

AN/PSM-37 (QVS) (FOURDEE), 910, 960, 961 (QVS) MULTIMETER

<u>TI Characteristics</u>	<u>Performance Specifications</u>
DC Volts	(horizontal & vertical positions) Ranges: 0 to 1000 V, 5000 V w/MX 1410/U Accuracy: $\pm 3\%$ FS
DC Amps	Ranges: 0 to 1 A, (2.5 A and 10 A w/MX 9127/PSM-37) Accuracy: $\pm 3\%$ FS
AC Volts	Ranges: 0 to 1000 V Accuracy: $\pm 4\%$ FS
AC Amps	Ranges: 0 to 1 A, (2.5 A and 10 A w/MX 9127/PSM-37) Accuracy: $\pm 4\%$ FS
Resistance	Ranges: 0 to 100 M Ω Accuracy: $\pm 3\%$ Scale Length
Frequency Response	Range: 20 Hz to 30 kHz Accuracy: 20 Hz to 400 Hz, $\pm 4\%$ FS; 400 Hz to 30 kHz, $\pm 10\%$ FS

CAUTION

Ensure only plastic screws are used to mount switch knobs to shafts.

NOTE

AC and DC voltages may be measured directly in ranges of 0 to 1000 V at Input Impedances of 1000 Ω/V , 20,000 Ω/V or at a fixed 10 M Ω . For voltages below 100 mV, set FUNCTION selector to SPECIAL position.

NOTE

Short positive and negative leads together. Set RANGE switch to 0.5 V, FUNCTION switch to 10 M Ω/V , POLARITY switch to POSITIVE. TI must indicate (0) zero ± 1 division.

CALIBRATION PERFORMANCE TABLE

OVERLOAD CALIBRATION: (Not required on model manufactured by Fourdee)

<u>Function</u>	<u>Polarity</u>	<u>Range</u>	<u>Applied</u>	<u>Limits</u>
Special	DC+	any*	+12 V	OL
	DC-	any*	-12 V	OL
Amps - mA	DC+	0.5 V	+12 V	OL
	DC-	0.5 V	-12 V	OL

CALIBRATION PERFORMANCE TABLE (Cont.)

OVERLOAD CALIBRATION: (Not required on model manufactured by Fourdee) (Cont.)

<u>Function</u>	<u>Polarity</u>	<u>Range</u>	<u>Applied</u>	<u>Limits</u>
20 k Ω /V	AC	0.5 V	50 V, AC, 60 Hz	OL
	DC+	0.5 V	50 V, AC, 60 Hz	OL
	DC-	0.5 V	50 V, AC, 60 Hz	OL
1 k Ω /V	DC+	0.5 V	+12 V	OL
	DC-	0.5 V	-12 V	OL

* Except 0.5 V range (OL = overload)

NOTE

Adjust the Meter Calibrator (2.12) to the applied value before applying TI probes (Monitor Voltage Output). If overload calibration fails, refer to T.O. 33A1-12-933-1, Section 5-45, 5-46 and 5-47.

AC VOLTS CALIBRATION: (1000 Ω /V, 20000 Ω /V and 10 M)

<u>Range</u>	<u>Applied (VAC)</u>	<u>Limits (VAC)</u>
1000	1000	960 to 1040
500	500	480 to 520
250	250	240 to 260
50	50	48 to 52
10	10	9.6 to 10.4
2.5	2.5	2.4 to 2.6
0.5 *	0.5	0.48 to 0.52

*It may be necessary to use shielded leads or connect standard - (neg) terminal to earth ground when making measurement in the 10 M Ω /V function.

AC MILLIVOLTS CALIBRATION: (Because of Loading use 829G for this calibration)

<u>Function</u>	<u>Range</u>	<u>Applied (mV)</u>	<u>Limits (mV)</u>
SPECIAL (100 mV)	Any	100	96 to 104

AC MICROAMPERES CALIBRATION:

<u>Function</u>	<u>Range</u>	<u>Applied (μA)</u>	<u>Limits (μA)</u>
SPECIAL (100 μ A)	Any	100	96 to 104

CALIBRATION PERFORMANCE TABLE (Cont.)

AC MILLIAMPERES CALIBRATION:

<u>Function</u>	<u>Range</u>	<u>Applied (mA)</u>	<u>Limits (mA)</u>
AMP-mA	1000	1000	960 to 1040
	500	500	480 to 520
	250	250	240 to 260
	50	50	48 to 52
	10 *	10	9.6 to 10.4
	2.5 *	2.5	2.4 to 2.6
	0.5	0.5	0.48 to 0.52

NOTE

* Connect SHUNT MX-9127/PSM-37 to TI test leads and Current Standard to 2.5 A section, set RANGE switch to 2.5 mA and apply 2.5 A. The TI must indicate within 2.4 and 2.6 A. Reconnect Current Standard to 10 A section of MX-9127/PSM-37 and set range switch to 10 mA. Apply 10 A, TI must indicate within 9.6 and 10.4. (Perform this only if SHUNT accompanies TI).

OHMS CALIBRATION: (See Note)

<u>Function</u>	<u>Range</u>	<u>Applied (Ω)</u>	<u>Limits (Ω)</u>
OHMS-LP	R X 1	20	17.5 to 23
	R X 10	200	175 to 230
	R X 100	2 k	1.75 k to 2.3 k
	R X 1 k	20 k	17.5 k to 23 k
	R X 10 k	200 k	175 k to 230 k
	R X 100 k	2 M	1.75 M to 2.3 M
OHMS-STD	R X 1	20	17.5 to 23 (Fourdec only)
	R X 10	200	175 to 230
	R X 100	2 k	1.75 k to 2.3 k
	R X 1 k	20 k	17.5 k to 23 k
	R X 10 k	200 k	175 k to 230 k
	R X 100 k	2 M	1.75 M to 2.3 M

NOTE

Adjust OHMS ADJUST for zero reading on all ranges.

CALIBRATION PERFORMANCE TABLE (Cont.)

DC VOLTS CALIBRATION: (1000 Ω /V, 20000 Ω /V and 10 M)

<u>Range</u>	<u>Applied (VDC)</u>	<u>Limits (VDC)</u>
5000 *	4800	4650 to 4950
1000	1000	970 to 1030
500	500	485 to 515
250	250	242.5 to 257.5
50	50	48.5 to 51.5
	40	38.5 to 41.5
	30	28.5 to 31.5
	20	18.5 to 21.5
	10	8.5 to 11.5
10	10	9.7 to 10.3
2.5	2.5	2.425 to 2.575
0.5	0.5	0.485 to 0.515

* Use Test Prod MX-1410/U with RANGE switch set at 500 V and FUNCTION switch to 20 k Ω /V or with RANGE switch set at 500 V and FUNCTION switch to 10 M Ω /V position. Omit this check for the 1000 Ω /V function. (Perform this only if the Test Prod MX-1410/U accompanies TI.)

DC MILLIVOLT-SPECIAL CALIBRATION:

<u>Function</u>	<u>Range</u>	<u>Applied (mV)</u>	<u>Limits (mV)</u>
SPECIAL (100 mV)	Any	100	97 to 103

DC MICROAMPERES-SPECIAL CALIBRATION:

<u>Function</u>	<u>Range</u>	<u>Applied (μA)</u>	<u>Limits (μA)</u>
SPECIAL (100 μ A)	Any	100	97 to 103

CALIBRATION PERFORMANCE TABLE (Cont.)

DC MILLIAMPERES CALIBRATION:

<u>Function</u>	<u>Range</u>	<u>Applied (mA)</u>	<u>Limits (mA)</u>
MA	1000	1000	970 to 1030
	500	500	485 to 515
	250	250	242.5 to 257.5
MA	50	50	48.5 to 51.5
	10*	10	9.7 to 10.3
	2.5*	2.5	2.425 to 2.575
	0.5	0.5	0.485 to 0.515

* Connect SHUNT MX-9127/PSM-37 to TI test leads and Current Standard to 2.5 A section, set RANGE switch to 2.5 mA and apply 2.5 A. The TI must indicate within 2.425 and 2.575 A. Reconnect Current Standard to 10 A section of MX-9127/PSM-37 and set range switch to 10 mA. Apply 10 A, TI must indicate within 9.7 and 10.3. (Perform this only if SHUNT accompanies TI).

FREQUENCY RESPONSE CALIBRATION: (1000 Ω/V , 20000 Ω/V and 10 M)

<u>Range (VAC)</u>	<u>Applied</u>	<u>Limits</u>
2.5	1 V @ 400 Hz to 30 kHz	0.75 to 1.25
2.5	1 V @ 20 to 400 Hz	0.9 to 1.1 VAC