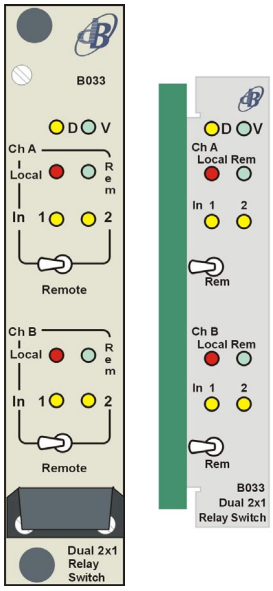
Broadcast

B033

DUAL 2 X 1 RELAY SWITCH



Handbook

Version 1.0

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Document history

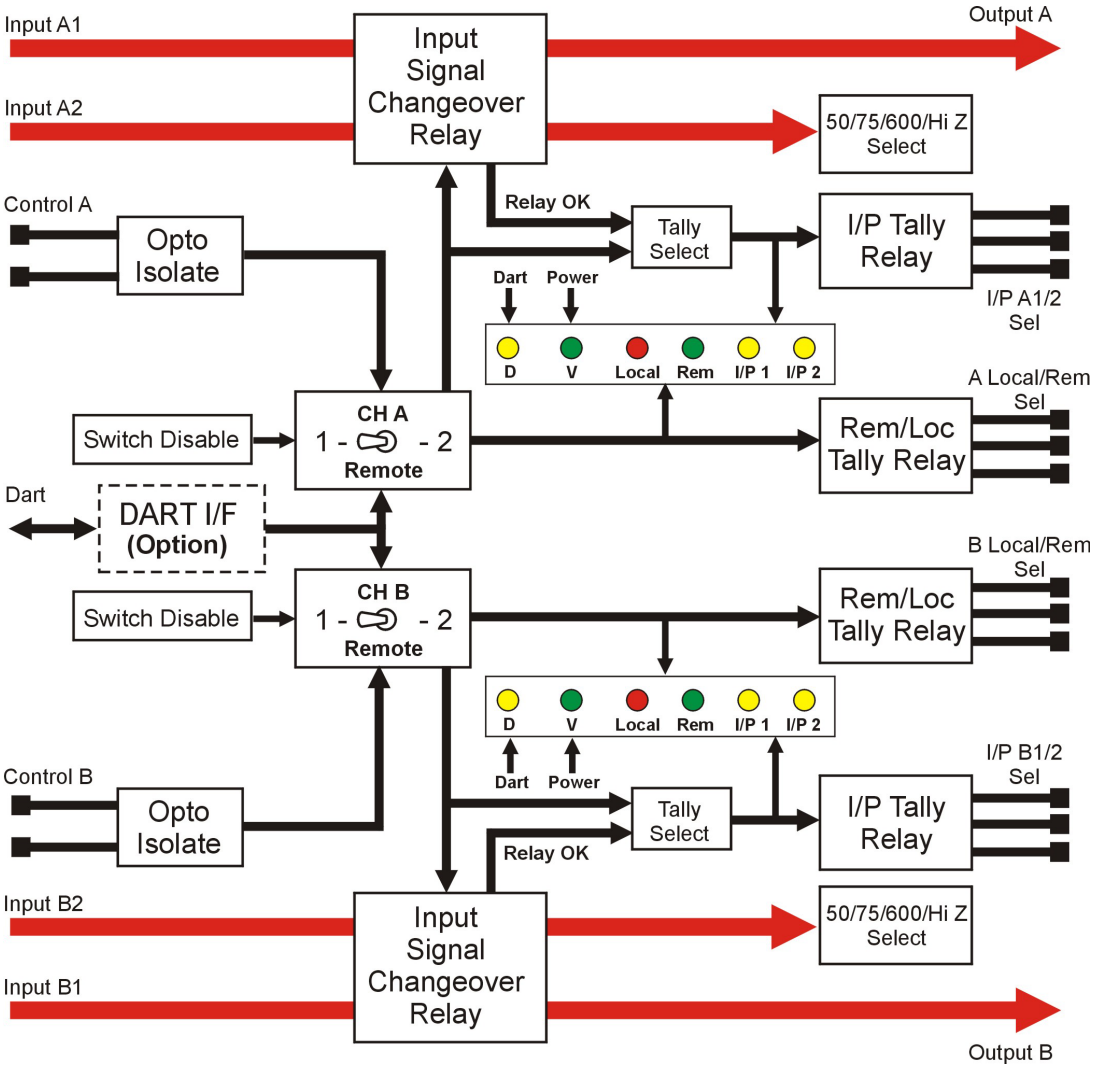
Date of first publication	12/06/2004
Current issue and date	
Board issue numbers covered	239-033-020

Contents

Introduction

The B033 is a dual channel signal changeover module for switching SDI and analogue video, analogue audio, RS 232 or digital audio (AES balanced or unbalanced) signals. It fits in either 1U or 3U Avitel or Vistek frames for which a range of rear connectors is available depending on I/O requirements and frame type. All power is derived from the frame PSU.

Each changeover switch is implemented using a high quality relay. Unselected inputs have optional terminations of 50Ω, 75Ω, 600Ω or Hi Z. GPI control inputs can be isolated, active low or active high as selected by links on the module.



The B033 dual 2x1 relay switch

In the event of power loss to the frame, signals can still pass through the module where input A1 is routed to output A for the first channel and input B1 is routed to output B for the second channel.

LEDs on the front panel indicate which input is selected and whether the channel is in local or remote mode. There are two manual control switches on the module front panel, which select Input 1, Remote or Input 2 for each channel. Each switch may be disabled independently by removing an appropriate link on the module.

Channel selection and local/remote status signals are available as isolated contacts or with a common connected to 0V. In addition the input remote status signals may be configured to indicate if the relay coil has failed to operate.

The B033 can be monitored and controlled from any remote device via the GPI interface connector, or via DARTnet using Vistek's ViewFind and/or a Vistek V1605 control panel.

Note: An optional DART compatible Sub-Board type B040 is available which provides monitoring status to the DART bus.

Main features

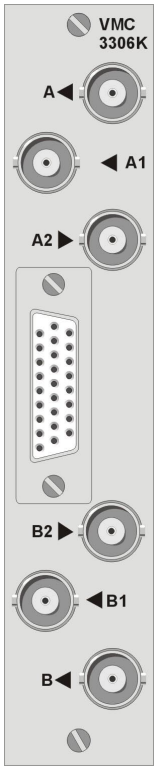
- Dual 2x1 switcher for video, data or audio for Avitel and Vistek frames
- Choice of rear connector depending on frame and signal type
- De-selected inputs terminated with 50R, 75R, 600R or Hi -Z
- Uses high quality G5Y series signal relays
- Front panel toggle switch for each channel selects input 1, input 2 or remote – may be disabled
- Optically isolated or active low/active high control inputs
- Front panel LED's show input selected and local/remote control for each channel
- Channel selection and loc/rem remote status signals available as isolated contacts or with common connected to 0V
- Channel selection remote status signals can be configured to indicate if relay coil has failed to operate

Installation

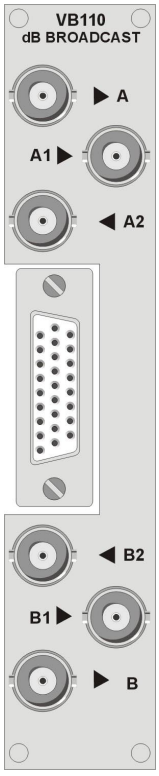
Selecting rear connectors

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

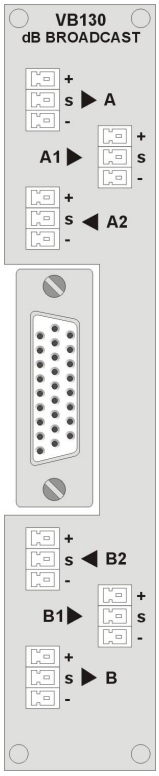
Type	Frame	Connectors	Signal types
VMC 3306K	1U/3U Avitel	BNCs	SDI, analogue video or digital audio (AES unbalanced)
VB110	1U(F010)/3U Vistek	BNCs	SDI, analogue video or digital audio (AES unbalanced)
VB130	1U(F010)/3U Vistek	3-pin screw terminal	Analogue audio, digital audio (AES balanced) or data (e.g. RS232)
AMC 3339K	1U/3U Avitel	DIN 41614	Analogue audio, digital audio (AES balanced) or data (e.g. RS232)
V16VR1J	1U Vistek	3-pin screw terminal	Analogue, digital audio (AES balanced) or data (e.g. RS232)
V16VR1K	1U Vistek	BNCs	SDI, analogue video or digital audio (AES unbalanced)



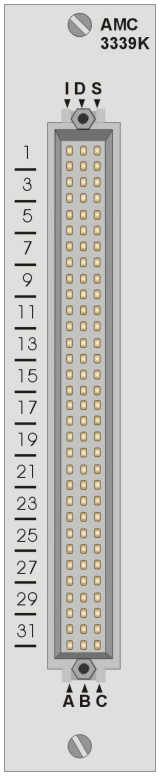
Avitel style chassis VMC 3306K



3U Vistek style chassis VB110



3U Vistek style chassis VB130



Avitel style chassis AMC 3339K

Rear panel connections (BNC and screw terminal)

SIGNAL	CONNECTOR	COMMENTS
A1	3Pin Screw/BNC	Channel A Input 1
A2	3Pin Screw/BNC	Channel A Input 2
A	3Pin Screw/BNC	Channel A Output
B1	3Pin Screw/BNC	Channel B Input 1
B2	3Pin Screw/BNC	Channel B Input 2
B	3Pin Screw/BNC	Channel B Output

Control and Status - 26 way D type			
PIN	**SIGNAL (pins 1 –13)**	**PIN**	**SIGNAL (pins 14 – 26)**
1	Control 0V	**14**	0V
2	Control +12V	**15**	N/C
3	Control A (Active Low)	**16**	N/C
4	Control A (Active High)	**17**	B2 Selected
5	A Remote Selected	**18**	B1 Selected
6	A Local Selected	**19**	B1/B2 Selected Common
7	A Remote/Local Common	**20**	B Local/Remote Common
8	A1/A2 Selected Common	**21**	B Local Selected
9	A1 Selected	**22**	B Remote Selected
10	A2 Selected	**23**	Control B (Active High)
11	N/C	**24**	Control B (Active Low)
12	N/C	**25**	Control +12V
13	0V	**26**	Control 0V

Rear panel connections (DIN41614)

Pin No	A	B	C
1	0V Screen	A Out Cold	A Out Hot
2	0V Screen	A Out Cold	A Out Hot
3	0V Screen	0V	0V
4	0V Screen	A In 1 Cold	A In 1 Hot
5	0V Screen	0V	0V
6	0V Screen	A In 2 Cold	A In 2 Hot
7	0V Screen	0V	0V
8	0V Screen	0V Ctrl A	+12V Ctrl A
9	0V Screen	Ctrl A (Act Low)	Ctrl A (Act High)
10	0V Screen	A Remote Selected	A Local Selected
11	0V Screen	Loc/Rem Common	A1/A2 Common
12	0V Screen	A1 Selected	A2 Selected
13	0V Screen	N/C	N/C
14	0V Screen	N/C	N/C
15	0V Screen	0V	N/C
16	0V Screen	0V	N/C
17	0V Screen	N/C	N/C
18	0V Screen	N/C	N/C
19	0V Screen	N/C	N/C
20	0V Screen	N/C	N/C
21	0V Screen	B1 Selected	B2 Selected
22	0V Screen	Loc/Rem Common	B1/B2 Common
23	0V Screen	B Remote Select	B Local Selected
24	0V Screen	Ctrl B (Act Low)	Ctrl B (Act High)
25	0V Screen	0V Ctrl B	+12V Ctrl B
26	0V Screen	0V	0V
27	0V Screen	B In 2 Cold	B In 2 Hot
28	0V Screen	0V	0V
29	0V Screen	B In 1 Cold	B In 1 Hot
30	0V Screen	0V	0V
31	0V Screen	B Out Cold	B Out Hot
32	0V Screen	B Out Cold	B Out Hot

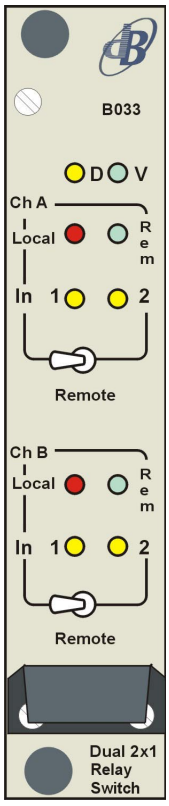
Configuration and operation

Control options

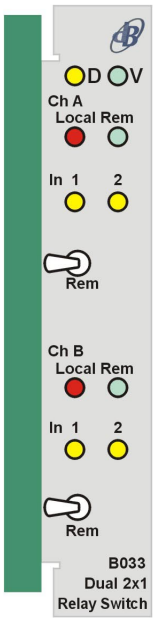
The B033 has three control options:

- Local front panel control – enable/disable with JP3 & JP4 for CH1, JP16 & JP17 for CH2
- GPI control – enable/disable with JP12 for CH1, JP25 for CH2
- DARTnet control – enable/disable with JP13 for CH1, JP26 for CH2

Front panel control



Avitel



Vistek

LED Indicators:

D Yellow – Flashing indicates DART monitoring is active

V Green – Indicates DC power present & OK

Local Red – Input selection controlled from front panel

Rem Green – Input selection controlled remotely

In 1 Yellow – Input 1 selected

In 2 Yellow – input 2 selected

Toggle Switches (3 position):

Rem Left – Input 1
Centre – Remote
Right – Input 2

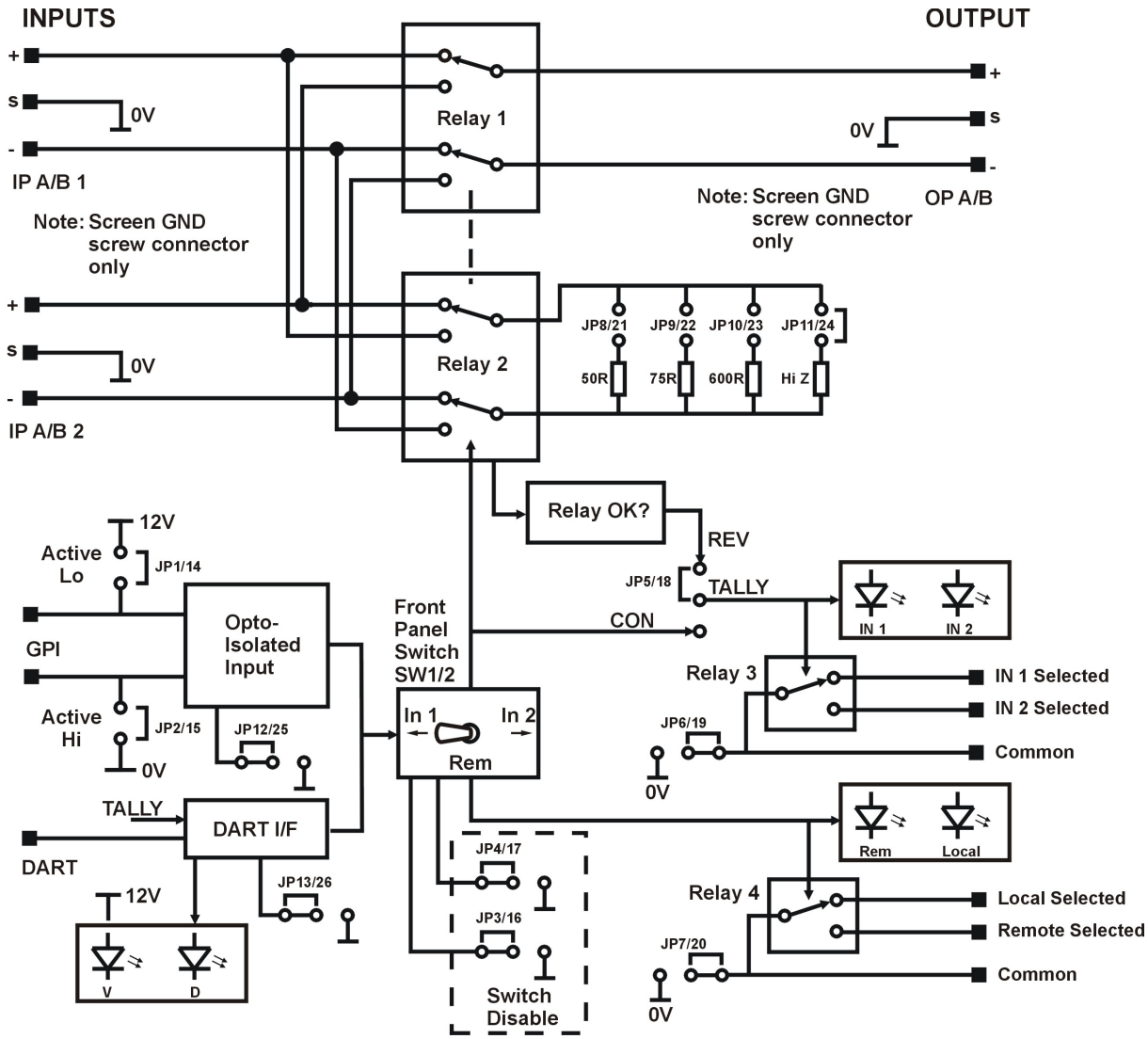
The front panel is equipped with LEDs and switches in two groups, one for each channel.

Use the switches to select Input 1 (left position), Remote (central position) or Input 2 (right position) for each channel. Each switch may be disabled independently by removing an appropriate link on the module.

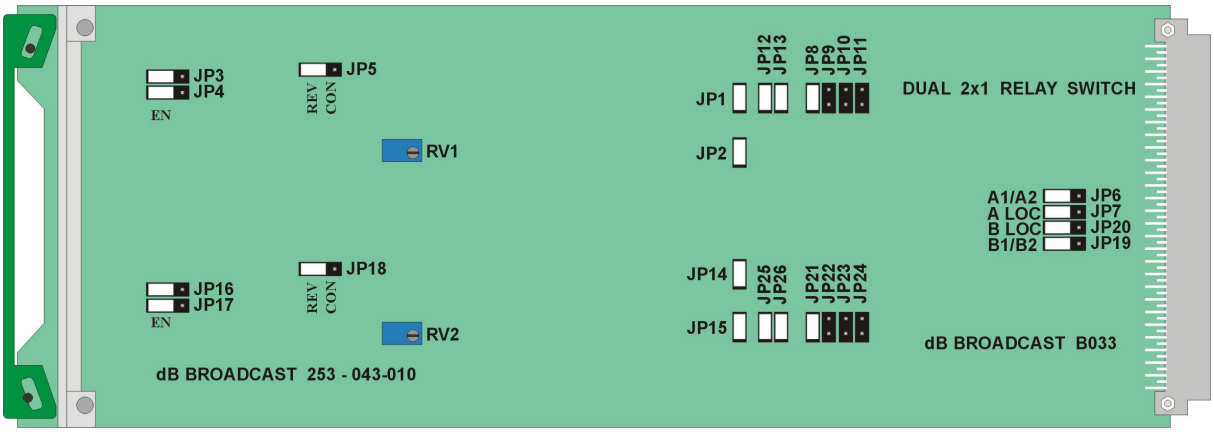
Configuration

Each channel has a number of configuration jumper links, JP1 to JP26 to set the following options:

- Remote control input active high/active low/isolated
- Front panel signal changeover control and associated remote/local indications enabled/disabled
- Derivation of input selection tallies
- Input selection and local/remote tallies to be grounded common or ground-free



The B033 dual 2 x 1 Relay Switch – functional view (both channels identical)



The B033 dual 2 x 1 Relay Switch showing jumper links

Link functions

Jumper No	Channel A jumpers
JP1	Insert link for Channel A Active Low Control (JP2 open). Remove both JP1 and JP2 for an isolated control input.
JP2	Insert link for Channel A Active High Control (JP1 open). Remove both JP1 and JP2 for an isolated control input.
JP3/JP4	Insert both links in LH position to enable Channel A front panel input changeover control switch. Insert in RH position to disable.
JP5	Insert link in the position marked REV(ertive) for the input selection A1/A2 tallies to be derived from the drive to the signal changeover relay coil. Insert link in the position marked CON(trol) for the A1/A2 tallies to be derived from the front panel or external control inputs.
JP6	Insert link in the RH position for the common of the A1/A2 selected tally to be earth-free. Insert link in the LH position for this common to be grounded.
JP7	Insert link in the RH position for the common of the A remote/A local tally to be earth-free. Insert link in the LH position to ground it.
JP8/JP9/JP10/JP11	Selects Channel A unselected input termination impedance to 50R, 75R, 600R or Hi Z respectively (Fit link to one jumper only).
JP12	Insert link to enable Remote Switching via GPI port.
JP13	Insert link to enable Remote Switching over DART.

Jumper No	Channel B jumpers
JP14	Insert link for Channel B Active Low Control (JP15 open).
JP15	Insert link for Channel B Active High Control (JP14 open).
JP16	Insert link in LH position to enable Channel B front panel input changeover control switch. Insert in RH position to disable.
JP17/18	Insert both links in LH position for Channel B front panel and external local/remote tallies to follow Channel B front panel control switch. Insert in RH position for permanent remote indication. JP17 is intended to be used in conjunction with JP16.
JP18	Insert link in the position marked REV(ertive) for the input selection B1/B2 tallies to be derived from the drive to the signal changeover relay coil. Insert link in the position marked CON(trol) for the B1/B2 tallies to be derived from the front panel or external control inputs.
JP19	Insert link in the RH position for the common of the B1/B2 selected tally to be earth-free. Insert link in the LH position to ground it.
JP20	Insert link in the RH position for the common of the B remote/B local tally to be earth-free. Insert link in the LH position for this common to be grounded.
JP21/JP22/JP23 JP24	Selects Channel B unselected input termination impedance to 50R, 75R, 600R or Hi Z respectively (Fit link to one jumper only).
JP25	Insert link to enable Remote Switching via GPI port.
JP26	Insert link to enable Remote Switching over DART.

Remote control

The B033 has two remote control options:

Contact closure or 12V (dependent on configuration) applied to the remote control port routes the output of a channel to Input 2. The output is routed to Input 1 in the absence of a control input.

To force the B033 to switch, either insert JP1 and connect CTLA (LO) pin 3 to OV pin 1, or insert JP2 and connect CTLA(HI) pin 4 to +12V pin 2.

With the B040 option, control is possible over DARTnet from a controller when the unit is fitted into a DART-equipped Avitel or Vistek rack.

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 wired correctly.

Check that the desired control interface is enabled and that other control options are disabled.

There is no DART control

Ensure that the frame has been fitted with the DART control module (In the Vistek 3RU frame this is the V606 module; in Avitel frames it is standard and is part of the PSU)

Check that the B033 module is fitted with the B040 DART sub-board

Check that the DART interface has been enabled for the channel being controlled.

Try disabling other control interfaces.

There is no GPI control

Check that GPI control has been enabled and that other control interfaces are disabled.

Check the configuration for the appropriate control polarity.

Ordering information

B033 types

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

B033	Version for Avitel Chassis
B033/V	Version for Vistek Chassis
B040	Optional DARTnet Interface sub-board - does not require a slot within a frame

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
VMC 3306K	BNC Rear connector module
AMC 3339K	DIN41614 Rear connector module

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
AMC 3339K	DIN41614 Rear connector module

3U Vistek configuration

V1606-dB-2PSU	3U Chassis, 14 Module slots, 2 PSU slots (2 PSUs included)
V1606-dB-48V	3U Chassis, 14 Module slots, 2 48V PSU slots (2 48V PSUs included)
VB110	BNC Rear connector module
VB130	Screw terminal Rear connector module

1U Vistek configuration

V1601	1U Chassis, 4 Module slots, 1 PSU slot (1 PSU included)
V16VR1K	BNC Rear connector module
V16VR1J	Screw terminal Rear connector module

1U Vistek configuration (dual PSU)

F010	1U Chassis, 2 Module slots, 2 PSUs (PSUs included)
VB110	BNC Rear connector module
VB130	Screw terminal Rear connector module

Specification

INPUTS & OUTPUTS

Signal formats	Serial Digital Video, Analogue Video, Analogue Audio (Balanced or Unbalanced) AES (Balanced or Unbalanced) RS 232
Connectors	3-Pin Screw Terminal or BNC (Rear module options), DIN 41614 connector
Impedance (unselected input)	50 Ohms, 75 Ohms, 600 Ohms or Hi Z (Link Selectable)