

# RM-26999

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# **RM-26999 Specifications**

# Definitions

*Warranted* specifications describe the performance of a model under stated operating conditions and are covered by the model warranty.

*Characteristics* describe values that are relevant to the use of the model under stated operating conditions but are not covered by the model warranty.

- **Typical** specifications describe the performance met by a majority of models.
- *Typical-95* specifications describe the performance met by 95% (≈2σ) of models with a 95% confidence.
- *Nominal* specifications describe an attribute that is based on design, conformance testing, or supplemental testing.

Specifications are *Typical* unless otherwise noted.

### Conditions

Specifications are valid for the range 0 °C to 55 °C unless otherwise noted.

These specifications are for the RM-26999. Accuracy for the entire system must be calculated including both the RM-26999 accuracy and the DAQ device accuracy.

# **Voltage Input Characteristics**

1,000 V, Category II Input voltage, maximum 2,000 V peak, other, non-MAINs circuits	
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#### Table 1. Signal Accuracy, 2,000 V Range

Signal Frequency	Accuracy <sup>[1],[2]</sup>			
Signati requency	Typical-95	Warranted		
DC	±0.05% of reading	±0.05% of reading		
1 Hz to 500 Hz	±0.08% of reading	±0.1% of reading		
>500 Hz to 1 kHz	±0.1% of reading	±0.2% of reading		
>1 kHz to 5 kHz	±0.25% of reading	±0.9% of reading		
>5 kHz to 10 kHz	±0.3% of reading	±1.15% of reading		
>10 kHz to 200 kHz	±0.4% of reading	±1.35% of reading		
>200 kHz to 1 MHz	±(0.004 × <i>signal frequency in</i> <i>kHz</i> )% of reading	±(0.014 × <i>signal frequency in</i> <i>kHz</i> )% of reading		

System noise <sup>[3]</sup>			
±2,000 V range	53 mV RMS		
±1,000 V range	31 mV RMS		
±400 V range	22 mV RMS		
±200 V range	21 mV RMS		
DC offset	-	2 mV	

Noise contribution, 5 MHz bandwidth <sup>[4]</sup>	13 mV RMS, RTI
T <sub>cal</sub> <sup>[5]</sup>	23 °C ± 5 °C
Calibration interval	2 years
Gain drift	±25 ppm/°C
Attenuation	200:1
CMRR	>100 dB DC, typical
Long-term stability	125 <i>ppm</i> / $\sqrt{1,000 hrs}$
Input impedance, single-ended to earth	10 MΩ    4.7 pF
-3 dB bandwidth	1 MHz
Output impedance	50 Ω

#### **Current Input Characteristics**

**Note** Current input characteristics are determined by the connected DAQ devices. For more information about device input characteristics, refer to the device documentation on <u>ni.com/manuals</u>.

**Note** If you connect a current transducer with current output to the RM-26999, install a shunt to convert the current signal to a voltage signal. Refer to the *RM-26999 User Manual* on <u>ni.com/manuals</u> for more information about connecting current transducers with current output.

Number of channels	4
DAQ device measurement voltage ranges	±1 V, ±2 V, ±5 V, ±10 V
Burden resistors	$0.5 \Omega, 1 \Omega, 2 \Omega, 5 \Omega, 10 \Omega$
Maximum current input	Selectable on the DAQ device
Input protection	Determined by the DAQ device
Shunt accuracy	±0.05%, metal foil, 2 W, maximum
Shunt gain drift	±0.2 ppm/°C

# **Power Requirements**

Voltage input range	24 V DC ± 5%
Maximum power consumption	150 W
Recommended power supply	NI PS-15 (5 A, 120 W)

	NI PS-16 (10 A, 240 W)

# **Physical Characteristics**

Dimensions	482.6 mm × 43.9 mm × 156.2 mm (19.00 in. × 1.73 in. × 6.15 in.)		
Weight	3,020 g (106.50 oz)		

# **Safety Voltages**

Connect only voltages that are below these limits.

1,000 V Input voltage range 2,000 V		1,000 V, Category II 2,000 V peak, other, non-MAINs circuits	
Channel-to-channel, channel-to-earth			
Continuous working voltage		1,000 V, Category II 2,000 V peak, other, non-MAINs circuits	
Transient overvoltage		6,000 V peak	

**Caution** Do not connect the RM-26999 to signals or use for measurements within Measurement Categories III or IV. Do not connect to signals or use for measurements above 1,000 V RMS within Measurement Category II.

**Attention** Ne connectez pas le RM-26999 à des signaux et ne l'utilisez pas pour effectuer des mesures dans les catégories de mesure III ou IV. Ne le connectez pas à des signaux et ne l'utilisez pas pour effectuer des mesures supérieures à 1000 Veff dans la catégorie de mesure II.

Measurement Category II is for measurements performed on circuits directly connected to the electrical distribution system. This category refers to local-level electrical distribution, such as that provided by a standard wall outlet, for example, 115 V for U.S. or 230 V for Europe. Above 1,000 V RMS, these test and measurement circuits are not rated for measurements performed on circuits directly connected to the electrical distribution system referred to as MAINs. MAINs is a hazardous, live electrical supply system to which equipment is designed to be connected to for the purpose of powering equipment. Above 1,000 V RMS, this product is rated for measurements of voltages from specially protected secondary circuits, up to 2,000 V peak. Such voltage measurements include signal levels, special equipment, limited energy parts of equipment, circuits powered by regulated low-voltage sources, and electronics.

**Caution** Connect the PE terminal to protective earth ground in the rack installation or electrical cabinet.

**Attention** Connectez le terminal de mise à la terre à la borne correspondante (masse) dans l'installation en rack ou dans l'armoire électrique.

# **Environmental Characteristics**

#### **Temperature and Humidity**

Temperature			
Operating	0 °C to 55 °C		

Storage		-40 °C to 71 °C	
Humidity			
Operating	10% RH to 90% RH, noncondensing		
Storage 5% RH to 95% RH,		noncondensing	
Pollution Degree		2	
Maximum altitude		2,000 m	

**I** Notice This product is intended for use in indoor applications only.

# **Shock and Vibration**

Random vibration	
Operating	5 Hz to 500 Hz, 0.3 g RMS
Non-operating	5 Hz to 500 Hz, 2.4 g RMS
Operating shock	30 g, half-sine, 11 ms pulse