

### Introduction

The general purpose input output port has many uses including the following operating options, all programmable via ICORE:

A general purpose input which may be programmed to:

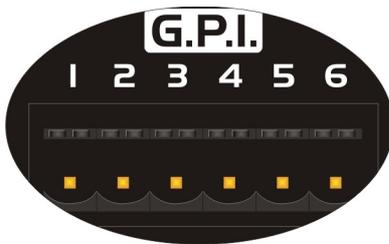
- ✓ Control the amplifier's standby/active state (logic level)
- ✓ Mute both channels (logic level)
- ✓ Bypass the power on delay (logic level)
- ✓ Variable VCA level control of both channels (analogue voltage)
- ✓ Bypass the VCA sections (logic level)

A general purpose output which may be programmed to:

- ✓ Indicate A/P state
- ✓ Indicate excessive limiting on either channel (15 minutes continuous)
- ✓ Indicate a load range error
- ✓ Indicate your birthday
- ✓ Indicate an excessively high temperature state (before shutdown)
- ✓ Logical combinations of the above

An isolated changeover relay is also brought out to this port. This may be programmed to:

- ✓ Follow the GPO output state
- ✓ Follow the opposite of the GPO output state (invert its logic)
- ✓ Do nothing (disabled)



The connections on this port also include a 3V3 output for use with all logic or analogue level inputs. For ground (0V) connections, this must be derived from the RS485 "Phoenix" connector.

The pin-out of this port is:-

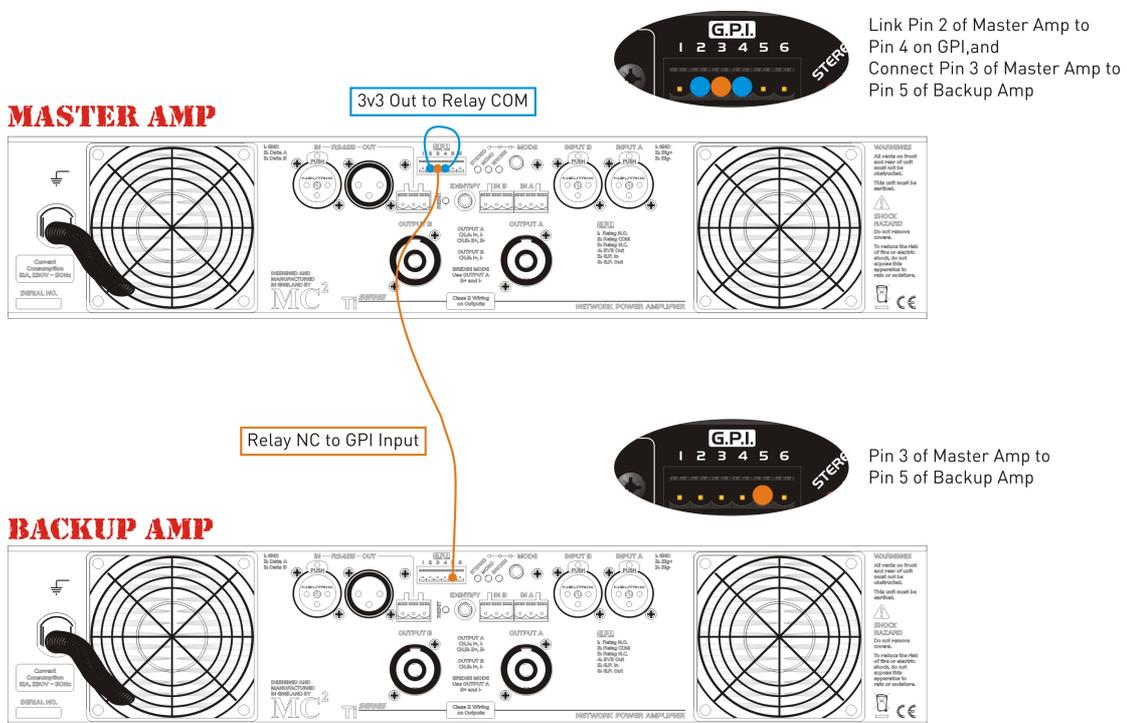
- Pin1: Isolated relay normally open contact (ON state)
- Pin2: Isolated relay common contact
- Pin3: Isolated relay normally closed contact (OFF state)
- Pin4: 3V3 Output
- Pin5: GP Input (maximum input voltage 24V, useable range 0V – 3V3)
- Pin6: GP Output (OFF state = 0V, ON State = 3V3)

Master and backup amplifier configuration with automatic switchover

In safety critical applications, it may sometimes be necessary to ensure that the audio signal is not interrupted by the possibility of amplifier failure. The most important amplifier channels may be “backed up” using a slave amplifier, normally held in standby. This will automatically take over from the main amplifier if there is a power failure to the main device, or it goes into “Protect” for any reason.

This scenario can be easily achieved with a simple connection between the two amplifiers and a few configuration changes through ICORE.

It is clearer to explain how this will work by considering the physical configuration first of all, then the settings required through ICORE.



To monitor the state of the master amplifier effectively, we must not only watch the GPO line for the protect signal, but also know when the amplifier has lost power for any reason. This is achieved by not directly using the GPO line for the protect signal, but using the 3v3 line through the relay’s normally closed connection.

## Ti Series Amplifiers: GPI Port: Master and Backup Amps

The slave amplifier is set to "Standby Enable" via the GPI line. In this way, a 3v3 signal on it's GPI line will hold it in standby. Under normal operating conditions, the 3v3 signal will be supplied by the master amplifier through the NC relay contact. Should the master amplifier go into "Protect", it will flip the relay contact and so bring the slave amp out of standby to take over. Similarly, should it lose power for any reason, then the 3v3 supply will collapse, also causing the slave amplifier to take over.

In ICORE, select the MASTER amplifier and open its properties window (View ⇨ Device Properties)

Set the GPIO Config "Output" property to "A/P Monitor".



Next select the backup amplifier and open its properties window.

Set the GPIO Config "Input" property to "Standby Enable".

We would recommend you also set the "Power On Delay" property of the backup amplifier to 0 to minimise the break in audio, should there be a switchover. Note that if the master amplifier's fault condition is rectified, then it will take over again and the slave will automatically be put into standby.

Remember you will need to connect the link output(s) to the slave amplifier and also the speaker(s) to both units!