AMPLIFIER PARALLEL INTERFACE SPECIFICATION

INTRODUCTION

A parallel interface connector is fitted at the rear of the amplifier. In multi-unit systems, all of the parallel interface connectors are bussed together to give a single 25-pin connector that provides the interface for the entire system. The status of an individual unit within a system is accessed by applying the appropriate address to the four-bit binary address lines. In single-unit systems the interface is permanently addressed and the address lines are not used.

The following colour coding is used in the connector pinout tables.

GREEN	An output signal indicating normal operation
RED	An output signal indicating a fault condition
BLUE	An output signal for information only
ORANGE	An input signal

Parallel interface connector 1.
Connector type: 25-pin D Female at rear of amplifier

Conn. 1 PIN No	NAME	DESCRIPTION	SIGNAL ON PARALLEL INTERFACE CONNECTOR	LOCAL INDICATION	NOTES
1	DC POWER	Indicates that the unit has valid DC supply rails.	Digital status output. 0V=DC not OK, +5V=DC OK. The output resistance of this signal is 470 ohms.	DC POWER LED. Green = OK. Not lit = FAULT or unit not switched on.	This indicator is the logical OR of the status of all of the DC supply rails inside the amplifier and of each individual plug-in module in the associated PSU (if the PSU is external to the amplifier).
2	FWD POWER	Indicates that the unit's output power is greater than approximately 1% of the nominal full output power.	Digital status output. 0V=RF Power<1%, +5V=RF Power>1%. The output resistance of this signal is 470 ohms.	FWD POWER LED. Green = RF output is present. Not lit = RF output not present.	Operates by detecting the RF forward output voltage.
3	OVERTEMP	Indicates if the unit is in an over-temperature condition. This is a self-resetting condition.	Digital status output. 0V=Not Overtemp, +5V=Overtemp. The output resistance of this signal is 470 ohms.	OVERTEMP LED. Red = OVERTEMP Not lit = OK	An Overtemp sensor is fitted to every heat generating module in the system (PAs, combiners, drivers, regulators). If any of these switches activates it shuts off the amplifier (in multi-amplifier systems this shutoff is system-wide if the Overtemp originates from the final combiner unit). The FAULT line is also asserted, and an OVERTEMP status shows only on the unit which originated the shutdown.

Conn. 1 PIN No	NAME	DESCRIPTION	SIGNAL ON PARALLEL INTERFACE CONNECTOR	LOCAL INDICATION	NOTES
4	OVER DUTY	This applies to pulsed amplifiers only. It indicates if the unit is in an over-duty or over maximum pulse width condition. Over-duty means that the chosen combination of GATE duty-cycle and RF input level exceeds the preset limits.	Digital status output. 0V=Not Overduty, +5V=Overduty The output resistance of this signal is 470 ohms.	OVERDUTY LED. Red = OVERDUTY Not lit = OK	OVER DUTY limits the pulse width and duty-cycle to a safe level. This is non-latching protection.
5	GAIN CONTROL (not fitted on all models)	A control signal of 0 to +5V applied to this pin controls the gain of the amplifier over approximately 10dB range.	Analogue control input. 0V = maximum gain. +5V = minimum gain. For remote manual gain control, a 100-ohm potentiometer may be connected between the +5V AUX, GND, and GAIN CONTROL pins (wiper to the GAIN CONTROL pin).	No local indication or control in standard build.	Gives approximately 10dB continuous gain reduction range. It is designed to have minimal effect on the noise figure of the amplifier. Not available in multi-amplifier bussed systems.
6	REFLECTED POWER LIMIT	This applies to CW amplifiers with gain foldback protection. If the reflected power reaches the preset limit the amplifier gain is reduced and the REFLECTED POWER LIMIT pin goes high.	Digital status output. 0V=Not limiting, +5V=limiting. The output resistance of this signal is 470 ohms.	REFL LIMIT LED. Red = Refl power limiting is active. Not lit = Refl power level is below the set limit.	The preset reflected power limit is set at the factory.
7	VFWD	This is an analogue DC voltage representing a sample of the forward voltage at the output of the	Analogue status output. 0V = No detected forward power 2.5V=> Full rated power	No local indication in standard build.	

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		amplifier. Note that VFWD has an output impedance of 470-ohms, so take care not to load it down.	(approximately). Output resistance approx 470 ohms.		
8	VREFL	This is an analogue DC voltage representing a sample of the reflected voltage at the output of the amplifier. Note that VREFL has an output impedance of 470-ohms, so take care not to load it down.	Analog Status Output 0V = No detected reflected power 0.8V = Full rated power into a 2:1 load mismatch (approximately). Output resistance approx 470 ohms.	No local indication in standard build.	
9	FAULT	This is a logical ORing of one or more DUTYLIMIT, OVERTEMP, MISMATCH fault status conditions.	Digital status output. 0V=Not Fault, +5V=Fault The output resistance of this signal is 470 ohms.	No local indication in standard build, since individual faults have their own indicators.	In multi-amplifier systems, FAULT indicates a fault in any unit in the system, not just in the unit that is currently addressed. However, the unit that originated the fault will also show the type of fault.
10	TRG/GT SELECT	Used in special amplifiers only.			In some amplifiers this pin is used for FWD POWER LIMIT status instead of TRG/GT select.
11	SHUTDOWN STATUS	SHUTDOWN STATUS provides readback of the SHUTDOWN control applied to pin 19, for safety interlock use.	Digital status output. 0V= Shutdown not asserted +5V=> Shutdown asserted. The output resistance of this signal is 470 ohms.	SHUTDOWN LED. Red = shutdown is active. Not lit = OK.	
12	ADDRESS	This indicates that the	Digital status output.	SELECTED LED.	The local “SELECTED” LED

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	SELECTED	addressed unit has been found and is presenting its status outputs onto the interface bus.	0V= Invalid address +5V=> Valid address The output resistance of this signal is 470 ohms when high and >10Kohms when low.	Blue = unit addressed. Not lit = not addressed.	lights on the addressed unit only.
13	ADDR3	This is one of the four digital ADDRESS inputs. When these inputs correspond to the dip-switch address available on the rear panel, the output signals related to this unit are driven onto the parallel interface. This is the MSB.	Digital Address Input. +5V = Logic 1. Default (4k7 pullup provided internally). 0V = Logic 0.	Indicated by the address DIP switch setting.	The address DIP switch is at the rear of the unit.
14	ENABLE STATUS	This indicates whether the unit has been locally Enabled such that it will respond to applied Gate/PTT and RF input signals.	Digital status output. 0V=Standby, +5V=Enabled The output resistance of this signal is 470 ohms.	ENABLE LED. Green = enabled. Not lit = not enabled.	The ENABLE status line only indicates the position of the manual ENABLE switch on the front of the unit. Therefore, the ENABLE status is not affected by the status of the SHUTDOWN line.
15	MISMATCH	This indicates whether the unit is shut down due the reflected power exceeding the preset factory limit.	Digital status output. 0V=Not Mismatched, +5V=Mismatched. The output resistance of this signal is 470 ohms.	REFL POWER LED. Red = unit is shut down due to mismatch. Not lit = OK.	Not used in amplifiers rated to tolerate 100% reflection.
16	PTT IN	PTT is a “pull-down” version of GATE. The two signals are “ORed” internally.	Digital control input. Pull down to GND (pin 17) to transmit.	No local indication.	In multi-unit systems PTT is bussed to all units in the system.
17	SYSLINK	This is a signal used by any chassis in the system to	Digital status output: 0V= System link is actively	No local indication.	

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		shutdown the rest of the system in certain circumstances. It is used only in multi-unit systems. It may be monitored externally, but must not be loaded or have any external voltage applied to it.	disabling the system. +5V= System link OK.		
18	+5V AUX	This is a +5V DC supply for use in external interface circuitry.	Aux. power supply output. ~4.7V, 100mA max.		
19	SHUTDOWN	SHUTDOWN is used to remotely prevent the amplifier from transmitting.	Digital Control Input. Pull down to GND (pin 21) to disable the amplifier. Input resistance = 10k ohm pullup.	SHUTDOWN LED. Red = shut down. Not lit = not shut down.	Shutdown inhibits transmission but does not switch off the PSU.
20	GATE IN	This is an alternative input to the coaxial GATE input at the rear of the amplifier. The two inputs are connected together internally.	Digital Control Input. Pull to +5V to gate the amplifier on. Input resistance = 10k ohm pulldown.	No local indication.	In multi-unit systems GATE is bussed to all units in the system.
21	GND				
22	PSU ADJUST	This input may be pulled down to GND to change the main DC supply rail voltage.	Digital control input. High or open = maximum supply voltage Low or pulled down = reduced supply voltage. Input impedance = 1k ohm pullup.	No local indication.	Fitted to pulsed amplifiers which normally operate on a 50V DC supply. This control permits the supply voltage to be reduced, to allow operation in low-power CW mode (if applicable).

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23	ADDR0	This is one of the four digital ADDRESS inputs. When the applied address corresponds to the dip-switch address available on the rear panel, the output signals related to this unit are driven onto the parallel interface. This is the LSB.	Digital Address Input. +5V = Logic 1. Default (4k7 pullup provided internally). 0V = Logic 0.	Indicated by the address DIP switch setting.	
24	ADDR1	See above.	As above	Indicated by the address DIP switch setting.	
25	ADDR2	See above.	As above	Indicated by the address DIP switch setting.	

NOTES ON ADDRESSING

All output signals, except for **FAULT**, **ADDRESS SELECTED** and **SYSLINK** are driven onto their respective connector pins only when a valid address has been applied to the 4-bit address input, and will be high impedance otherwise. FAULT, ADDRESS SELECTED and SYSLINK are diode OR'ed system-wide signals.
The address for each particular unit is set by a 4-bit dip-switch on the rear panel.
If the dip-switch address is set to 15, the chassis will remain selected regardless of the address applied to the address lines.

Control signals are not addressable and are generally intended to be bussed to every chassis in parallel.

Revision History

Issue J: ECR #9, #14. 27/5/11
Issue K: Corrected Pin 19 Conn 1, pull down to pin 21 not pin 17. SD 14/7/11