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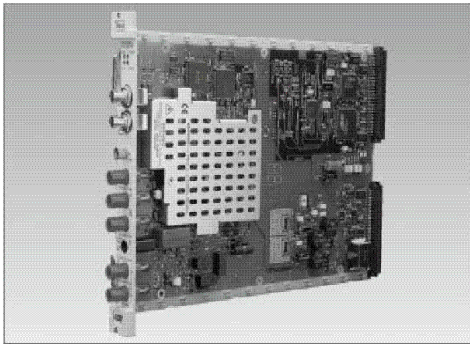
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## 6.5 Digit Multimeter

- ◆ **“Test System” Multimeter Supports Limit Testing, Averaging, Math and Vector Operations**
- ◆ **Measures AC and DC Voltages and Currents, 2/4 Wire Ohms, Frequency and DC/DC Ratios**
- ◆ **Supports Scanner via VXI Backplane**
- ◆ **Up to 65 Range Changes Per Second and 30 Function Changes Per Second**
- ◆ **Up to 6 Readings/s at 6.5 Digits, 1000 Readings/s at 4.5 Digits**
- ◆ **Driver Support Includes LabVIEW, LabWindows/CVI and VXIplug&play**

Racal Instruments™ 4152A, 6.5 digit Digital Multimeter (DMM), combines DC and AC current and voltage measurements as well as 2/4 wire Ohms, frequency and DC ratio measurements into a one slot, C-sized VXIbus-based instrument. The 4152A includes instrument driver support for standard environments like LabWindows/CVI and Lab-VIEW.

### Advanced Features for High “Test System” Throughput

The 4152A's advanced features like limit testing, averaging, speed/resolution trade-offs, and fast function changes provide the high “test system” throughput required in today's production test environments. The 4152A's limit testing feature supports high-speed go/no-go testing and increases throughput by reducing the need to store and retrieve data. Averaged and vector (multiple read) measurements can be made to reduce external processing and increase throughput.

By fine-tuning the measurement speed of the 4152A's continuously integrating, multi-slope A/D converter, a balance between the need for fast throughput and measurement accuracy can be reached. For example, at 6.5 digits, the 4152A can take up to 6 readings per second with up to 0.0019% accuracy, or, at 4.5 digits, the 4152A can take up to 1000 readings per second with up to 0.012% accuracy. Since real-world test systems sometimes require range and function changes within a test cycle, the 4152A can change ranges within a function at a rate of up to 65 per second and can change measurement functions at the rate of up to 30 per second.

### Software Driver Support

We provide LabWindows/CVI, and LabVIEW instrument drivers as well as a VXIplug&play Install Disk for the WIN and WIN32 Frame-works which adds support for Visual Basic, C and C++, to support quick integration into the most popular software platforms for VXIbus-based test systems. Because DMM's used in test systems often require scanned measurements, application examples are given interfacing the 4152A to Racal Instruments™ 1260 Series switching for automatic scanned measurements.

## DC VOLTAGE CHARACTERISTICS

### Summary

Voltage (max): 300 V  
Voltage Accuracy:  $\pm 0.0019\%$

### Measurement Method

Continuously integrating, multi-slope III A/D converter

### A/D Linearity

0.0002% of reading + 0.0001% of range

### Input Resistance

0.1 V, 1 V, 10 V Ranges: 10 M $\Omega$  or 10 G $\Omega$ , selectable  
100 V, 300 V Ranges: 10 M $\Omega$   $\pm$  1%

### Input Bias Current

<30 pA at 25°C

### Input Protection

300 VDC/300Vrms on all ranges

### VDC Accuracy $\pm$ (% of reading + % of range) (specifications are for 1 hour warm-up at 6.5 digits)

Range <sup>2</sup>	24 Hour <sup>1</sup>	90 Day	1 Year
	23°C $\pm$ 1°C	23°C $\pm$ 5°C	23°C $\pm$ 5°C
100.0000mV	0.0030+0.0030	0.0040+0.0035	0.0050+0.0035
1.000000V	0.0020+0.0006	0.0030+0.0007	0.0040+0.0007
10.00000V	0.0015+0.0004	0.0020+0.0005	0.0035+0.0005
100.0000V	0.0020+0.0006	0.0035+0.0006	0.0045+0.0006
300.0000V	0.0020+0.0018	0.0035+0.0030	0.0045+0.0030

<sup>1</sup>Relative to calibration standards

<sup>2</sup>20% overrange on all ranges, except 300VDC range.

### Additional Error With Autozero Off

100 mV-100 V Ranges: Add 0.002% of reading + 5 mV  
300 V Range: Add 0.0006% of reading

### Temperature Coefficient

$\pm$  (% of reading + % of range)  
(0°C-18°C, 28°C-55°C, after 1 hour warm-up at 6.5 digits)  
100 mV Range: 0.0005 + 0.0005  
1 V, 10 V, 100 V Ranges: 0.0005 + 0.0001  
300 V Range: 0.0005 + 0.0003

## AC VOLTAGE CHARACTERISTICS

### Summary

Voltage (max): 300V<sub>rms</sub>  
Voltage Accuracy:  $\pm 0.07\%$

### Measurement Method

AC-coupled True RMS – measures the AC component of the input with up to 300 VDC of bias on any range (Max AC+DC = 300 V<sub>rms</sub>).

### AC Filter Bandwidth

Slow: 3 Hz-300 kHz  
Medium: 20 Hz-300 kHz  
Fast: 200 Hz-300 kHz

### Noise Rejection (for 1k $\Omega$ imbalance in LO lead)

AC CMRR: 70 dB

### Input Impedance

1 M $\Omega$   $\pm$  2% || 100 pF

### Input Protection

300 VDC/300 V<sub>rms</sub> on all ranges

## True RMS VAC Accuracy<sup>2,4</sup>

$\pm$  (% of reading + % of range)  
(1 hour warm-up, 6.5 digits, slow AC filter, sine input)

Frequency	24 Hour <sup>1</sup>	90 Day	1 Year
	23°C $\pm$ 1°C	23°C $\pm$ 5°C	23°C $\pm$ 5°C
3-5Hz	1.00+0.02 <sup>5</sup>	1.00+0.03 <sup>5</sup>	1.00+0.03 <sup>5</sup>
5-10Hz	0.35+0.02 <sup>5</sup>	0.35+0.03 <sup>5</sup>	0.35+0.03 <sup>5</sup>
10Hz-20kHz	0.04+0.02 <sup>5</sup>	0.05+0.03 <sup>5</sup>	0.06+0.03 <sup>5</sup>
20-50kHz	0.10+0.04	0.11+0.05	0.12+0.05
50-100kHz	0.55+0.08	0.60+0.08	0.60+0.08
100-300kHz <sup>5</sup>	5.00+0.50	5.00+0.50	5.00+0.50

<sup>1</sup>Relative to calibration standards

<sup>2</sup>20% overrange on all ranges, except 300VAC range which has 1% overrange.

<sup>3</sup>100mV to 100V range specifications are for sine wave input >5% of range. For inputs from 1% to 5% of range and <50kHz, add 0.1% of range additional error.

<sup>4</sup>For 300V range, use (% reading) shown in table and multiply each (% range) x 3.

<sup>5</sup>300VAC range limited to 50kHz. For frequencies > 50kHz, signals must be  $\leq 1.5 \times 10^7$  VHz

<sup>6</sup>For 100mV range, add 0.01% of range additional error.

## Additional Low-Frequency Errors

(% reading)  
(frequencies < 100Hz, slow AC filter, sine input)

Frequency	AC Filter	
	Medium	Fast
10-20 Hz	0.74	—
20-40 Hz	0.22	—
40-100 Hz	0.06	0.73
100-200 Hz	0.01	0.22
200 Hz-1 kHz	0	0.18
>1 kHz	0	0

## Additional Crest Factor Errors

(crest factor range: % of reading add'l error)  
1-2: 0.05% of reading  
2-3: 0.15% of reading  
3-4: 0.30% of reading  
4-5: 0.40% of reading

## Additional Error With Autozero Off

100mV-100V Ranges: Add 0.002% of reading + 5  $\mu$ V  
300 V Range: Add 0.0006% of reading

## Temperature Coefficient

$\pm$  (% of reading + % of range)  
(0°C-18°C, 28°C-55°C, 1 hour warm-up, 6.5 digits, slow AC filter, sine input)  
3-5 Hz: 0.100 + 0.003<sup>1</sup>  
5-10 Hz: 0.035 + 0.003<sup>1</sup>  
10 Hz-20 kHz: 0.005 + 0.003<sup>1</sup>  
20-50 kHz: 0.011+0.005  
50-100 kHz: 0.060+0.008  
100-300 kHz: 0.200+0.020<sup>2</sup>

<sup>1</sup>For 100mV range, add 0.001% of range additional error.

<sup>2</sup>300VAC range limited to 50kHz. For frequencies >50kHz, signals must be  $\leq 1.5 \times 10^7$  VHz

## DC CURRENT CHARACTERISTICS

### Summary

Current (max): 3 A  
Current Accuracy:  $\pm 0.015\%$

## Shunt Resistance

10 mA, 100 mA Ranges: 5  $\Omega$   
1 A, 3 A Ranges: 0.1  $\Omega$

## Input Protection

3 A, 250 V fuse (externally accessible)

## Burden Voltage

10 mA Range: <0.1 V  
100 mA Range: <0.6 V  
1 A Range: <1 V  
3 A Range: <3 V

## DC Current Accuracy

$\pm$  (% of reading + % of range)  
(specifications are for 1 hour warm-up at 6.5 digits)

Range <sup>2</sup>	24 Hour <sup>1</sup>	90 Day	1 Year
	23°C $\pm$ 1°C	23°C $\pm$ 5°C	23°C $\pm$ 5°C
10.00000mA	0.005+0.010	0.050+0.020	0.70+0.020
100.00000mA	0.01+0.004	0.040+0.005	
0.070+0.005			
1.000000mA	0.10+0.006	0.130+0.010	
0.150+0.010			
3.000000mA	0.70+0.020	0.720+0.020	0.720+0.020

<sup>1</sup>Relative to calibration standards

<sup>2</sup>20% overrange on all ranges, except 3A range.

## Temperature Coefficient

$\pm$  (% of reading + % of range)  
(0°C-18°C, 28°C-55°C, after 1 hour warm-up at 6.5 digits)  
10 mA Range: 0.005 + 0.0020  
100 mA Range: 0.006 + 0.0005  
1 A Range: 0.005 + 0.0010  
3 A Range: 0.005 + 0.0020

## AC CURRENT CHARACTERISTICS

### Summary

Current (max): 3 A<sub>rms</sub>  
Current Accuracy:  $\pm 0.19\%$

### Measurement Method

Direct couple to the fuse and shunt.  
AC coupled True RMS measurement (measures the AC component only).

## Shunt Resistance

0.1  $\Omega$

## Input Protection

3 A, 250 V fuse (externally accessible)

## Burden Voltage

1 A Range: <1 V<sub>rms</sub>  
3 A Range: <3 V<sub>rms</sub>

## DC Current Accuracy

$\pm$  (% of reading + % of range)  
(specifications are for 1 hour warm-up at 6.5 digits)

Range <sup>2</sup>	24 Hour <sup>1</sup>	90 Day	1 Year
	23°C $\pm$ 1°C	23°C $\pm$ 5°C	23°C $\pm$ 5°C
10.00000mA	0.005+0.010	0.050+0.020	0.70+0.020
100.00000mA	0.01+0.004	0.040+0.005	
0.070+0.005			
1.000000mA	0.10+0.006	0.130+0.010	
0.150+0.010			
3.000000mA	0.70+0.020	0.720+0.020	0.720+0.020

<sup>1</sup>Relative to calibration standards

<sup>2</sup>20% overrange on all ranges, except 3A range.

## Temperature Coefficient

$\pm$  (% of reading + % of range)  
(0°C-18°C, 28°C-55°C, after 1 hour warm-up at 6.5 digits)  
10 mA Range: 0.005 + 0.0020  
10 0mA Range: 0.006 + 0.0005  
1 A Range: 0.005 + 0.0010  
3 A Range: 0.005 + 0.0020

## AC CURRENT CHARACTERISTICS

### Summary

Current (max): 3 A<sub>rms</sub>  
Current Accuracy: ± 0.19%

### Measurement Method

Direct couple to the fuse and shunt.  
AC coupled True RMS measurement  
(measures the AC component only).

### Shunt Resistance

0.1 Ω

### Input Protection

3 A, 250 V fuse (externally accessible)

### Burden Voltage

1 A Range: <1 V<sub>rms</sub>  
3 A Range: <3 V<sub>rms</sub>

### True RMS Current Accuracy<sup>2, 4</sup>

±(% of reading + % of range)  
(1 hour warm-up, 6.5 digits, slow AC filter, sine input)

Frequency	24 Hour	90 Day	1 Year
	23°C ± 1°C	23°C ± 5°C	23°C ± 5°C
3-5Hz	1.05+0.04	1.05+0.04	1.05+0.04
5-10Hz	0.35+0.04	0.35+0.04	0.35+0.04
10Hz-1kHz	0.15+0.04	0.15+0.04	0.15+0.04
1-50kHz	0.40+0.04	0.40+0.04	0.40+0.04

<sup>1</sup>Relative to calibration standards

<sup>2</sup>20% overrange on all ranges, except 3A range which has overrange.

<sup>3</sup>For inputs from 1% to 5% of range and 50 kHz, add 0.1% range additional error. For 50 kHz to 100 kHz, add 0.13% additional error. 300V range specifications are for sinewave input 15% of range. For inputs from 3% to 15% of range and 50 kHz, add 0.30% of kHz, add 0.40% of range additional error.

<sup>4</sup>Accuracy for 1A range given. For 3A range, add 0.60+0.02 table values and an extra 0.05+0.00 between 3-5Hz.

### Low-Frequency & Crest Factor Errors

See VAC section

### Temperature Coefficient<sup>2</sup>

±(% of reading + % of range)  
(0°C-18°C, 28°C-55°C, 1 hour warm-up, 6.5 digits, slow AC filter, sine input)

3-5 Hz: 0.100 + 0.006  
5-10 Hz: 0.035 + 0.006  
10 Hz-1 kHz: 0.015 + 0.006  
1-50 kHz: 0.015+0.006<sup>1</sup>

<sup>1</sup>For 3A range, add 0.135+0.00 additional error.

<sup>2</sup>For inputs from 1% to 5% of range and 50 kHz, add 0.1% of range additional error. For 50 kHz to 100 add 0.13% additional error. 300V range specifications are for sinewave input 15% of range. For inputs from 3% to 15% of range and 50 kHz, add 0.30% of kHz, add 0.40% of range additional error.

## RESISTANCE CHARACTERISTICS

### Summary

Resistance (max): 100 MΩ  
Resistance Accuracy: ± 0.0025%

### Measurement Method

Selectable 4-wire or 2-wire Ω  
(current source referenced to low input)

### Lead Resistance (max)

100 Ω Range: 10% of range per lead  
Other Ranges: 1 kΩ per lead

### Input Protection

300 VDC/300 V<sub>rms</sub> on all ranges

### Test Current

100 Ω, 1k Ω Range: 1 mA  
10k Ω Range: 100 mA  
100 kΩ Range: 10 mA  
1 MΩ Range: 5 mA  
10 MΩ Range: 500 nA  
100 MΩ Range: 500 nA || 10 MΩ

### Ohms Accuracy±(% of reading + % of range)

(specifications are for 1 hour warm-up at 6.5 digits)

Range <sup>2</sup>	24 Hour <sup>1</sup>	90 Day	1 Year
	23°C ± 1°C	23°C ± 5°C	23°C ± 5°C
100.0000Ω	0.0030+0.0030	0.008+0.004	0.010+0.004
1.000000 kΩ	0.0020+0.0005	0.008+0.001	0.010+0.001
10.000000 kΩ	0.0020+0.0005	0.008+0.001	0.010+0.001
100.0000 kΩ	0.0020+0.0005	0.008+0.001	0.010+0.001
1.000000 MΩ	0.002+0.001	0.008+0.001	0.010+0.001
10.0000 MΩ	0.015+0.001	0.035+0.001	0.054+0.001
100.0000 MΩ	0.300+0.010	0.8+0.010	0.8+0.010

<sup>1</sup>Relative to calibration standards

<sup>2</sup>Specifications are for 4-wire Ω function, or 2-wire Ω using Math Null. Without Math Null, add 0.2Ω additional error in 2-wire Ω function.

### Temperature Coefficient<sup>1</sup>

±(% of reading + % of range)  
(0°C-18°C, 28°C-55°C, after 1 hour warm-up at 6.5 digits)

100 Ω Range: 0.0006 + 0.0005  
1 kΩ, 10 kΩ, 100kΩ Ranges: 0.0006 + 0.0001  
1MΩ Range: 0.0010 + 0.0002  
10 MΩ Range: 0.0030 + 0.0004  
100 MΩ Range: 0.1500 + 0.0002

<sup>1</sup>Specifications are for 4-wire Ω function, or 2-wire Ω using Math Null. Without Math Null, add 0.2Ω additional error in 2-wire Ω function.

## FREQUENCY AND PERIOD

### Summary

Voltage (max): 300 V<sub>rms</sub>  
Accuracy: 0.006% of reading

### Measurement Method

Reciprocal-counting technique.  
AC-coupled input using the AC voltage measurement function.

### Voltage Ranges

100 mV<sub>rms</sub> to 300 V<sub>rms</sub>, auto or manual.

### Gate Time

10 ms, 100 ms or 1 s

### Settling Considerations

Errors will occur when attempting to measure the frequency or period of an input following a dc offset voltage change. The input blocking RC time constant must be allowed to fully settle (up to 1 s) before the most accurate measurements are possible.

### Measurement Considerations

All frequency counters are susceptible to error when measuring low-voltage, low-frequency signals. Shielding inputs from external noise pickup is critical for minimizing measurement errors.

### Frequency and Period Accuracy<sup>2</sup>

(% of reading)

(1 hour warm-up, 6.5 digits)

Frequency	24 Hour <sup>1</sup>	90 Day	1 Year
	23°C ± 1°C	23°C ± 5°C	23°C ± 5°C
3-5Hz	0.10	0.10	0.10
5-10Hz	0.05	0.05	0.06
10Hz-40Hz	0.03	0.03	0.03
40Hz-300kHz	0.006	0.01	0.01

<sup>1</sup>Relative to calibration standards

<sup>2</sup>20% overrange on all ranges, except 300VAC range which has 1% overrange.

### Additional Low-Frequency Errors

(% of reading)

(input >100mV. For mV input, multiply % of reading error x 10)

Frequency	6.5 Digits	5.5 Digits	4.5 Digits
3-5Hz	0	0.12	0.12
5-10Hz	0	0.17	0.17
10-40Hz	0	0.2	0.2
40-100Hz	0	0.06	0.21
100-300Hz	0	0.03	0.21
300Hz-1kHz	0	0.01	0.07
>1kHz	0	0	0.02

### Temperature Coefficient<sup>1</sup>

±(% of reading + % of range)

(0°C-18°C, 28°C-55°C, 1 hour warm-up, 6.5 digits, slow AC filter, sine input)

3-5 Hz: 0.005  
5-10 Hz: 0.005  
10 Hz-40 Hz: 0.001  
40 Hz-300 kHz: 0.001

<sup>1</sup>20% overrange on all ranges, except 300VAC range which has 1% overrange.

## DC-DC RATIO CHARACTERISTICS

### Measurement Method

Input HI-LO/Reference HI-LO (apply "reference HI-LO" signal to Ohms 4-wire sense terminals).

### Input Signal Range

Input HI to Input LO: 100 mV to 300 V  
Reference HI to Input LO: <12 V on 100 mV to 10 V ranges (autoranged)  
Reference LO to Input LO: <2 V

### DC-DC Ratio Accuracy

(Input Accuracy<sup>1</sup>) + (Reference Accuracy<sup>2</sup>)

<sup>1</sup>Input Accuracy = accuracy specification for the HI-LO input signal

<sup>2</sup>Reference Accuracy = accuracy specification for HI-LO reference input signal

## SYSTEM CONSIDERATIONS

### Settling Considerations

Reading settling times are affected by source impedance, cable dielectric characteristics, and input signal changes.

### Measurement Considerations

We recommend the use of Teflon® or other high impedance, low-dielectric absorption wire insulation for these measurements.

Teflon is a registered trademark of E.I. DuPont deNemours and Co.

# 4152A PRODUCT SPECIFICATIONS

## DCV, DCI and $\Omega$ Reading Speeds

Digits	Readings/s	Additional Noise Error
6.5	0.6[0.5]	0% of range
6.5	6[5]	0% of range
5.5	60[50]	0.001% of range*
5.5	300	0.001% of range*
4.5	1000	0.01% of range*

\*For 300V range: use 0.003% of range for 5.5 digits and 0.030% of range for 4.5 digits. For all ranges: add 20 $\mu$ V for DC Volts, 4 $\mu$ A for DC current, or 20m $\Omega$  for resistance.

## DC System Speeds

(Speeds are for 4.5 digits, Delay=0, Autozero Off. Includes measurement and data over VXI backplane)

Function Change: 30/s  
 Range Change: 65/s  
 Autorange Time: <30 ms  
 Internal Trigger Rate (max): 1000/s  
 External Trigger Rate to Memory (max): 1000/s

## ACV and ACI Reading Speeds

(maximum reading rates 0.01% of AC step additional error. Additional settling delay required when input DC level varies.)

Digits	Readings/s	AC Filter
6.5	7s/reading	Slow
6.5	1	Medium
6.5	1.6 <sup>1</sup>	Fast
6.5	10	Fast
6.5	50 <sup>2</sup>	Fast

<sup>1</sup>For External Trigger or when using default settling delay (Delay Auto).

<sup>2</sup>Maximum useful limit within default settling delays used.

## AC System Speeds

(Maximum useful limit with default settling delays used; speeds are for 4.5 digits, delay 0, and fast AC filter.)

Function Change: 5/s  
 Range Change: 5/s  
 Autorange Time: <0.8 s  
 Internal Trigger Rate (max): 50/s  
 External Trigger Rate to Memory (max): 50/s

## Frequency and Period Reading Speeds

(Speeds are for 4.5 digits, Delay=0, and fast AC filter.)

Digits	Readings/s
6.5	1
5.5	9.8
4.5	80

## Frequency and Period System Speeds

Configuration Rates: 14/s  
 Autorange Time: <0.6s  
 Internal Trigger Rate (max): 80/s  
 External Trigger Rate to Memory(max): 80/s

## MODEL/DESCRIPTION

Racal Instruments 4152A, 6.5 Digit Multimeter

## TRIGGER CHARACTERISTICS

### Input Sources

Internal: 1 kHz max  
 External: Front Panel BNC, 1 kHz max  
 VXI Backplane: TTLTrg0-7  
 Software: \*TRG, WS Trigger Cmd.

### Trigger Delay

Range: 0-3600 seconds  
 Resolution: 2 ms

### VM (Voltmeter) Complete Out

Front Panel: BNC  
 VXI Backplane: TTLTrg0-7

## FRONT PANEL I/O

### Trigger Input

Connector: BNC  
 Level: TTL

### VM Complete Output

Connector: BNC  
 Level: TTL

### Ground Connection

Connector: Uninsulated banana jack

### Voltage

Connectors: Copper Alloy Banana Jacks (Hi/Lo)  
 Impedance: 10 M $\Omega$  or 10 G $\Omega$ , selectable  
 Protection: 300 VDC/300 V<sub>rms</sub>

### Resistance (2-wire)

Connectors: Copper Alloy Banana Jacks (Hi/Lo)  
 Protection: 300 VDC/300 V<sub>rms</sub>

### Current

Connectors: Copper Alloy Banana Jacks ("I"/Lo)  
 Impedance: 0.1 $\Omega$  or 5 $\Omega$ , depending on range  
 Protection: 3A/250V fuse

### Resistance (4-wire)

Connectors: Copper Alloy Banana Jacks ( $\Omega$ 4W Sense Hi/Lo)  
 Protection: 300 VDC/300 V<sub>rms</sub>

## VXIBUS INTERFACE DATA

(Single-slot, Message-based, VXIbus 1.4 Compliant)

### Software Compliance

SCPI 1993, IEEE488.2

## Drivers

LabVIEW, LabWindows/CVI,  
 VXIplug&play (WIN, WIN95, WIN NT Frameworks)

## Backplane Signal Support

TTLTrg0-7: Trigger In, VM Complete Out

## Status Lights

Red: Power-On Self-Test Failure  
 Red: Error(s) in error queue  
 Green: Module accessed on VXIbus  
 Green: Sample taken

## Cooling (10°C Rise)

0.80 l/s @ 0.05mmH<sub>2</sub>O

## Peak Current & Power Consumption

	+24	+12	+5	-2	-5.2	-12	-24
<i>I<sub>Pm</sub></i> (A)	0.0	0.7	0.2	0.0	0.0	0.0	0.0
<i>I<sub>Dm</sub></i> (A)	0.0	0.06	0.1	0.0	0.0	0.0	0.0
Total Power:	9.4 Watts						

## ENVIRONMENTAL

### Temperature

Operating: 0° C-55° C  
 Storage: -40° C-70° C

### Humidity (non-condensing)

<40° C: 65%<sup>1</sup>  
<sup>1</sup>RH > 65% may necessitate recalibration

### Overvoltage

Category 1 (1500 V peak max impulse)

### Weight

2 lbs. 10 oz. (1.2 kg)

### EMC (Council Directive 89/336/EEC)

CISPR11, EN55011 Group 1 Class A,  
 EN50082-1, IEC 801-2, 3, 4


### Safety (Low Voltage Directive 73/23/EEC)

EN61010-1, IEC1010-1, UL3111-1,  
 CSA 22.2#1010

## ORDERING INFORMATION

## PART NUMBER

407654

 The CE Mark indicates that the product has completed and passed rigorous testing in the area of RF Emissions, Immunity to Electromagnetic Disturbances and complies with European electrical safety standards.

The EADS North America Defense Test and Services policy is one of continuous development, consequently the equipment may vary in detail from the description and specification in this publication.



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