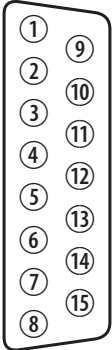


Table 2.5 Auxiliary connector - pins and signals

Pinout	Pin	Signal name	Description	Signal type	
 <p>rear view</p>	12	AUX_GPI1	General purpose digital input. Programmable function.	Digital, 3V3 CMOS	
	5	AUX_GPI2	General purpose digital input. Programmable function. With LK3 fitted, GPI2 is an emergency power sense input. ^a	Digital, 3V3 CMOS	
	4	AUX_GPI3	General purpose digital input. Programmable function. With LK2 fitted, GPI3 is a power sense input. ^a	Digital, 3V3 CMOS	
	10	AUX_GPIO4	Programmable function and direction. Pads available to fit a higher power driver transistor on GPIO4 line. ^b	Digital, 3V3 CMOS input; open collector output with pullup	
	2	AUX_GPIO5			
	9	AUX_GPIO6			
	1	AUX_GPIO7			
	11	AUX_TXD	Asynchronous serial port - Transmit data	Digital, 3V3 CMOS	
	3	AUX_RXD	Asynchronous serial port - Receive data	Digital, 3V3 CMOS	
	7	AUD_TAP_IN	Programmable tap point into the Rx or Tx audio chain. DC-coupled.	Analogue	
	13	AUD_TAP_OUT	Programmable tap point out of the Rx or Tx audio chain. DC-coupled.	Analogue	
	14	AUX_MIC_AUD	Auxiliary microphone input. Electret microphone biasing provided. Dynamic microphones are not supported.	Analogue	
	6	RSSI	Analogue RSSI output.	Analogue	
	8	+13V8_SW ^c	Switched 13.8V supply. Supply is switched off when radio body is switched off.	Power	
	15	AGND	Analogue ground	Ground	

- a. For more information on hardware links refer to ["Power Sense Options"](#) on page 121.
- b. For more information on high power drive refer to ["Special Purpose Outputs"](#) on page 67.
- c. Can be switched or unswitched. For more information refer to ["Connector Power Supply Options"](#) on page 131.

Table 2.6 Auxiliary connector - DC characteristics

Parameter	Standard				Test method and conditions	Comments
	min.	typ.	max.	units		
Digital signals						
Input low level: All inputs AUX_GPI2			0.7 V_S-4	V V	No hardware links fitted ^a . LK3 fitted.	Includes AUX_GPI3 with LK1/2 fitted. Configured as emergency power sense input.
Input high level: All inputs AUX_GPI2	1.7 $V_S-1.5$			V V	No hardware links fitted ^a . LK3 fitted.	Configured as emergency power sense input.
AUX_GPI3	2.6			V	LK1 and/or 2 fitted.	Configured as power sense input.
Input low current: All other inputs AUX_GPI2 AUX_GPI3 AUX_RXD		-100	-120 -13 ^b -500 -1	μ A mA μ A mA	No links fitted ^a . Default pullups ^c . LK3 fitted. $V_S=13.8V$ LK1 and 2 fitted. -8V input.	Default pullup resistance is 33k Ω . Configured as emerg. power sense input. Configured as power sense input.
Input high current: AUX_RXD All other inputs			1 10 100	mA μ A μ A	No links fitted ^a . Default pullups ^c . +8V input. 3.3V input. 5V input.	Default pullup resistance is 33k Ω .
Output low level: AUX_GPI04-7 AUX_TXD			50 600 200	mV mV mV	100 μ A sink current. 10mA sink current. 100 μ A sink current.	Current limit occurs at 20mA typ.
Output high level: AUX_GPI04-7 AUX_TXD	3.1 2.4			V V	No load. Default pullups ^c . 3k Ω load.	
Safe DC input limits: AUX_GPI1-3 AUX_GPI04-7 AUX_RXD AUX_TXD ^d	-0.5 -0.5 -25V -10		$V_S+0.5$ $V_S+0.5$ $V_S+0.5$ $V_S+0.5$	V V V V		Input current must not exceed $\pm 50mA$. This is the rating of the clamping diodes.
Analogue signals						
DC output range: RSSI 13V8_SW	0 9.7		3 17.2	V V	See Table 2.9 on page 24. Follows V_S .	Output switches off outside this range.
DC bias: AUD_TAP_IN AUD_TAP_OUT AUX_MIC_AUD	1.4 2.1 2.9	1.5 2.3 3.0	1.6 2.5 3.1	V V V	No load. Zero Rx frequency error. Via 2.2k Ω .	Bias for electret microphone.
Input impedance: AUD_TAP_IN AUX_MIC_AUD	50 2.1	100 2.2	150 2.3	k Ω k Ω	DC to 10kHz	
Output impedance: AUD_TAP_OUT RSSI	590 950	600 1000	650 1050	Ω Ω	DC to 10kHz	
Safe DC input limits: AUD_TAP_IN AUD_TAP_OUT ^d AUX_MIC_AUD RSSI ^d	-17 -0.5 -17 -17		+17 +17 +17 +17	V V V V		Short circuit-safe. Input current $< \pm 20mA$

- a. For more information on hardware links refer to ["Power Sense Options" on page 121](#).
- b. It is recommended that this input is driven by a mechanical switch or an open collector/drain output.
- c. For more information on pullups refer to ["Digital Input Lines" on page 39](#).
- d. These outputs are protected against accidental input to the limits specified.

Table 2.7 Auxiliary connector - AC characteristics

Parameter	Standard				Test method and conditions	Comments
	min.	typ.	max.	units		
AUD_TAP_IN (refer to note 4)						
Nominal input level: Tap T3, T4, T5, T8, T12 Tap T13 Tap R7, R10	0.62 0.78 0.62	0.69 0.87 0.69	0.76 0.96 0.76	V_{p-p} V_{p-p} V_{p-p}	Level for 60% RSD@1 kHz. Level for 3kHz dev.@1 kHz. Refer to note 3.	Equivalent to -10dBm into 600Ω.
Full scale input level		2.0		V_{p-p}		
Frequency response: All tap-points	Refer to the plots in Table 2.10 and Table 2.11 .					
Group delay - absolute: Tap T13 Tap T12 Tap T8 Tap T5 Tap T4 Tap T3		1.8 1.8 9.6 11.6 11.7 11.7		ms ms ms ms ms ms	At 1 kHz. Refer to note 2. Refer to note 1. Refer to note 1.	
Group delay - distortion: Tap T12 and Tap T13	Refer to the plots in Table 2.12 .					
AUD_TAP_OUT						
Nominal output level: All Rx tap-points except R1 Tap R1 Tap T3	0.62 0.54 0.62	0.69 0.60 0.69	0.76 0.66 0.76	V_{p-p} V_{p-p} V_{p-p}	Rload=600Ω. Level at 60% RSD@1kHz. Level at 3kHz dev.@1kHz Refer to "Microphone sensitivity" of AUX_MIC_AUD.	Equivalent to -10dBm into 600Ω.
Full scale output level		2.0		V_{p-p}	Rload=600Ω.	
Frequency response: All tap-points	Refer to the plots in Table 2.10 and Table 2.11 .					
Group delay - absolute: Tap R1 Tap R2 Tap R4 Tap R5 Tap R7 Tap R10		1.8 1.8 6.6 6.7 8.5 8.7		ms ms ms ms ms ms	At 1 kHz. Refer to note 2. Refer to note 1.	
Group delay - distortion: Tap R1 and Tap R2	Refer to the plots in Table 2.12 .					
AUX_MIC_AUD						
Rated System Deviation NB MB WB	-2.5 -4.0 -5.0		+2.5 +4.0 +5.0	kHz kHz kHz	EIA-603B	Units are peak frequency deviation from nominal carrier frequency in kHz.
Modulation frequency response	Refer to the plot in Table 2.13 .				EIA-603B	
Microphone sensitivity	6.0	7.5	9.0	mV rms	EIA-603B	

Notes:

- Optional processing blocks are bypassed in the above specification.
- For AUD_TAP_IN and AUD_TAP_OUT specifications the following signal paths apply:

Case	Input	Output
Tap into Rx chain	AUD_TAP_IN	RX_AUD
Tap out of Rx chain	Modulation at antenna	AUD_TAP_OUT
Tap into Tx chain	AUD_TAP_IN	Modulation at antenna
Tap out of Tx chain	AUX_MIC_AUD	AUD_TAP_OUT

3. For tap into the Rx path, nominal level refers to the level required to give output at RX_AUD that is same as the 60% dev level from the receiver. The level specified applies at 1 kHz only.
4. AUD_TAP_IN uses a DC-coupled analog-to-digital converter and the bias voltage specified in [Table 2.6](#) should be used to maximise dynamic range. The DC bias is removed internally by a digital high-pass filter so the Tx carrier frequency will not be affected by any bias error. It is recommended to use external AC-coupling for applications which do not require modulation to very low frequencies.

Table 2.8 Auxiliary connector - data characteristics

Parameter	Standard				Test method and conditions	Comments
	min.	typ.	max.	units		
Serial port						
Baud rate:	1200, 2400, 4800, 9600, 14400, 19200			bit/s		All UART parameters are fixed and common to all UARTs except for the baud rate which is configurable and different for different modes/applications
Data bits:	8					
Start bit:	1					
Stop bit:	1					
Parity:	None					
Protocol:	CCDI2					
Flow control: Software	XON/XOFF					
GPIO						
Delays: I/O mirror to IOP UI key delay			500 50	μ s ms		

Table 2.9 RSSI voltage vs. signal strength

