

EMPOWER POWER METERS MODEL 7002-002 & -004



MODEL 7002-002 & -004

- **Fast Performance: Up to 1 Million Samples per Second Measured Continuous Wave**
- **Accurate Measurements with Dynamic Range of:**
- **65 dB for 6 GHz Model (Model 7002-002)**
- **55 dB for 18 GHz Model (Model 7002-004)**
- **Low Measurement Uncertainty**

ETS-Lindgren's EMPower Power Meters deliver fast, highly accurate RF power measurements, even at very low signal levels. Designed for seamless integration with the EMCenter platform, the EMPower modular plug-in card fits into a single slot and provides four USB ports, allowing any combination of up to four EMPower or EMPower Pulse sensors to be connected simultaneously. For standalone operation, an EMPower sensor can also be directly connected to a PC via a standard USB port, with intuitive software included for easy configuration and data acquisition.

Features

Fast Performance

The EMPower Power Meters are engineered for high-speed RF power measurements, capable of sampling at an impressive 10 million samples per second. This ultra-fast sampling rate enables precise measurement of both continuous wave (CW) and pulsed signals, ensuring no loss of critical data—even during rapid power fluctuations. Such speed makes the EMPower ideal for time-sensitive test scenarios like automotive immunity testing, military radar evaluations, and advanced telecom applications. Whether integrated into the EMCenter platform or used as a standalone sensor, EMPower ensures real-time responsiveness and reliable data acquisition.

Accurate Measurements

Accuracy is critical in RF power measurement, and EMPower Power Meters deliver ± 0.25 dB accuracy across a wide operating range. Designed to meet stringent test requirements, the EMPower offers a dynamic range of 65 dB for the 6 GHz model (Model 7002-002) and 55 dB for the 18 GHz model (Model 7002-004), making it versatile for both low-power and high-power testing scenarios. This level of precision supports compliance with automotive, military, telecom, and EMC standards, ensuring confidence in every measurement. EMPower sensors are optimized for minimal signal distortion, maintaining accuracy even in demanding RF environments.

Low Measurement Uncertainty

One of the largest contributors to RF measurement uncertainty is impedance mismatch between the sensor and the device under test (DUT). EMPower sensors are designed with a low voltage standing wave ratio (VSWR), significantly reducing mismatch errors and improving repeatability of results. This design minimizes reflections and maximizes power transfer for more consistent and trustworthy readings. By reducing one of the key error sources in RF measurement chains, EMPower ensures that your data remains reliable, even in complex test setups.

Flexible Connectivity and Integration

Each EMPower modular plug-in card occupies one slot in the EMCenter and provides four USB ports, allowing users to connect any combination of up to four EMPower or EMPower Pulse sensors simultaneously. For smaller-scale or portable setups, a single EMPower sensor can also connect directly to a PC via USB using the included software. Fully supported by TILE!™, EMQuest™, and other leading test automation software, EMPower simplifies integration into automated workflows, reducing setup time and improving lab efficiency.

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Technical Specifications

Electrical		
Model	7002-002 (Sensor)	7002-004 (Sensor)
Detector Type	Diode	Diode
Measurement Function	RMS CW Power	RMS CW Power
Calibrated Frequency Range	9 kHz to 6 GHz	80 MHz to 18 GHz
Power Measuring Range	-55 dBm to +10 dBm	-45 dBm to +10 dBm
Input Damage Level	>20 dBm	>20 dBm
Resolution	0.01 dB	0.01 dB
VSWR	<1.05 @ 9 kHz to 100 MHz <1.15 @ 100 MHz to 2 GHz <1.35 @ 2 GHz to 6 GHz	<1.20 @ 80 MHz to 10 GHz <1.35 @ 10 GHz to 18 GHz
Maximum Linearity Error ^(0 dbm ref)	0.05 db/10 dB	0.05 db/10 dB
Measuring Speed (Per Second)	20K, 100K, OR 1 M	20K, 100K, OR 1 M
Accuracy (23 2 C)	0.25 dB	0.25 dB(10 GHz); 0.50 dB (>10 GHz)
Temperature Effect	<0.15 dB Over Full Temperature Range	<0.15 dB Over Full Temperature Range
Measurement Units	dBm	dBm
Physical		
Model	7002-002 (Sensor)	7002-004 (Sensor)
Temperature Range (Use)	0°C to +40°C (32°F to +104°F)	0°C to +40°C (32°F to +104°F)
Temperature Range (Storage)	-20°C to +85°C (4°F to 185°F)	-20°C to +85°C (4°F to 185°F)
Relative Humidity	10–90% (Non-condensing)	10–90% (Non-condensing)
Connector to Plug-in Card or PC	USB-B	USB-B
USB Communication	USB 1.1	USB 1.1
USB Power Consumption	< 200 mA	< 200 mA
RF Input Connector	N-type Precision	N-type Precision