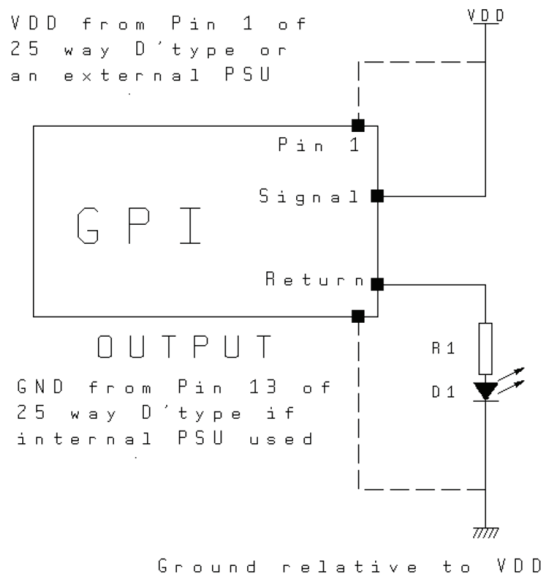
Example 1



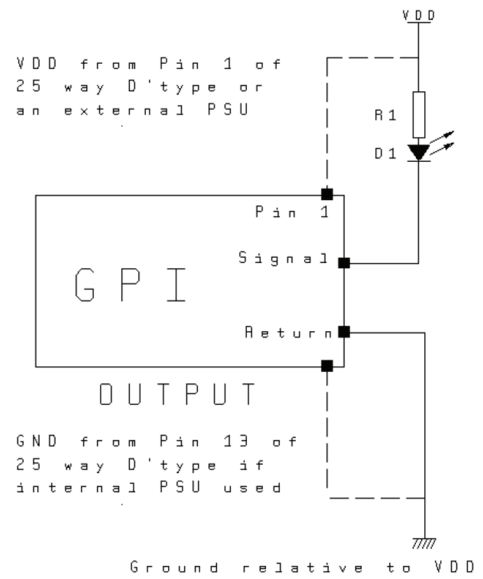
Example 2

Note that Unbalanced / non-isolated GPI/O ports, e.g. the 12th port, (Signal 11), on models IQGPI01 and IQCGPI-B-R, or all ports of model IQGPI00, are not floating and have the return grounded on the module. Therefore only examples 2 and 4 are suitable for these ports. If an external PSU is used with unbalanced / non-isolated ports, the external PSU ground should be common with module ground (pin 13).

Examples of external circuit connection for GPI Port configured as Output



Example 3



Example 4

RollCall Templates for the IQGPI

Setup GPI Software

Network Name

The edit string sets the name of the IQGPI as seen from a RollCall network browser such as shoebox or RollCall PC Control Panel.

To change the name, type the new name in the text area and then select (return).

P (Preset) returns to the default name.

Net Show

When selected, the module will appear in the Module List of other control panels.

If the **Net Show** checkbox is cleared, the IQGPI will continue to operate normally, but it will be hidden in network browsers. From a RollCall PC a connection may be made to a hidden device by entering the address manually, as opposed to browsing.

RollCall Address

There is a display showing the current position of the hex switches that defines the RollCall address of the IQGPI. By default, the **Restart if Changed** checkbox is selected, which means that the module will automatically restart and use the new address when the hex switches are moved.

Permit Blind

Blind Control is the ability to control a unit without a connection. Active Front Panels and RollCall PC programs use a RollCall connection to control a module. RollTrack (used for setting, for example, audio delay times to track video delays) does not use a connection, but just sets the delay.

If a chassis fitted with modules which will be controlled by Blind Control (RollTrack and some third party remote control systems) then Permit Blind control must be enabled.

If Blind Control is not be used then Permit Blind control may be disabled, giving protection against incorrectly set-up RollTrack source modules.

Restart

Selecting this function will re-boot the module with any changes incorporated. This provides an easier alternative to a power-down power-up operation.

Version Info

The serial number, software version, and software build number of the unit is shown here. Also shown is version information about the configuration.

Software version

This item shows the version of the software fitted in the module.

Serial Number

This item shows the serial number of the module.

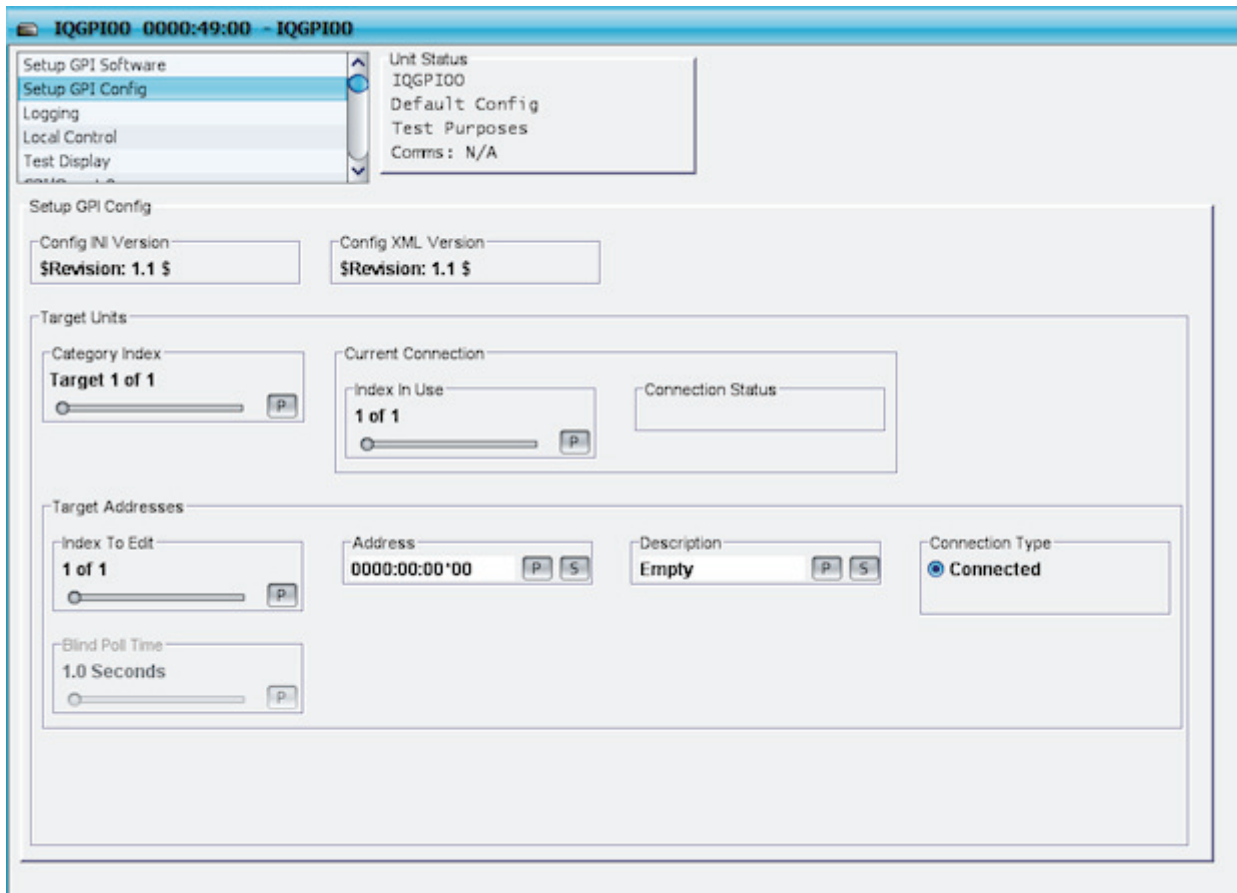
Build Number

This will indicate the factory build number. This number defines all parameters of the unit (software versions, build level etc.) for identification purposes.

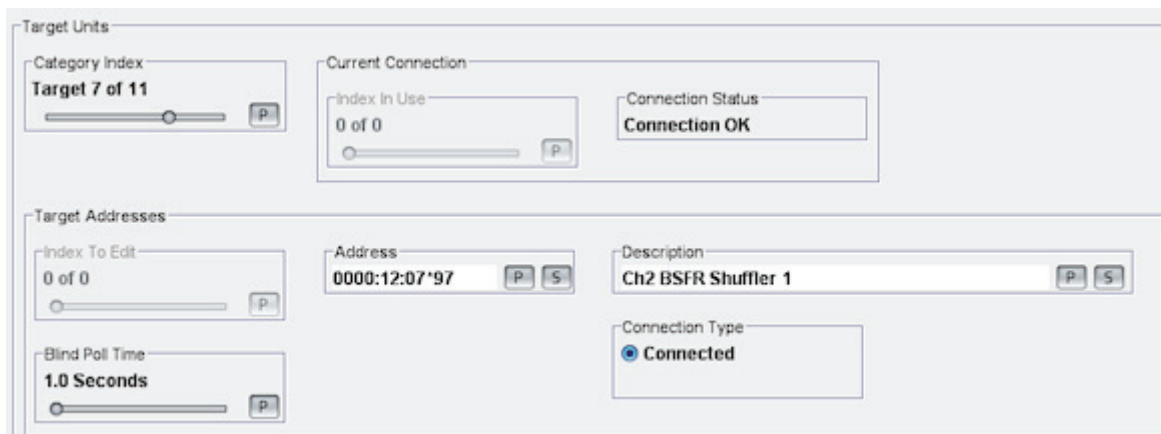
Config INI Version / Config XML Version / Config INI Locker / Config XML Locker

These show the version of the user configurations.

Setup GPI Config



There are a number of controls and displays, which all apply to one of the IQGPI's "targets", i.e. the units which are being controlled or monitored by the IQGPI. Depending the method used to develop the configuration and on the task to be accomplished the GPI cards RollCall template will show different controls and menus available. In this example of a customised config there is a Target Index control scrollbar, which allows the selection of one of the targets at a time. All the other controls and displays then apply to the selected target. .



For example, the configuration shown above has 11 targets, numbered 0 to 11. The target index is currently selecting Target 7. Therefore the target controls Address, Connection Status etc. currently apply only to this target.

In this case, a description has been assigned to the target, Ch2 BSFR Shuffler 1 and the current status is Connection OK to address 0000:12:07. As the target

index is scrolled to the other values, the entry fields and status will be seen for each target.

Controls that apply to the currently selected target

Address

This edit string sets the RollCall address of the target unit, in the form "nnnn:uu:pp" where nnnn is the network route, or "0000" in a simple non-bridged network; uu is the unit address, normally set by hex switches; pp is the port address, which corresponds to the slot number in modular systems, or "00" for non-modular products.

To change the address, type the new address in the text area and then click **S**.

P (Preset) returns to the default address.

Description

This edit string has no effect on the communications, but allows the user to differentiate the targets.

Connection Type

There are 2 methods of connecting to a target: true connected or blind polled. True connected is preferred, because it provides immediate updates to the IQGPI when a control is changed from a different panel, unit card edge controls, or in response to other events.

In current IQGPI versions, connected control is the only mode supported. The only benefit of the blind control mode, (currently not supported in the IQGPI), is that this does not take a true control session, which allows other control panels to access single-session units such as IQ modules at the same time as the IQGPI is connected. This mode will be enabled in a future IQGPI software release.

Blind Poll Time

This control is ignored when in connected control mode. In Blind control mode, it affects the rate at which the IQGPI polls the target to check for changed values. This affects the speed of updates appearing on the IQGPI when changed externally, e.g. on the unit card edge controls.

Note that this has no effect on the speed of actioning a control made on the IQGPI, which always occurs immediately in either connected or blind control mode.

Connection Status

This display shows a short text message describing the current (live) status of the IQGPI connection to this target.

The possible values and their meanings are listed here:

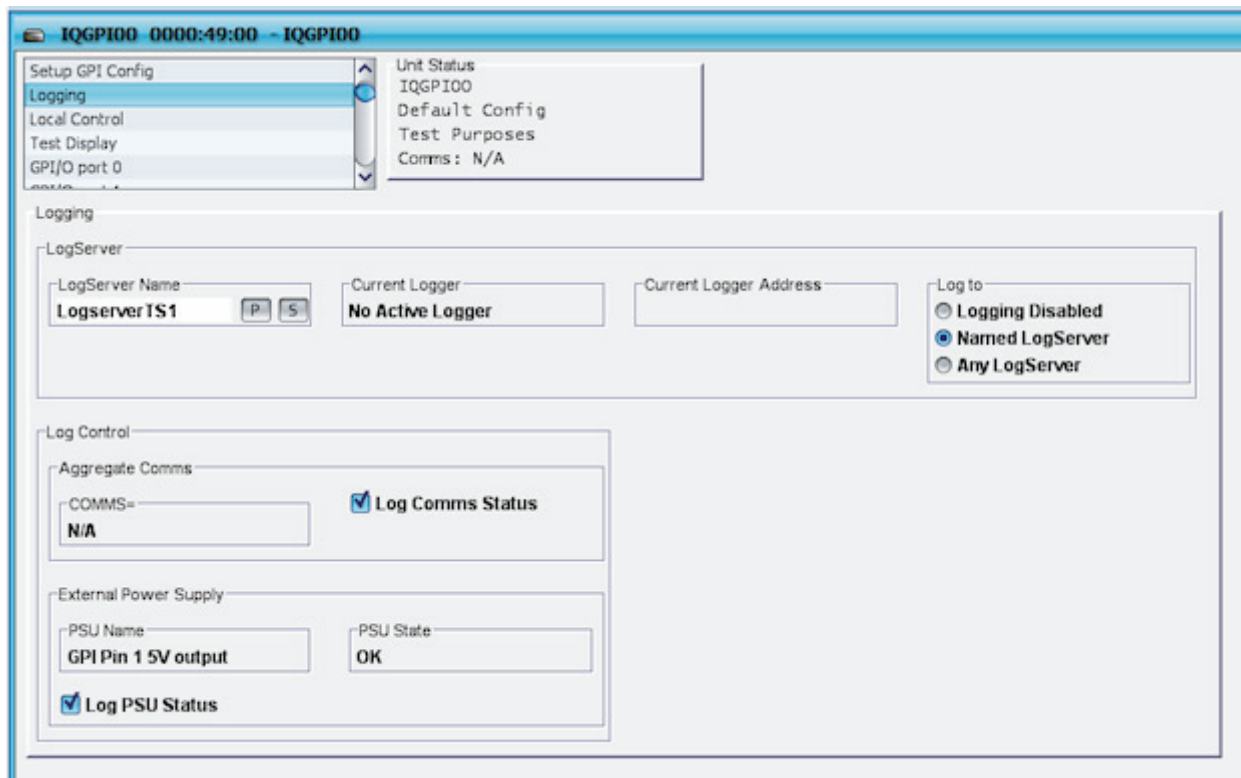
- **Connection OK:** The IQGPI has a live true connection to the target unit, with no errors detected. In this state, the IQGPI should action changes made immediately, and also immediately responds to any changes occurring on the target unit.
- **Blind Poll OK:** The IQGPI has a live blind-polled connection to the target unit, with no errors detected. In this state, the IQGPI should action changes made immediately, and also responds to any changes occurring on the target unit within the configured blind poll time.
- **Bad Address:** The IQGPI is not attempting to connect to this target, because the address entered is invalid, e.g. all zeros. The IQGPI will not try communication until a valid address is entered.
- **Conn. Fail: Timeout:** The IQGPI is not connected to the target unit, and connection attempts time out. This indicates either a wrong address entered, or that the target unit is not connected to the network. The IQGPI will retry to connect indefinitely.

- **Conn. Fail: Busy:** The IQGPI is not connected to the target unit because the target returned busy, indicating that it had reached the maximum allowed number of controllers, e.g. 1 controller on a single session IQ modular system. The IQGPI will retry to connect indefinitely, so as soon as the existing control panel is disconnected from the target, the IQGPI will connect.
- **Connection Failed:** The IQGPI is not connected to the target unit, for an unknown reason, (i.e. neither time out nor Busy). The IQGPI will retry to connect indefinitely.
- **Blind Poll Failed:** The IQGPI's attempt at a blind-pollled connection to this target has not been successful. The IQGPI will retry indefinitely.
- **Bad Config:** The currently loaded user configuration is not valid, so no communication will be attempted until a valid config is downloaded.
- **Trying... :** The IQGPI is making the first attempt at establishing communications with the target. If the most recent attempt fails, then an error will be reported, e.g. "Conn. Fail: Busy", replacing the "Trying..." message.
Note that the IQGPI will continue to try, even if the message "Trying..." is no longer displayed. Therefore the "Trying..." message should only occur transiently.
- **Initializing:** The IQGPI has established a successful communication with the target, and is retrieving the current values of all controls required for the configuration. This message should only occur transiently, being replaced with the appropriate OK or failure message.
- **Remote Disconnected:** The IQGPI did have a valid true connection to the target, but this was terminated by the target unit. (This can occur, for example, when a Supervisor-level RollCall PC Control Panel remotely disconnects the current controller to allow itself to control a single-session unit). This message should only occur transiently, being replaced with the appropriate OK or failure message as the IQGPI would retry the connection indefinitely.

Setup Config - Config-specific controls

Some configurations require additional setup controls that are global, i.e. are not affected by the target index selection.

Logging



LogServer Name

The Logging Server to be used may be named by editing the text string in the text window.

Current Logger / Current Logger Address

Display the name and address of the current logger.

Log to

Use the radio buttons to specify one of the following options:

- **Logging Disabled:** If selected, the logging functions will be disabled.
- **Named LogServer:** If this item is checked Logging information will only be sent to the server named in the name window. *Note: matching of the name is case sensitive.*
- **Any LogServer:** If this item is checked Logging information will be sent to any Logger on the system. *It is suggested that if there is only one server on the system, this option should be chosen.*

Log Comms Status

Select this option to log communication status.

External Power Supply

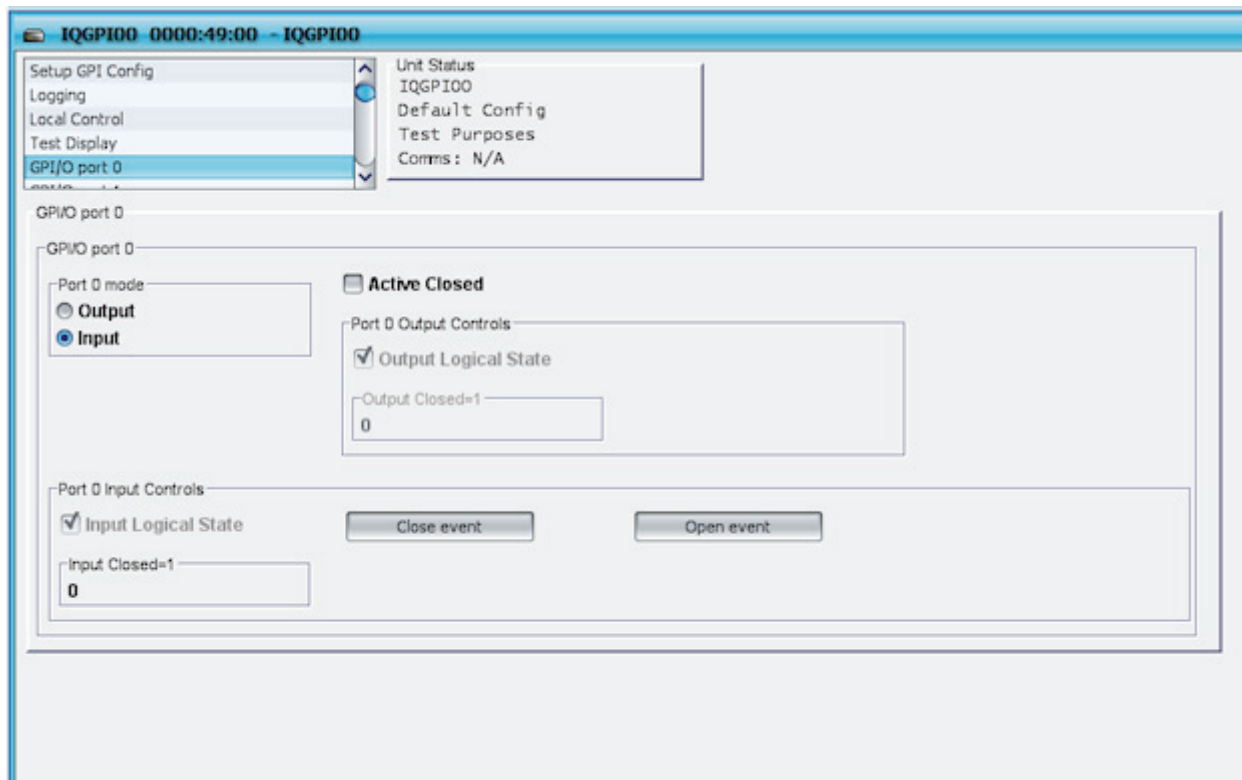
Select this option to log the status of the external power supply.

Local Control



This screen is completely defined by the user configuration. It typically includes all the controls and pages which may appear on the IQCGPI. The remote user may therefore action any control with the same effect as if the control was made locally on the IQCGPI.

GPI/O Port



This screen is an example of a port setup.

Port 0 mode

This function allows the port to be configured as either an Output or an Input.

Active Closed

This item toggles the sense of the GPI port input or output.

Port Configured as an Input

If the Active_Closed item is **enabled** the port is logically active when current flows between the signal and return pins and the port is logically inactive if no current flows.

In circuit examples 1 and 2 current flows when the external switch SW1 is closed and the port will be active. When SW1 is open the port will be inactive.

If the Active_Closed item is **disabled** the sense is reversed. The port is logically active when no current flows between the signal and the return pins and the port is logically inactive when current flows.

Port Configured as an Output

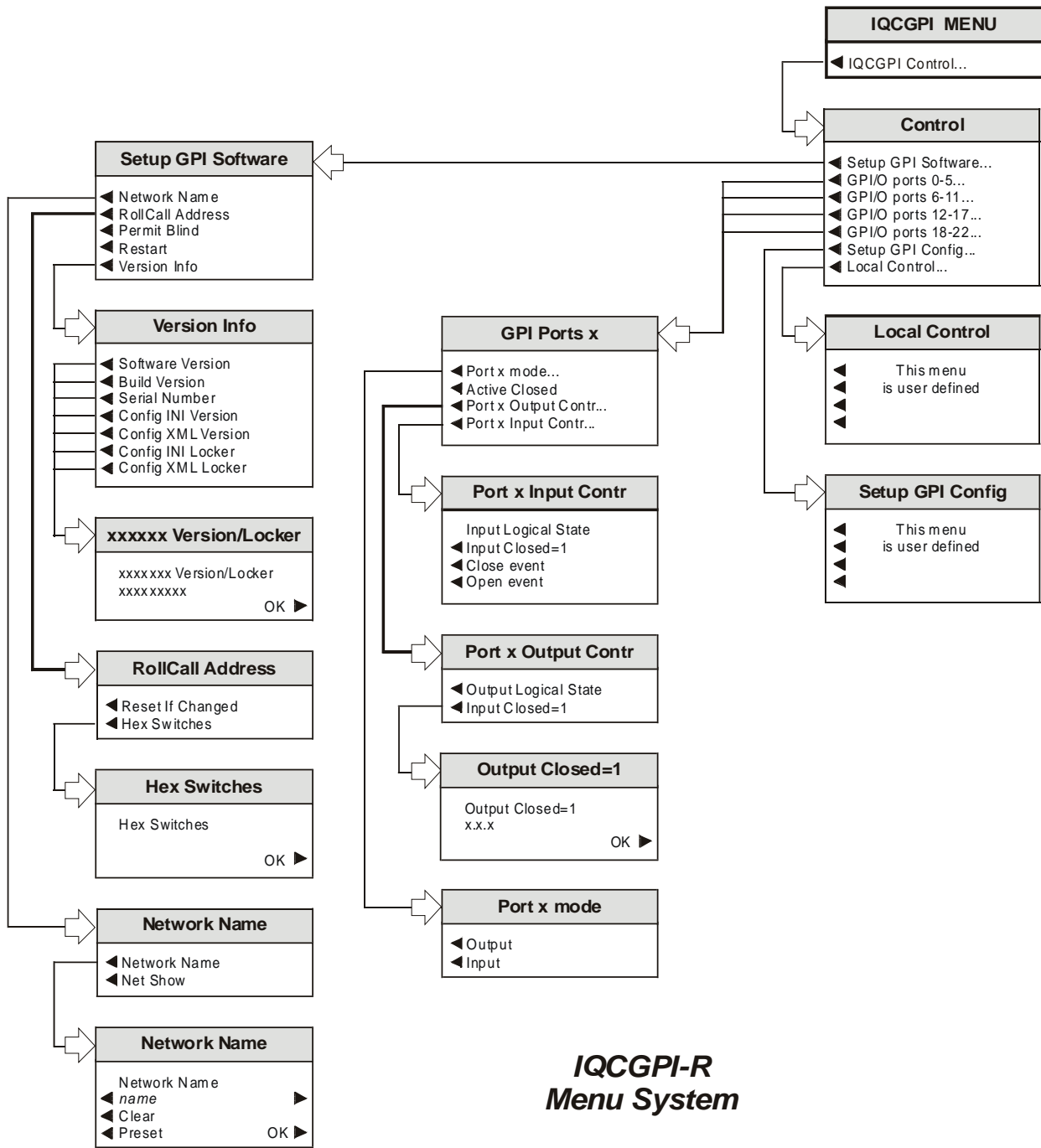
If the Active_Closed item is **enabled** the output pins are closed when the port is logically active and the outputs are open when the port is logically inactive.

In the circuit examples 3 and 4 the LED is illuminated when the signal and return are closed. The LED is illuminated when the port is active.

If the Active_Closed item is **disabled** the sense is reversed. The outputs are open when the port is active and closed when the port is inactive.

Port Config	Active Closed Function	Logically Active	Logically Inactive
Input	Enabled	Current Flow	No Current Flow
	Disabled	No Current Flow	Current Flow
Output	Enabled	Pins Closed	Pins Open
	Disabled	Pins Open	Pins Closed

Menu Structure for the IQGPI

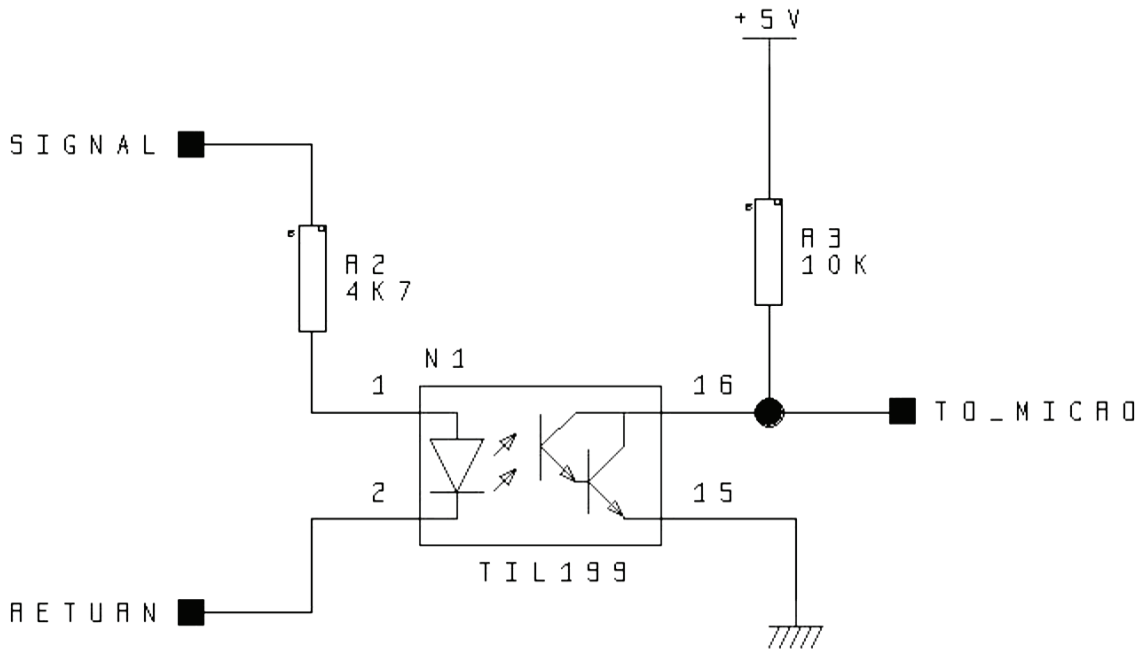


***IQCGPI-R
Menu System***

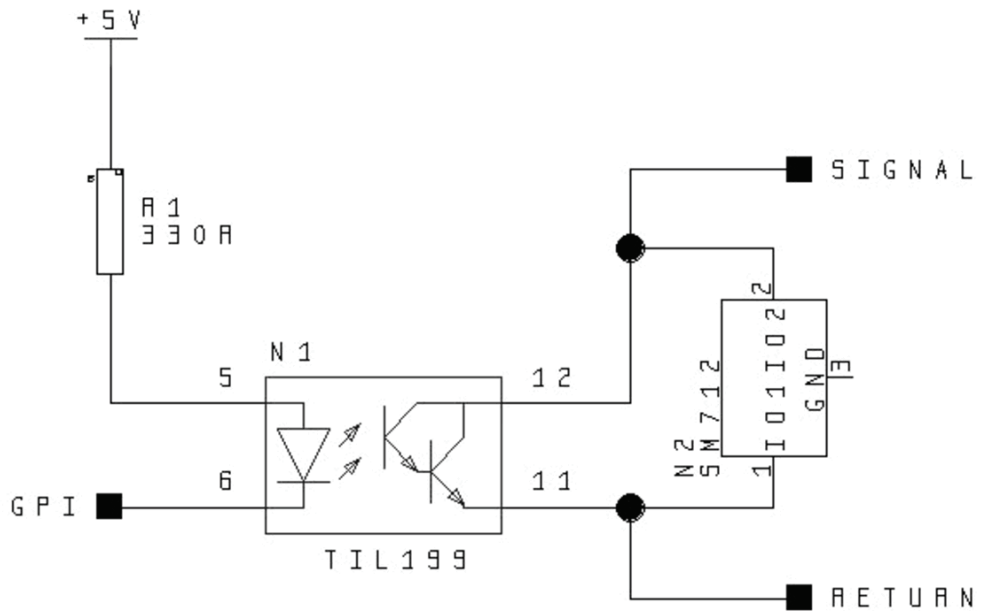
Internal Circuit Implementations

GPI Input Circuit

VinH min = 2.5V, Vabs max = 30V, Vabs min = -5V



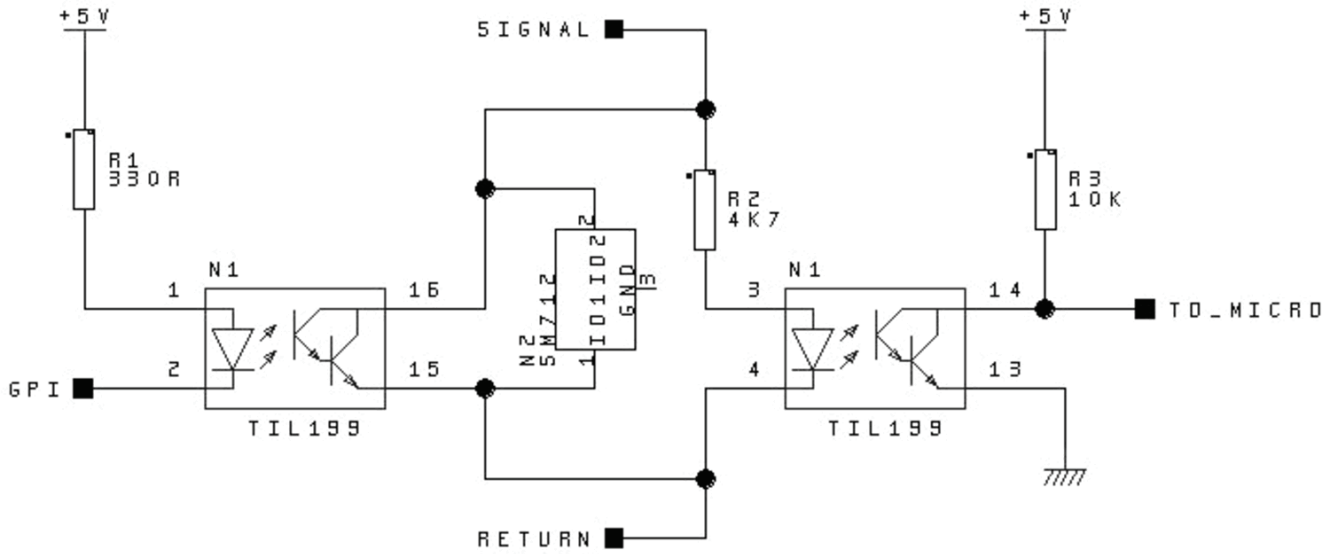
GPI Output Circuit



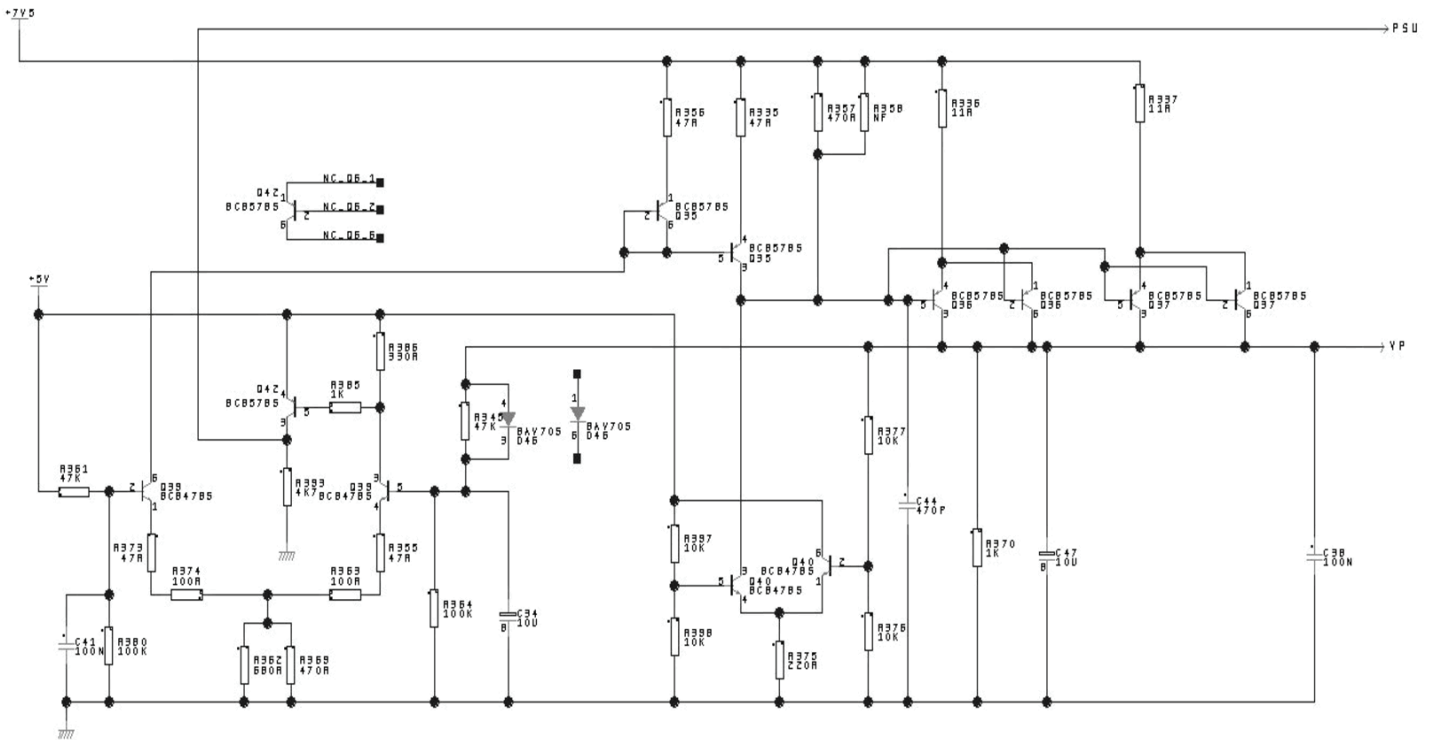
Iout max = 50mA, Vabs max = 30V, Vabs min = -5V

GPI Input/ Output Circuit Implementation

Iout max = 50mA, VinH min = 2.5V, Vabs max = 30V, Vabs min = -5V



Connector Power Generation Circuit



Manual Revision Record

Date	Version	Issue	Change	Comments
28/05/10	1	1		First issue.