



# M76 Digital Multimeter M Module

The M76 is a full function DMM suitable for use on a variety of platforms with the family of C&H carriers. This DMM is based upon a 24 bit Sigma-Delta A/D converter with on-chip notch filter. This technology allows sampling frequencies (or filter frequencies) between 10 Hz and 1 KHz providing varying resolutions. The core measurement section is optically isolated and shielded.

## Specifications:

### General Characteristics:

- DC or AC voltage and current
- 2 or 4 wire resistance measurement
- Up to 22 bits accuracy (6.5 digits)
- Max. resolution of 50nV, 5nA, 50μΩ
- DC Voltage: ±125 mV to ±500V
- DC Current: ±12.5mA to ±2.5A
- AC  $V_{rms}$ : 250mV to 250V
- AC  $I_{rms}$ : 25mA to 2.5A
- Ohms: 0 to 250Ω to 2.5MΩ
- True RMS measurements
- Auto calibration

### Resolution:

10 Hz sampling:	22.5 bits
50/60 Hz sampling:	20 bits
1 KHz sampling:	11 bits

**Input Connector:** 5W5S DSUB

**Airflow (min):** 10m<sup>3</sup>/h

### Temperature:

Operating:	0°C to 60°C
Storage:	-20°C to 70°C

**Power:** +5V @ 0.7 A with DC/DC

## M Module Compliance

Complies with ANSI/VITA Std 12-1996 for single-wide M Modules.

Data Transfers 16 bit

Interrupts INTA

IDENT supported

Compatible with VXI, VME, PCI, PXI, CPCI & Ethernet Carriers

## Applications

- DMM Instrument Functions
- Factory Test

## Ordering Information

**Part Number** 11029620-0001

## Additional Information

User Manuals for C&H carriers and this module can be found on our website at [www.chtech.com](http://www.chtech.com).



## DC Voltage Measurement:

### Maximum Voltage Input:

- HV Input: 500VDC for 500V range
- Normal Input: 125VDC for other ranges

### Measuring Ranges:

- $\pm 125\text{mV}$ ,  $\pm 1.25\text{V}$ ,  $\pm 12.5\text{V}$ ,  $\pm 125\text{V}$ ,  $\pm 500\text{V}$

### Measuring Accuracy:

- 24 hours,  $23^\circ\text{C} \pm 1^\circ\text{C}$ : error < 0.025%
- 90 days,  $23^\circ\text{C} \pm 5^\circ\text{C}$ : error < 0.05%
- Temp Coefficient, 0 to  $+55^\circ\text{C}$ : error < 0.01%

### Input Impedance:

- 500V input (HV) 40 M $\Omega$
- 125V and 12.5V ranges 10 M $\Omega$
- 1.25V and 125 mV ranges >1 G $\Omega$

**Input Current:** 10 pA max @  $23^\circ\text{C}$

**CMRR:** 100dB @ 50/60 Hz

**NMRR:** 60 dB @ 50/60 Hz

## AC Voltage Measurement:

### Maximum Input Voltage:

- High Voltage Input: 250V AC
- Normal Input: 60V AC

### Measuring Ranges:

- 250mVrms, sine 40 Hz-100KHz: error < 5%
- 2.5Vrms, sine 40 Hz-100KHz: error < 1%
- 25Vrms, sine 40 Hz-100KHz: error < 1%
- 250Vrms (HV in) sine 40 Hz-100KHz: error < 1%

**Crest Factor:** 4 max

### Measuring Accuracy @ 50/60 Hz:

- 24 hours,  $23^\circ\text{C} \pm 1^\circ\text{C}$ : error < 0.5%
- 90 days,  $23^\circ\text{C} \pm 5^\circ\text{C}$ : error < 1.0%
- Range Error: < 1%

### Input Impedance:

- High-voltage input: 40 M $\Omega$
- Normal Input: 1 M $\Omega$

**Input Current:** 10 pA max @  $23^\circ\text{C}$

**CMRR:** 100dB @ 50/60 Hz

## DC Current Measurement:

**Maximum Voltage:** 60 V on all ranges

**Measuring Ranges:**  $\pm 12.5\text{mA}$ ,  $\pm 125\text{mA}$ ,  $\pm 1.25\text{A}$ ,  $\pm 2.5\text{A}$

### Measuring Accuracy:

- 24 hours,  $23^\circ\text{C} \pm 1^\circ\text{C}$ : error < 0.025%
- 90 days,  $23^\circ\text{C} \pm 5^\circ\text{C}$ : error < 0.05%
- Temperature Coefficient, 0 to  $+55^\circ\text{C}$ : error < 0.01%

### Shunt:

- 12.5mA and 125mA ranges: 1  $\Omega$
- 1.25A and 2.5A ranges: 0.1  $\Omega$

## AC Current Measurement:

**Maximum Voltage:** 42 V on all ranges

**Measuring Ranges:** 25mA, 250mA, 2.5A all RMS

**Crest Factor:** 4 max

### Measuring Accuracy:

- 24 hours,  $23^\circ\text{C} \pm 1^\circ\text{C}$ : error < 0.5%
- 90 days,  $23^\circ\text{C} \pm 5^\circ\text{C}$ : error < 1.0%

### Shunt:

- 25mA and 250mA ranges: 1  $\Omega$
- 2.5A ranges: 0.1  $\Omega$

## Resistance Measurement:

**Measuring Ranges:** 250 $\Omega$ , 2.5K $\Omega$ , 25K $\Omega$ , 250K $\Omega$ , 2.5M $\Omega$

### Measuring Accuracy (All but 2.5M $\Omega$ range):

- 24 hours,  $23^\circ\text{C} \pm 1^\circ\text{C}$ : error < 0.1%
- 90 days,  $23^\circ\text{C} \pm 5^\circ\text{C}$ : error < 0.2%
- Temperature Coefficient, 0 to  $55^\circ\text{C}$ : error < 1%

### Measuring Accuracy (For 2.5M $\Omega$ range):

- 24 hours,  $23^\circ\text{C} \pm 1^\circ\text{C}$ : error < 1.0%
- 90 days,  $23^\circ\text{C} \pm 5^\circ\text{C}$ : error < 2.0%
- Temperature Coefficient, 0 to  $55^\circ\text{C}$ : error < 0.1%

**Measuring Modes:** 2- or 4-wire

**Maximum Measuring Voltage:** 2.5V