

Manufacturer	KEITHLEY INSTRUMENTS	Calibration date	February 24 2019
Model Number	Model 2001	Ambient Temperature	20.91 °C
Serial	SN	Relative Humidity	33.75 %
ID Number	K2001	Pressure	976.46
Notes	Test front ports	Test type	First

This note is test dummy text block for further use. It allow to include user information for further reference

Reference standard	Mfg	Model	Options	Serial / Unc	CEID	Calibration date	Due date
MFC last calibrated		1279.0 days ago		MFC since DCV ZERO		77.0 days ago	
MFC since WBFLAT		3447.0 days ago		MFC since WBGAIN		1279.0 days ago	
MFC Confidence level		24h 95%		MFC Calibrate date		2015-08-25 00:00:00	
MFC Calibrate date Zero		2018-12-09 00:00:00		Calibrate date WB Flatness		2009-09-17 00:00:00	
Calibrate date WB Gain		2015-08-25 00:00:00		CAL CONST 6.5V reference voltage		6.93311097148	
CAL CONST 13V reference voltage		13.8400411797		CAL CONST 22V range positive zero		398.17577	
CAL CONST 22V range negative zero		398.17516		CAL CONST DAC Linearity		0.0	
CAL CONST 10KOHM true output resistance		9999.98707281		CAL CONST 10KOHM standard resistance		9999.20833247	
CAL CONST, Zero calibration temperature		21.5900001526		CAL CONST, All calibration temp		21.5900001526	

This note is test MFC dummy text block for further use.
Calibrator was warmed up >8 hours.

Meter Info	KEITHLEY INSTRUMENTS INC.,MODEL 2001,0715132,B10 /A02	Test date start	24 February 2019 12:54
Test specification interval	24 hour DUT spec	Line frequency	110V 60 Hz
Next calibration date	12/ 9/18	Last calibration date	12/10/17
DUT temperature to cal	0.1	Last calibration temperature	+23.8

Service information

Last calibration temperature	+23.8
All CAL values	9.994200E-01,-2.615209E-04,1.000028E+01,-2.886275E-04,1.000056E+00,-6.488010E-06,1.000624E+01,5.254278E-05,9.998189E+01,4.966413E+02,5.588051E-03,5.080047E-03,3.556033E-03,6.604061E-03,5.588051E-03,1.380000E+02,1.140000E+02,2.432947E-04,1.000313E+00,1.000316E+00,1.000361E+00,1.000202E+00,1.028731E-01,1.000711E+00,1.200000E+02,1.390000E+02,1.385000E+02,1.160000E+02,1.000000E+00,5.000000E-01,2.000000E+00,1.411056E+00,-4.717220E-05,1.763604E+00,-3.311094E-06,-7.054145E-01,1.981577E-05,1.763378E+00,-8.331487E-07,7.053248E-01,1.036494E-03,1.412358E+00,-1.738336E-05,1.412210E+00,-1.737424E-05,1.409961E+00,-1.734657E-05,1.395577E+00,-1.716960E-05,1.409930E+00,-1.734618E-05,1.517331E+00,-9.868634E-03,1.430408E+00,-1.029610E-03,1.787791E+00,-1.015351E-04,1.967744E+00,-1.351222E-05,2.477408E+00,-5.633017E-06,2.272255E+00,-4.364244E-06,2.491312E+00,-4.687154E-06,3.937018E+00,2.314618E-02,1.574748E+00,2.313838E-03,1.517331E+00,3.783760E-05,1.430408E+00,3.567001E-05,1.787791E+00,3.593600E-06,1.967744E+00,3.955321E-06,2.477408E+00,4.979784E-06,7.054153E-01,9.999982E-01,15612,8745,12157,29498,29498,29495,29498,1351,6453,9.299595E-03,9.864712E-04,9.864712E-04,8.962568E-05,7.118748E-06,7.761471E-07,7.079016E-08,4.479543E-09,4.479543E-09
Reference	Direct MFC test, ACV, verification
DUT Condition	Fluke 5700A calkit test

Test procedure : \$Id\$

Source procedure : \$Id\$

Main DC Voltage ranges performance test.

Checks zero offset and +/-FS calibration on all ranges

The following test for the offset voltage specification using MFC 0V source in 4-wire ext sense mode as reference.

DCV gain range points verify gain of the DC voltage function, using uncorrected 24-hour MFC output. DC voltage offset of DUT is nulled before FS tests.

Test Description	Expected Value	Measured Value	Measurement Uncertainty	Lower Limit	Upper Limit	Deviation	DUT Spec	Test Status
Short 0 mVDC	0.000000E+00	0.80 µV	0.50 µV	-1.700 µV	1.700 µV	N/A	1.20 µV	PASS
Short 0.0 VDC	0.000000E+00	1.10 µV	0.50 µV	-4.500 µV	4.500 µV	N/A	4.00 µV	PASS
Short 00.0 VDC	0.000000E+00	-18.00 µV	0.50 µV	-80.500 µV	80.500 µV	N/A	80.00 µV	PASS
Short 000.0 VDC	0.000000E+00	20.00 µV	0.50 µV	-600.500 µV	600.500 µV	N/A	0.60 mV	PASS
Short 0000.0 VDC	0.000000E+00	-200.00 µV	0.50 µV	-6000.500 µV	6000.500 µV	N/A	6.00 mV	PASS
DCV Test	0.1V-1000V	DUT	Source unc.	Low Limit	Hi limit	Measured	24h spec	Result
0.2 VDC (0.20 Range)	0.2000000	0.1999996	7.27 ppm	0.19999535	0.20000465	-2.008 ppm	16.00 ppm	PASS 8.63 %
-0.2 VDC (0.20 Range)	-0.2000000	-0.19999933	7.27 ppm	-0.20000465	-0.19999535	-3.350 ppm	16.00 ppm	PASS 14.40 %
0.1 VDC (2.00 Range)	0.1000000	0.1000003	7.27 ppm	0.099998373	0.10000163	3.000 ppm	9.00 ppm	PASS 18.44 %
1.0 VDC (2.00 Range)	1.0000000	1.0000024	3.86 ppm	0.99998714	1.0000129	2.367 ppm	9.00 ppm	PASS 18.40 %
2.0 VDC (2.00 Range)	2.0000000	2.0000039	3.86 ppm	1.9999743	2.0000257	1.967 ppm	9.00 ppm	PASS 15.29 %
-0.1 VDC (2.00 Range)	-0.1000000	-0.099999933	7.27 ppm	-0.10000163	-0.099998373	-0.667 ppm	9.00 ppm	PASS 4.10 %
-1.0 VDC (2.00 Range)	-1.0000000	-1.0000017	3.86 ppm	-1.0000129	-0.99998714	1.683 ppm	9.00 ppm	PASS 13.09 %
-2.0 VDC (2.00 Range)	-2.0000000	-2.0000044	3.86 ppm	-2.0000257	-1.9999743	2.200 ppm	9.00 ppm	PASS 17.11 %
1.0 VDC (20.00 Range)	1.0000000	0.99997567	3.86 ppm	0.99998514	1.0000149	-24.333 ppm	11.00 ppm	FAIL 163.75 %
10.0 VDC (20.00 Range)	10.0000000	9.9999957	2.77 ppm	9.9998623	10.000138	-0.433 ppm	11.00 ppm	PASS 3.15 %
20.0 VDC (20.00 Range)	20.0000000	20.000025	2.73 ppm	19.999725	20.000275	1.233 ppm	11.00 ppm	PASS 8.98 %
-1.0 VDC (20.00 Range)	-1.0000000	-1.0000365	3.86 ppm	-1.0000149	-0.99998514	36.500 ppm	11.00 ppm	FAIL 245.63 %
-10.0 VDC (20.00 Range)	-10.0000000	-10.000039	2.77 ppm	-10.000138	-9.9998623	3.883 ppm	11.00 ppm	PASS 28.20 %
-20.0 VDC (20.00 Range)	-20.0000000	-20.000043	2.73 ppm	-20.000275	-19.999725	2.150 ppm	11.00 ppm	PASS 15.66 %
10 VDC (200.00 Range)	10.0000000	10.000037	2.77 ppm	9.9998123	10.000188	3.667 ppm	16.00 ppm	PASS 19.53 %
100 VDC (200.00 Range)	100.0000000	99.999963	3.73 ppm	99.998027	100.00197	-0.367 ppm	16.00 ppm	PASS 1.86 %
200 VDC (200.00 Range)	200.0000000	199.99988	3.73 ppm	199.99605	200.00395	-0.608 ppm	16.00 ppm	PASS 3.08 %
-10 VDC (200.00 Range)	-10.0000000	-9.9999617	2.77 ppm	-10.000188	-9.9998123	-3.833 ppm	16.00 ppm	PASS 20.42 %
-100 VDC (200.00 Range)	-100.0000000	-99.99982	3.73 ppm	-100.00197	-99.998027	-1.800 ppm	16.00 ppm	PASS 9.12 %
-200 VDC (200.00 Range)	-200.0000000	-199.99966	3.73 ppm	-200.00395	-199.99605	-1.692 ppm	16.00 ppm	PASS 8.57 %
100 VDC (1000.00 Range)	100.0000000	99.99975	3.73 ppm	99.997327	100.00267	-2.500 ppm	23.00 ppm	PASS 9.35 %
200 VDC (1000.00 Range)	200.0000000	199.9993	3.73 ppm	199.99465	200.00535	-3.500 ppm	23.00 ppm	PASS 13.09 %
1000 VDC (1000.00 Range)	1000.0000000	1000.0033	5.45 ppm	999.96905	1000.0309	3.250 ppm	23.00 ppm	PASS 10.50 %
-100 VDC (1000.00 Range)	-100.0000000	-99.999867	3.73 ppm	-100.00267	-99.997327	-1.333 ppm	23.00 ppm	PASS 4.99 %
-200 VDC (1000.00 Range)	-200.0000000	-199.9996	3.73 ppm	-200.00535	-199.99465	-2.000 ppm	23.00 ppm	PASS 7.48 %
-1000 VDC (1000.00 Range)	-1000.0000000	-1000.0014	5.45 ppm	-1000.0309	-999.96905	1.417 ppm	23.00 ppm	PASS 5.46 %

OHM Test	1 Ohm to 1 GOhm	DUT	Source unc.	Low Limit	Hi limit	Measured	24h spec	Result
1 Ω	0.9999631	0.99998962	85.0 ppm	9.9984210E-01	1.0000841E+00	26.526 ppm	36.0 ppm	PASS 21.92 %
1.9 Ω	1.8996418	1.8995967	85.0 ppm	1.8994119E+00	1.8998717E+00	-23.715 ppm	36.0 ppm	PASS 19.60 %
10 Ω	10.000122	10.000027	23.0 ppm	9.9995320E+00	1.0000712E+01	-9.506 ppm	36.0 ppm	PASS 16.11 %
19 Ω	18.999423	18.999384	23.0 ppm	1.8998302E+01	1.9000544E+01	-2.053 ppm	36.0 ppm	PASS 3.48 %
100 Ω	100.00015	99.999042	10.0 ppm	9.9996050E+01	1.0000425E+02	-11.083 ppm	31.0 ppm	PASS 27.03 %
190 Ω	189.99677	189.99488	10.0 ppm	1.8998898E+02	1.9000456E+02	-9.930 ppm	31.0 ppm	PASS 24.22 %
1.0 kΩ	999.9962	999.98492	8.0 ppm	9.9996220E+02	1.0000302E+03	-11.283 ppm	26.0 ppm	PASS 33.19 %
1.9 kΩ	1899.9601	1899.9407	8.0 ppm	1.8998955E+03	1.9000247E+03	-10.237 ppm	26.0 ppm	PASS 30.11 %
10 kΩ	9999.993	9999.8733	8.0 ppm	9.9996830E+03	1.0000303E+04	-11.967 ppm	23.0 ppm	PASS 38.60 %
19 kΩ	18999.221	18998.998	9.0 ppm	1.8998613E+04	1.8999829E+04	-11.720 ppm	23.0 ppm	PASS 36.62 %
100 kΩ	100000.82	100002.7	9.0 ppm	9.9997470E+04	1.0000417E+05	18.800 ppm	24.5 ppm	PASS 56.12 %
190 kΩ	189996.13	189998.96	9.0 ppm	1.8998977E+05	1.9000249E+05	14.904 ppm	24.5 ppm	PASS 44.49 %
1.0 MΩ	1000005.8	1000009.6	16.0 ppm	9.9993530E+05	1.0000763E+06	3.767 ppm	54.5 ppm	PASS 5.34 %
1.9 MΩ	1900001.8	1900000.7	17.0 ppm	1.8998659E+06	1.9001377E+06	-0.599 ppm	54.5 ppm	PASS 0.84 %
10 MΩ	9998445	9998382.8	33.0 ppm	9.9964703E+06	1.0000420E+07	-6.220 ppm	164.5 ppm	PASS 3.15 %
19 MΩ	18998715	18998382	43.0 ppm	1.8994773E+07	1.9002657E+07	-17.501 ppm	164.5 ppm	PASS 8.43 %
100 MΩ	1.0000362E+08	1.0002957E+08	100.0 ppm	9.9683608E+07	1.0032363E+08	259.491 ppm	3100.0 ppm	PASS 8.11 %

4W and 2W Zero test procedure for all test points that verify Zero offset of the OHMF function. 4-wire kelvin connection is used between DMM and MFC. 1GΩ resistance range is tested using the external standard, as MFC unable to provide this range value.

OHM ZERO 4W	DUT	Source unc.	Low Limit	Hi limit	Measured	24h spec	Result
20R Ω	Range 0.0001125 Ω	1.400e-04 Ω	-0.00014	0.00014	N/A	3.6000e-05 Ω	PASS
200R Ω	Range 0.0008383 Ω	1.400e-03 Ω	-0.0014	0.0014	N/A	2.3000e-05 Ω	PASS
2K Ω	Range 0.0010500 Ω	8.000e-03 Ω	-0.008	0.008	N/A	2.3000e-05 Ω	PASS
20K Ω	Range 0.0131667 Ω	8.000e-02 Ω	-0.08	0.08	N/A	2.3000e-05 Ω	PASS
200K Ω	Range 0.1833333 Ω	9.000e-01 Ω	-0.9	0.9	N/A	2.3000e-05 Ω	PASS
OHM ZERO 2W	DUT	Source unc.	Low Limit	Hi limit	Measured	24h spec	Result
20R Ω	Range 0.2129802 Ω	6.140e-03 Ω	-0.00614	0.00614	N/A	3.6000e-05 Ω	FAIL
200R Ω	Range 0.2133750 Ω	7.400e-03 Ω	-0.0074	0.0074	N/A	2.3000e-05 Ω	FAIL
2K Ω	Range 0.2135667 Ω	1.400e-02 Ω	-0.014	0.014	N/A	2.3000e-05 Ω	FAIL
20K Ω	Range 0.2268333 Ω	8.000e-02 Ω	-0.08	0.08	N/A	2.3000e-05 Ω	FAIL
200K Ω	Range 0.4016667 Ω	9.000e-01 Ω	-0.9	0.9	N/A	2.3000e-05 Ω	PASS
2M Ω	Range 1.9562500 Ω	9.000e+00 Ω	-9	9	N/A	2.3000e-05 Ω	PASS
20M Ω	Range 20.7500000 Ω	9.000e+01 Ω	-90	90	N/A	2.3000e-05 Ω	PASS
200M Ω	Range -441.8750000 Ω	2.000e+04 Ω	-20000.0	20000.0	N/A	2.3000e-05 Ω	PASS
1G Ω	Range -706.2500000 Ω	1.000e+05 Ω	-100000	100000	N/A	2.3000e-05 Ω	PASS

ACV ANA Test	1V-10V	DUT	w/Guardband	Low Limit	Hi limit	Units	Measured	24h spec	Result
1.0 VAC @ 50.0 kHz	1.0	0.9997112	0.0129 %	0.99672091	1.00327909	VAC	-0.0289 %	0.3150 %	PASS 8.81 %
1.0 VAC @ 1.0 MHz	1.0	0.9995827	0.2500 %	0.989	1.011	VAC	-0.0417 %	0.8500 %	PASS 3.79 %
10 VAC @ 100 Hz	10	9.995333	73.18	9.9947682	10.0052318	VAC	-466.700 ppm	450.0 ppm	PASS 89.20 %
10 VAC @ 400 Hz	10	9.998038	73.18	9.9947682	10.0052318	VAC	-196.200 ppm	450.0 ppm	PASS 37.50 %
10 VAC @ 1.0 kHz	10	9.99808	73.18	9.9947682	10.0052318	VAC	-192.000 ppm	450.0 ppm	PASS 36.70 %
10 VAC @ 50.0 kHz	10	10.001093	0.0129 %	9.9672091	10.0327909	VAC	0.0109 %	0.3150 %	PASS 3.33 %
10 VAC @ 1.0 MHz	10	10.186709	0.3000 %	9.76	10.24	VAC	1.8671 %	2.1000 %	PASS 77.80 %

ACV SYNC Test	DUT	w/Guardband	Low Limit	Hi limit	Measured	24h spec	Result, % spec
0.02 V AC+DC @ 10 Hz	0.02	0.0312 %	0.019907	0.020093	0.0000 %	0.4325 %	PASS 0.00 %
0.02 V AC+DC @ 20 Hz	0.019998	0.0312 %	0.019907	0.020093	-0.0100 %	0.4325 %	PASS 2.16 %
0.02 V AC+DC @ 50 Hz	0.019997	0.0312 %	0.019907	0.020093	-0.0150 %	0.4325 %	PASS 3.23 %
0.02 V AC+DC @ 60 Hz	0.020002	0.0312 %	0.019907	0.020093	0.0100 %	0.4325 %	PASS 2.16 %
0.02 V AC+DC @ 100 Hz	0.02	0.0312 %	0.019907	0.020093	0.0000 %	0.4325 %	PASS 0.00 %
0.02 V AC+DC @ 1.0 kHz	0.020003	0.0312 %	0.019907	0.020093	0.0150 %	0.4325 %	PASS 3.23 %
0.02 V AC+DC @ 6.25 kHz	0.020005	0.0312 %	0.019907	0.020093	0.0250 %	0.4325 %	PASS 5.39 %
0.02 V AC+DC @ 10.0 kHz	0.020005	0.0312 %	0.019907	0.020093	0.0250 %	0.4325 %	PASS 5.39 %
0.02 V AC+DC @ 20.0 kHz	0.020006	0.0312 %	0.019907	0.020093	0.0300 %	0.4325 %	PASS 6.47 %
0.02 V AC+DC @ 50.0 kHz	0.020005	0.0447 %	0.019905	0.020095	0.0250 %	0.4325 %	PASS 5.24 %
0.02 V AC+DC @ 100.0 kHz	0.019989	0.0773 %	0.019828	0.020172	-0.0550 %	0.7825 %	PASS 6.40 %
0.02 V AC+DC @ 200.0 kHz	0.019954	0.1500 %	0.019800	0.020200	-0.2300 %	0.8500 %	PASS 23.00 %
0.02 V AC+DC @ 300.0 kHz	0.019935	0.1500 %	0.019800	0.020200	-0.3250 %	0.8500 %	PASS 32.50 %
0.02 V AC+DC @ 500.0 kHz	0.019935	0.2500 %	0.019530	0.020470	-0.3250 %	2.1000 %	PASS 13.83 %
0.02 V AC+DC @ 1.0 MHz	0.020158	0.4000 %	0.019500	0.020500	0.7900 %	2.1000 %	PASS 31.60 %
0.2 V AC+DC @ 10 Hz	0.199976	0.0121 %	0.199866	0.200134	-0.0120 %	0.0550 %	PASS 17.87 %
0.2 V AC+DC @ 20 Hz	0.199947	0.0121 %	0.199866	0.200134	-0.0265 %	0.0550 %	PASS 39.47 %
0.2 V AC+DC @ 50 Hz	0.199955	0.0121 %	0.199886	0.200114	-0.0225 %	0.0450 %	PASS 39.38 %
0.2 V AC+DC @ 60 Hz	0.199961	0.0121 %	0.199886	0.200114	-0.0195 %	0.0450 %	PASS 34.13 %
0.2 V AC+DC @ 100 Hz	0.199972	0.0121 %	0.199886	0.200114	-0.0140 %	0.0450 %	PASS 24.50 %
0.2 V AC+DC @ 1.0 kHz	0.200006	0.0121 %	0.199886	0.200114	0.0030 %	0.0450 %	PASS 5.25 %
0.2 V AC+DC @ 6.25 kHz	0.200011	0.0121 %	0.199886	0.200114	0.0055 %	0.0450 %	PASS 9.63 %
0.2 V AC+DC @ 10.0 kHz	0.20001	0.0121 %	0.199886	0.200114	0.0050 %	0.0450 %	PASS 8.75 %
0.2 V AC+DC @ 20.0 kHz	0.200006	0.0121 %	0.199886	0.200114	0.0030 %	0.0450 %	PASS 5.25 %
0.2 V AC+DC @ 50.0 kHz	0.199957	0.0256 %	0.199319	0.200681	-0.0215 %	0.3150 %	PASS 6.31 %
0.2 V AC+DC @ 100.0 kHz	0.199725	0.0591 %	0.198332	0.201668	-0.1375 %	0.7750 %	PASS 16.49 %
0.2 V AC+DC @ 200.0 kHz	0.199042	0.0964 %	0.198107	0.201893	-0.4790 %	0.8500 %	PASS 50.61 %
0.2 V AC+DC @ 300.0 kHz	0.198581	0.0964 %	0.198107	0.201893	-0.7095 %	0.8500 %	PASS 74.97 %
0.2 V AC+DC @ 500.0 kHz	0.198096	0.1500 %	0.198000	0.202000	-0.9520 %	0.8500 %	PASS 95.20 %
0.2 V AC+DC @ 1.0 MHz	0.197967	0.3000 %	0.197700	0.202300	-1.0165 %	0.8500 %	PASS 88.39 %
2.0 V AC+DC @ 10 Hz	2.00053	0.0050 %	1.998801	2.001199	0.0265 %	0.0550 %	PASS 44.20 %
2.0 V AC+DC @ 20 Hz	2.00018	0.0050 %	1.998801	2.001199	0.0090 %	0.0550 %	PASS 15.01 %
2.0 V AC+DC @ 50 Hz	2.00019	0.0050 %	1.999001	2.000999	0.0095 %	0.0450 %	PASS 19.02 %
2.0 V AC+DC @ 60 Hz	2.00019	0.0050 %	1.999001	2.000999	0.0095 %	0.0450 %	PASS 19.02 %
2.0 V AC+DC @ 100 Hz	2.0002	0.0050 %	1.999001	2.000999	0.0100 %	0.0450 %	PASS 20.02 %
2.0 V AC+DC @ 1.0 kHz	2.0003	0.0050 %	1.999001	2.000999	0.0150 %	0.0450 %	PASS 30.03 %
2.0 V AC+DC @ 6.25 kHz	2.00033	0.0050 %	1.998901	2.001099	0.0165 %	0.0500 %	PASS 30.02 %
2.0 V AC+DC @ 10.0 kHz	2.00035	0.0050 %	1.998901	2.001099	0.0175 %	0.0500 %	PASS 31.84 %
2.0 V AC+DC @ 20.0 kHz	2.00032	0.0050 %	1.998901	2.001099	0.0160 %	0.0500 %	PASS 29.11 %
2.0 V AC+DC @ 50.0 kHz	1.99986	0.0085 %	1.993529	2.006471	-0.0070 %	0.3150 %	PASS 2.16 %
2.0 V AC+DC @ 100.0 kHz	1.99781	0.0138 %	1.984224	2.015776	-0.1095 %	0.7750 %	PASS 13.88 %
2.0 V AC+DC @ 200.0 kHz	1.99206	0.0425 %	1.982149	2.017851	-0.3970 %	0.8500 %	PASS 44.48 %
2.0 V AC+DC @ 300.0 kHz	1.98881	0.0425 %	1.982149	2.017851	-0.5595 %	0.8500 %	PASS 62.69 %
2.0 V AC+DC @ 500.0 kHz	1.98823	0.1100 %	1.955800	2.044200	-0.5885 %	2.1000 %	PASS 26.63 %
2.0 V AC+DC @ 1.0 MHz	1.99428	0.1800 %	1.954400	2.045600	-0.2860 %	2.1000 %	PASS 12.54 %
20 V AC+DC @ 10 Hz	19.9994	0.0048 %	19.986036	20.013964	-0.0030 %	0.0650 %	PASS 4.30 %
20 V AC+DC @ 20 Hz	19.996	0.0048 %	19.986036	20.013964	-0.0200 %	0.0650 %	PASS 28.65 %
20 V AC+DC @ 50 Hz	19.9968	0.0048 %	19.988036	20.011964	-0.0160 %	0.0550 %	PASS 26.75 %
20 V AC+DC @ 60 Hz	19.9973	0.0048 %	19.988036	20.011964	-0.0135 %	0.0550 %	PASS 22.57 %
20 V AC+DC @ 100 Hz	19.9983	0.0048 %	19.988036	20.011964	-0.0085 %	0.0550 %	PASS 14.21 %
20 V AC+DC @ 1.0 kHz	20.0001	0.0048 %	19.988036	20.011964	0.0005 %	0.0550 %	PASS 0.84 %
20 V AC+DC @ 6.25 kHz	19.9977	0.0048 %	19.980036	20.019964	-0.0115 %	0.0950 %	PASS 11.52 %
20 V AC+DC @ 10.0 kHz	19.9981	0.0048 %	19.980036	20.019964	-0.0095 %	0.0950 %	PASS 9.52 %
20 V AC+DC @ 20.0 kHz	20.0002	0.0048 %	19.980036	20.019964	0.0010 %	0.0950 %	PASS 1.00 %
20 V AC+DC @ 50.0 kHz	20.0042	0.0085 %	19.935291	20.064709	0.0210 %	0.3150 %	PASS 6.49 %
20 V AC+DC @ 100.0 kHz	20.0003	0.0121 %	19.932573	20.067427	0.0015 %	0.3250 %	PASS 0.44 %
20 V AC+DC @ 200.0 kHz	19.9804	0.0336 %	19.803273	20.196727	-0.0980 %	0.9500 %	PASS 9.96 %

20 V AC+DC @ 300.0 kHz	19.9853	0.0336 %	19.803273	20.196727	-0.0735 %	0.9500 %	PASS 7.47 %
20 V AC+DC @ 500.0 kHz	20.0154	0.1100 %	19.138000	20.862000	0.0770 %	4.2000 %	PASS 1.79 %
20 V AC+DC @ 1.0 MHz	20.3032	0.1700 %	19.126000	20.874000	1.5160 %	4.2000 %	PASS 34.69 %
200.0 V AC+DC @ 100 Hz	200.026	0.0060 %	199.877964	200.122036	0.0130 %	0.0550 %	PASS 21.29 %
200.0 V AC+DC @ 1.0 kHz	200.019	0.0060 %	199.877964	200.122036	0.0095 %	0.0550 %	PASS 15.56 %
200.0 V AC+DC @ 6.25 kHz	200.004	0.0060 %	199.797964	200.202036	0.0020 %	0.0950 %	PASS 1.98 %
200.0 V AC+DC @ 10.0 kHz	200.015	0.0060 %	199.797964	200.202036	0.0075 %	0.0950 %	PASS 7.42 %
200.0 V AC+DC @ 20.0 kHz	200.04	0.0060 %	199.797964	200.202036	0.0200 %	0.0950 %	PASS 19.79 %
700.0 V AC+DC @ 100 Hz	699.85	0.0074 %	699.283452	700.716548	-0.0214 %	0.0950 %	PASS 20.90 %
700.0 V AC+DC @ 1.0 kHz	699.83	0.0074 %	699.283452	700.716548	-0.0243 %	0.0950 %	PASS 23.68 %

Procedure for all test points that verify Gain of the DC current DCI function. Both +/-FS points are tested.
 2-wire connection at LO and DCI is used between DMM and MFC.
 DCI gain range points verify gain of the DC current function, using corrected 24-hour MFC output.

DCI Test	100nA-1A	DUT	Source unc.	Low Limit	Hi limit	Measured	24h spec	Result
Zero μ ADC	0	6.3E-10						INFO
1 μ ADC	1E-06	1.00069E-06	71.82 ppm	9.998402E-07	1.00016E-06	690.000 ppm	88 ppm	FAIL 431.74 %
2 μ ADC	2E-06	2.00078E-06	71.82 ppm	1.99968E-06	2.00032E-06	390.000 ppm	88 ppm	FAIL 244.02 %
-1 μ ADC	-1E-06	-9.9925E-07	71.82 ppm	-1.00016E-06	-9.998402E-07	-750.000 ppm	88 ppm	FAIL 469.28 %
-2 μ ADC	-2E-06	-1.99926E-06	71.82 ppm	-2.00032E-06	-1.99968E-06	-370.000 ppm	88 ppm	FAIL 231.51 %
Zero 00 μ ADC	0	7.7E-10						INFO
10 μ ADC	1E-05	1.000084E-05	71.82 ppm	9.998402E-06	1.00016E-05	84.000 ppm	88 ppm	PASS 52.56 %
20 μ ADC	2E-05	2.000091E-05	71.82 ppm	1.99968E-05	2.00032E-05	45.500 ppm	88 ppm	PASS 28.47 %
-10 μ ADC	-1E-05	-9.99932E-06	71.82 ppm	-1.00016E-05	-9.998402E-06	-68.000 ppm	88 ppm	PASS 42.55 %
20 μ ADC	-2E-05	-1.999943E-05	71.82 ppm	-2.00032E-05	-1.99968E-05	-28.500 ppm	88 ppm	PASS 17.83 %
Zero 000 μ ADC	0	7.2E-10						INFO
100 μ ADC	0.0001	0.00010000153	71.82 ppm	9.998402E-05	0.000100016	15.300 ppm	88 ppm	PASS 9.57 %
200 μ ADC	0.0002	0.00020000263	71.82 ppm	0.000199968	0.000200032	13.150 ppm	88 ppm	PASS 8.23 %
-100 μ ADC	-0.0001	-0.00010000056	71.82 ppm	-0.000100016	-9.998402E-05	5.600 ppm	88 ppm	PASS 3.50 %
-200 μ ADC	-0.0002	-0.00020000177	71.82 ppm	-0.000200032	-0.000199968	8.850 ppm	88 ppm	PASS 5.54 %
Zero mADC	0	-2E-10						INFO
-1.0 mADC	0.001	0.0010000236	33.64 ppm	0.0009998824	0.001000118	23.600 ppm	84 ppm	PASS 20.06 %
2.0 mADC	0.002	0.0020000484	33.64 ppm	0.001999765	0.002000235	24.200 ppm	84 ppm	PASS 20.57 %
-1.0 mADC	-0.001	-0.0010000259	33.64 ppm	-0.001000118	-0.0009998824	25.900 ppm	84 ppm	PASS 22.02 %
-2.0 mADC	-0.002	-0.0020000549	33.64 ppm	-0.002000235	-0.001999765	27.450 ppm	84 ppm	PASS 23.33 %
Zero 00 mADC	0	-1.6E-08						INFO
10 mADC	0.01	0.010000575	32.27 ppm	0.009998827	0.01000117	57.500 ppm	85 ppm	PASS 49.03 %
20 mADC	0.02	0.020001213	32.27 ppm	0.01999765	0.02000235	60.650 ppm	85 ppm	PASS 51.72 %
-10 mADC	-0.01	-0.010000684	32.27 ppm	-0.01000117	-0.009998827	68.400 ppm	85 ppm	PASS 58.33 %
-20 mADC	-0.02	-0.020001379	32.27 ppm	-0.02000235	-0.01999765	68.950 ppm	85 ppm	PASS 58.80 %
Zero 000 mADC	0	-2E-07						INFO
100 mADC	0.1	0.10002594	53.32 ppm	0.09998307	0.1000169	259.400 ppm	116 ppm	FAIL 153.20 %
200 mADC	0.2	0.20005013	53.32 ppm	0.1999661	0.2000339	250.650 ppm	116 ppm	FAIL 148.03 %
-100 mADC	-0.1	-0.1000276	53.32 ppm	-0.1000169	-0.09998307	276.000 ppm	116 ppm	FAIL 163.00 %
-200 mADC	-0.2	-0.2000529	53.32 ppm	-0.2000339	-0.1999661	264.500 ppm	116 ppm	FAIL 156.21 %
Zero ADC	0	6E-07						INFO
1.0 ADC	1	0.9999297	115.22 ppm	0.9993648	1.000635	-70.300 ppm	520 ppm	PASS 11.07 %
2.0 ADC	2	1.9999559	115.22 ppm	1.99873	2.00127	-22.050 ppm	520 ppm	PASS 3.47 %
-1.0 ADC	-1	-0.9999952	115.22 ppm	-1.000635	-0.9993648	-4.800 ppm	520 ppm	PASS 0.76 %
-2.0 ADC	-2	-2.0000123	115.22 ppm	-2.00127	-1.99873	6.150 ppm	520 ppm	PASS 0.97 %

ACI Test	200µA-2A	DUT	Source unc.	Low Limit	Hi limit	Measured	24h spec	Result, % spec
50 µA AC @ 50 Hz	5e-05	5.01104E-05	0.0165 %	4.99467275e-05	5.00532725e-05	2208.000 ppm	0.0900 %	FAIL 207.24 %
100 µA AC @ 50 Hz	0.0001	0.0001000483	0.0165 %	9.9893455e-05	0.000100106545	483.000 ppm	0.0900 %	PASS 45.33 %
150 µA AC @ 50 Hz	0.00015	0.0001499934	0.0165 %	0.0001498401825	0.0001501598175	-44.000 ppm	0.0900 %	PASS 4.13 %
200 µA AC @ 50 Hz	0.0002	0.0001999453	0.0165 %	0.00019978691	0.00020021309	-273.500 ppm	0.0900 %	PASS 25.67 %
1.0 mA AC @ 50 Hz	0.001	0.0009994581	0.0138 %	0.00099896182	0.00100103818	-541.900 ppm	0.0900 %	PASS 52.20 %
2.0 mA AC @ 50 Hz	0.002	0.0019993652	0.0138 %	0.00199792364	0.00200207636	-317.400 ppm	0.0900 %	PASS 30.57 %
10 mA AC @ 50 Hz	0.01	0.009995244	0.0138 %	0.0099896182	0.0100103818	-475.600 ppm	0.0900 %	PASS 45.81 %
20 mA AC @ 50 Hz	0.02	0.019994836	0.0138 %	0.0199792364	0.0200207636	-258.200 ppm	0.0900 %	PASS 24.87 %
100 mA AC @ 50 Hz	0.1	0.0999718	0.0134 %	0.099896636	0.100103364	-282.000 ppm	0.0900 %	PASS 27.28 %
200 mA AC @ 50 Hz	0.2	0.19998694	0.0134 %	0.199793272	0.200206728	-65.300 ppm	0.0900 %	PASS 6.32 %
1.0 A AC @ 50 Hz	1.0	0.9993934	0.0308 %	0.99879182	1.00120818	-606.600 ppm	0.0900 %	PASS 50.21 %
2.0 A AC @ 50 Hz	2.0	1.9992385	0.0308 %	1.99758364	2.00241636	-380.750 ppm	0.0900 %	PASS 31.51 %
50 µA AC @ 60 Hz	5e-05	5.01868E-05	0.0165 %	4.99467275e-05	5.00532725e-05	3736.000 ppm	0.0900 %	FAIL 350.65 %
100 µA AC @ 60 Hz	0.0001	0.0001000337	0.0165 %	9.9893455e-05	0.000100106545	337.000 ppm	0.0900 %	PASS 31.63 %
150 µA AC @ 60 Hz	0.00015	0.000150032	0.0165 %	0.0001498401825	0.0001501598175	213.333 ppm	0.0900 %	PASS 20.02 %
200 µA AC @ 60 Hz	0.0002	0.0002000331	0.0165 %	0.00019978691	0.00020021309	165.500 ppm	0.0900 %	PASS 15.53 %
1.0 mA AC @ 60 Hz	0.001	0.0009994657	0.0138 %	0.00099896182	0.00100103818	-534.300 ppm	0.0900 %	PASS 51.47 %
2.0 mA AC @ 60 Hz	0.002	0.0019995909	0.0138 %	0.00199792364	0.00200207636	-204.550 ppm	0.0900 %	PASS 19.70 %
10 mA AC @ 60 Hz	0.01	0.009997084	0.0138 %	0.0099896182	0.0100103818	-291.600 ppm	0.0900 %	PASS 28.09 %
20 mA AC @ 60 Hz	0.02	0.019996915	0.0138 %	0.0199792364	0.0200207636	-154.250 ppm	0.0900 %	PASS 14.86 %
100 mA AC @ 60 Hz	0.1	0.0999787	0.0134 %	0.099896636	0.100103364	-213.000 ppm	0.0900 %	PASS 20.61 %
200 mA AC @ 60 Hz	0.2	0.20001283	0.0134 %	0.199793272	0.200206728	64.150 ppm	0.0900 %	PASS 6.21 %
1.0 A AC @ 60 Hz	1.0	0.9995883	0.0308 %	0.99879182	1.00120818	-411.700 ppm	0.0900 %	PASS 34.08 %
2.0 A AC @ 60 Hz	2.0	1.9995277	0.0308 %	1.99758364	2.00241636	-236.150 ppm	0.0900 %	PASS 19.55 %
50 µA AC @ 1.0 kHz	5e-05	5.01094E-05	0.0165 %	4.99467275e-05	5.00532725e-05	2188.000 ppm	0.0900 %	FAIL 205.36 %
100 µA AC @ 1.0 kHz	0.0001	0.0001000667	0.0165 %	9.9893455e-05	0.000100106545	667.000 ppm	0.0900 %	PASS 62.60 %
150 µA AC @ 1.0 kHz	0.00015	0.0001500339	0.0165 %	0.0001498401825	0.0001501598175	226.000 ppm	0.0900 %	PASS 21.21 %
200 µA AC @ 1.0 kHz	0.0002	0.0002000019	0.0165 %	0.00019978691	0.00020021309	9.500 ppm	0.0900 %	PASS 0.89 %
1.0 mA AC @ 1.0 kHz	0.001	0.0009998187	0.0138 %	0.00099896182	0.00100103818	-181.300 ppm	0.0900 %	PASS 17.46 %
2.0 mA AC @ 1.0 kHz	0.002	0.0020000661	0.0138 %	0.00199792364	0.00200207636	33.050 ppm	0.0900 %	PASS 3.18 %
10 mA AC @ 1.0 kHz	0.01	0.009999387	0.0138 %	0.0099896182	0.0100103818	-61.300 ppm	0.0900 %	PASS 5.90 %
20 mA AC @ 1.0 kHz	0.02	0.020002917	0.0138 %	0.0199792364	0.0200207636	145.850 ppm	0.0900 %	PASS 14.05 %
100 mA AC @ 1.0 kHz	0.1	0.10001504	0.0134 %	0.099896636	0.100103364	150.400 ppm	0.0900 %	PASS 14.55 %
200 mA AC @ 1.0 kHz	0.2	0.20007054	0.0134 %	0.199793272	0.200206728	352.700 ppm	0.0900 %	PASS 34.12 %
1.0 A AC @ 1.0 kHz	1.0	0.9998471	0.0308 %	0.99879182	1.00120818	-152.900 ppm	0.0900 %	PASS 12.66 %
2.0 A AC @ 1.0 kHz	2.0	2.000098	0.0308 %	1.99758364	2.00241636	49.000 ppm	0.0900 %	PASS 4.06 %
50 µA AC @ 10.0 kHz	5e-05	5.00727E-05	0.1400 %	4.986e-05	5.014e-05	0.1454 %	0.1400 %	PASS 51.93 %
100 µA AC @ 10.0 kHz	0.0001	9.9987E-05	0.1400 %	9.972e-05	0.00010028	-0.0130 %	0.1400 %	PASS 4.64 %
150 µA AC @ 10.0 kHz	0.00015	0.000149902	0.1400 %	0.00014958	0.00015042	-0.0653 %	0.1400 %	PASS 23.33 %
200 µA AC @ 10.0 kHz	0.0002	0.0001998249	0.1400 %	0.00019944	0.00020056	-0.0876 %	0.1400 %	PASS 31.27 %
1.0 mA AC @ 10.0 kHz	0.001	0.0009998893	0.1400 %	0.0009972	0.0010028	-0.0111 %	0.1400 %	PASS 3.95 %
2.0 mA AC @ 10.0 kHz	0.002	0.0019999742	0.1400 %	0.0019944	0.0020056	-0.0013 %	0.1400 %	PASS 0.46 %
10 mA AC @ 10.0 kHz	0.01	0.009999327	0.1300 %	0.009973	0.010027	-0.0067 %	0.1400 %	PASS 2.49 %
20 mA AC @ 10.0 kHz	0.02	0.020000393	0.1300 %	0.019946	0.020054	0.0020 %	0.1400 %	PASS 0.73 %
100 mA AC @ 10.0 kHz	0.1	0.10005967	0.1100 %	0.09975	0.10025	0.0597 %	0.1400 %	PASS 23.87 %
200 mA AC @ 10.0 kHz	0.2	0.20013581	0.1100 %	0.1995	0.2005	0.0679 %	0.1400 %	PASS 27.16 %
1.0 A AC @ 10.0 kHz	1.0	1.0026504	0.6100 %	0.9925	1.0075	0.2650 %	0.1400 %	PASS 35.34 %
2.0 A AC @ 10.0 kHz	2.0	2.0054472	0.6100 %	1.985	2.015	0.2724 %	0.1400 %	PASS 36.31 %

Test date	24 February 2019 18:14
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Lab temperature maintained +24°C ±2°C

Internal use only

Not validated