Data Sheet

# VIAVI

## mA-6806

AXIe Vector Signal Transceiver

VIAVI Solutions

## Product Overview

The mA-6806 is the latest in a series of AXIe modular instrumentation from VIAVI Solutions. The mA-6806 is the industry's first modular AXIe solution that joins the measurement capabilities of a vector signal analyzer with the arbitrary waveform playback functions of a vector signal generator. Combined with precision timing and triggering functionality, the mA-6806 can simultaneously capture and playback over 160 MHz of bandwidth.

Whether you're trying to prototype your latest software defined radio waveform, validate your transceiver front-end, linearize a power amplifier, or execute production test on your wireless device, the mA-6806 has the performance and speed to tackle your RF test and measurement problems. The fully self-contained mA-6806 converts RF signals in the frequency range of 1 MHz to 6 GHz with storage for 500 MSa of I/Q baseband data. Or for real-time applications, the mA-6806 can stream the full I/Q bandwidth over its backplane PCI Express interface. Control over Ethernet


## Capabilities

- Frequency range 1 MHz – 6 GHz
- Maximum bandwidth 160 MHz (200 MHz usable)
- High spurious free dynamic range
- Selectable low noise amplifier
- Harmonic and pre-select filtering
- Onboard 500 MSa ARB and acquisition memory
- Hardware digital downconverter
- Hardware resampling engine
- High power full- or half-duplex operation
- Agile list mode operation
- I/Q streaming via PCI Express
- Control over PCI Express or Gigabit Ethernet

## Applications

- PA and FEU semiconductor test
- Radio component test
- Waveform prototyping
- IoT device development
- SIGINT / ELINT signal generation, recording and surveillance
- Wireless communications
- Aerospace and defense
- Radar

is also provided for ease of connectivity or to enable remote applications.

### VSA Description

The mA-6806 vector signal analyzer capabilities enable a wide range of applications. An onboard FPGA with powerful real-time DSP algorithms for flatness correction and image rejection provide a wide analysis bandwidth of 160 MHz. Down conversion is enabled over the LO frequency range of 70 MHz to 6 GHz, with direct access to the high-performance digitizer for signals below 70 MHz using the mixer-bypass capability. An exceptional spurious free dyanmic range (>120 dB at 1 GHz center frequency) at an impressive mixer level of -28 dBm allows for fast ACLR testing. Selectable bandpass pre-selection filters are included for harmonic test. Combined with the included pre-amplifier, a displayed average noise level of -165 dBm / Hz (at 1 GHz center frequency) provides outstanding sensitivity necessary for over-the-air small signal reception and recording. List mode operation allows independent sequencing of receiver hardware settings (such as LO frequency, reference level, and port) and buffer acquisition selections. The onboard FPGA also provides a configurable digital down converter that allows near instantaneous tuning and channelization within the analysis bandwidth. Flexible triggering capabilities are provided from the front panel trigger connections or through the AXIe backplane trigger bus, allowing tightly synchronized operation of data acquisition or hardware list sequencing. Sample contiguous buffer acquisitions along with streaming transfers over PCI Express enable the creation of pipelined test sequences to maximize test execution efficiency. The mA-6806 in conjunction with a properly configured mA-3A01 AXIe solid-state storage module allows uninterrupted recording of over 2.5 hours of the full analysis bandwidth.

### VSG Description

The mA-6806 pairs an on-board 500 MSa ARB capable of sequencing up to 65536 waveforms with a vector signal generator operating over a frequency range of 6 GHz. A wide dynamic range from +10 dBm to -120 dBm is available for full-scale ARB signals. Power levels below -140 dBm for sensitivity tests can be achieved using the duplex port. A harmonic filter bank provides suppression of undesired harmonic signal components across the entire operating power range. Exceptional level accuracy and repeatability provides the performance needed for demanding ATE tests. List mode functionality is available to sequence the ARB and hardware settings independently. Triggering is provided from the front panel trigger connections, the AXIe backplane trigger bus, or from ARB embedded marker signals, ensuring tight synchronization of production test events. Sample contiguous ARB sequencing allows drop-out free testing. Automatic real-time compensation for I/Q imbalance and amplitude flatness equalization is applied by the FPGA. Additionally, a programmable digital upconverter is provided for flexible ARB sample rate interpolation. Real-time generated waveforms are enabled via I/Q baseband streaming over PCI Express.

# VSA Performance Specifications

| **Frequency Specifications** | |
|---|---|
| Conversion architecture | DC quadrature (zero-IF) |
| Tuning Range | 70 MHz to 6 GHz, usable to 100 kHz with mixer bypass |
| Tuning Resolution | 0.1 Hz (with digital frequency error correction)<br>6 Hz (without digital frequency error correction) |
| Accuracy, Stability, Aging | Per chassis CLK100 |
| Settling Time (within 0.1 ppm of final frequency) | 300 µs |

***Single Sideband Phase Noise***

| Center Frequency | 1 kHz Offset | 10 kHz Offset | 1 MHz Offset |
|---|---|---|---|
| 900 MHz | <-107 dBc / Hz<br><-110 dBc / Hz typical | <115 dBc / Hz<br><-120 dBc / Hz typical | <-130 dBc / Hz<br><-133 dBc / Hz typical |
| 1900 MHz | <-101 dBc / Hz<br><-104 dBc / Hz typical | <-107 dBc / Hz<br><-112 dBc / Hz typical | <-128 dBc / Hz<br><131 dBc / Hz typical |
| 2900 MHz | <-99 dBc / Hz<br><-102 dBc / Hz typical | <-105 dBc / Hz<br><-108 dBc / Hz typical | <-127 dBc / Hz<br><-131 dBc / Hz typical |
| 5900 MHz | <-90 dBc / Hz<br><-94 dBc / Hz typical | <-99 dBc / Hz<br><-101 dBc / Hz typical | <-124 dBc / Hz<br><-128 dBc / Hz typical |

**Amplitude Specifications**

***Maximum Continuous Input Power***

| | |
|---|---|
| RF Input Port | +10 dBm, ±16 VDC |
| RF Duplex Port | +40 dBm, 0 VDC |

***Range, Settling Time, and Repeatability***

| | |
|---|---|
| Reference level range and resolution | Port max power to average noise level,<br>30 dB attenuation in 2 dB nominal steps,<br>selectable preamp |
| Settling Time, no change in LO, preselector, or preamp setting | <50 µs within 0.1 dB |
| Settling Time, LO Returned | <300 µs within 0.1 dB<br><2 ms if crossing Mixer Bypass or 550 MHz |
| Level Repeatability | 0.01 dB typical |

***Analysis Bandwidth Flatness***

RF Input port, preselector disabled, reference level >-50 dBm, exclusive of LO center frequency

| Center Frequency | ±0.10 dB typical | ±0.20 dB typical | ±0.30 dB typical | -1 dB |
|---|---|---|---|---|
| Mixer Bypass (<70 MHz) | - | - | - | - |
| 70 MHz to 130 MHz | ±10 MHz | ±20 MHz | - | - |
| 130 MHz to 6 GHz | ±10 MHz | ±40 MHz | ±80 MHz | - |

***CW Amplitude Accuracy***

RF input port, preselector disabled, measured –1 MHz from LO Center Frequency

| Center Frequency | Input Level ≤10 dBm to -50 dBm | Input Level ≤-50 dBm to -80 dBm |
|---|---|---|
| Mixer Bypass (<70 MHz) | ±0.70 dB typical | ±1.2 dB typical |
| 70 MHz to 550 MHz | <±0.40 dB, ±0.2 dB typical | <±0.70 dB, ±0.2 dB typical |
| 550 MHz to 1 GHz | <±0.50 dB, ±0.2 dB typical | <±0.80 dB, ±0.2 dB typical |
| 1 GHz to 3 GHz | <±0.60 dB, ±0.2 dB typical | <±0.90 dB, ±0.2 dB typical |
| 3 GHz to 6 GHz | <±0.70 dB, ±0.2 dB typical | <±1.00 dB, ±0.2 dB typical |

RF Duplex Port, preselector disabled, measured –1 MHz from LO Center Frequency

| Center Frequency | Input Level ≤40 dBm to -20 dBm | Input Level ≤-20 dBm to -50 dBm |
|---|---|---|
| Mixer Bypass (<70 MHz) | <±0.7 dB typical | ±1.2 dB typical |
| 70 MHz to 550 MHz | <±0.40 dB, ±0.2 dB typical | <±0.70 dB, ±0.2 dB typical |
| 550 MHz to 1 GHz | <±0.50 dB, ±0.2 dB typical | <±0.80 dB, ±0.2 dB typical |
| 1 GHz to 3 GHz | <±0.60 dB, ±0.2 dB typical | <±0.90 dB, ±0.2 dB typical |
| 3 GHz to 6 GHz | <±0.70 dB, ±0.2 dB typical | <±1.00 dB, ±0.2 dB typical |

RF Input Port, preselector enabled, measured –1 MHz from LO Center Frequency

| Center Frequency | Input Level ≤10 dBm to -50 dBm | Input Level ≤-50 dBm to -80 dBm |
|---|---|---|
| Mixer Bypass (<70 MHz) | ±0.70 dB typical | ±1.2 dB typical |
| 70 MHz to 550 MHz | <±0.50 dB, ±0.2 dB typical | <±0.80 dB, ±0.2 dB typical |
| 550 MHz to 1 GHz | <±0.60 dB, ±0.2 dB typical | <±0.90 dB, ±0.2 dB typical |
| 1 GHz to 3 GHz | <±0.70 dB, ±0.2 dB typical | <±1.00 dB, ±0.2 dB typical |
| 3 GHz to 6 GHz | <0.80 dB, ±0.2 dB typical | <±1.10 dB, ±0.2 dB typical |

| RF Duplex Port, preselector enabled, measured –1 MHz from LO Center Frequency | | |
|---|---|---|
| Center Frequency | Input Level ≤40 dBm to -20 dBm | Input Level ≤-20 dBm to -50 dBm |
| Mixer Bypass (<70 MHz) | ±0.70 dB typical | ±1.2 dB typical |
| 70 MHz to 550 MHz | <±0.50 dB, ±0.2 dB typical | <±0.80 dB, ±0.2 dB typical |
| 550 MHz to 1 GHz | <±0.60 dB, ±0.2 dB typical | <±0.90 dB, ±0.2 dB typical |
| 1 GHz to 3 GHz | <±0.70 dB, ±0.2 dB typical | <±1.00 dB, ±0.2 dB typical |
| 3 GHz to 6 GHz | <0.80 dB, ±0.2 dB typical | <±1.10 dB, ±0.2 dB typical |

| ***Input Voltage Standing Wave Ratio***<br>RF Input Port, preselector disabled, +10 dBm reference level | |
|---|---|
| Center Frequency | VSWR |
| 1 MHz to 400 MHz | <1.15:1 |
| 400 MHz to 3 GHz | <1.25:1 |
| 3 GHz to 5.4 GHz | <1.20:1 |
| 5.4 GHz to 6 GHz | <1.25:1 |
| RF Duplex Port | |
| Center Frequency | VSWR |
| 1 MHz to 550 MHz | <1.05:1 |
| 550 MHz to 3 GHz | <1.20:1 |
| 3 GHz to 6 GHz | <1.29:1 |

| ***Spurious Responses*** | |
|---|---|
| Residual DC response | -70 dBfs |
| Residual sideband image | <-55 dBc typical |
| Input related responses | <-85 dBc typical |
| Non-input related residuals | <-95 dBm typical |
| LO leakage at RF Input Port | <-100 dBm, preselector enabled, 0 dB attenuation<br><-110 dBm, preselector enabled, preamp enabled<br><-50 dBm, preselector disabled, 0 dB attenuation<br><-100 dBm, preselector disabled, preamp enabled |

**Dynamic Range**

| ***Displayed Average Noise Level***<br>Terminated RF Input Port, preselector disabled, 1 Hz RBW, RMS average | | |
|---|---|---|
| Center Frequency | 0 dB attenuation | Preamp enabled |
| Mixer Bypass (<70 MHz) | -150 dBm typical | -168 dBm typical |
| 70 MHz to 550 MHz | -148 dBm, -152 dBm typical | -167 dBm typical |
| 550 MHz to 1 GHz | -147 dBm, -153 dBm typical | -167 dBm typical |
| 1 GHz to 3 GHz | -145 dBm, -149 dBm typical | -166 dBm typical |
| 3 GHz to 6 GHz | -135 dBm, -141 dBm typical | -158 dBm typical |
| Terminated RF Input Port, preselector enabled, 1 Hz RBW, RMS average | | |
| Center Frequency | 0 dB attenuation | Preamp enabled |
| Mixer Bypass (<70 MHz) | -153 dBm typical | -168 dBm typical |
| 70 MHz to 550 MHz | -148 dBm, -154 dBm typical | -167 dBm typical |
| 550 MHz to 1 GHz | -147 dBm, -152 dBm typical | -167 dBm typical |
| 1 GHz to 3 GHz | -146 dBm, -151 dBm typical | -167 dBm typical |
| 3 GHz to 6 GHz | -142 dBm, -148 dBm typical | -165 dBm typical |

| ***Third-Order Intermodulation Intercept***<br>RF Input Port, preselector disabled, two-tones, –3 MHz and –5 MHz from center frequency | | |
|---|---|---|
| Center Frequency | 0 dB attenuation | Preamp enabled |
| Mixer Bypass (<70 MHz) | +38 dBm typical | +12 dBm typical |
| 70 MHz to 550 MHz | +32 dBm, +35 dBm typical | +12 dBm typical |
| 550 MHz to 1 GHz | +30 dBm, +33 dBm typical | +12 dBm typical |
| 1 GHz to 3 GHz | +26 dBm, +29 dBm typical | +11 dBm typical |
| 3 GHz to 6 GHz | +22 dBm, +25 dBm typical | +9 dBm typical |
| RF Input Port, preselector enabled, two-tones, –3 MHz and –5 MHz from center frequency | | |
| Center Frequency | 0 dB attenuation | Preamp enabled |
| Mixer Bypass (<70 MHz) | +30 dBm typical | +12 dBm typical |
| 70 MHz to 550 MHz | +26 dBm, +29 dBm typical | +10 dBm typical |
| 550 MHz to 1 GHz | +26 dBm, +29 dBm typical | +9 dBm typical |
| 1 GHz to 3 GHz | +24 dBm, +27 dBm typical | +7 dBm typical |
| 3 GHz to 6 GHz | +17 dBm, +20 dBm typical | +0 dBm typical |

| **Acquisition and Channel List Mode Specifications**<br>***Data Acquisition*** | |
|---|---|
| Sampling Rate | 250 MSPS (I / Q Data) |
| Resolution | 16-bit I, 16-bit Q |
| Acquisition Depth | 500 MSa (I / Q samples) |
| Selectable Sample Rate Decimation | 1 to 524288 |
| ACQ List Addresses | 65536 |
| ACQ List Parameters | Number of samples, sample rate, pre / post trigger selection, trigger holdoff, markers enabled, sample contiguous (requires common sample rate) |

| ***Acquisition Triggering*** | |
|---|---|
| Mode | Single, continuous |
| Sources | Envelope power, periodic (timers), free-run, marker signals, front-panel triggers, backplane trigger bus |
| Pre / Post Trigger Range | -(buffer length) to $2^{31}$ -1 samples |
| Trigger Resolution | 1 sample period (4 ns) |
| Trigger Accuracy | ±8 samples |
| Trigger Holdoff | 0 to 8.59 seconds, 4 ns resolution |
| ***VSA RF Channel List*** | |
| Channel List Addresses | 4096 |
| Channel List Parameters | LO frequency / mixer bypass, center frequency offset, phase offset, reference level, RF attenuator, RF preamp, preselector, port |
| Mode | Manual (software), internal (sequential counter), external (arbitrary trigger encoding) |
| Sources | Periodic (timers), marker signals, ARB / ACQ completion, front-panel triggers, backplane trigger bus |

## VSG Performance Specifications

| **Frequency Specifications** | |
|---|---|
| Conversion architecture | DC quadrature (zero-IF) |
| Tuning Range | 1 MHz to 6 GHz, usable to 100 kHz |
| Tuning resolution | 0.1 Hz (with digital frequency error correction)<br>6 Hz (without digital frequency error correction) |
| Accuracy, stability, aging | Per chassis CLK100 |
| Settling Time (within 0.1 ppm of final frequency) | 300 µs |

| ***Single Sideband Phase Noise*** | | | |
|---|---|---|---|
| Center Frequency | 1 kHz offset | 10 kHz offset | 1 MHz offset |
| 900 MHz | <-107 dBc / Hz, <-110 dBc / Hz typical | <-114 dBc / Hz, <-119 dBc / Hz typical | <-129 dBc / Hz, <-133 dBc / Hz typical |
| 1900 MHz | <-101 dBc / Hz, <-104 dBc / Hz typical | <-108 dBc / Hz, <-111 dBc / Hz typical | <-128 dBc / Hz, <-130 dBc / Hz typical |
| 2900 MHz | <-98 dBc / Hz, <-102 dBc / Hz typical | <-104 dBc / Hz, <-108 dBc / Hz typical | <-126 dBc / Hz, <-130 dBc / Hz typical |
| 5900 MHz | <-90 dBc / Hz, <-94 dBc / Hz typical | <-98 dBc / Hz, <-102 dBc / Hz typical | <-123 dBc / Hz, <-127 dBc / Hz typical |

| **Amplitude Specifications** | |
|---|---|
| ***Output Power Range*** | |
| RF output port | +13 dBm to -150 dBm |
| RF duplex port | -17 dBm to -150 dBm |
| ***Settable Power Range*** | |
| RF output port | +10 dBm to -125 dBm |
| RF duplex port | -20 dBm to -150 dBm |
| ***Resolution, Settling Time, and Repeatability*** | |
| Settling resolution | 0.01 dB |
| Settling time | <50 µs within 0.1 dB |
| Settling time, LO returned | <300 µs within 0.1 dB |
| Level repeatability | 0.01 dB typical |

| ***Modulation Bandwith Flatness***<br>RF output port, output level >-50 dBm | | | | |
|---|---|---|---|---|
| Center Frequency | ±0.10 dB typical | ±0.20 dB typical | ±0.30 dB typical | -1 dB typical |
| 1 MHz to 6 GHz | ±10 MHz | ±40 MHz | ±80 MHz | ±100 MHz |

| ***CW Amplitude Accuracy***<br>RF output port | | | |
|---|---|---|---|
| Center frequency | Output Level ≤-10 dBm to -20 dBm | Output Level ≤-20 dBm to -80 dBm | Output Level ≤-80 dBm to -120 dBm |
| 1 MHz to 400 MHz | <±0.40 dB, ±0.25 dB typical | <±0.60 dB, ±0.25 dB typical | <±0.70 dB, ±0.35 dB typical |
| 400 MHz to 1 GHz | <±0.50 dB, ±0.25 dB typical | <±0.70 dB, ±0.25 dB typical | <±0.90 dB, ±0.35 dB typical |
| 1 GHz to 3 GHz | <±0.50 dB, ±0.25 dB typical | <±0.70 dB, ±0.25 dB typical | <±0.90 dB, ±0.35 dB typical |
| 3 GHz to 6 GHz | <±0.70 dB, ±0.25 dB typical | <±0.70 dB, ±0.35 dB typical | <±1.60 dB, ±0.50 dB typical |
| RF duplex port | | | |
| Center frequency | | Output Level ≤-30 dBm to -50 dBm | Output Level ≤-50 dBm to -120 dBm |
| 1 MHz to 400 MHz | | <±0.40 dB, ±0.25 dB typical | <±0.60 dB, ±0.3 dB typical |
| 400 MHz to 1 GHz | | <±0.50 dB, ±0.25 dB typical | <±0.70 dB, ±0.35 dB typical |
| 1 GHz to 3 GHz | | <±0.50 dB, ±0.25 dB typical | <±0.80 dB, ±0.4 dB typical |
| 3 GHz to 6 GHz | | <±0.70 dB, ±0.25 dB typical | <±1.00 dB, ±0.5 dB typical |

| ***Output Voltage Standing Wave Ratio***<br>RF output port, output level ≤-20 dBm | |
|---|---|
| Center frequency | VSWR |
| 1 MHz to 400 MHz | <1.55:1 |

| ***Output Voltage Standing Wave Ratio - Continued*** RF output port, output level ≤-20 dBm | |
|---|---|
| 400 MHz to 1 GHz | <1.40:1 |
| 1 GHz to 2.7 GHz | <1.50:1 |
| 2.7 GHz to 6 GHz | <1.90:1 |
| RF duplex port | |
| Center frequency | VSWR |
| 1 MHz to 400 MHz | <1.05:1 |
| 400 MHz to 3 GHz | <1.20:1 |
| 3 GHz to 6 GHz | <1.29:1 |
| ***Spurious Responses*** | |
| Residual LO Response | <-65 dBm <3 GHz, <-40 dBm >3 GHz typical |
| Residual Sideband Image | <-65 dBc typical |
| Harmonic spurious | <-33 dBc typical |
| Subharmonic spurious | <-45 dBc typical |
| Nonharmonic spurious | <-65 dBc typical, output level >-10 dBm |

**Dynamic Range**

***Broadband Noise Floor***

RF output port, CW, measured –10 MHz from LO center frequency

| Center frequency | Output Level >-20 dBm | Output Level ≤-20 dBm |
|---|---|---|
| 1 MHz to 400 MHz | <-130 dBm typical | <-150 dBm typical |
| 400 MHz to 1 GHz | <-130 dBm typical | <-150 dBm typical |
| 1 GHz to 3 GHz | <-130 dBm typical | <-150 dBm typical |
| 3 GHz to 6 GHz | <-135 dBm typical | <-155 dBm typical |
| RF duplex port, CW, measured –10 MHz from LO center frequency | | |
| Center frequency | Output Level >-50 dBm | Output Level ≤-50 dBm |
| 1 MHz to 400 MHz | <-150 dBm typical | <-160 dBm typical |
| 400 MHz to 1 GHz | <-150 dBm typical | <-160 dBm typical |
| 1 GHz to 3 GHz | <-150 dBm typical | <-160 dBm typical |
| 3 GHz to 6 GHz | <-155 dBm typical | <-160 dBm typical |

***Third-order intermodulation distortion***

RF output port, two-tones –10 dBfs, –3 MHz and –5 MHz from center frequency

| Center frequency | Output level >-20 dBm | Output level ≤-20 dBm |
|---|---|---|
| 1 MHz to 400 MHz | <-70 dBc typical | <-75 dBc typical |
| 400 MHz to 1 GHz | <-60 dBc typical | <-65 dBc typical |
| 1 GHz to 3 GHz | <-60 dBc typical | <-65 dBc typical |
| 3 GHz to 6 GHz | <-60 dBc typical | <-60 dBc typical |

**ARB and Channel List Mode Specifications**

***ARB Data***

| | |
|---|---|
| Sampling rate | 250 MSPS (I / Q data) |
| Resolution | 16-bit I, 16-bit Q |
| ARB depth | 500 MSa (I / Q samples) |
| Selectable sample rate interpolation | 1 to 524288 |
| ARB list addresses | 65536 |
| ARB list parameters | Number of samples, sample rate, trigger selection, trigger holdoff, markers enabled, repeat count, sample contiguous (requires common sample rate) |
| ***ARB Triggering*** | |
| Mode | Single, continuous |
| Sources | Periodic (timers), free-run, marker signals, front-panel triggers, backplane trigger bus |
| Trigger offset range | 0 to $2^{31}$-1 samples |
| Trigger resolution | 1 sample period (4 ns) |
| Trigger accuracy | ±8 samples |
| Trigger holdoff | 0 to 8.59 seconds, 4 ns resolution |
| ***VSG RF Channel List*** | |
| Channel list addresses | 4096 |
| Channel list parameters | LO frequency, center frequency offset, phase offset, output level, port |
| Mode | Manual (software), internal (sequential counter), external (arbitrary trigger encoding) |
| Sources | Periodic (timers), marker signals, ARB / ACQ completion, front-panel triggers, backplane trigger bus |

## Additional Module Interfaces

| ***Standard Compliance*** | |
|---|---|
| AXIe-1 Base Architecture Specification, Revision 3 | |
| ***Timing and Trigger*** | |
| CLK100 | as per AXIe Standard |
| Trigger Bus | as per AXIe Standard |
| SYNC | as per AXIe Standard |
| STRIG | as per AXIe Standard |
| Front Panel SMB Triggers A,B,C,D | Bi-directional triggers, +3.3 V output, -0.2 to +5 B input |
| **Ethernet Base Fabric** | |
| Link Speed | 10 / 100 / 1000 Mbps |
| VLAN Support | Yes |
| **PCI Express Fabric** | |
| Fabric Channels | 1 |
| Link Width | x4 |
| Link Speed | 5 Gbps |
| Configuration | Endpoint |
| **Environmental and Physical Specifications** | |
| Module Operating | 15° to 75° C |
| Environmental Operating | 0° to 50° C |
| Environmental Storage | -40° to 71° C |
| Humidity | 95% to 40° C (in accordance with MIL-PRF-28800F) |
| Altitude | 4600 m |
| Functional Shock | 30 G (in accordance with MIL-PRF-28800F) |
| Random Vibration | 5 Hz - 500 Hz (in accordance with MIL-PRF-28800F) |

| | |
|---|---|
| ***Regulatory*** | |
| Safety compliance | IEC / EN61010-1 |
| EMC compliance | IEC / EN 61326-1<br>IEC / EN 61000-3-2<br>IEC / EN 61000-3-3<br>MIL-PRF-28800F Class 3 |
| ***Electrical*** | |
| Operating voltage range | 48 VDC |
| Power dissipation | <100 W |
| ***Mechanical*** | |
| Form Factor | 1 Slot AXIe |
| Dimensions | 30 mm (W) x 322.5 mm (H) x 280 mm (D) |
| Weight | 2.7 kg |

1. Technical Specifications

The technical warranted specifications listed are subject to the following conditions:

- Within 20° to 35° C environmental temperature
- After 60 minute instrument warmup period
- Within vaid calibration period (1 year)
- After a full normalization
- Instrumental temperature has not deviated more than 5° C as reported from internal module temperature since last Full Normalization

Typical specifications describe additional performance information exhibited by 95% of units with 95% confidence interval, subject to the conditions above and are not guaranteed.

Nominal specifications describe supplemental information concerning useful or expected performance not covered by warranted or typical specifications.

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