ACCREDITED
Calibration Laboratory
CERT#2230.01

ILLIANA INSTRUMENTATION

1831 Govert Drive Schererville, IN 46375 Phone (219)227-8788 Fax (219)515-6161

CERTIFICATE OF CALIBRATION

CUSTOMER:	MISCELLANEOUS DETAILS:
Illiana Instrumentation Service 1831 Govert Drive Schererville, IN 46375	Date Received 3/29/19 Certification Date: 3/31/19 Recalibration Date: 3/31/20 Cal. Number: 1216-033119 P.O. Number: Location of Calibration: Lab Detailed Results Attached: YES Procedure Used: Fluke Procedure

EQUIPMENT CALIBRATED	
MANUFACTURER:	Fluke
MODEL:	725
SERIAL NUMBER:	7624249
ITEM NUMBER:	1216
DESCRIPTION:	Calibrator
CONDITION AS FOUND:	Good, unless otherwise noted on reports

STANDARDS USED/UNCERTAINTIES
Item 1546 Fluke 525B; Item 1205 HP34401A, SN 3146A01748

TEST CONDITIONS	
TEMPERATURE	76 Deg F.
HUMIDITY	34%

CERTIFIED BY: Paul Drolla TITLE: ISA CCST III DATE 3/29/19

APPROVED BY: Laura Drolla TITLE: Deputy Quality Mgr. DATE 3/29/19

This certifies that the above equipment was calibrated using appropriate Illiana Instrumentation technical procedures. At planned intervals, Illiana Instrumentation standards are calibrated by comparison to or measurement against standards which are traceable to the SI units through the NIST or other recognized national measurement institutes or international standard bodies. The results in this report relate only to the item(s) calibrated. If so indicated above, detailed calibration results are attached to this certificate. These results are part of this certificate and this certificate shall not be reproduced except in full, without the written approval of Illiana Instrumentation. Any number of factors not under the control of the calibration laboratory may cause the calibration of the above item(s) to drift before the recommended recalibration date. Supporting documentation relative to traceability and technical procedures used is on file and is available for examination upon request and approval of our quality assurance manager. The above uncertainties represent an expanded uncertainty expressed at approximately 95% confidence level using a coverage factor of k=2.

Item	1216 Fluke 725								
Accuracy:	Varies By Range								
Date:	3/31/2019								
Intentional Offset as Found	None								
Intentional Offset as Left	None								
Limitations	None								
Input range	**Eng. Units**	**Cal Pt**	**Upper**	**lower**	**Initial**	**Final**	**Sensitivity**	**STD**	**Unc.**
							Check		
Meas VDC Upper Display	VDC	0	0.002	-0.002	0	0	OK	1546	0.000005
		15	15.005	14.995	14.999	14.999	OK	1546	0.000005
		30	30.008	29.992	29.998	29.998	OK	1546	0.000005
Meas mVDC on lower display	mDVC	0	0.02	-0.02	0	0	OK	1546	0.0032
		45	45.03	44.97	44.99	44.99	OK	1546	0.0032
		90	90.04	89.96	90	90	OK	1546	0.0032
Lower diplay voltage measure	VDC	0	0.002	-0.002	0	0	OK	1546	0.000005
		10	10.004	9.996	10	10	OK	1546	0.000005
		20	20.006	19.994	20	20	OK	1546	0.000005
Meas mADC 30 mADC upper display	mADC	4	4.003	3.997	3.999	3.999	OK	1546	0.0016
		12	12.005	11.995	11.999	11.999	OK	1546	0.0016
		24	24.007	23.993	23.997	23.997	OK	1546	0.0057
Meas mADC 30 mADC lower display	mADC	4	4.003	3.997	3.999	3.999	OK	1546	0.0016
		12	12.005	11.995	11.998	11.998	OK	1546	0.0016
		24	24.007	23.993	23.997	23.997	OK	1546	0.0057
Frequency source lower display	kHz	10	10.025	9.975	9.9999	9.9999	OK	**1205**	0.0033
Lower display 4 wire resistance measure	Ohms	15	15.1	14.9	14.99	14.99	OK	1546	0.025
		350	350.1	349.9	350.1	350.1	OK	1546	0.025
		500	500.5	499.5	500.1	500.1	OK		0.049
Lower display 3 wire RTD measure	Ohms	350	350.2	349.8	350.09	350.09	OK	1546	0.049
Measure K	C	-180	-179.4	-180.6	-179.8	-179.8	OK	1546	0.17
Measure K	C	0	0.6	-0.6	0	0	OK	1546	0.17
Measure K	C	400	400.6	399.4	400	400	OK	1546	0.17
Measure K	C	800	800.8	799.2	800	800	OK	1546	0.17
Measure K	C	1000	1001	999	1000	1000	OK	1546	0.17
Measure K	C	1300	1301.3	1298.7	1300	1300	OK	1546	0.17
Simulate K	C	-180	-179.4	-180.6	-180	-180	OK	1546	0.16
Simulate K	C	0	0.6	-0.6	-0.1	-0.1	OK	1546	0.16
Simulate K	C	400	400.6	399.4	400	400	OK	1546	0.16
Simulate K	C	800	800.8	799.2	800	800	OK	1546	0.16
Simulate K	C	1000	1001	999	1000	1000	OK	1546	0.16
Simulate K	C	1300	1301.3	1298.7	1300	1300	OK	1546	0.16
Measure J	C	-200	-199.4	-200.6	-200.2	-200.2	OK	1546	0.15
Measure J	C	0	0.6	-0.6	0	0	OK	1546	0.15
Measure J	C	300	300.6	299.4	299.9	299.9	OK	1546	0.15
Measure J	C	600	600.6	599.4	599.9	599.9	OK	1546	0.15
Measure J	C	900	900.9	899.1	899.9	899.9	OK	1546	0.15
Measure J	C	1200	1201.2	1198.8	1199.8	1199.8	OK	1546	0.15
Simulate J	C	-200	-199.4	-200.6	-199.8	-199.8	OK	1546	0.13
Simulate J	C	0	0.6	-0.6	0.1	0.1	OK	1546	0.13
Simulate J	C	300	300.6	299.4	300.1	300.1	OK	1546	0.13
Simulate J	C	600	600.6	599.4	600.1	600.1	OK	1546	0.13
Simulate J	C	900	900.9	899.1	900.1	900.1	OK	1546	0.13
Simulate J	C	1200	1201.2	1198.8	1200.1	1200.1	OK	1546	0.13

Input range	Eng. Units	Cal Pt	Upper	lower	Initial	Final	Sensitivity Check	STD	Unc.
Measure S	C	1000	1001	999	999	999	OK	1546	0.67
Measure S	C	1150	1151.5	1148.5	1149	1149	OK	1546	0.58
Measure S	C	1300	1301.3	1298.7	1299	1299	OK	1546	0.58
Measure S	C	1450	1451.5	1448.5	1449	1449	OK	1546	0.58
Measure S	C	1600	1601.6	1598.4	1599	1599	OK	1546	0.58
Measure S	C	1750	1751.75	1748.25	1749	1749	OK	1546	0.58
Simulate S	C	1000	1001	999	1000	1000	OK	1546	0.67
Simulate S	C	1150	1151.5	1148.5	1149.9	1149.9	OK	1546	0.58
Simulate S	C	1300	1301.3	1298.7	1300	1300	OK	1546	0.58
Simulate S	C	1450	1451.5	1448.5	1449.9	1449.9	OK	1546	0.58
Simulate S	C	1600	1601.6	1598.4	1600	1600	OK	1546	0.58
Simulate S	C	1750	1751.75	1748.25	1749.9	1749.9	OK	1546	0.58
Measure N	C	0	0.6	-0.6	0.3	0.3	OK	1546	0.2
Measure N	C	200	200.6	199.4	199.7	199.7	OK	1546	0.2
Measure N	C	500	500.6	499.4	499.7	499.7	OK	1546	0.2
Measure N	C	800	800.8	799.2	799.7	799.7	OK	1546	0.2
Measure N	C	1100	1101.1	1098.9	1099.7	1099.7	OK	1546	0.2
Measure N	C	1300	1301.3	1298.7	1299.7	1299.7	OK	1546	0.2
Source N	C	0	0.6	-0.6	0.3	0.3	OK	1546	0.18
Source N	C	200	200.6	199.4	200.3	200.3	OK	1546	0.18
Source N	C	500	500.6	499.4	500.3	500.3	OK	1546	0.18
Source N	C	800	800.8	799.2	800.3	800.3	OK	1546	0.18
Source N	C	1100	1101.1	1098.9	1100.3	1100.3	OK	1546	0.18
Source N	C	1300	1301.3	1298.7	1300.3	1300.3	OK	1546	0.18
Measure T	C	-200	-199.4	-200.6	-199.7	-199.7	OK	1546	0.74
Measure T	C	0	0.6	-0.6	0.1	0.1	OK	1546	0.35
Measure T	C	100	100.6	99.4	100.1	100.1	OK	1546	0.35
Measure T	C	200	200.6	199.4	200	200	OK	1546	0.35
Measure T	C	300	300.6	299.4	300	300	OK	1546	0.35
Measure T	C	400	400.6	399.6	400	400	OK	1546	0.35
Source T	C	-200	-199.4	-200.6	-200.5	-200.5	OK	1546	0.73
Source T	C	0	0.6	-0.6	-0.2	-0.2	OK	1546	0.33
Source T	C	100	100.6	99.4	99.8	99.8	OK	1546	0.33
Source T	C	200	200.6	199.4	199.9	199.9	OK	1546	0.33
Source T	C	300	300.6	299.4	299.9	299.9	OK	1546	0.33
Source T	C	400	400.6	399.6	399.9	399.9	OK	1546	0.33
Source mADC lower display	mADC	4	4.0028	3.9972	4.0008	4.0008	OK	**1205**	0.01
		12	12.0044	11.9956	12.002	12.002	OK	**1205**	0.01
		24	24.0068	23.9932	24.003	24.003	OK	**1205**	0.012
Source mVDC lower display	mVDC	0	0.02	-0.02	0.002	0.002	OK	**1205**	0.0045
		45	45.03	44.97	45.002	45.002	OK	**1205**	0.01
		100	100.04	99.96	100.003	100.003	OK	**1205**	0.01
Source VDC lower display	VDC	0	0.002	-0.002	0	0	OK	**1205**	0.0000045
		5	5.003	4.997	5	5	OK	**1205**	0.00053
		10	10.004	9.996	10	10	OK	**1205**	0.0058
Lower display ohm source	Ohms	15	15.1	14.9	15.005	15.005	OK	**1205**	0.0018
		360	360.1	359.9	359.99	359.99	OK	**1205**	0.016
		500	500.5	499.5	499.95	499.95	OK	**1205**	0.016
		1500	1500.5	1499.5	1500.2	1500.2	OK	**1205**	0.016
		3200	3201	3199	3200	3200	OK	**1205**	0.016