

# Intelligent VPX Test Module, Monitor and Load Board

## Designed specifically for Open VPX and VPX-REDI Systems

### Features

- ◆ Pic Microprocessor for testing, data logging, and control
- ◆ 6-Microprocessor controlled high current active loads
- ◆ 6-Channel voltmeter measures to +/-10mV accuracy
- ◆ 6-Channel current meter with 200mA resolution
- ◆ 4-Precision Temperature Sensors measure +/- 10C
- ◆ 2 each 3-axis accelerometers measure shock/vibration (Available as level 2 option)
- ◆ Modules automatically communicate over the backplane, via the I2C bus, to work in concert with each other sharing the load.
- ◆ Real Time Clock provides absolute time stamp of events
- ◆ Front panel control switch, tri-color status LED's, Micro-USB connection to PC, and external I2C bus connector parameters and logging data
- ◆ Comprehensive User Manual details use and application

### Applications

- ◆ Compliance Testing of OpenVPX Conduction Cooled Systems.
- ◆ Design validation of systems based on Power and Thermal simulation of deployed board set.
- ◆ Emulate board operating current profiles based on current image mapping of actual running models.
- ◆ Emulate system operating current profile based on multiple current image mapping of actual modules.
- ◆ Measure power supply hold up time of voltage rails under various Loads.
- ◆ Measure peak to peak noise on voltage rails.
- ◆ "On-Board" RuSH Technology enables wide range of Monitoring and Control.
- ◆ System characterization of new products.
- ◆ Generate user specified or default power loads in watts on each voltage rail.
- ◆ Determine maximum operating parameters of systems.
- ◆ Automatic system power and thermal characterization with graphical file output.
- ◆ Empirically test, measure and record thermal characteristics of a conduction cooled enclosure.
- ◆ Time heat conduction and temperature rise through a conduction cooled enclosure.
- ◆ Measure power supply set points for over-current and over-temperature.
- ◆ System monitor and control over I2C bus
- ◆ Thermostatically controlled heater keeps equipment operational in cold environments
- ◆ Monitor and report Voltage, Current, and Temperature
- ◆ Measure shock and vibration of system on 3-axis (Available as level 2 option.)
- ◆ Provide I2C alerts or alarms when monitored values pass through user set thresholds.
- ◆ Final test, temperature cycling and burn-in



### Technical Specifications

#### Mechanical

**Compatibility:** VITA 46, VITA 48.2, VITA 65(OpenVPX)

**Size:** 3U x 160mm

**Dimensions:** 3.937"H x 6.299"D x .770"W

**Board Pitch:** .8 Inch

**Board Type:** Conduction Cooled with Wedge Locks

**Material:** Covers-Aluminum 6061-T6

**Exterior Finish:** Anodized per MIL-A-8625

**Weight:** 1.5 Lbs

#### Electrical

**Accelerometer Range:** 2G to 24G (Available on level 2 version)

#### **Variable Current Loads:**

12V(VS1), 3.3V(VS2), 5V(VS3), 0.5A-15A,  
+3.3V\_AUX, +12V\_AUX, -12V\_AUX, 0.2A-2A

#### **Current Accuracy:**

12V(VS1), 3.3V(VS2), 5V(VS3), +/-4% from 0.5A-15A  
+3.3VAUX, +12VAUX, -12VAUX, +/-4% from 0.2A-2A

**Current Resolution:** 200mA at 15A Max. on VS Channels

100mA at 2A Max. on AUX Channels

**Temperature Measurement:** 4 sensors @ board edges.

**Temperature Accuracy:** +/- 1oC

**Voltage Monitoring:** All 6 Voltages continuously

**Voltage Accuracy:** +/-10mV

**Input Voltage:** Any positive VPX voltage.

**Power Consumption:** < /= 200mA with current sinks off

**Max Heat Load Per Module:** 168W (Automatic load shut down at 95C)

#### Environmental

**Storage Temperature:** -55oC to +125oC

**Operating Temperature:** -40oC to +85oC

### Ordering Information

**P/N 06-1016973 – LVL1 = Basic Feature Set and Manual Capability**  
**2 = Addition of accelerometer functionality**

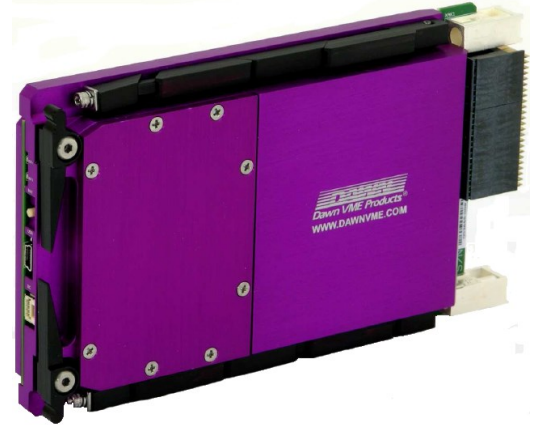
### Product Overview

Dawn's new Model ITM-6973 Intelligent Test Module represents a significant technological break-through in features and capability, in comparison to other products available to the market, effectively rendering them obsolete.

Dawn was founded some 25 years ago by engineers who wanted to bring the best performance, innovation and quality in test products to the market-place. Dawn invented and patented the "Board Assembly for Validation and Characterization of a Bus System" AKA Slot Load Board in the late 80's. It soon became the standard for system design validation and characterization.

Dawn's ITM-6973 represents a quantum leap ahead in features and capability. It makes possible complex tests, measurements and reporting all in a 3U size module. The full featured version of the DITM contains a powerful PIC Microprocessor, 6 separate voltage independent micro-processor controlled active loads (one for each voltage rail), 6 separate current sensors (one for each voltage rail), 6 separate precision voltage sensors (one for each voltage rail) 7 Ohm meters, 4 temperature sensors (located at 4 corners of module), 6 separate power supply noise detectors (one for each voltage rail), 2 accelerometers for measuring low and hi-level of 3-axis shock and vibration all coupled to a simple, easy to use.

The DITM may be used to test power supplies, power systems and chassis by providing an accurate, self-controlling and self-logging dynamic current load, voltage monitor and heat source to the system under test. Additionally, the DITM can be used to design validate or characterize a systems power or thermal properties, and finally, the DITM can be deployed in the system to provide a variety of functions such as: serve as a space heater ensuring operation at even the coldest temperatures, monitor and report system operational parameters such as voltage, temperature, shock and vibration values, and generate warnings, alerts, alarms, control signals or messages when operational thresholds are exceeded.



### Other Products and Services Available from Dawn:

- ◆ Conceptualization, design and production of custom enclosures and backplanes.
- ◆ Conduction or Convection Cooled ATR Chassis Design and production
- ◆ Thermal Design and Analysis
- ◆ Microprocessor based sensor monitoring and control.
- ◆ Technologies Supported: cPCI 2.1, cPCI 2.16, PXI, VME, VME 64, VME 64X, VXI, VXS, VITA41, VPX(VITA46), VPX-REDI (VITA48), OpenVPX (VITA65)

### About Dawn:

Dawn is a certified veteran owned small business based in Fremont, CA. serving the real time computer and embedded systems market.

Dawn specializes in conceptualization, design, and production of high technology enclosures and backplanes for thousands of companies within the commercial, industrial, aerospace and defense markets.

Our customers include Major OEM's, National Labs, Universities, Aerospace and Defense Contractors, and the U.S. Government.

Quality: Dawn VME is ISO 9001:2015 certified.

Dawn celebrated its 34th anniversary of business on February 19, 2019.