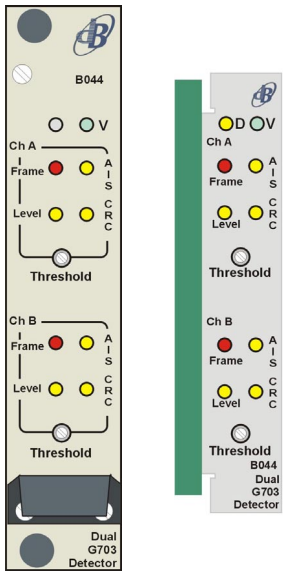
Broadcast

B044

DUAL G703 DETECTOR



Handbook

Version 1.0

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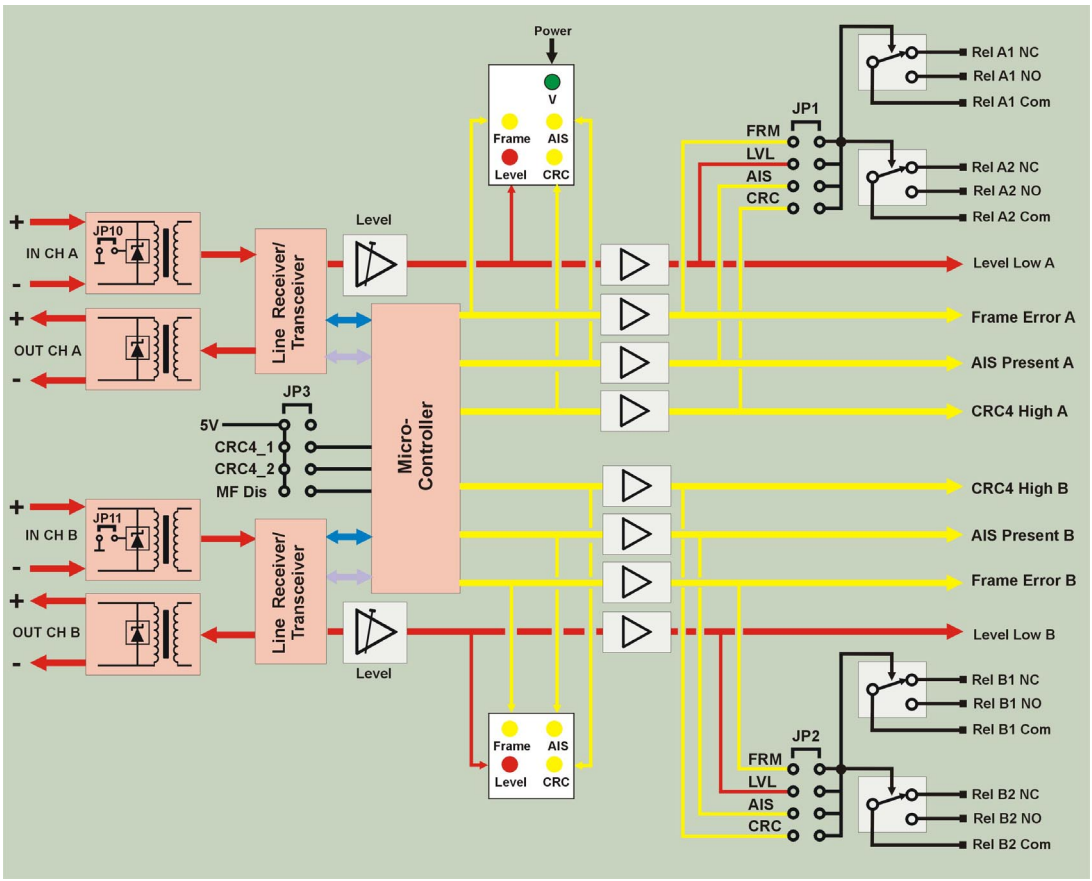
Contents

Introduction

The B044 is part of the Hawkeye range of detector modules for monitoring G703 signals at 2.048MHz rate.

It fits in either 1U or 3U Avitel or Vistek frames and power is derived from the frame PSU. An on-module regulator provides +/- 5 Volt rails.



The B044 dual G703 detector

The module monitors two incoming signals and provides active loop through outputs on BNC's and provides local indications on the front panel of the module. It also provides remote status signals via open collector or relay outputs.

The design is implemented using an industry standard line receiver/framer chip from PMC. A micro-controller processes the data from the framer to provide the local and external alarms. A peak detector provides level detection with adjustable threshold, normally set to –4dB.

Main features

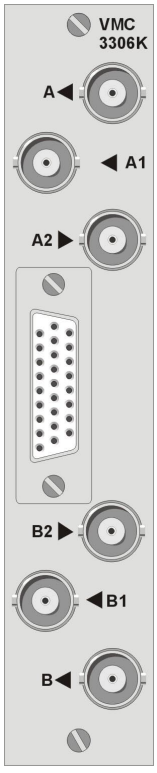
- Two independent detectors per module
- 75R transformer coupled input and output (120R Bal. if req)
- Active loop through output/Input level detector with adjustable threshold
- Four alarm indications per channel
- All alarms are available on open collectors
- Any one of the four alarms is selectable to the summary alarm (Relay)
- Four alarms:
- Signal level indication
- Alarm insertion signal present (AIS) & TS16 AIS
- Loss of Framing or Multi Framing
- CRC 4 quality threshold alarm
- Threshold adjustable ± 6dB, alarm will turn on with loss of signal
- Alarm will turn on when three consecutive incorrect frame alignment signals have been received
- CRC4 errors are counted internally and update a 10 bit counter every second, with the alarm being set if the count exceeds a pre- determined level

Installation

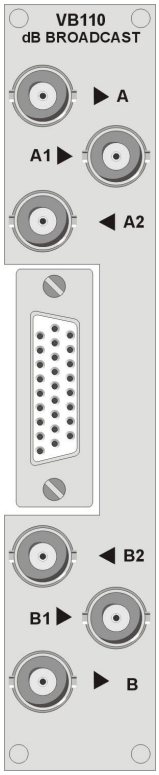
Selecting rear connectors

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

Type	Frame	Connectors	Signal types
VMC 3306K	1U/3U Avitel	BNCs	G703 at 2.048MHz
VB110	1U(F010)/3U Vistek	BNCs	G703 at 2.048MHz



Avitel style chassis VMC 3306K



3U Vistek style chassis VB110

Rear panel connections

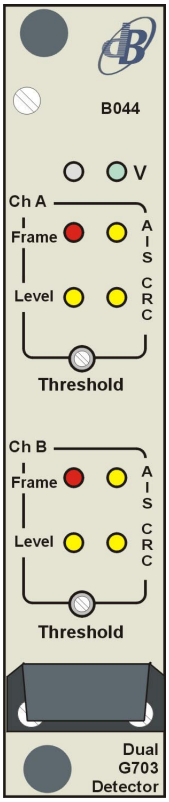
SIGNAL	CONNECTOR	COMMENTS
A1	BNC	Channel A Input
A2	BNC	Not used
A	BNC	Channel A loop through output
B1	BNC	Channel B Input
B2	BNC	Not used
B	BNC	Channel B loop through output

Control and Status - 26 way D type			
PIN	**SIGNAL (pins 1 –13)**	**PIN**	**SIGNAL (pins 14 – 26)**
1	Ctrl 0V	**14**	0V
2	Not connected	**15**	Relay B1 Com
3	Frame Error A (open collector)	**16**	Relay B1 NC
4	Level Low A (open collector)	**17**	Relay B1 NO
5	AIS Present A (open collector)	**18**	Relay B2 Com
6	CRC 4 High A (open collector)	**19**	Relay B2 NC
7	Relay A1 Com	**20**	Relay B2 NO
8	Relay A1 NC	**21**	CRC 4 High B (open collector)
9	Relay A1 NO	**22**	AIS Present B (open collector)
10	Relay A2 Com	**23**	Level Low B (open collector)
11	Relay A2 NC	**24**	Frame Error B (open collector)
12	Relay A2 NO	**25**	Not connected
13	0V	**26**	Ctrl 0V

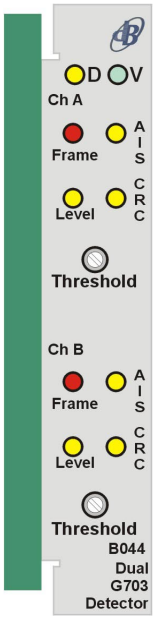
Note: NO = normally open, NC = normally closed and Com = common

Configuration and operation

Front panel control



Avitel



Vistek

LED Indicators:

V Green – Indicates DC power present & OK

Frame Red – General Fault alarm
AIS Red – Input selection controlled from front panel
Level Green – Input selection controlled remotely
CRC Yellow – Indicate G703 error detection

Controls:

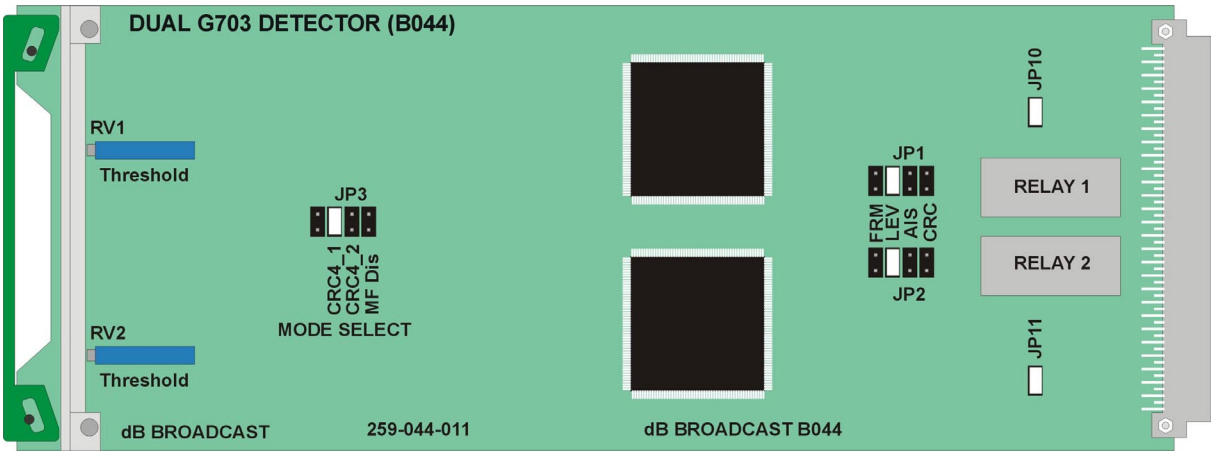
Threshold Signal loss threshold adjustment

LED	Ext Alrm	Meaning when lit
Frame	Frame Error	Loss of framing or multi-framing (if enabled)
AIS	AIS Present	Alarm insertion signal present (AIS & TS16 AIS)
Level	Level low	Signal below threshold set by RV1 (CHA) or RV2 (CH B)
CRC	CRC4 high	Quality below CRC-4 threshold (if enabled)

Note: Relay outputs are programmable – see Configuration.

Configuration

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



The B044 Dual G703 Detector showing jumper links

Channel A link functions and adjustments

Adjustment	Main Module - Channel A jumpers
JP1	Select detected error to drive relay outputs FRM, LEV, AIS or CRC – see next section
RV1	Adjust signal loss threshold
JP10	Fit this jumper to enable voltage spike suppression on the Channel A input

Channel B link functions and adjustments

Adjustment	Main Module - Channel A jumpers
JP2	Select alarm signal to drive relay outputs FRM, LEV, AIS or CRC – see next section
RV2	Adjust signal loss threshold
JP11	Fit this jumper to enable voltage spike suppression on the Channel B input

Mode selection – affects both channels

Adjustment	Main Module - Channel A jumpers
JP3	Select Micro-controller mode CRC4_1, CRC4_2 or MF-Disable – see next section

Selecting the relay drive signal

Each channel has a relay with two sets of contacts, which may be driven from one of four detected error signals.

The error signals are:

Error	JP1 CH A	JP2 CH B	Description
Frame	FRM	FRM	Loss of framing or multi-framing (if enabled)
Level	LVL	LVL	Signal level below threshold set by RV1 (CHA) or RV2 (CHB)
AIS	AIS	AIS	Alarm insertion signal present (AIS & TS16 AIS)
CRC-4	CRC	CRC	Quality below CRC-4 threshold (if enabled)

Selecting the micro-controller mode

The micro-controller may be operated in one of three modes:

Mode	JP3 position	Description
	Near front panel	Not used
CRC4	CRC4_1	CRC-4 threshold alarm enabled (default)
CRC4	CRC4_2	CRC-4 threshold alarm disabled
MF-Dis	MF-Dis	Multi-frame disabled

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 Level LED keeps blinking on and off for good signals

Check that the front panel threshold sensitivity is set correctly – try backing the sensitivity off a little (RV1 for CHA and RV2 for CHB).

Check that the incoming signal is not double terminated.

The FRAME or CRC LEDs never operate, even with known bad signals

Check that the micro-controller is being operated in the correct mode.

Ordering information

B035 types

Different frames require different mechanical fittings. All module functionality is identical.

B044	Version for Avitel Chassis
B044/V	Version for Vistek Chassis

3U Avitel configuration

ERF 3390K–P1	3U Chassis, 14 Module slots, 1 PSU slot, (no PSUs included)
ERF 3390K–P2	3U Chassis, 12 Module slots, 2 PSU slots, (no PSUs included)
MPS 3392L	PSU for above chassis, (no PSUs included)
VMC 3306K	BNC Rear connector module, (no PSUs included)

1U Avitel configuration

ERF 1131K	1U Chassis, 3 Module slots, PSU mounted externally, (no PSUs included)
MPS 0330	PSU for above chassis (requires mounting holsters)
ECA 0331	Mounting holsters for PSU MPS 0330
VMC 3306K	BNC Rear connector module

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)
VB110	BNC Rear connector module

1U Vistek configuration (dual PSU)

F010	1U Chassis, 2 Module slots, 2 PSUs (PSUs included)
VB110	BNC rear connector module

Specification

INPUTS & OUTPUTS

Interface	G703 75 Ohm or 120 Ohm – factory fitted option – with active loop though outputs
Framing:	CRC4, Multi-frame or Non-CRC4
Data rate:	2.048Mbps +/-50ppm
Connectors	2 x 3 BNCs (two used per channel)