

DP-cPCI-5586

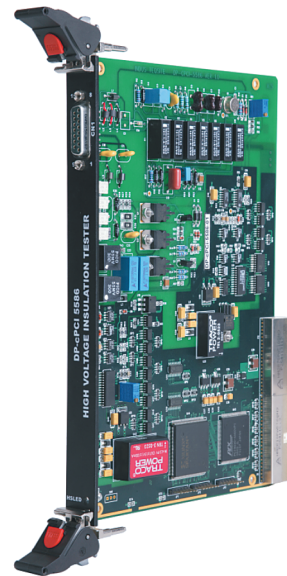
High Voltage Insulation Tester Module

KEY FEATURES AND BENEFITS

- 16 bit programmable output voltage.
 - 6U cPCI form factor
 - Dual range output voltage 50V and 500 V
 - Dual O/P current limit 20uA or 2.5 mA.
 - Configurable O/P voltage polarity between positive and negative
- High voltage output enable relay to ensure galvanic isolation when switched off.
- Better than 2% accurate current measurement.
 - Wide current measurement range 2nA to 2mA.
 - Voltage source and current measurement galvanic isolation upto 1000V between circuits
 - Windows 2000 driver provided
RT Linux driver

APPLICATIONS

- Automatic test equipment
- Checkout systems
- Force voltage measure current
- Insulation test



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OVERVIEW

DP-cPCI-5586 is a High Voltage Insulation Tester Module. This module facilitates single-board voltage source/measurement features with high voltage output and a nanometer. Occupying a single slot in standard cPCI rack, this module can be used for multiple point cable harness test systems with limited rack space. Applications of this board include automatic test equipment, checkout systems, force voltage measure current, and insulation test.

THE MODULE

DP-cPCI-5586 voltage source / measurement module provides for a high voltage output and a nano-ammeter on a single board. The high voltage is programmable upto 500V with a current limit protection of up to 20 micro A or 2.5mA. The nano-ammeter can measure down to 100pA. The board occupies a single slot in the standard cPCI rack. This module finds use in applications like multiple points cable harness test system with lesser rack space.

HIGH VOLTAGE SOURCE CIRCUIT

High voltage output can be programmed to a maximum voltage of 500V. Programming of output is done through 16 bit DAC. There are two ranges viz, 50V and 500V. Voltage output has a current limit of 20uA or 2.5mA. The 20uA option is safer and more accurate at the cost of settling time. Where accuracy is not a prime concern, 2.5mA option can be selected for a faster settling time. Also, voltage source has a 1mA constant current sinking capability to ensure discharge of current accumulated in the cable after removing the applied voltage. Output voltage can be configured for either positive or negative polarity. Output control relay ensures galvanic isolation between external field connections to internal circuitry. Whole circuitry including DAC is isolated from the system for more than 1000V to ensure trouble-free system operation irrespective of output conditions. The output has high frequency filtering to avoid momentary spikes that may arise due to improper contacts to ensure a trouble free operation of the system.

CURRENT MEASUREMENT CIRCUIT

This circuit converts input current to voltage and passes to 24 bit ADC through which the value is measured. The input current measurement circuitry has following ranges: 20nA, 200nA, 2uA, 20uA, 200uA and 2mA. The circuitry has frequency compensation to balance the effect of the cable capacitance when testing insulation of long harnesses.

DATA PATTERNS

DP-cPCI-5586

The input I-V converter has two options, i.e. with filtering and without filtering. Filter option ensures accuracy by damping the ringing online input. A relay selects the input to signal or ground. Switching input to ground will be used to check the functionality of I-V converter and for offset corrections. The input circuit is followed by the filter. The filter time constants are 300 μ S, 1ms and 3ms through which the delay for settling time can be selected. The output voltage of filter is converted and then fed to ADC.

The input circuitry is isolated from the system to ensure the floating ground input does not create hazards to the system.

SOFTWARE SUPPORT

Windows 2000 driver provided

RT Linux driver provided

SPECIFICATIONS

ANALOG VOLTAGE OUTPUTS

Range	50VDC or 500VDC, selectable
Resolution	16 bit
Accuracy	1% of FSR
Current	2.5mA/20 μ A
System isolation	500VDC (at high voltage output side)
Protection	Output short circuit (continuous to ground)
Output enable	Operate relay

CURRENT MEASUREMENT

Range	2nA to 2mA
Resolution	24 bit
Accuracy	<2%

CONNECTOR

Backplane interface	cPCI J1 connector, J2 connector
Field interface	15-pin D-type female connector Mating connector part No DAU15P (ITT Cannon D15 male crimp type).

DIMENSION

Board	233.35mm (L) x 160mm (B)
Module	6U
Slots	Single slot

ENVIRONMENT

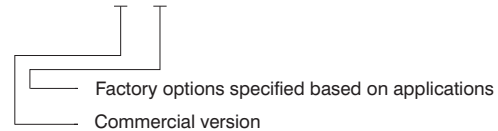
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POWER SUPPLY

2A @ 5V, 2A@3.3V

ORDERING INFORMATION

DP cPCI 5586 3 0 0



BLOCK DIAGRAM OF HIGH VOLTAGE INSULATION TESTER MODULE

