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FLUKE®

Calibration

525B

Temperature/Pressure Calibrator

Getting Started Guide

PN 3064079
July 2012
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Fluke Corporation
P.O. Box 9090
Everett, WA 98206-9090
U.S.A.

Fluke Europe B.V.
P.O. Box 1186
5602 BD Eindhoven
The Netherlands

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Table of Contents

Title	Page
Introduction	1
Contacting Fluke	1
Standard Equipment	2
Options and Accessories	2
Safety Information	2
Getting Acquainted with the Calibrator	4
Input and Output Terminals	4
Display Error Messages	8
Rear Panel View	9
General Specifications	10
Electrical Specifications	10
DC Voltage Specifications, Output	10
DC Current Specifications, Output	11
Resistance Specifications, Output	11
Resistance Specifications, Input	11
Thermocouple Specification, Output and Input	12
RTD and Thermistor Specification, Output	13
RTD and Thermistor Specification, Input	14
Pressure Measurement	15

List of Tables

Table	Title	Page
1.	Summary of Input and Output Functions	1
2.	Symbols Used on the Calibrator	3
3.	Function Keys	6
4.	Display Error Messages	8

List of Figures

Figure	Title	Page
1.	Input and Output Terminals and Connectors	4
2.	Pushbuttons	5
3.	Calibrator Function Keys	6
4.	Rear Panel View	9

Temperature/Pressure Calibrator

Introduction

Your Fluke 525B Temperature/Pressure Calibrator (referred to as the Calibrator) is an instrument designed to meet the demands of your process tools calibration workload.

In addition to the functions in Table 1, the Calibrator has the following features and functions.

- Two line backlit LCD display
- 5-way binding posts
- IEEE 488.2 parallel
- RS-232 serial interface

Contacting Fluke

To order accessories or get the location of the nearest Fluke distributor or Service Center, call:

- USA: 1-888-99-FLUKE (1-888-993-5853)
- Canada: 1-800-36-FLUKE (1-800-363-5853)
- Europe: +31-402-678-200
- Japan: +81-3-3434-0181
- Singapore: +65-738-5655
- Anywhere in the world: +1-425-446-5500

Or, visit Fluke's Web site at www.fluke.com.

To register your product, visit register.fluke.com.

Table 1. Summary of Input and Output Functions

Function	Input	Output
dc V	None	0 V to 100 V
dc mA	None	0 to 100 mA
Resistance	0 to 4000 Ω	5 to 4000 Ω
Thermocouple	Yes	Yes
RTD	Yes	Yes
Pressure	Yes	No

Standard Equipment

The items listed below are included with your Calibrator. If the Calibrator is damaged or something is missing, contact the place of purchase immediately. For information on replacement parts or spares, see the replacement parts list in Chapter 6 of the *525B Users Manual*.

- *525B Getting Started Guide* (this document), Part No. 3064079
- 525B CD-ROM (contains the *525B Users Manual* and *525B Getting Started Guide*), Part No. 3064087
- Power Cord (120 V cord, Part No. 1618621 or 240 V cord, Part No. 769422)
- Thermocouple Shorting Jumper, Part No. 610747

Options and Accessories

For more information about these accessories and their prices, contact your Fluke representative.

- 5520A – 525A Leads kit
- Y525 Rack Mount kit
- Fluke 700 and 525A-P series pressure modules
- MET/CAL with 525B Function Select Code (FSC)
- MET/CAL 525B calibration procedure

Safety Information

This Calibrator complies with IEC 61010, ANSI/ISA-S82.01-1994, CAN/CSA-C22.2 No. 1010.1-92. Use the Calibrator only as specified in this manual, otherwise the protection provided by the Calibrator may be impaired.

CAT II equipment is designed to protect against transients from energy-consuming equipment supplied from the fixed installation, such as TVs, PCs, portable tools, and other household appliances.

A **Warning** statement identifies hazardous conditions and actions that could cause bodily harm or death.

A **Caution** statement identifies conditions and actions that could damage the Calibrator or the equipment under test.

International symbols used on the Calibrator and in this manual are explained in Table 2.

⚠Warning

To avoid possible electric shock or personal injury, follow these guidelines:

- **Use the Calibrator only as specified in this manual, or the protection provided by the Calibrator might be impaired.**
- **Inspect the Calibrator before using it. Do not use the Calibrator if it appears damaged. Look for cracks or missing plastic. Pay particular attention to the insulation around the connectors.**
- **Have the Calibrator serviced only by qualified service personnel.**
- **Do not apply more than the rated voltage, as marked on the Calibrator, between the terminals or between any terminal and earth ground.**
- **Always use the power cord and connector appropriate for the voltage and outlet of the country or location in which you are working.**
- **Never operate the Calibrator with the cover removed or the case open.**
- **Never remove the cover or open the case of the Calibrator without first removing the power source.**
- **Use caution when working with voltages above 30 V ac rms, 42 V ac peak, or 60 V dc. These voltages pose a shock hazard.**
- **Use only the replacement fuse(s) specified in this manual.**
- **Use the proper terminals, function, and range for your measurements.**
- **Do not operate the Calibrator around explosive gas, vapor, or dust.**
- **When servicing the Calibrator, use only specified replacement parts.**

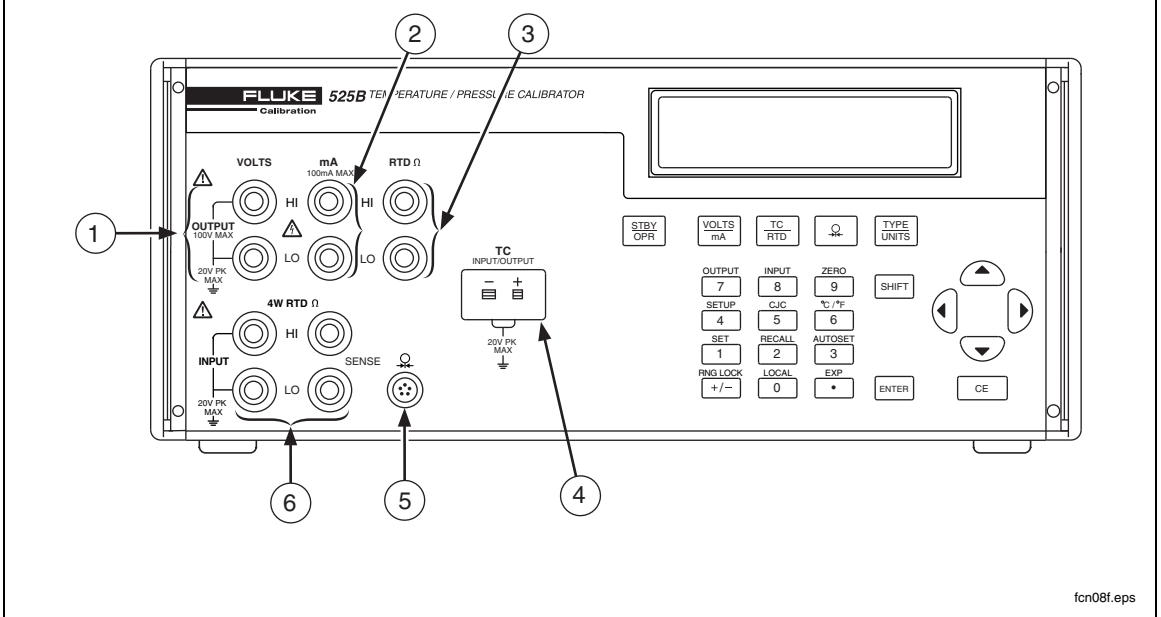
Table 2. Symbols Used on the Calibrator

~	AC (Alternating Current).	⏚	Earth ground.
⎓	DC (Direct Current).	Ω	Resistance.
	Pressure.	CE	Conforms to European Union directives.
	Chassis protective ground.	C SP US	Canadian Standards Association, NRTL.
⚠	Important Information. See manual.		International ON/OFF symbol.
	Hazardous voltage. Risk of electrical shock.		

Getting Acquainted with the Calibrator

Input and Output Terminals

Figure 1 shows the Calibrator input and output terminals and explains their use.



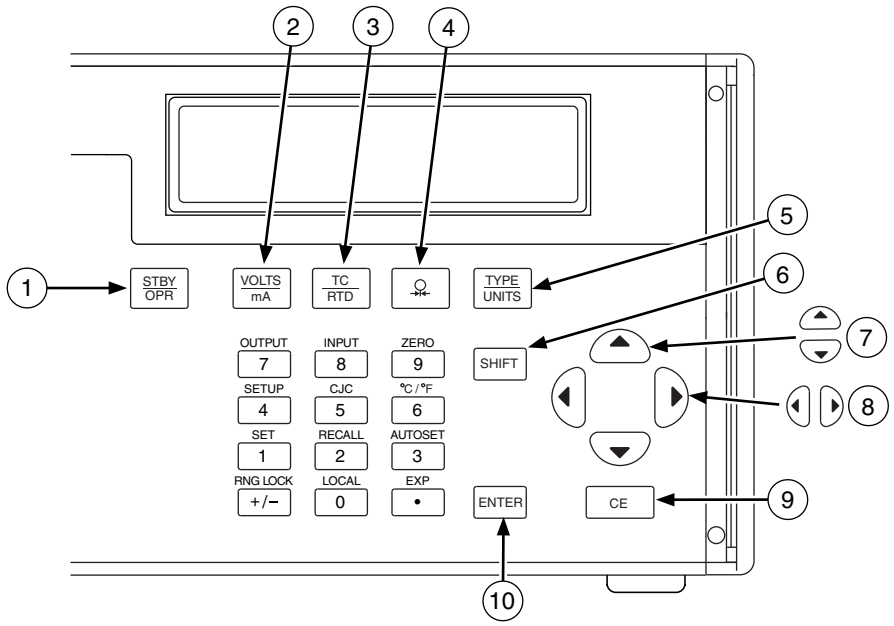
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No	Description
①	Terminals used to output DC Volts.
②	Terminals used to output DC current.
③	Terminals used to simulate RTDs and resistance.
④	Terminal for thermocouple input and simulation. The terminal accepts a miniature polarized thermocouple plug with flat, in-line blades spaced 7.9 mm (0.312 in) center to center.
⑤	Pressure module input.
⑥	Input terminals used to measure 4-wire RTD and resistance.

Figure 1. Input and Output Terminals and Connectors

Using the Keys

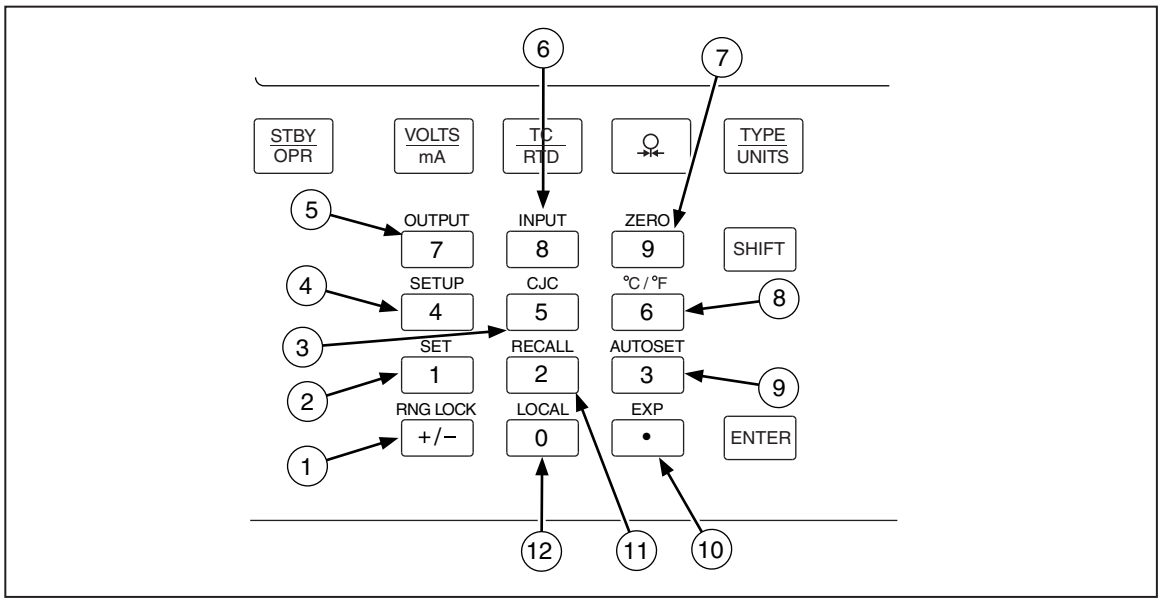
Figure 2 shows the Calibrator pushbuttons and explains their use. Other function keys are shown in Figure 3 and described in Table 3.



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No	Name	Description
①	STBY OPR	Cycles the Calibrator through Standby and Operate modes.
②	VOLTS mA	Toggles between DC voltage and DC current modes.
③	TC RTD	Toggles between the current thermocouple and current RTD.
④	Ω	Selects the pressure measurement mode.
⑤	TYPE UNITS	Selects a thermocouple or RTD type. For pressure measurement, this is used to select the pressure conversion units.
⑥	SHIFT	Selects the alternate function on the numeric keys.
⑦	▲ ▼	• Increases or decreases the output level. • Adjusts LCD contrast and brightness and selects options on the Interface and Address menus.
⑧	◀ ▶	Selects a different digit to change.
⑨	CE	CE (Clear Entry) clears a partially completed keypad entry from the display. The display reverts to the last known good entry.
⑩	ENTER	Loads a newly entered output value into the Calibrator. The new value is an entry from the numeric keypad. Also used when entering custom RTD coefficients and when you adjust the display or contrast.

Figure 2. Pushbuttons



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Figure 3. Calibrator Function Keys

Table 3. Function Keys

No	Name	Description
①	**RNG LOCK** [+/−]	Activates/deactivates the autorange feature of the Calibrator in Voltage source modes.
②	**SET** [1]	Used to program a setpoint step for any output mode. Key in the desired output and press [SHIFT] [1]. SETPOINT # appears on the display. Select a setpoint number from 1 to 9. The output you entered can now be recalled or used in the AUTOSET key described later in this manual. Each TC type, each RTD/OHMS type, mA, and Volts each have 9 programmable setpoints.
③	**CJC** [5]	Toggles between the internal and external cold junction reference locations.
④	**SETUP** [4]	Press [ENTER] to scroll through the LCD Backlight, Interface, and Address menus. • Use ⏶ and ⏷ to adjust LCD backlight when the LCD menu is displayed. • Use ⏶ and ⏷ to toggle between Serial and GPIB interface when the Interface menu is displayed. • Use ⏶ and ⏷ to scroll from Address:1 to Address 30 when the address menu is displayed.
⑤	**OUTPUT** [7]	Selects Output mode.

Table 3. Function Keys (cont)

No	Name	Description
⑥	INPUT [8]	Selects Input mode.
⑦	ZERO [9]	Zeros the pressure module reading when in Pressure Measurement mode. Zeros the thermocouple TC mV/°C offset when in TC Measurement mode.
⑧	°C/°F [6]	Toggles between Centigrade and Fahrenheit when you are using the TC or RTD functions.
⑨	AUTOSET [3]	AUTOSET runs through the setpoints you entered using the SET function. Press [SHIFT] [3]. AUTO SET POINT? appears on the display. Enter a number between 1 and 9 that corresponds to the number of setpoints being used. DWELL TIME 5-500? appears on the display. Dwell time is the number of seconds between each setpoint. The output cycles through each setpoint and then reverses the order. For example, if 5 is entered for the number of setpoints, the Calibrator cycles through setpoints 1, 2, 3, 4, 5 and then reverses to setpoints 4, 3, 2, and 1. **⚠Caution** **Setpoints of 30 V or greater will not go to standby when you use this feature.**
⑩	EXP [•]	Used to enter an exponent when you define a custom RTD.
⑪	RECALL [2]	Used to recall a programmed set point. Press [SHIFT] [2]. RECALL SPT # appears on the display. Enter the number of the output setpoint that you want to use. The output will then be programmed to the setpoint you entered.
⑫	LOCAL [0]	Used to regain local control of the Calibrator. If you set the Calibrator to a remote state using the remote commands, all the front panel keys are locked out except the Local key. When you press the Local key, the front panel is unlocked. *Note* *This function does not work when you set the Calibrator using the Remote with Lockout command. In Remote with Lockout mode, ALL keys are locked out and the Local key will not unlock the front panel.*

Display Error Messages

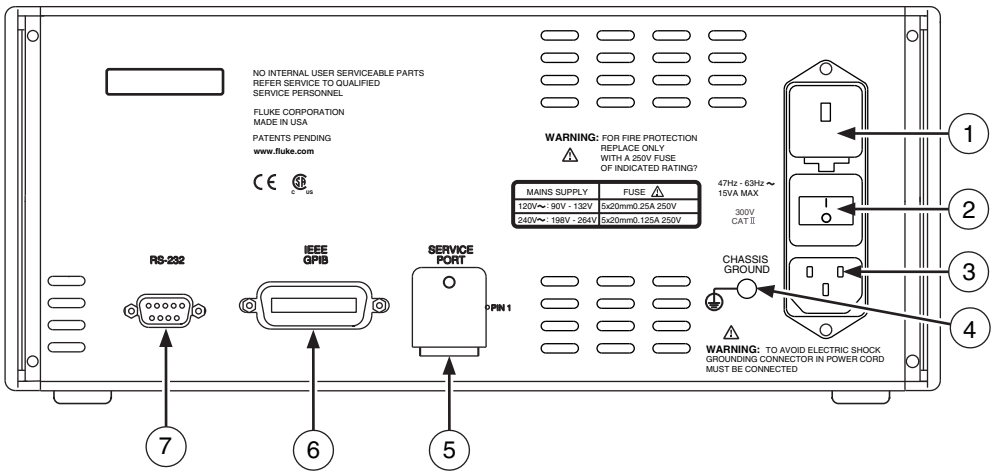
The following informative messages may appear on the front panel display. An explanation of each message is also provided.

Table 4. Display Error Messages

Message	Explanation
OVER RANGE	May be displayed in all output modes if you enter a value from the front panel keypad that exceeds the output range of the function.
OVER LOAD	May be displayed in V and mA output modes when the current is exceeded for volts and the resistance is exceeded for mA.
OL	Displayed in Input modes when the measured value exceeds the upper limit of the range. This error may also display in Output mode when the range is locked and an automatically recalled set point exceeds the locked range. For example, set point 1 (SP1) is set to 1V, SP2 is set to 2V, and SP3 is set to 100V, the range is locked to 10V range and the Calibrator is set up to automatically output the first 3 setpoints. When the Calibrator reaches SP3, the display reads OL, and the output is set to 0 for the duration of that setpoint.
-OL	Displayed in Input modes when the measured value exceeds the lower limit of the range.
INITIALIZATION FAILURE	Displayed when the Calibrator fails to power up properly.

Rear Panel View

Figure 4 shows the rear panel and explains the use of the rear panel features of the Calibrator.



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No	Description
①	Power line fuse compartment. Contains fuses and line voltage selector.
②	The power switch turns the power on and off.
③	A grounded three-prong AC connector that accepts the line power cord.
④	The Chassis Ground terminal is internally connected to the ground prong of the AC connector. **⚠⚠Warning** **To avoid shock hazard, connect the factory supplied three-conductor power cord to a properly grounded power outlet. Do not use a two-conductor adapter or extension cord; this will break the protective ground connection.** **Use the rear panel CHASSIS GROUND terminal as a connection point for a protective grounding wire if there is any question about the effectiveness of instrument earth grounding through the line power cord ground wire.**
⑤	Service port used to download new firmware to the Calibrator.
⑥	The IEEE-488 connector is a standard parallel interface for operating the 525B in remote control as a talker/listener on the IEEE-488 bus.
⑦	The RS-232 connector is used for serial remote control of the 525B.

Figure 4. Rear Panel View

General Specifications

Warm up time ..... Twice the time since last warmed up, to a maximum of 30 minutes.
Settling time ..... Less than 5 seconds for all functions and ranges except as noted.
Standard interface ..... RS-232, IEEE-488 (GPIB)
Temperature performance
Operating ..... 0 °C to 50 °C
Calibration (tcal) ..... 18 °C to 28 °C
Storage ..... -20 °C to 70 °C
Electromagnetic compatibility ..... CE: Conforms to EN61326
Temperature coefficient ..... Temperature coefficient for temperatures outside tcal ± 5 °C is 10 % of the 90 day specification (or 1 year if applicable) per °C
Relative humidity
Operating ..... < 80 % to 30 °C, < 70 % to 40 °C, < 40 % to 50 °C
Storage ..... < 95 % noncondensing
Altitude
Operating ..... 3,050 m (10,000 ft) maximum
Nonoperating ..... 12,200 m (40,000 ft) maximum
Safety ..... EN 61010 Second, ANSI/ISA-S82.01-1994, CAN/CSA-C22.2 No. 1010.1-92, NRTL
Analog low isolation ..... 20 V
Line power
Line Voltage (selectable) ..... 100 V/120 V or 220 V/240 V
Line Frequency ..... 47 to 63 Hz
Line Voltage Variation ..... ± 10 % about line voltage setting
Power consumption ..... 15 VA maximum
Dimensions
Height ..... 13.3 cm (5.25 in) plus 1.5 cm (0.6 in) four feet on bottom
Width ..... ¾ standard rack width
Depth ..... 47.3 cm (18.6 in) overall
Weight (without options) ..... 4 kg (9 lb)

Electrical Specifications

DC Voltage Specifications, Output

Ranges[1]	Absolute Uncertainty, tcal ± 5 °C ± (ppm of output + µV)				Stability	Resolution	Maximum Burden[2]
	90 days		1 year		24 hours, ± 1 °C ± (ppm of output + µV)		
0 to 100.000 mV	25	3	30	3	5 + 2	1 µV	10 mA
0 to 1.00000 V	25	10	30	10	4 + 10	10 µV	10 mA
0 to 10.0000 V	25	100	30	100	4 + 100	100 µV	10 mA
0 to 100.000 V	25	1 mV	30	1 mV	5 + 1 mV	1 mV	1 mA
TC Output							
-10 to 75.000 mV	25	3	30	3	5 + 2	1 µV	10 Ω

Notes:
[1] All outputs are positive only.
[2] Remote sensing is not provided. Output resistance is < 1Ω.

Ranges	Noise	
	Bandwidth 0.1 to 10 Hz ± (ppm of output + µV p-p)	Bandwidth 10 Hz to 10 kHz (µV rms)
0 to 100.000 mV	1 µV	6 µV
0 to 1.00000 V	10 µV	60 µV
0 to 10.0000 V	100 µV	600 µV
0 to 100.000 V	10 ppm+1 mV	20 mV

DC Current Specifications, Output

Ranges[1]	Absolute Uncertainty tcal ± 5 °C ± (ppm of output + mA)				Resolution	Maximum Compliance Voltage	Maximum Inductive Load
	90 days		1 year				
0 to 100.000 mA	40	1	50	1	1 µA	12 V	100 mH

Note:

[1] All outputs are positive only.

Ranges	Noise	
	Bandwidth 0.1 to 10 Hz p-p	Bandwidth 10 Hz to 10 kHz rms
0 to 100.000 mA	2000 nA	20 µA

Resistance Specifications, Output

Ranges[1]	Absolute Uncertainty tcal ± 5°C, ± Ω		Resolution	Allowable Current[2]
	90 days	1 year		
5 to 400.00 Ω	0.012	0.015	0.001 Ω	1 to 3 mA
5 to 4.0000 kΩ	0.25	0.3	0.01 Ω	100 µA to 1 mA

Notes:

[1] Continuously variable from 0 to 4 kΩ.

[2] For currents lower than shown, the floor adder increases by $Floor_{(new)} = Floor_{(old)} \times I_{min}/I_{actual}$.
For example, a 500 µA stimulus measuring 100 Ω has a floor uncertainty of 0.015 Ω x 1 mA/500 µA = 0.03 Ω.

Resistance Specifications, Input

Ranges[1]	Absolute Uncertainty tcal ± 5°C, ± (ppm of output + Ω)				Resolution	Stimulus Current
	90 days		1 year			
5 to 400.00 Ω	20	0.0035	20	0.004	0.001 Ω	1 mA
5 to 4.00000 kΩ	20	0.0035	20	0.004	0.01 Ω	0.1 mA

Note:

[1] 4-wire mode.

Thermocouple Specification, Output and Input

TC Type	Range (°C)		Absolute Uncertainty tcal ± 5 °C, ± (°C)[1]	
			Output/Input	
	Minimum	Maximum	90 days	1 year
B	600 °C 800 °C 1000 °C 1550 °C	800 °C 1000 °C 1550 °C 1820 °C	0.42 °C 0.39 °C 0.40 °C 0.44 °C	0.46 °C 0.39 °C 0.40 °C 0.45 °C
C	0 °C 150 °C 650 °C 1000 °C 1800 °C	150 °C 650 °C 1000 °C 1800 °C 2316 °C	0.25 °C 0.21 °C 0.23 °C 0.38 °C 0.63 °C	0.30 °C 0.26 °C 0.31 °C 0.50 °C 0.84 °C
E	-270 °C -100 °C -25 °C 350 °C 650 °C	-100 °C -25 °C 350 °C 650 °C 1820 °C	0.38 °C 0.16 °C 0.14 °C 0.14 °C 0.16 °C	0.50 °C 0.18 °C 0.15 °C 0.16 °C 0.21 °C
J	-270 °C -100 °C -25 °C 120 °C 1000 °C	-100 °C -30 °C 150 °C 760 °C 1200 °C	0.20 °C 0.18 °C 0.14 °C 0.14 °C 0.18 °C	0.27 °C 0.20 °C 0.16 °C 0.17 °C 0.23 °C
K	-270 °C -100 °C -25 °C 120 °C 1000 °C	-100 °C -25 °C 120 °C 1000 °C 1372 °C	0.25 °C 0.19 °C 0.14 °C 0.19 °C 0.30 °C	0.33 °C 0.22 °C 0.16 °C 0.26 °C 0.40 °C
L	-200 °C -100 °C 800 °C	-100 °C 800 °C 900 °C	0.37 °C 0.26 °C 0.17 °C	0.37 °C 0.26 °C 0.17 °C
N	-270 °C -100 °C -25 °C 120 °C 410 °C	-100 °C -25 °C 120 °C 410 °C 1300 °C	0.33 °C 0.20 °C 0.16 °C 0.14 °C 0.21 °C	0.40 °C 0.24 °C 0.19 °C 0.18 °C 0.27 °C
R	-50 °C 250 °C 400 °C 1000 °C	250 °C 400 °C 1000 °C 1760 °C	0.58 °C 0.34 °C 0.31 °C 0.30 °C	0.58 °C 0.35 °C 0.33 °C 0.40 °C
S	0 °C 250 °C 1000 °C 1400 °C	250 °C 1000 °C 1400 °C 1750 °C	0.56 °C 0.36 °C 0.30 °C 0.35 °C	0.56 °C 0.36 °C 0.37 °C 0.46 °C
T	-270 °C -150 °C 0 °C 120 °C	-150 °C 0 °C 120 °C 400 °C	0.51 °C 0.18 °C 0.13 °C 0.12 °C	0.63 °C 0.24 °C 0.16 °C 0.14 °C
U	-200 °C 0 °C	0 °C 600 °C	0.56 °C 0.27 °C	0.56 °C 0.27 °C
mV	-10 to 75.000 mV			

Note:
[1] Does not include thermocouple wire error.

RTD and Thermistor Specification, Output

RTD Type	Range (°C)		Absolute Uncertainty tcal ± 5 °C, ± (°C)[1]	
	Minimum	Maximum	90 days	1 year
Pt 385, 100 Ω	-200 °C	-80 °C	0.03 °C	0.04 °C
	-80 °C	0 °C	0.04 °C	0.05 °C
	0 °C	100 °C	0.04 °C	0.05 °C
	100 °C	300 °C	0.03 °C	0.04 °C
	300 °C	400 °C	0.04 °C	0.04 °C
	400 °C	630 °C	0.04 °C	0.05 °C
	630 °C	800 °C	0.04 °C	0.05 °C
Pt 3926, 100 Ω	-200 °C	-80 °C	0.03 °C	0.04 °C
	-80 °C	0 °C	0.03 °C	0.04 °C
	0 °C	100 °C	0.03 °C	0.04 °C
	100 °C	300 °C	0.03 °C	0.04 °C
	300 °C	400 °C	0.03 °C	0.04 °C
	400 °C	630 °C	0.04 °C	0.05 °C
Pt 3916, 100 Ω	-200 °C	-190 °C	0.03 °C	0.03 °C
	-190 °C	-80 °C	0.03 °C	0.04 °C
	-80 °C	0 °C	0.03 °C	0.04 °C
	0 °C	100 °C	0.03 °C	0.04 °C
	100 °C	260 °C	0.03 °C	0.04 °C
	260 °C	300 °C	0.03 °C	0.04 °C
	300 °C	400 °C	0.03 °C	0.04 °C
	400 °C	600 °C	0.04 °C	0.05 °C
	600 °C	630 °C	0.04 °C	0.05 °C
Pt 385, 200 Ω	-200 °C	-80 °C	0.31 °C	0.38 °C
	-80 °C	0 °C	0.32 °C	0.38 °C
	0 °C	100 °C	0.33 °C	0.39 °C
	100 °C	260 °C	0.33 °C	0.39 °C
	260 °C	300 °C	0.36 °C	0.43 °C
	300 °C	400 °C	0.36 °C	0.43 °C
	400 °C	600 °C	0.42 °C	0.50 °C
	600 °C	630 °C	0.42 °C	0.50 °C
Pt 385, 500 Ω	-200 °C	-80 °C	0.13 °C	0.15 °C
	-80 °C	0 °C	0.13 °C	0.15 °C
	0 °C	100 °C	0.13 °C	0.16 °C
	100 °C	260 °C	0.14 °C	0.17 °C
	260 °C	300 °C	0.14 °C	0.17 °C
	300 °C	400 °C	0.15 °C	0.18 °C
	400 °C	600 °C	0.16 °C	0.19 °C
	600 °C	630 °C	0.16 °C	0.19 °C
Pt 385, 1000 Ω	-200 °C	-80 °C	0.06 °C	0.07 °C
	-80 °C	0 °C	0.06 °C	0.08 °C
	0 °C	100 °C	0.07 °C	0.08 °C
	100 °C	260 °C	0.07 °C	0.08 °C
	260 °C	300 °C	0.07 °C	0.09 °C
	300 °C	400 °C	0.07 °C	0.09 °C
	400 °C	600 °C	0.08 °C	0.09 °C
	600 °C	630 °C	0.08 °C	0.09 °C
Ni 120, 120 Ω	-80 °C	0 °C	0.02 °C	0.02 °C
	0 °C	100 °C	0.02 °C	0.02 °C
	100 °C	260 °C	0.01 °C	0.02 °C
Cu 427, 10 Ω [2]	-100 °C	260 °C	0.30 °C	0.38 °C
YSI 400	15 °C	50 °C	0.005 °C	0.007 °C

Notes:

[1] 2-wire output.

[2] Based on MINCO Application Aid No. 18.

RTD and Thermistor Specification, Input

RTD Type	Range (°C)		Absolute Uncertainty tcal ± 5 °C, ± (°C)[1]	
	Minimum	Maximum	90 days	1 year
Pt 385, 100 Ω	-200 °C	-80 °C	0.011 °C	0.012 °C
	-80 °C	0 °C	0.018 °C	0.020 °C
	0 °C	100 °C	0.018 °C	0.020 °C
	100 °C	300 °C	0.027 °C	0.030 °C
	300 °C	400 °C	0.031 °C	0.035 °C
	400 °C	630 °C	0.042 °C	0.047 °C
	630 °C	800 °C	0.050 °C	0.057 °C
Pt 3926, 100 Ω	-200 °C	-80 °C	0.011 °C	0.011 °C
	-80 °C	0 °C	0.014 °C	0.015 °C
	0 °C	100 °C	0.018 °C	0.019 °C
	100 °C	300 °C	0.026 °C	0.029 °C
	300 °C	400 °C	0.031 °C	0.034 °C
	400 °C	630 °C	0.041 °C	0.046 °C
Pt 3916, 100 Ω	-200 °C	-190 °C	0.006 °C	0.006 °C
	-190 °C	-80 °C	0.011 °C	0.012 °C
	-80 °C	0 °C	0.014 °C	0.015 °C
	0 °C	100 °C	0.018 °C	0.019 °C
	100 °C	260 °C	0.025 °C	0.028 °C
	260 °C	300 °C	0.026 °C	0.029 °C
	300 °C	400 °C	0.031 °C	0.034 °C
	400 °C	600 °C	0.040 °C	0.045 °C
	600 °C	630 °C	0.042 °C	0.047 °C
Pt 385, 200 Ω	-200 °C	-80 °C	0.008 °C	0.009 °C
	-80 °C	0 °C	0.012 °C	0.013 °C
	0 °C	100 °C	0.015 °C	0.017 °C
	100 °C	260 °C	0.020 °C	0.022 °C
	260 °C	300 °C	0.050 °C	0.053 °C
	300 °C	400 °C	0.053 °C	0.057 °C
	400 °C	600 °C	0.070 °C	0.075 °C
	600 °C	630 °C	0.071 °C	0.076 °C
Pt 385, 500 Ω	-200 °C	-80 °C	0.007 °C	0.008 °C
	-80 °C	0 °C	0.019 °C	0.020 °C
	0 °C	100 °C	0.023 °C	0.025 °C
	100 °C	260 °C	0.030 °C	0.033 °C
	260 °C	300 °C	0.032 °C	0.035 °C
	300 °C	400 °C	0.037 °C	0.041 °C
	400 °C	600 °C	0.047 °C	0.052 °C
	600 °C	630 °C	0.048 °C	0.053 °C
Pt 385, 1000 Ω	-200 °C	-80 °C	0.011 °C	0.012 °C
	-80 °C	0 °C	0.014 °C	0.015 °C
	0 °C	100 °C	0.019 °C	0.020 °C
	100 °C	260 °C	0.025 °C	0.028 °C
	260 °C	300 °C	0.027 °C	0.030 °C
	300 °C	400 °C	0.030 °C	0.034 °C
	400 °C	600 °C	0.041 °C	0.045 °C
	600 °C	630 °C	0.042 °C	0.047 °C
PtNi 385, 120 Ω (Ni120)	-80 °C	0 °C	0.009 °C	0.010 °C
	0 °C	100 °C	0.010 °C	0.011 °C
	100 °C	260 °C	0.011 °C	0.012 °C
Cu 427, 10 Ω [2]	-100 °C	260 °C	0.067 °C	0.069 °C
YSI 400	15 °C	50 °C	0.005 °C	0.007 °C
SPRT	-200 °C	660 °C	0.05 °C	0.06 °C

Notes:

[1] 4-wire mode. Uncertainties listed do not include probe uncertainties.

[2] Based on MINCO Application Aid No. 18.

Pressure Measurement

The Calibrator can accept either the Fluke 700 or 525A-P series pressure modules. Pressure modules plug directly into the front panel Lemo connector with the Calibrator firmware autodetecting the type and value of the module you are attaching.

Range ..... Determined by pressure module

Accuracy/Resolution ..... Determined by pressure module

Units

PSI ..... pounds per square inch

inH_2O4°C ..... inches of water at 4 degrees Celsius

inH_2O20°C ..... inches of water at 20 degrees Celsius

cmH_2O4°C ..... centimeters of water at 4 degrees Celsius

cmH_2O20°C ..... centimeters of water at 20 degrees Celsius

BAR..... bars

mBAR..... millibars

KPAL..... kilopascals

inHg 0°C ..... inches of mercury at 0 degrees Celsius

mmHG 0°C ..... millimeters of mercury at 0 degrees Celsius

Kg/cm^2 ..... kilograms per square centimeter

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