Caution!

The Digital I/O connector uses 3.3Volt logic levels. Connection of any of the DIO signals to levels above 3.3 Volts will cause permanent damage to the internal logic.

Summary

Pin	I/O	Name	Default Function
1	O	DIO 0	1-PPS
2	O	DIO 1	Rec/Play (Rec=1,Play=0)
3	I	DIO 2	Pause. Ground to Pause Rec/Rep
4	I	DIO 3	Extended Digital Input 1 (Replaces RF Channel)
5	I	DIO 4	Extended Digital Input 2 (Replaces RF Channel)
6	O	DIO 5	Extended Digital Output 1 (Replaces RF Channel)
7	O	DIO 6	Extended Digital Output 2 (Replaces RF Channel)
8	O	DIO 7	16.368MHz Clock Signal (Direct from Osc)
9	O	DIO 8	16.368MHz Clock from PLL
19	O	DIO 9	Production RAM Test Output
20	O	DIO 10	Record/Replay activity output. 0=Inactive / 1=Recording Active
21	O	DIO 11	Trigger Output (Recorded Trigger Output during replay or pass-through of Trig In during record)
22	I	Update Enable	Must be grounded to enable Firmware update
23	-	-	Reserved – No Connection
24	-	-	Reserved – No Connection
25	O	V_PWR	250mA Output supply at PWR input voltage
26	O	GND	

Detail

Pin	Default Function
1	1-PPS This pin is connected to the pulse output of the internal GPS engine. The Labsat 2 contains a GPS engine which is connected internally to the RF output to allow monitoring of the recorded signal. The 1-PPS output becomes active when the internal GPS engine has locked onto the GPS-L1 RF output and is producing a valid GPS fix. If the internal GPS engine is not locked onto the replayed GPS signal, there will be no 1-PPS output.
2	Rec/Play Indicator When the Labsat is in a replay state (PLAY LED illuminated) this pin will be low (0V). When the Labsat is in a record state (REC LED illuminated) this pin will be High (~3.3V).
3	The **Pause** input pin is internally pulled high to 3.3V. When this pin is driven to 0V, the Labsat will pause replay or record. This input can be used to start record or playback in synchronisation with other devices.
4 5	The extended digital inputs allow recording of 3.3V logic signals in synchronisation with the GPS-L1 signal. Since the extended digital inputs replace the GLONASS channel in the recorded data, it is not possible to record GLONASS signals at the same time as the extended digital inputs. Digital inputs are sampled at 16.368MHz. Inputs are internally pulled down to ground by a 10K4 resistor and can be used to sample logic level serial data, synchronisation signals or for marking events. Recording of extended digital inputs (DIO) must be enabled in the LabSat PC software.
6 7	Extended digital outputs are used to output digital signal data that has been recorded using the extended digital inputs. Levels are 3.3V logic.
8	Buffered reference sample clock signal – 16.368MHz
9	Buffered clock signal from internal PLL
10-18	Signal Ground Connection
19	Production test Output
20	Record/Replay activity output. When low, no data is being transferred. When high (3.3V), data is being transferred signalling that record or replay is in progress. This signal may be used to start/stop other record/replay equipment.
21	The trigger output pin can be used to monitor the status of the digital trigger input on the AUX connector. During recording, this pin reflects the current state of the AUX trigger input. During replay, the signal reflects the recorded AUX digital input states.
22	Firmware enable input. This pin is internally pulled up to 3.3 Volts. If this pin is connected to ground when the Labsat power is connected, the Labsat will be placed in firmware update mode to allow internal flash memory to be updated.
23	Reserved
24	Reserved
25	Internally connected through resettable fuse to the power input pin on the PWR connector.
26	Ground connection