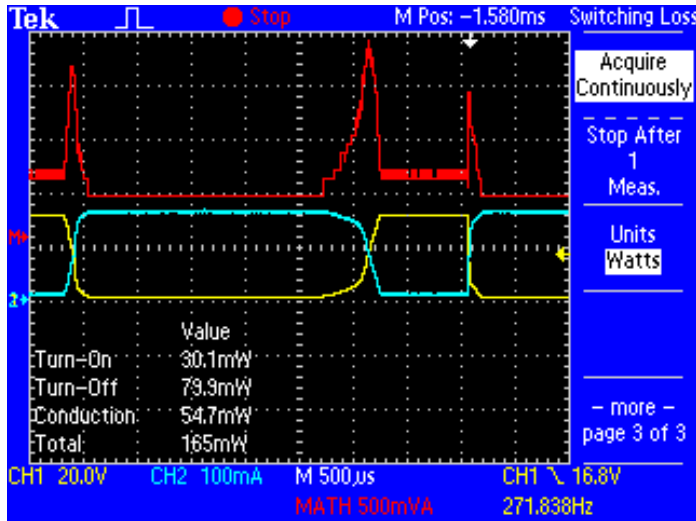


# Power Measurement and Analysis Software

## TPS2PWR1 Data Sheet



### Power Measurement and Analysis Software

As an industrial power designer or technician, you must perform a range of power-specific measurements to develop, test, and race products to market. The TPS2000 Series oscilloscopes, when equipped with TPS2PWR1 power measurement and analysis software, allows you to optimize your productivity by reducing your development and test time with a broad range of power-specific measurements, such as switching loss (including turn-on, turn-off, and conduction losses), harmonic distortion measurements to the 50th harmonic, and dv/dt and di/dt cursor measurements. Use a single instrument to make an array of measurements – from measuring high voltages\*1 and high currents to debugging control circuits.

To improve the efficiency of industrial power designs, you must analyze power dissipation and characterize transitions at higher switching frequencies. Using TPS2PWR1's unique switching-loss feature, you can measure switching-device power dissipation with the touch of a button. Coupled with the TPS2000 Series oscilloscopes' unique Digital Real-Time (DRT) sampling technology, the TPS2PWR1 software package enables you to efficiently and accurately characterize industrial power systems by measuring power loss at the switching device.

Reduce your development and testing time by using TPS2PWR1's harmonic testing capability to the 50th harmonic to test power supply designs to these standards from your bench, the power lab, or on-site.

In addition, TPS2PWR1 software enables you to set units and scale factor for Tektronix current and voltage probes to read the result in the right unit.

\*1 To make floating measurements greater than 30 V<sub>RMS</sub>, use optional P5120 or P5122 passive, high-voltage probes, similarly rated passive, high-voltage probes, or appropriately rated high-voltage, differential probes.

### Features & Benefits

- Improve Efficiency of Power Designs with Switching-loss Measurements including Turn-on, Turn-off, and Conduction Losses
- Reduce Test Time with Harmonic Measurements to the 50th Harmonic
- Eliminate Manual Calculations with Automated Power Analysis, Waveform Analysis, and Phase Analysis with True Power, Reactive Power, Power Factor, Crest Factor, Phase Relationships
- Reduce Measurement Time with dv/dt and di/dt Cursors

### Applications

- Motor Drive Design and Test
- UPS Design and Test
- Power Semiconductor Characterization
- Power Quality Equipment Design and Test
- Power Monitoring and Performance Verification

## Characteristics

**Power Measurements** – True real power in watts, reactive power in VAR, power factor, crest factor, RMS measurements, frequency measurements.

**Cursors** – dv/dt and di/dt.

**Phase Angles** – CH1 and CH2, CH2 and CH3 (four-channel scopes only), CH1 and CH3 (four-channel scopes only).

**Harmonics Measurements** – Up to the 50th harmonic, THD, individual harmonic levels display, individual harmonic phase to fundamental, RMS values.

**Switching-loss Measurements** – Turn-on loss, turn-off loss, conduction loss, total switch loss.

## Tektronix Oscilloscopes and Probes Supported

**TPS2000 Series Oscilloscopes** – TPS2012, TPS2014, TPS2024.

## Current Probes

A621, A622, TCP202 with 1103 power supply, TCPA300 with TCP312, TCP305, TCP303, TCPA400 with TCP404XL, P6021, P6022, CT2, CT4 with TCP202 and 1103 power supply.

## Passive Voltage Probes

**P2220** – 200 MHz, 1X/10X switchable passive probe.

**P5120** – 200 MHz passive 20X high-voltage probe.

**P5122\*2** – 200 MHz passive 100X high-voltage probe.

\*2 The P5122 probe should not be used for AC-coupled measurements on signals with greater than 300 V DC offset. The P5120 is the recommended probe for measuring ripple on high-voltage DC supplies.

## Differential Probes

**P5210** – High-voltage active differential probe (5600 V<sub>p-p</sub>, 50 MHz) (1103 power supply required).

## Ordering Information

### TPS2PWR1

Power Measurement and Analysis Software.

### TPS2PBND

Power bundle for TPS2000 Series oscilloscopes. Includes (4) P5120 probes and TPS2PWR1 power measurement and analysis software.

### TPS2PBND2

Power bundle for TPS2000 Series oscilloscopes. Includes (4) P5122 probes and TPS2PWR1 power measurement and analysis software.

## International User Manual

**Opt. L0** – English (071-1452-xx).

**Opt. L1** – French (071-1453-xx).

**Opt. L2** – Italian (071-1454-xx).

**Opt. L3** – German (071-1455-xx).

**Opt. L4** – Spanish (071-1456-xx).

**Opt. L5** – Japanese (071-1457-xx).

**Opt. L6** – Portuguese (071-1458-xx).

**Opt. L7** – Simplified Chinese (071-1459-xx).

**Opt. L8** – Traditional Chinese (071-1460-xx).

**Opt. L9** – Korean (071-1461-xx).

**Opt. L10** – Russian (071-1462-xx).



Tektronix is registered to ISO 9001 and ISO 14001 by SRI Quality System Registrar.



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**For Further Information.** Tektronix maintains a comprehensive, constantly expanding collection of application notes, technical briefs and other resources to help engineers working on the cutting edge of technology. Please visit [www.tektronix.com](http://www.tektronix.com)



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