

Customer: ROMAN MELNYK TEST ACCOUNT
35 VANTAGE POINT DRIVE
ROCHESTER, NY 14624

PO Number: ABC123



ANAB AC-2489



Certificate/SO Number: 1-FY5AR-160-1 Revision 2

Manufacturer: Fluke Corporation
Model Number: 87 V
Description: Multimeter, Digital
Serial Number: ABC123
ID: 54321

As-Found: In Tolerance, Pass Acceptance
As-Left: In Tolerance, Pass Acceptance

Issue Date: Mar 10, 2021
Calibration Date: Mar 16, 2021
Due Date: Mar 16, 2022

Calibrated To: Manufacturer Specification
Calibration Procedure: 1-AC08977-28

This calibration conforms to ISO/IEC 17025:2017, ANSI/NCSL Z540-1-1994, ISO 9001:2015, and ISO 10012:2003. When specified contractually, the requirements of ISO TS16949:2009, 10CFR21, 10CFR50 App. B, ASME NQA-1:2012, and ANSI/NCSL Z540.3-2006 (R2013) are also covered. Standards are traceable to the SI either through the National Institute of Standards & Technology (NIST), the National Research Council of Canada (NRC), other national measurement institutes (NMI) that are signatories to the CIPM Mutual Recognition Arrangement, natural physical constants, intrinsic standards, or ratio type measurements. The results of this report relate only to the item calibrated or tested. Reported data is valid at the time of calibration at the environmental conditions noted. This certificate shall not be reproduced except in full, without the written consent of Transcat Inc. Uncertainties are reported with a coverage factor k=2, providing a level of confidence of approximately 95%. When a decision rule is inherent in the specification or the standard the prescribed decision rule was used, otherwise where a statement of conformance is made, it was made based on the measurement meeting the guard banded limits using the decision rule of the client.

Calibrated At:
35 Vantage Point Dr
Rochester, NY 14624

Facility Responsible:
35 Vantage Point Dr
Rochester, NY 14624
800-828-1470



Date Received: November 09, 2020
Service Level : R10

Calibrated By:
 Electronically Signed By:
Kevin Kita

Kevin Kita Mar 16, 2021
Calibration Technician 11:50:35 -04:00

Reviewed By:
 Electronically Signed By:
Jared Payne for

Kevin OGrady Mar 16, 2021
Lab Manager 11:53:00 -04:00

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Description	Setpoints	Accuracy	Low Limit	High Limit	As Found / As Left	O O T	Cal Process Uncertainty (k=2; ±)	Measurement Uncertainty (k=2; ±)	Units	TUR
AC Volts Measure										
600 mV Range	330.0mVrms	±(0.7% Rdg + 4 LSD)	327.3	332.7	329.5 mVrms		8.6e-002	1.7e-001	mVrms	31.5 : 1
		Acceptance Limits:	327.4	332.6						
	60Hz									
	600.0mVrms	±(2% Rdg + 20 LSD)	586.0	614.0	602.4 mVrms		1.4e-001	2.0e-001	mVrms	100.0 : 1
		Acceptance Limits:	586.1	613.9						
	13kHz									
6 V Range	3.300Vrms	±(0.7% Rdg + 2 LSD)	3.275	3.325	3.295 Vrms		8.6e-004	1.7e-003	Vrms	29.2 : 1
		Acceptance Limits:	3.276	3.324						
	60Hz									
	3.300Vrms	±(2% Rdg + 20 LSD)	3.214	3.386	3.287 Vrms		1.1e-003	1.8e-003	Vrms	79.3 : 1
		Acceptance Limits:	3.215	3.385						
	20kHz									
60 V Range	33.00Vrms	±(0.7% Rdg + 2 LSD)	32.75	33.25	32.96 Vrms		6.5e-003	1.5e-002	Vrms	38.5 : 1
		Acceptance Limits:	32.76	33.24						
	60Hz									
	33.00Vrms	±(2% Rdg + 20 LSD)	32.14	33.86	32.87 Vrms		1.1e-002	1.8e-002	Vrms	77.3 : 1
		Acceptance Limits:	32.15	33.85						
	20kHz									
600 V Range	330.0Vrms	±(0.7% Rdg + 2 LSD)	327.5	332.5	329.6 Vrms		8.5e-002	1.5e-001	Vrms	29.4 : 1
		Acceptance Limits:	327.6	332.4						
	60Hz									
	330.0Vrms	±(2% Rdg + 4 LSD)	323.0	337.0	329.8 Vrms		7.2e-002	1.4e-001	Vrms	96.8 : 1
		Acceptance Limits:	323.1	336.9						
	2.5kHz									
1000 V Range	500Vrms	±(0.7% Rdg + 2 LSD)	494	506	500 Vrms		1.2e-001	1.2e+000	Vrms	48.0 : 1

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AC Volts Measure										
		Acceptance Limits:	494	506						
	60Hz									
	1000Vrms	±(1% Rdg + 4 LSD)	986	1014	1002 Vrms		2.4e-001	1.2e+000	Vrms	57.8 : 1
		Acceptance Limits:	986	1014						
	1kHz									
Frequency Measure										
600 mV Range	99.95kHz	±(0.005% Rdg + 1 LSD)	99.94	99.96	99.95 kHz		1.9e-004	1.2e-002	kHz	51.3 : 1
		Acceptance Limits:	99.94	99.96						
	150mVrms									
	199.50kHz	±(0.005% Rdg + 1 LSD)	199.48	199.52	199.50 kHz		3.9e-004	1.2e-002	kHz	51.5 : 1
		Acceptance Limits:	199.48	199.52						
	150mVrms									
6 V Range - Sensitivity	99.95kHz	±(0.005% Rdg + 1 LSD)	99.94	99.96	99.95 kHz		1.9e-004	1.2e-002	kHz	51.3 : 1
		Acceptance Limits:	99.94	99.96						
	0.7Vrms									
60 V Range - Sensitivity	99.95kHz	±(0.005% Rdg + 1 LSD)	99.94	99.96	99.95 kHz		1.9e-004	1.2e-002	kHz	51.3 : 1
		Acceptance Limits:	99.94	99.96						
	7Vrms									
6 V Range - Trigger Level	1000.0Hz	±(0.005% Rdg + 1 LSD)	999.8	1000.2	1000.0 Hz		2.0e-003	1.2e-001	Hz	100.0 : 1
		Acceptance Limits:	999.8	1000.2						
	3.4Vp-p									
Duty Cycle										
Duty Cycle - 6 V DC Range	1kHz	±(0.3 %)	49.7	50.3	50.0 %		9.8e-005	1.2e-001	%	100.0 : 1
		Acceptance Limits:	49.7	50.3						
	5Vp-p									

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DC Volts Measure										
6 V Range	3.300V	±(0.05% Rdg + 1 LSD)	3.297	3.303	3.300 V		5.0e-005	1.2e-003	V	59.5 : 1
		Acceptance Limits:	3.297	3.303						
60 V Range	33.00V	±(0.05% Rdg + 1 LSD)	32.97	33.03	33.00 V		6.3e-004	1.2e-002	V	47.8 : 1
		Acceptance Limits:	32.97	33.03						
600 V Range	330.0V	±(0.05% Rdg + 1 LSD)	329.7	330.3	330.0 V		6.0e-003	1.2e-001	V	50.1 : 1
		Acceptance Limits:	329.7	330.3						
1000 V Range	1000V	±(0.05% Rdg + 1 LSD)	998	1002	1000 V		1.6e-002	1.2e+000	V	100.0 : 1
		Acceptance Limits:	998	1002						
600 mV Range	33.0mV	±(0.1% Rdg + 1 LSD)	32.9	33.1	33.0 mV		1.3e-003	1.2e-001	mV	76.7 : 1
		Acceptance Limits:	32.9	33.1						
	330.0mV	±(0.1% Rdg + 1 LSD)	329.6	330.4	330.0 mV		4.6e-003	1.2e-001	mV	86.8 : 1
		Acceptance Limits:	329.6	330.4						

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Resistance 2 Wire Comp Measure										
600 Ohm Range	330.0Ohm	±(0.2% Rdg + 2 LSD)	329.1	330.9	330.1 Ohm		2.4e-002	1.4e-001	Ohm	36.8 : 1
		Acceptance Limits:	329.1	330.9						
6 kOhm Range	3.300kOhm	±(0.2% Rdg + 1 LSD)	3.292	3.308	3.300 kOhm		2.4e-004	1.4e-003	kOhm	32.7 : 1
		Acceptance Limits:	3.292	3.308						
60 kOhm Range	33.00kOhm	±(0.2% Rdg + 1 LSD)	32.92	33.08	33.02 kOhm		2.4e-003	1.4e-002	kOhm	32.7 : 1
		Acceptance Limits:	32.92	33.08						
600 kOhm Range	330.0kOhm	±(0.6% Rdg + 1 LSD)	327.9	332.1	330.3 kOhm		2.6e-002	1.4e-001	kOhm	81.9 : 1
		Acceptance Limits:	327.9	332.1						
6 MOhm Range	3.300MOhm	±(0.6% Rdg + 1 LSD)	3.279	3.321	3.303 MOhm		5.4e-004	1.4e-003	MOhm	39.2 : 1
		Acceptance Limits:	3.280	3.321						
50 MOhm Range	30.00MOhm	±(1% Rdg + 3 LSD)	29.67	30.33	30.09 MOhm		7.9e-003	1.5e-002	MOhm	41.6 : 1
		Acceptance Limits:	29.68	30.32						
60 nS Range (Open)	0.00MOhm	±(1% Rdg + 30 LSD)	-0.30	0.30	-0.05 nS		0.0e+000	1.2e-002	nS	4 : 1
		Acceptance Limits:	-0.30	0.30						
60 nS Range	100MOhm	±(1% Rdg + 30 LSD)	9.60	10.40	9.93 nS		4.6e-003	1.3e-002	nS	87.2 : 1
		Acceptance Limits:	9.60	10.40						
Diode Test										
Diode Test	3.000V	±(2% Rdg + 1 LSD)	2.939	3.061	3.000 V		2.9e-005	1.2e-003	V	100.0 : 1
		Acceptance Limits:	2.939	3.061						
A AC Measure										
6 A Range	3.000A	±(1% Rdg + 2 LSD)	2.968	3.032	2.999 A		3.0e-003	3.4e-003	A	10.7 : 1
		Acceptance Limits:	2.971	3.029						
	60Hz									

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A DC Measure										
6 A Range	3.000A	±(0.2% Rdg + 4 LSD)	2.990	3.010	3.001 A		1.9e-003	2.3e-003	A	5.2 : 1
		Acceptance Limits:	2.992	3.008						
10 A Range	10.00A	±(0.2% Rdg + 2 LSD)	9.96	10.04	10.00 A		5.5e-003	1.3e-002	A	7.3 : 1
		Acceptance Limits:	9.97	10.03						
mA AC Measure										
60 mA Range	33.00mA	±(1% Rdg + 2 LSD)	32.65	33.35	32.97 mA		2.7e-002	3.2e-002	mA	13.0 : 1
		Acceptance Limits:	32.68	33.32						
	60Hz									
400 mA Range	330.0mA	±(1% Rdg + 2 LSD)	326.5	333.5	330.0 mA		2.1e-001	2.6e-001	mA	16.7 : 1
		Acceptance Limits:	326.7	333.3						
	60Hz									
mA DC Measure										
60 mA Range	33.00mA	±(0.2% Rdg + 4 LSD)	32.89	33.11	33.00 mA		4.5e-003	1.4e-002	mA	24.6 : 1
		Acceptance Limits:	32.89	33.11						
400 mA Range	330.0mA	±(0.2% Rdg + 2 LSD)	329.1	330.9	329.9 mA		8.2e-002	1.6e-001	mA	10.9 : 1
		Acceptance Limits:	329.2	330.8						
µA AC Measure										
600 µA Range	330.0µA	±(1% Rdg + 2 LSD)	326.5	333.5	329.9 µA		3.8e-001	4.0e-001	µA	9.3 : 1
		Acceptance Limits:	326.9	333.1						
	60Hz									
6000 µA Range	3300µA	±(1% Rdg + 2 LSD)	3265	3335	3299 µA		2.8e+000	3.3e+000	µA	12.7 : 1
		Acceptance Limits:	3268	3332						
	60Hz									

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µA DC Measure										
600 µA Range	330.0µA	±(0.2% Rdg + 4 LSD)	328.9	331.1	330.0 µA		6.7e-002	1.6e-001	µA	16.4 : 1
		Acceptance Limits:	329.0	331.0						
6000 µA Range	3300µA	±(0.2% Rdg + 2 LSD)	3291	3309	3300 µA		5.1e-001	1.4e+000	µA	17.5 : 1
		Acceptance Limits:	3292	3308						
Capacitance Measure										
10 nF Range	0.26nF	≥ (0.21 nF) ; ≤ (0.31 nF)	0.21	0.31	0.26 nF		0.0e+000	1.2e-002	nF	4 : 1
		Acceptance Limits:	0.21	0.31						
100 nF Range	5.0nF	±(1% Rdg + 2 LSD)	4.7	5.3	5.0 nF		1.6e-002	1.3e-001	nF	18.3 : 1
		Acceptance Limits:	4.7	5.3						
100 µF Range	9.5µF	±(1% Rdg + 2 LSD)	9.2	9.8	9.5 µF		2.5e-002	1.3e-001	µF	11.8 : 1
		Acceptance Limits:	9.2	9.8						
Low Pass Filter										
Low Pass Filter - 1000 V Range	400Vrms	-(6% Rdg + 4 LSD) ; +(1% Rdg + 4 LSD)	372	408	381 Vrms		1.0e-001	1.2e+000	Vrms	100.0 : 1
		Acceptance Limits:	372	408						
	400Hz									
(Not spec'd - Approx 226 to 340Vrms)	400Vrms				289 Vrms		7.2e-002	1.2e+000	Vrms	4 : 1
	800Hz									
Low Pass Filter @ 800Hz										
Filter follows an expected roll-off curve.			P	P	P					

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Peak MIN/MAX										
MAX - 6 VDC Range	6Vp-p	±(0.103 V)	3.897	4.103	4.025 V		5.6e-004	1.4e-003	V	100.0 : 1
		Acceptance Limits:	3.898	4.102						
	2kHz									
MIN	6Vp-p	±(0.102 V)	-2.102	-1.898	-2.009 V		2.8e-004	1.3e-003	V	100.0 : 1
		Acceptance Limits:	-2.102	-1.898						
	2kHz									
Temperature Measure										
Type K (ITS90)	0.0°C	±(1% Rdg + 10 LSD)	-1.0	1.0	0.1 °C		0.0e+000	1.2e-001	°C	4 : 1
		Acceptance Limits:	-1.0	1.0						
	100.0°C	±(1% Rdg + 10 LSD)	98.0	102.0	100.1 °C		1.6e-001	2.0e-001	°C	12.5 : 1
		Acceptance Limits:	98.2	101.8						
Function Check										
Backlight Comes On			P	P	P					
Backlight Intensifies			P	P	P					
Backlight Off			P	P	P					

Field not applicable.

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Traceable Standards

Asset	Manufacturer	Model Number	Description	Cal Date	Due Date	Traceability Number	Use
5312	Fluke Corporation	5520A	Multifunction Calibrator	27-Aug-20	27-Aug-21	5-&5312-38-2	AF/AL

The use of the standard is defined as: AF - used for as-found readings, AL - used for as-left readings.

Environmental Data

Temperature	Relative Humidity	Temp / RH Asset
71.40°F /21.89°C	53.00%	3133A