Portable Test Set for Power Transducers

As a leading international manufacturer of power transducers, mTech knows precisely what is required to maintain the highest possible accuracies of these devices. Combined instrumentation expertise has led to the development of a portable transducer test set the equivalent of seven different instruments in one self-contained field unit. The Model TCS-914 provides field technicians with an easy and highly accurate, on-site means of testing all of the transducers throughout their plant or power system.

Tests a wide range of models: The system is designed for maximum versatility. It will test most mTech power transducers (watt, VAR, voltage, current, expanded scale voltage, and power factor models), as well as models of the same types made by other manufacturers. More specifically, it will measure, and indicate on a digital display, current, voltage, watts, VAR, Q, VA, and it includes a second display to indicate null balance percent error and actual transducer output in engineering units. The TCS-914 also has special features such as expanded scale voltage testing and the capability of monitoring a wide range of outputs. In fact, no external adaptors are needed for transducers with outputs such as 0-1 mA, 4-20 mA, 0-5 mA, 0-10 V, and others.

Built for ease of use and to last in the field: The TCS-914 is completely self-contained and mounted inside a rugged, environmentally sealed, polycarbonate carrying case. The case comes with a hinged cover and storage compartment. At only 47 cm (18.5") long by 37 cm (14.6") wide by 19 cm (7.5") high and 12 kg (26.5 lbs), it is both compact and lightweight.

The controls have been designed with the operator in mind. All test procedures are easy to learn and perform. The front panel incorporates thumbwheel switches and percent of setting controls for selecting current, voltage, and power factor. In addition, there are facilities for full scale calibrating of watts, VAR, volts, and amps, plus a frequency selector switch for 50 Hz and 60 Hz.

The solid-state TCS-914 is easily programmable, making it extremely versatile. It generates voltage and current from a stable internal distortion-free source and is independent of source frequency and distortion. All internal standards and parameters measured are true RMS and have an accuracy of 0.1% or higher for measuring: 0 ± 500 watts per element; 0 ± 500 VAR per element; 0-300 volts; 0-10 amps; and field adjustable zero and span for expanded scale volts. All digital meters have an accuracy of 0.05% or higher for measuring: 0-300 volts; 0-19.99 amps; 0 ± 3,000 watts/VAR, true RMS; and 0 ± 19.99 percent error.

Specifications

VOLTAGE OUTPUT:
- **Range:** 0-300 V
- **Accuracy:** ±(0.05% of setting + 0.05% of range)
- **Resolution:** 1 V
- **Burden:** 0-180 V: 100 mA
  180-300 V: 50 mA

CURRENT OUTPUT:
- **Range:** 0-9.99 A
- **Accuracy:** ±(0.05% of setting + 0.05% of range)
- **Resolution:** 0.01 A
- **Compliance:** 0-2.8 A: 4.0 V
  2.8-9.99 A: 2.0 V

POWER FACTOR:
- **Range:** Full four quadrant in steps of 0.1 P.F.
- **Accuracy:** ±0.1 degrees

FREQUENCY OF OUTPUTS:
- **50 Hz:** 50 Hz ±0.1%
- **60 Hz:** 60 Hz ±0.1%
- **Sync:** Line ±0.5%
- **External:** External source ±0.5%

INTERNAL STANDARDS:

VOLTAGE:
- **Range:** 0-300 V, true RMS
- **Accuracy:** ±(0.05% of reading + 0.05% of range)

CURRENT:
- **Range:** 0-10 A, true RMS
- **Accuracy:** ±(0.05% of reading + 0.05% of range)

WATT:
- **Range:** 0-3,000 W
- **Accuracy:** $\frac{\pm(0.05\% \text{ of reading})}{\text{Cos}\Theta}$ + 0.05% of range)

VAR:
- **Range:** 0-3,000 VAR
- **Accuracy:** $\frac{\pm(0.05\% \text{ of reading})}{\text{Sin}\Theta}$ + 0.05% of range)

Q:
- **Range:** 0-3,000 Q
- **Accuracy:** $\frac{\pm(0.05\% \text{ of reading})}{\text{Cos}\ (\Theta\text{-}60°)}$ + 0.05% of range)

VA:
- **Range:** 0-3,000 VA
- **Accuracy:** ±(0.05% of reading + 0.05% of range)

STANDARDS OUTPUT:
- **Range:** 0-4 V, automatically adjustable
- **Accuracy:** ±0.1% full scale

OUTPUT PARAMETER DISPLAY:
- **Type:** 4-1/2 digit LED
- **Accuracy:** ±(0.03% of reading + 0.02% full scale + 2 counts)

TRANSDUCER INPUT:
- **Ranges:** 0-1 mA, 0-10 mA, 4-20 mA, 4-12-20 mA
  0-1 V, 0-10 V
  Other ranges available upon request

OUTPUT DISPLAY:
- **Type:** 3-1/2 digit LED
- **Metering Mode:**
  - **Accuracy:** ±(0.03% of reading + 0.02% full scale + 1 count)
- **Null-Balance Mode:**
  - **Range:** 0-±19.99%
  - **Accuracy:** ± 0.1% ± 1 count

AMBIENT:
- **Temperature:** 25°C ± 15°C
- **Humidity:** 0-90%, non-condensing

POWER-TO-OPERATE:
100, 120 VAC +10% 60 Hz
220, 240 VAC +10% 50 Hz

DIMENSIONS:
47 cm (18.5") L x 37 cm (14.6") W x 19 cm (7.5") H

WEIGHT:
12 kg (26.5 lbs)

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