

NuWaves

RF Solutions

VEGAS-S MIL STD 1553 Data Diode

P/N: NW-1553-DD-VS01

(U.S. Patent 10,432,730)

GSA Contract #: 47QSWA24D000V



The Vegas-S Data Diode was created for the MIL STD 1553 avionics bus.

Vegas-S allows for the isolation of the main MIL-STD-1553 avionics bus from bus monitors or systems under test for enhanced safety of flight. This control of data flow over the MIL-STD-1553 bus provides true risk reduction to the aircraft's avionics bus for early software upgrades to existing bus monitoring systems, along with reducing the risk to the aircraft's avionics bus for early bus monitor integration. Vegas-S supports two independent MIL-STD-1553 channels (ie: one 'A' and one 'B') and comes in a 7 in³ / 0.5 lbs package offering 40 mA at 28VDC.

Protect your vital information by using the Vegas-S MIL STD 1553 Data Diode from NuWaves RF Solutions.

Features

- Simple single chip solution
- No loadable software or firmware
- No microcontrollers or processors that could be maliciously altered
- Very low input to output latency
- Protects avionics bus from malicious traffic
- Protect against an LRU failure or voltage transient
- Subjected to MIL STD 810G, MIL STD 704F, and MIL STD 461 tests

Benefits

- Acts as a physical firewall
- Cleans up signals on the bus, and protects against signal transients
- Alternative to untrusted monitors
- Reconditions the MIL-STD-1553 signal for driving at least 200 feet of MIL-STD-1553 cable
- Simplifies cyber assessment and authorization

Applications

- Protects avionics bus from untrusted commercial-off-the-shelf (COTS) bus monitors
- Protects avionics bus from roll on/off equipment
- Protects the avionics bus from traffic insertion at open test ports on aircraft
- Acts as a repeater to extend the length of the avionics bus

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Specifications

Parameter	Rating	Unit
Max Device Voltage	30	V
Max Current @28VDC	50	mA
Max Operating Temperature (baseplate)	+85	°C
Max Storage Temperature	+85	°C

Export Classification
EAR99

Electrical Specifications

Parameter	Symbol	Min	Typ	Max	Unit	Condition
Operating Voltage	VDC		28		V	
Operating Current	I_{DD}		40		mA	
Latency			200		ns	Input to Output

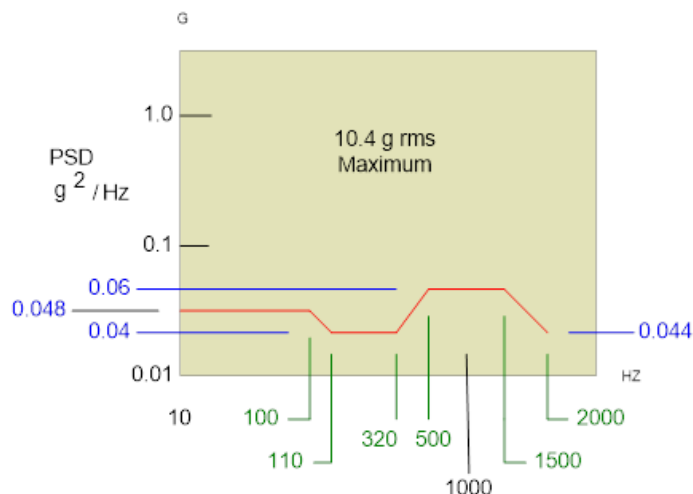
Mechanical Specifications

Parameter	Value	Unit	Limits
Dimensions (L x W x H)	3.24 x 2.66 x 0.87	in	Max
Weight	8	oz	
Interface Connector	15 Pin Micro D		

Environmental Specifications

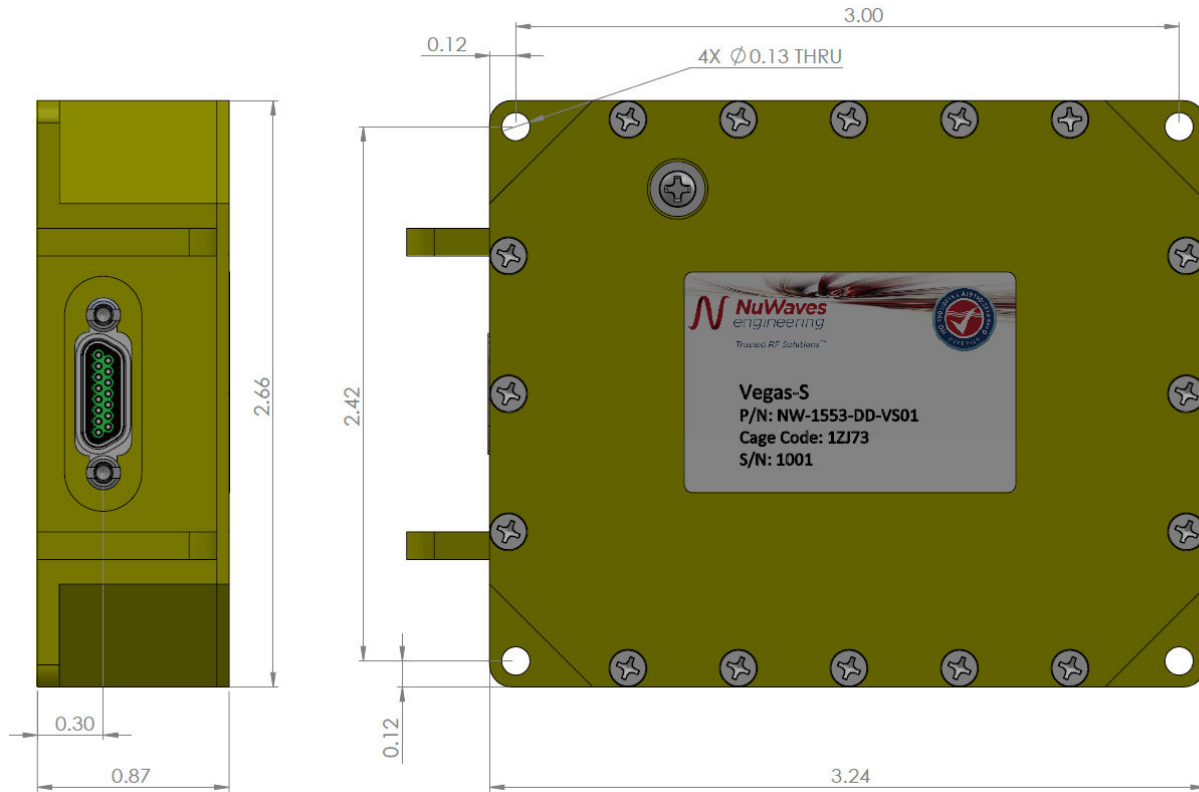
Parameter	Symbol	Min	Typ	Max	Unit
Operating Temperature (ambient)	T_A	-55		-71	°C
Operating Temperature (baseplate)	T_C	-40		+85	°C
Storage Temperature	T_{STG}	-55		+85	°C
Relative Humidity (non-condensing)	RH			95	%
Altitude MIL-STD-810F - Method 500.4	ALT			30,000	ft

Vibration Figure

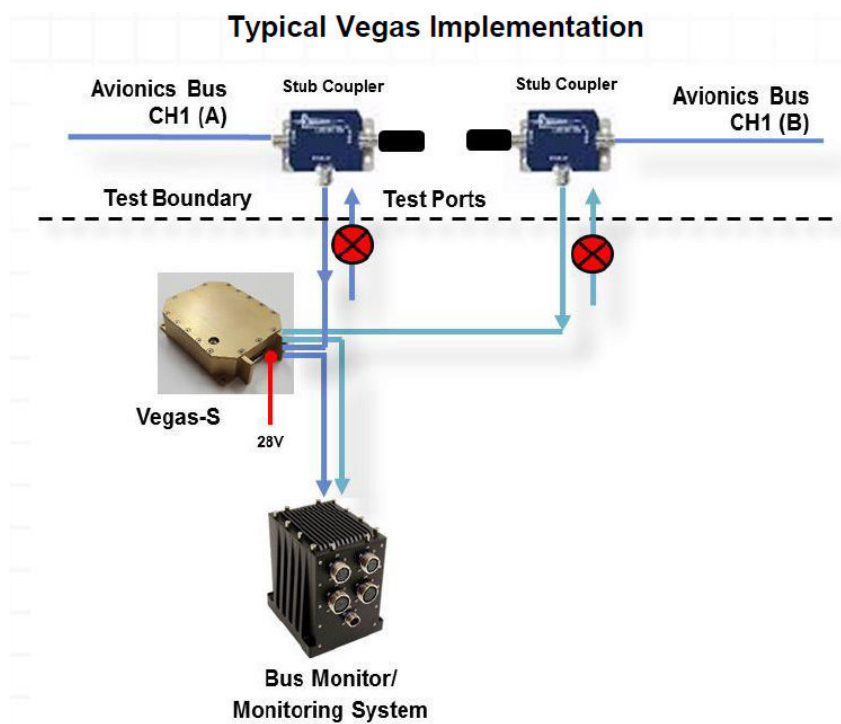


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Mechanical Outline



Vegas Implementation



VEGAS-S MIL STD 1553 Data Diode

MIL STD Test Compliance

MIL-STD-810G.

- 500.5 – Low Pressure (Altitude) report
- 501.5 – High Temperature report
- 502.5 – Low Temperature report
- 507.5 – Humidity report
- 511.5 - Explosive Atmosphere
- 514.6 – Vibration report
- 516.6 Procedure 1 – Functional Shock report
- 516.6 Procedure 5 – Crash Hazard Shock report

MIL-STD-461G.

- CE101 – Conducted emissions report
- CE102 – Conducted emissions report
- CS101 – Conducted susceptibility report
- CS114 curve 5 – Conducted susceptibility report
- CS115 – Bulk Cable Injection, Impulse Excitation report
- CS116 - Conducted Susceptibility, Damped Sinusoidal Transients report

- CS118 – Personnel Borne Electrostatic Discharge (ESD) report
- RE101 – Radiated emissions report
- RE102 – Radiated emissions report

MIL-STD-704F.

- LDC101 - Load Measurement report
- LDC102 - Steady State Limits for Voltage report
- LDC103 - Voltage Distortion Spectrum report
- LDC105 - Normal Voltage Transients report
- LDC201 - Power Interrupt report
- LDC301 - Abnormal Steady State Limits for Voltage report
- LDC302 - Abnormal Voltage Transients (Over/Under voltage) report
- LDC401 - Emergency Limits for Voltage report
- LDC501 - Starting Voltage Transients report
- LDC601 - Power Failure report

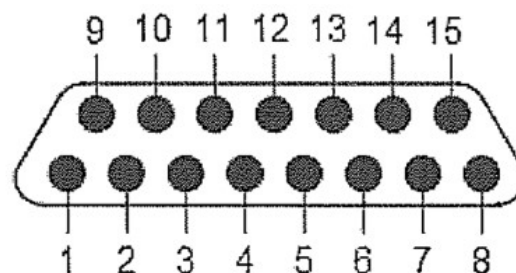
* Module has tested compliant to each test identified. Certified test results can be acquired per request based on unique implementation requirements.

Accessory Part Numbers - Sold Separately

Part Number	Description
CYB-CBL-02-F	EMI-Hardened Flight-Qualified Cable Vegas External Interface Cable (not included with unit)
CYB-CBL-09-F	Flying Lead Cable
CYB-CBL-09-B	Banana Plug Cable

Connector Table and Diagram

Pin Number	Pin Name	Description	I/O
1, 3, 6, 8	GND	DC Ground.	I
2	CH 3 Low	MIL-STD-1553 Low Channel 3	O
4	CH 3 High	MIL-STD-1553 High Channel 3	O
5	CH 2 Low	MIL-STD-1553 Low Channel 2	I
7	CH 2 High	MIL-STD-1553 High Channel 2	I
9	CH 4 Low	MIL-STD-1553 Low Channel 4	I
10	CH 4 High	MIL-STD-1553 High Channel 4	I
11, 12	28 VDC Return	DC Supply Voltage, Return	O
13	+28 VDC	DC Supply Voltage, +28 Volts.	I
14	CH 1 Low	MIL-STD-1553 Low Channel 1	O
15	CH 1 High	MIL-STD-1553 High Channel 1	O



For information on product disposal (end-of-life), please refer to this document: <https://nuwaves.com/wp-content/uploads/Product-Disposal-End-of-Life.pdf>

Contact NuWaves



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