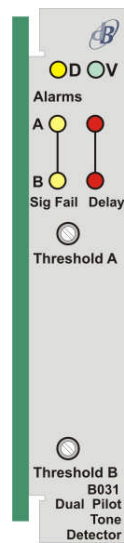


# B031

## DUAL PILOT TONE DETECTOR



# Handbook

Version 0.8



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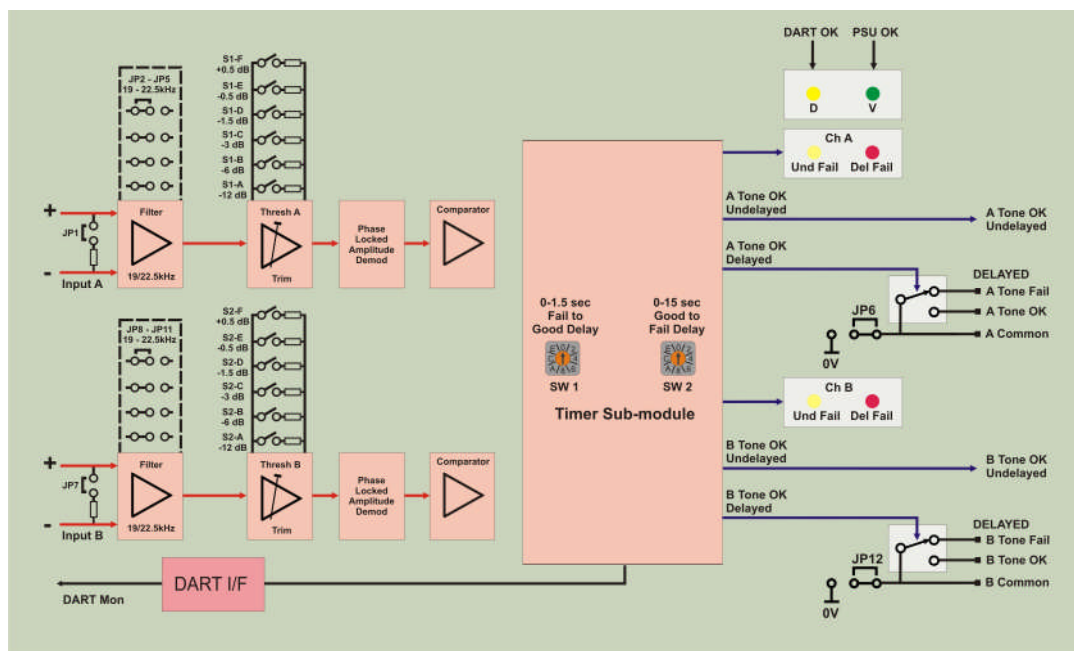
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# Introduction

The B031 Dual Pilot Tone Detector module has dual balanced audio inputs with independent detector circuits. It fits in 1U or 3U Vistek frames and power is derived from the frame PSU(s).



*The B031 Dual Pilot Tone Detector*

The input impedance is selectable to either  $600\Omega$  or  $50k\Omega$ . The detection threshold is set by DIL switches in 0.5dB steps from -10dB to -33dB and a further adjustment of  $\pm 10$ dB via the front panel.

The front panel LED's indicate undelayed and delayed tone failure.

The undelayed tone indication will operate immediately tone is lost, and the delayed tone indication will operate following tone loss for a preset time. The delayed tone indication will extinguish once the signal returns continuously for a preset time period. The good to fail time delay period can be adjusted in 1 second steps between 0-15 seconds. The fail to good time delay period can be adjusted in 0.1 second steps between 0-1.5 seconds.

Undelayed remote status signals are provided as peripheral driver outputs and the delayed remote status signals as isolated relay contacts.

The module is DART compatible and provides monitoring status to the DART Bus.

## Main Features

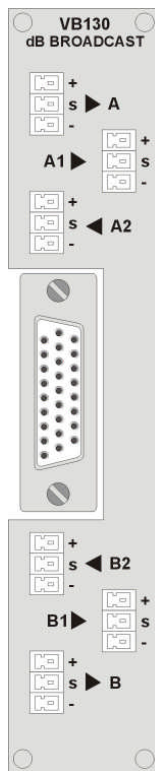
- Dual pilot tone detector for Vistek frames
- Inputs may be terminated with  $600\Omega$  or Hi-Z ( $50k\Omega$ )
- Front panel indications for pilot tone fail (undelayed and delayed) for each channel
- Peripheral driver output for undelayed tone fail and isolated relay outputs for delayed tone fail and tone OK
- Adjustable delayed tone fail onset and reset timing
- Front panel fine adjustment for tone level loss threshold
- Internal coarse adjustment for tone level threshold and tone frequency sensitivity
- DART monitoring capable as standard

# Installation

## Selecting Rear Connectors

The available rear connectors and the frames/signal I/O used are as follows:

Type	Frame	Connectors	Signal types
VB130	1U(F010)/3U Vistek	3-pin screw terminal	Analogue audio



*3U Vistek style  
chassis VB130*

## Rear Panel Connections

SIGNAL	CONNECTOR	COMMENTS
A1	3 pin screw	Not used
A2	3 pin screw	Not used
A	3 pin screw	Input 1
B1	3 pin screw	Not used
B2	3 pin screw	Not used
B	3 pin screw	Input 2

Control and Status - 26 way D type			
PIN	SIGNAL (pins 1 –13)	PIN	SIGNAL (pins 14 – 26)
1	0V CTL A	14	0V SUPPLY GROUND
2	0V CTL A	15	SPARE
3	0V CTL A	16	SPARE
4	0V CTL A	17	B TONE FAIL (DELAYED)
5	A TONE OK (UNDELAYED)	18	B TONE OK (DELAYED)
6	A TONE OK (UNDELAYED)	19	DELAYED COMMON
7	DELAYED COMMON	20	DELAYED COMMON
8	DELAYED COMMON	21	B TONE OK (UNDELAYED)
9	A TONE OK (DELAYED)	22	B TONE OK (UNDELAYED)
10	A TONE FAIL (DELAYED)	23	0V CTL B
11	SPARE	24	0V CTL B
12	SPARE	25	0V CTL B
13	0V SUPPLY GROUND	26	0V CTL B



# Configuration and Operation

## Front Panel Control



Vistek

### LED Indicators:

**D** Yellow – Flashing indicates DART monitoring is active

**V** Green – Indicates DC power present & OK

**Sig Fail** Yellow – Immediate signal loss indication

**Delay** Red – Delayed signal loss indication

### Controls:

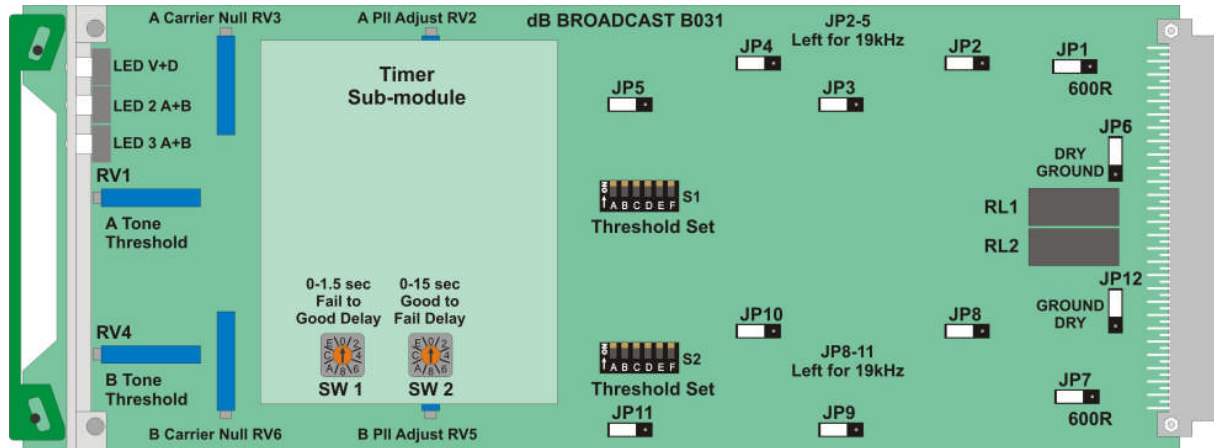
**Threshold** Pilot tone loss threshold adjustment

LED	Ext Alm	Meaning when lit or active
Sig Fail	<b>Tone OK (Undel) – Peripheral driver</b>	<b>Pilot tone detected – tone level below threshold set by Threshold A (CHA) and Threshold B (CHB) and/or module settings. See Configuration section.</b>
Delay	<b>Tone Fail (Del) - Relay</b>	<b>Pilot tone loss detected (delayed) – tone level below threshold set by RV1/S1 (CHA) and RV2/S2 (CHB)</b>
None	<b>Tone OK (Del) - Relay</b>	<b>Pilot tone detected (delayed) – tone level above threshold set by RV1/S1 (CHA) and RV2/S2 (CHB)</b>

**Note:** Sig Fail is the opposite sense to Tone OK (Undel).

## Configuration

Each channel has a number of configuration jumper links and adjustments.



The B031 Dual Pilot Tone Detector showing jumper links

### Channel A main module adjustments

Adjustment	Main Module - Channel A
JP1	Select 600 $\Omega$ termination or high impedance (50k $\Omega$ ).
JP2 - 5	Place the jumpers in the 19kHz (left) or 22.5kHz (right) position for the pilot tone sensitivity required.
S1	Set DIL switch levers for the coarse tone loss threshold level required – see table on page 8.
RV1	Front panel adjustment for fine control of tone loss threshold (+/- 10dB).
JP6	Move this link to the top for floating common ground. Move this link to the bottom for grounded common ground.

### Channel B main module adjustments

Adjustment	Main Module - Channel A
JP7	Select 600 $\Omega$ termination or high impedance (50k $\Omega$ ).
JP8 - 11	Place the jumpers in the 19kHz (left) or 22.5kHz (right) position for the pilot tone sensitivity required.
S2	Set DIL switch levers for the coarse tone loss threshold level required – see table on page 8.
RV2	Front panel adjustment for fine control of tone loss threshold (+/- 10dB).
JP12	Move this link to the bottom for floating common ground. Move this link to the top for grounded common ground.

**Note:** Carrier Null and PLL Adjust are factory set and should not require re-adjustment.

## Timer module adjustments

### *Delayed Pilot Tone loss Onset and Reset delays*

#### **Adjusting Onset (Good to Fail time) delay**

This is adjusted using the 16-way rotary switch SW2 from 10 to 15 seconds.

SW2	Delay in seconds	SW2	Delay in seconds
0	0	8	8
1	1	9	9
2	2	A	10
3	3	B	11
4	4	C	12
5	5	D	13
6	6	E	14
7	7	F	15

#### **Adjusting Reset (Fail to Good time) delay**

This is the period following a failure that the module waits before signalling that the pre-failure state has been regained. It is adjusted using SW1 in 0.1 second steps from 0.1 second to 1.5 seconds.

SW1	Delay in seconds	SW1	Delay in seconds
0	0	8	0.8
1	0.1	9	0.9
2	0.2	A	1.0
3	0.3	B	1.1
4	0.4	C	1.2
5	0.5	D	1.3
6	0.6	E	1.4
7	0.7	F	1.5

### *Adjusting Pilot Tone loss Threshold Settings*

The coarse tone loss threshold setting is adjusted using S1 for input A and S2 for input B.

S1/S2	Value
1	-12dB
2	-6dB
3	-3dB
4	-1.5dB
5	-0.5dB
6	+0.5dB

The threshold set with all switches off is -20dB; the table shows the additional threshold values for each switch. To calculate the required switch setting, always subtract 20dB from the total configuration value.

### *Example*

To obtain a threshold of -35dBu, set levers 1 (-12dB) and 3 (-3dB), this gives an effective level threshold of -35dB (-15dB -20dB). The -20dB adjustment is only subtracted once for each input.

**Note:** It is recommended to use the fine control accessible through the front panel for accurate calibration.

## Sample Problems and their Solutions

The unit does not appear to operate correctly

Check that the green 'V' LED is illuminated and that the module is seated correctly in the frame.

Check that the appropriate rear connector has been cabled correctly.

The fail LED keeps blinking on and off for good signals

Check the six-way threshold DIL switch threshold setting. (S1 for CHA, S2 for CHB). If necessary try backing the sensitivity off a little using the fine threshold control accessible through the front panel (RV1 for CHA; RV4 for CHB).

Check the pilot tone frequency links (JP 2 -5 for CHA, JP 8 – 11 for CHB).

Check that the incoming signal is correctly terminated.

The delayed status indicates bad signal too often

Check the onset (Good to Fail) delay is not too low

Check the reset (Fail to Good) delay is not too low

The delayed status does not indicate bad signal sometimes

Check the onset (Good to Fail) delay is not too high

The delayed status takes too long to recover from indicating a bad signal

Check the reset (Fail to Good) delay is not too high

# Ordering Information

## *B031 module types*

### **3U Vistek configuration**

V1606-dB-2PSU	3U Chassis, 14 Module slots, 2 PSU slots (2 PSUs included)
V1610-dB-48V	3U Chassis, 14 Module slots, 2 48V PSU slots (2 48V PSUs included)
VB130	Screw terminal Rear connector module

### **1U Vistek configuration (dual PSU)**

F010	1U Chassis, 2 Module slots, 2 PSUs ( PSUs included)
VB130	Screw terminal Rear connector module

# Specification

## INPUTS & OUTPUTS

<b>Signal formats</b>	Analogue Audio
<b>Connectors</b>	3-Pin Screw Terminal
<b>Impedance</b>	600 $\Omega$ or Hi Z/50k $\Omega$ (Link Selectable)