

## Extended GPI Specification

GPI functionality for preset change is available in some TC processors. At the time of writing, DBMax and D22 offers GPI change between 2 presets.

This document, however, describes the Extended GPI specification currently available on DB8 and P2. It allows change between 2, 4 or 8 presets using just one GPI input.

## Basic operation

On processors offering *Extended GPI* functions, the user can select how the GPI input is used. It can be off, select one of two, one of four, or one of eight presets. Presets are selected as a state condition, i.e. presenting the GPI input a permanent voltage signifying a specific preset.

With **P2**, GPI selection is available between the first 2, 4 or 8 User presets (equivalent to the Front Panel recall keys). Note: If a GPI preset mode is selected, and nothing is connected to the GPI input, preset number one will be permanently selected.

With **DB8**, GPI switching is available for Scenes using the first 2, 4 or 8 User presets in a selectable User Bank (0-5). This machine also supports 3 and 7 preset modes, doing nothing as long as GPI voltage is idle (see spec chart). More GPI functions may become available. Please refer to the latest software or user manual for updated information.

## Installation

Selection between up to 8 presets is achieved by feeding the processor a DC voltage to its 1/4" jack input. The input voltage is compared against voltage windows that correspond to certain presets.

Between the valid voltage windows, invalid windows have been inserted to protect against erratic operation. The processor constantly monitors the GPI input, and only if several consecutive measurements point to the same, valid voltage window, a recall is performed.

The voltage windows chosen enable easy "binary relay encoding" as shown in fig. 1. If long cable runs are required, HF decoupling using a ceramic capacitor across the Tip and Sleeve terminals inside the jack plug may be indicated.

Note: The ring terminal of the 1/4" jack is not used.

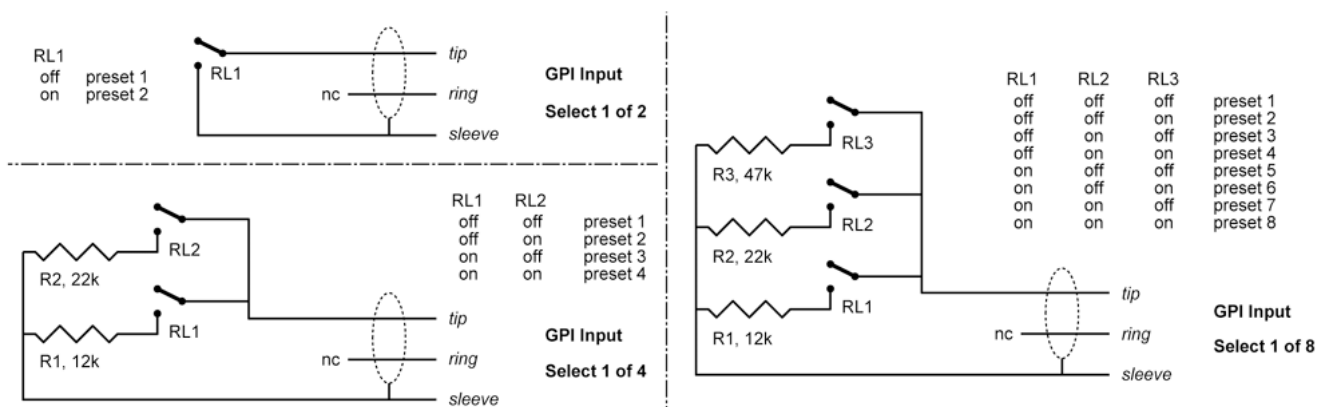


Fig 1, Relay coding of 2, 4 and 8 preset GPI configurations

## GPI Technical specifications

Inside the processor, a 10kohm resistor connects the Tip terminal to a +5V power supply. When nothing is connected to the GPI input, the input voltage therefore is +5V. Resistors can be used to pull down the voltage as suggested in Fig 1.

In Table 1, voltages outside the limits mentioned are to be considered invalid. No action is taken if invalid measurements are made. GPI recall action resumes when a stable, valid measurement again is detected.

Mode	Preset No	Target / Vs	Min typ / V	Target typ / V	Max typ / V
<b>1 of 2</b>					
	1	1.000 (idle)	2.67	5.00	5.00
	2	0.000	0.00	0.00	0.51
<b>1 of 4</b>					
	1	1.000 (idle)	4.16	5.00	5.00
	2	0.687	3.38	3.44	3.50
	3	0.545	2.67	2.73	2.79
	4	0.438	0.00	2.19	2.25
<b>1 of 8</b>					
	1	1.000 (idle)	4.50	5.00	5.00
	2	0.824	4.06	4.12	4.18
	3	0.687	3.38	3.44	3.50
	4	0.600	2.94	3.00	3.06
	5	0.545	2.67	2.73	2.79
	6	0.489	2.38	2.44	2.50
	7	0.437	2.13	2.19	2.25
	8	0.400	0.00	2.00	2.06

Table 1, GPI Valid Voltage Windows

**Notes:**

“Idle” refers to the state when no input is connected, or when the input is left floating.

Rather than absolute voltage measurements, the windows are defined as a fraction of the supply voltage, Vs. This voltage can be measured with a high impedance DMM on the Tip terminal when no pull down resistors are applied.

The table shows values as a fraction of Vs, and, as a guideline, typical voltages when Vs=5.000V. (If the Supply voltage is e.g. 5.015V, the table should be corrected by multiplying these values by 5.015/5).

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