
658 Power Quality Analyzer

Accurate Troubleshooting and Rapid Power Quality Analysis

The Model 658 Power Quality Analyzer combines the features of a digitizing oscilloscope, a true RMS ammeter, a true RMS voltmeter, a harmonic distortion analyzer, a power disturbance monitor, and a strip chart recorder—all in one compact, lightweight instrument.

The Advantage of Real Time Analysis

Rapid solutions to power quality problems demand that the source of the trouble be pinpointed quickly. That's why the 658's real time capabilities are so important. Because of today's prevalence of nonlinear loads, only an instrument that measures true RMS can give dependably accurate readings.

The 658 lets the user see instantaneous true RMS current and voltage measurements—as well as the waveshape and harmonic content—so that power problems can be defined and analyzed in real time.

Field Troubleshooting and Analysis

Compact and lightweight, the 658 weighs less than 24 pounds making it easy for field service technicians to use on site. Facilities and plant engineers will also appreciate its portability.

Scope Mode® for real time troubleshooting

Effective troubleshooting depends on accurate measurements at multiple points throughout the electrical system. The 658 is an all-in-one tool for checking phase balance, transformer loading, and current crest factor.

- see crest factor and distortion problems immediately
- access continuously updated readings
- save picture and all values to memory for later analysis

Troubleshooting harmonic problems

Today's electronic equipment has caused an explosive growth of harmonics and the harmful effects can extend throughout your facility. These harmful effects can include premature failure of transformers, burn up of neutral conductors due to overload, and nuisance tripping of circuit breakers and G.F.I.

- tabulate harmonic content through the 50th harmonic
- analyze either real time or stored waveform data
- print harmonic data on site

Long-Term Monitoring

Tracking down intermittent disturbances that cause sensitive equipment failure calls for monitoring power quality over days or weeks. The 658 digitizes and saves all disturbances. Transients up to 6000 volts are captured as well as simultaneous readings on adjacent input channels for comparison and cause-and-effect analysis.

- view historical trends
- focus on worst-case events
- examine individual event waveforms

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658 Features at a glance

Scope Mode

Real time information for instantaneous readings

Long-Term Graphic summary

One picture can summarize hundreds of disturbance events for instant recognition of trends and worst-case values

Monitors Up to 12 Channels

Four high speed inputs for waveform sampling; eight low speed inputs for sensing temperature, humidity, RF interference and others.

On Screen Help

Easy setup and operation. Dedicated function keys with all functions menu-driven.

On-Board Harmonic Analysis

Analyzes any voltage or current waveform up to the 50th harmonic.
(excludes 400 Hz operation)

Event Memory Capacity

512 Kbytes allows storage of over 1000 typical disturbance events.

Performs like an Electronic Notepad

Power waveforms can be seen on screen and saved to the non-volatile memory for later analysis.

Zoom Feature

Magnifies any portion of the screen for examination of disturbances down to the micro-second level.

Stored Setups

16 pre-programmed setups for single phase 120V, 3-phase 480V and more. Custom setups are easily performed.

Internal UPS

Maintains continuous monitoring for up to 5 minutes during a power failure.

Battery Backup

Protects event memory and real time clock.

400 Hertz Analysis Option

Meets the special requirements of aerospace, shipboard, and large mainframe computer operations.

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Accessories

Clamp-On CT Rated 0.2-30 Amps AC

Accuracy: $\pm <1\%$ reading from 200 milliamps to 30 amps rms. Frequency response: 45 Hz to 10KHz $\pm <1\%$. Impulse response to 2 $\mu\text{sec} \pm 0.8$ dB. Jaw opening: 0.47". TR-2021

Clamp-On CT Rated 1-300 Amps AC

High bandwidth for accurate transient (impulse) response to 2 $\mu\text{sec} \pm 1$ dB. Accuracy: $\pm <1\%$ reading from 1-300 amps rms. Jaw opening: 2.0". TR-2019B

Clamp-On CT Rated 10-1000 Amps AC

Accuracy: $\pm 0.9\%$ reading ± 0.1 amp from 10-1000 amps rms. Frequency response: 30 Hz to 20KHz at stated accuracy. Jaw opening: 2.17". TR-2022

Clamp-On CT Rated 10-3000 Amps AC

Accuracy: $\pm 0.5\%$ reading ± 0.3 amp from 10-3000 amps rms. Jaw opening: cable 2.56" max. Bus bar 1.97" x 5.31" max. Frequency response: 48 to 5000 Hz (48-1000 Hz at stated accuracy). TR-2023

Isolated CT Termination Box Rated 0-5 Amps AC

For use with existing CTs with 0-5 amps rms secondary output. Accuracy $\pm 1\%$ or better from 0.2-10 amps rms. Frequency response: 50 to 5000 Hz \pm dB or less. ISO-65X-5

Adapter Cable (optional)

Connects 658 CTs to Dranetz-BMI 800-2 and PP1. 115552-G1

Radiated RF Sensor

Detects disruptive radiation from transmitters, spark gaps and other sources. Requires 656-PA-1001. 656-XD-1003

Conducted RF Sensor

Detects disruptive conducted RF interference from transmitters, spark gaps and other sources. Requires 656-PA-1001. 656-X-1002

Eight-Channel Transducer Module

Allows the 658 to accept up to 8 inputs from external transducers for trend data on temperature, humidity, RFI and other parameters. Accepts 0-10 V DC or 0-20mA DC inputs. 656-PA-1001

Internal Modem

Hayes-compatible 2400 baud modem is field-installed into the 658 rear panel. Communications software is standard on all 658s.

Temperature and Humidity Sensor

Detects disruptive temperature and/or humidity events that are often mis-identified as power problems. Requires 656-PA-1001. 656-XD-1001

Analysis and Report Writer Software

Dran-View® is a Windows®-based software package that provides convenient and easy access to data. Scroll through timeline and waveform data, zoom in on disturbances, trend data, filter events, generate statistics and perform advanced analysis. Built-in report writing feature generates standard or custom documents that can be exported into other popular formats. DVAllProd

Vertical Mount Feet

Allows the 658 to be operated in the vertical position for work in tight spaces. Installs quickly with thumb screws provides ample clearance for input connections. 115022-G1

Soft Carry Case

Rugged cordura nylon carry case holds 658, voltage probes, CTs, and manual. 115038-G1

Rugged Shipping Container

Protects the 658 during repeated shipping. Conforms to NSTA Project 1A vibration and drop specification. Includes space for cables, probes, and accessories. 115039-G1

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Specifications

Operation

Menu-driven with online help screens.

Standard Inputs

Main Channels: One AC/DC voltage channel and three voltage/current channels capable of monitoring four channels simultaneously in various voltage/current combinations.

Cable set included.

Input Impedance

40 Megohm voltage inputs.

Voltage Range

AC 0 to 600 V rms, DC 0 to 600 V

Current Range

AC 0 to 3000 amps using optional Dranetz-BMI probes.

Frequency Range

Model 658: 45-65 Hz

Model 658-400: 45-65 Hz or 310-445 Hz

RMS Readings

One-cycle resolution (45-65 Hz operation). Accuracy 1% reading \pm 0.2% F.S.

RMS Sampling Rate

7.2 KHz/channel

Impulse Sampling Rate

1.85 MHz/channel

Impulse Range

2.4 to 6144 C peak, 2.4 to 6000 amps peak

Impulse Duration

Greater than 1 μ sec

Optional Inputs

Eight independent differential input channels configurable as voltage or current (fused).

DC Input Ranges

0 to 10 V DC, 0 to 20 mA DC

Input Impedance

2 megohm (voltage), 250 ohm (current)

Sampling Rate

12.5 Hz

Time Clock

Crystal-controlled, 10 ms resolution. Lists time in HH MM SS format and date in MM DD YY format.

Event Memory

512 Kbytes non-volatile RAM

Disk Drive

3.5", 720 kbytes, double-sided, double density

Printer

High-resolution graphics thermal printer—320 dots/line. Thermal paper 4.33" (11 cm) wide.

User Interface Screen

5" electroluminescent flat-panel display, 320 x 256 dots

Keyboard

Dedicated function elastomeric keypad with alphabetical and numeric input keys.

Serial Ports

One 25-pin RS-232C communications port. One 9-pin serial printer port.

Power Requirements

90 to 250 V rms, 45-445 Hz, 1000 Watts typical

Uninterruptible Power Supply (UPS)

Standard 5 minutes typical

Dimensions

Size

5.8" high x 17" wide x 14.5" deep

Weight

23.2 lbs (10.6 kg)

Environmental

Operating

5 to 40°C (41° to 104°F)

Storage

-22° to 55°C (-4° to 131°F)

Humidity

10% to 90% (non-condensing)

Package

Rugged portable case

Warranty

12 months

Certifications

UL(model 658), CE (model 658E), FCC, ISO-9100

Latest released version

658 FEP V3.1

658 CPU V4.23

658 Front Panel INTFC V1.1