

FLUKE®

Calibration

525B

Temperature/Pressure Calibrator

Getting Started Guide

PN 3064079

July 2012

© 2007, 2012 Fluke Corporation. All rights reserved. Printed in USA.
All product names are trademarks of their respective companies.

LIMITED WARRANTY AND LIMITATION OF LIABILITY

Each Fluke product is warranted to be free from defects in material and workmanship under normal use and service. The warranty period is one year and begins on the date of shipment. Parts, product repairs, and services are warranted for 90 days. This warranty extends only to the original buyer or end-user customer of a Fluke authorized reseller, and does not apply to fuses, disposable batteries, or to any product which, in Fluke's opinion, has been misused, altered, neglected, contaminated, or damaged by accident or abnormal conditions of operation or handling. Fluke warrants that software will operate substantially in accordance with its functional specifications for 90 days and that it has been properly recorded on non-defective media. Fluke does not warrant that software will be error free or operate without interruption.

Fluke authorized resellers shall extend this warranty on new and unused products to end-user customers only but have no authority to extend a greater or different warranty on behalf of Fluke. Warranty support is available only if product is purchased through a Fluke authorized sales outlet or Buyer has paid the applicable international price. Fluke reserves the right to invoice Buyer for importation costs of repair/replacement parts when product purchased in one country is submitted for repair in another country.

Fluke's warranty obligation is limited, at Fluke's option, to refund of the purchase price, free of charge repair, or replacement of a defective product which is returned to a Fluke authorized service center within the warranty period.

To obtain warranty service, contact your nearest Fluke authorized service center to obtain return authorization information, then send the product to that service center, with a description of the difficulty, postage and insurance prepaid (FOB Destination). Fluke assumes no risk for damage in transit. Following warranty repair, the product will be returned to Buyer, transportation prepaid (FOB Destination). If Fluke determines that failure was caused by neglect, misuse, contamination, alteration, accident, or abnormal condition of operation or handling, including overvoltage failures caused by use outside the product's specified rating, or normal wear and tear of mechanical components, Fluke will provide an estimate of repair costs and obtain authorization before commencing the work. Following repair, the product will be returned to the Buyer transportation prepaid and the Buyer will be billed for the repair and return transportation charges (FOB Shipping Point).

THIS WARRANTY IS BUYER'S SOLE AND EXCLUSIVE REMEDY AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. FLUKE SHALL NOT BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OR LOSSES, INCLUDING LOSS OF DATA, ARISING FROM ANY CAUSE OR THEORY.

Since some countries or states do not allow limitation of the term of an implied warranty, or exclusion or limitation of incidental or consequential damages, the limitations and exclusions of this warranty may not apply to every buyer. If any provision of this Warranty is held invalid or unenforceable by a court or other decision-maker of competent jurisdiction, such holding will not affect the validity or enforceability of any other provision.

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

11/99

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

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).		Resistance.
	Pressure.		Conforms to European Union directives.
	Chassis protective ground.		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.

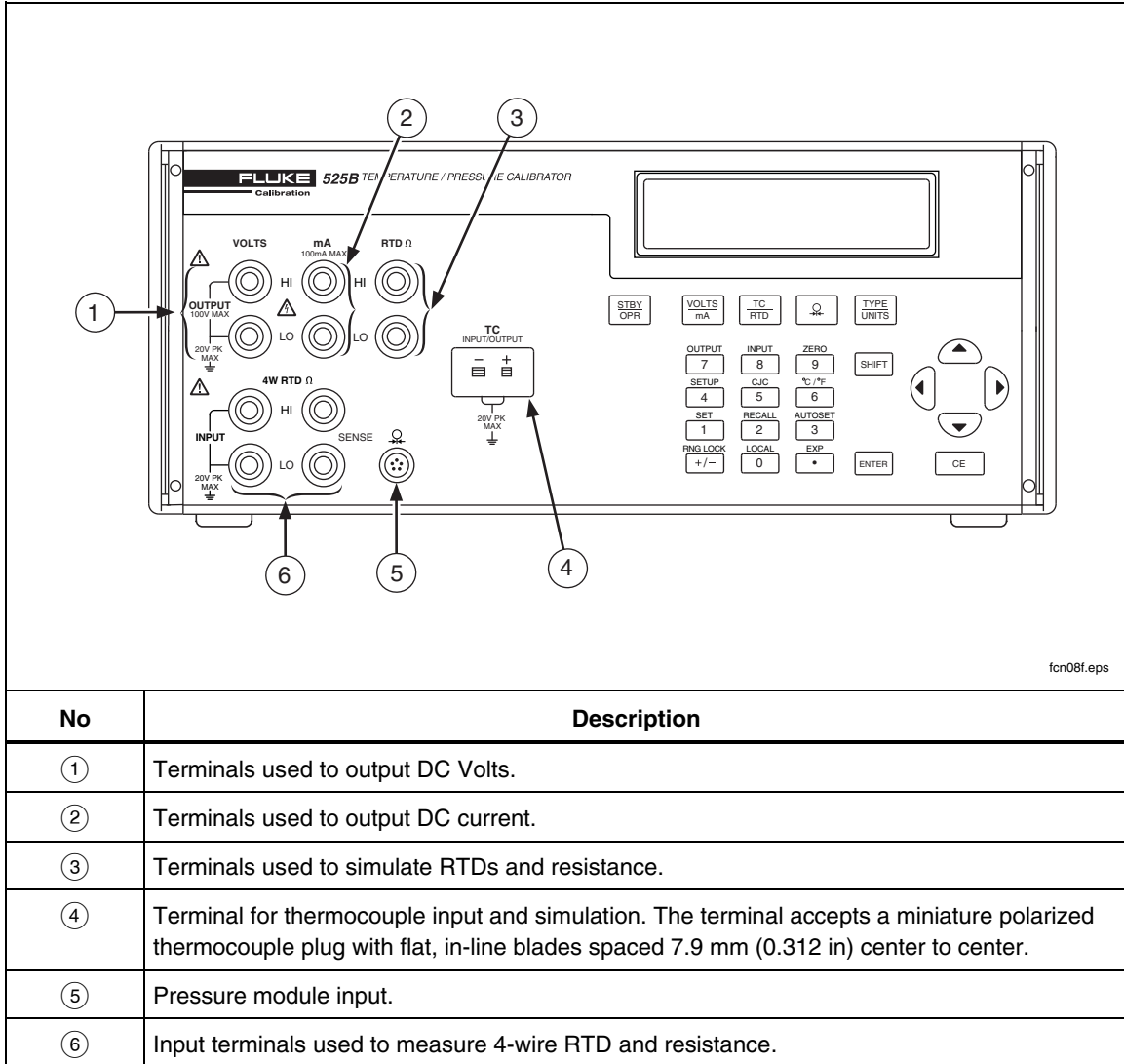
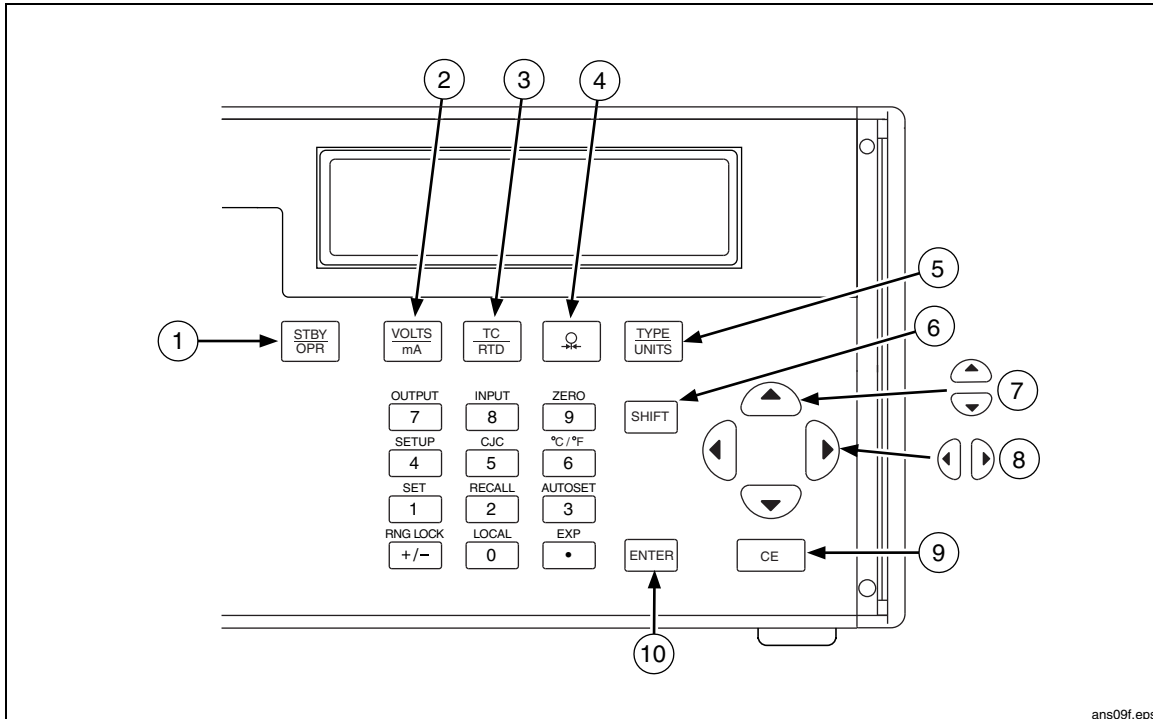


Figure 1. Input and Output Terminals and Connectors

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.



ans09f.eps

No	Name	Description
①		Cycles the Calibrator through Standby and Operate modes.
②		Toggles between DC voltage and DC current modes.
③		Toggles between the current thermocouple and current RTD.
④		Selects the pressure measurement mode.
⑤		Selects a thermocouple or RTD type. For pressure measurement, this is used to select the pressure conversion units.
⑥		Selects the alternate function on the numeric keys.
⑦		<ul style="list-style-type: none"> 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 (Clear Entry) clears a partially completed keypad entry from the display. The display reverts to the last known good entry.
⑩		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

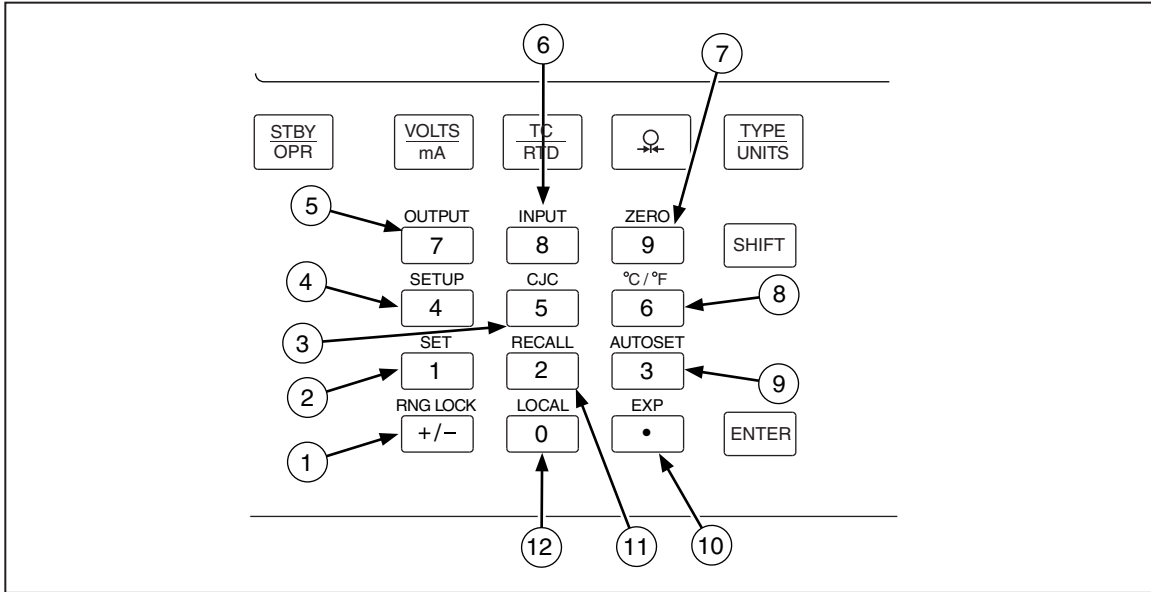


Figure 3. Calibrator Function Keys

ans11f.eps

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. <ul style="list-style-type: none"> 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 <input type="button" value="8"/>	Selects Input mode.
⑦	ZERO <input type="button" value="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 <input type="button" value="6"/>	Toggles between Centigrade and Fahrenheit when you are using the TC or RTD functions.
⑨	AUTOSET <input type="button" value="3"/>	<p>AUTOSET runs through the setpoints you entered using the SET function. Press <input type="button" value="SHIFT"/> <input type="button" value="3"/>. AUTO SET POINT? appears on the display.</p> <p>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.</p> <p style="text-align: center;">⚠ Caution</p> <p>Setpoints of 30 V or greater will not go to standby when you use this feature.</p>
⑩	EXP <input type="button" value="."/>	Used to enter an exponent when you define a custom RTD.
⑪	RECALL <input type="button" value="2"/>	<p>Used to recall a programmed set point.</p> <p>Press <input type="button" value="SHIFT"/> <input type="button" value="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.</p>
⑫	LOCAL <input type="button" value="0"/>	<p>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.</p> <p style="text-align: center;"><i>Note</i></p> <p><i>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.</i></p>

Display Error Messages

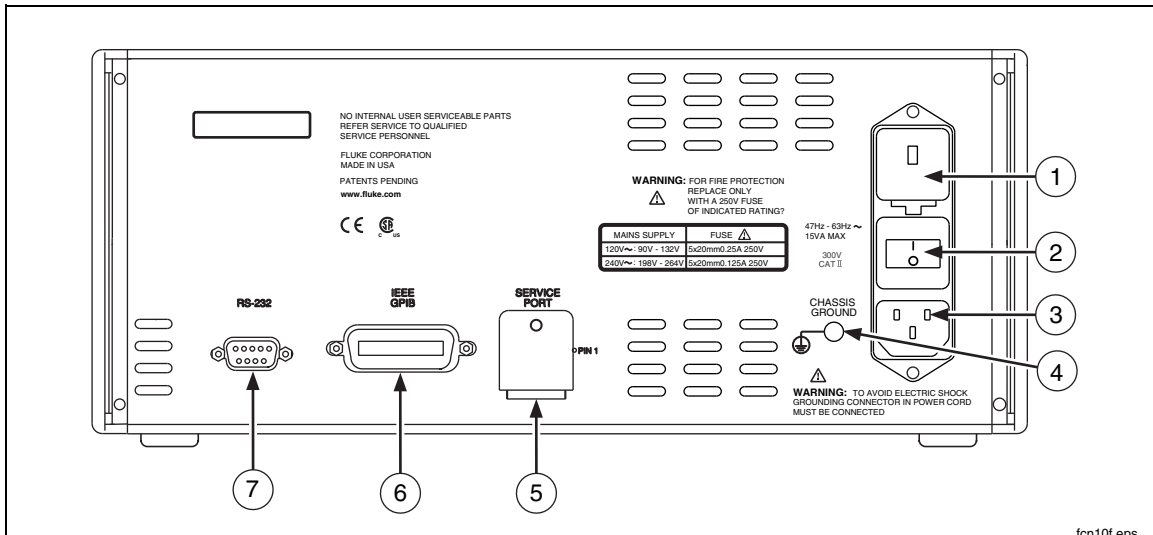
The following informative messages may appear on the front panel display. An explanation of each message is also provided.

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	<p>Displayed in Input modes when the measured value exceeds the upper limit of the range.</p> <p>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.</p>
-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.



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. <div style="text-align: center;"> <p>⚠️⚠️ Warning</p> <p>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.</p> <p>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.</p> </div>
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.....	$\frac{3}{4}$ 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 \pm (ppm of output + μ V)				Stability 24 hours, ± 1 °C \pm (ppm of output + μ V)	Resolution	Maximum Burden ^[2]
	90 days		1 year				
0 to 100.000 mV	25	3	30	3	5 + 2	1 μ V	10 mA
0 to 1.00000 V	25	10	30	10	4 + 10	10 μ V	10 mA
0 to 10.0000 V	25	100	30	100	4 + 100	100 μ V	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 μ V	10 Ω
Notes:							
[1] All outputs are positive only.							
[2] Remote sensing is not provided. Output resistance is < 1 Ω .							

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

DC Current Specifications, Output

Ranges ^[1]	Absolute Uncertainty tcal \pm 5 °C \pm (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 μ A	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 μ A

Resistance Specifications, Output

Ranges ^[1]	Absolute Uncertainty tcal \pm 5°C, \pm 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 k Ω	0.25	0.3	0.01 Ω	100 μ A to 1 mA

Notes:
[1] Continuously variable from 0 to 4 k Ω .
[2] For currents lower than shown, the floor adder increases by Floor(new) = Floor(old) \times Imin/Iactual.
For example, a 500 μ A stimulus measuring 100 Ω has a floor uncertainty of 0.015 Ω \times 1 mA/500 μ A = 0.03 Ω .

Resistance Specifications, Input

Ranges ^[1]	Absolute Uncertainty tcal \pm 5°C, \pm (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 k Ω	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	0.42 °C	0.46 °C
	800 °C	1000 °C	0.39 °C	0.39 °C
	1000 °C	1550 °C	0.40 °C	0.40 °C
	1550 °C	1820 °C	0.44 °C	0.45 °C
C	0 °C	150 °C	0.25 °C	0.30 °C
	150 °C	650 °C	0.21 °C	0.26 °C
	650 °C	1000 °C	0.23 °C	0.31 °C
	1000 °C	1800 °C	0.38 °C	0.50 °C
E	1800 °C	2316 °C	0.63 °C	0.84 °C
	-270 °C	-100 °C	0.38 °C	0.50 °C
	-100 °C	-25 °C	0.16 °C	0.18 °C
	-25 °C	350 °C	0.14 °C	0.15 °C
J	350 °C	650 °C	0.14 °C	0.16 °C
	650 °C	1820 °C	0.16 °C	0.21 °C
	-270 °C	-100 °C	0.20 °C	0.27 °C
	-100 °C	-30 °C	0.18 °C	0.20 °C
K	-25 °C	150 °C	0.14 °C	0.16 °C
	120 °C	760 °C	0.14 °C	0.17 °C
	1000 °C	1200 °C	0.18 °C	0.23 °C
	-270 °C	-100 °C	0.25 °C	0.33 °C
L	-100 °C	-25 °C	0.19 °C	0.22 °C
	-25 °C	120 °C	0.14 °C	0.16 °C
	120 °C	1000 °C	0.19 °C	0.26 °C
	1000 °C	1372 °C	0.30 °C	0.40 °C
N	-200 °C	-100 °C	0.37 °C	0.37 °C
	-100 °C	800 °C	0.26 °C	0.26 °C
	800 °C	900 °C	0.17 °C	0.17 °C
R	-270 °C	-100 °C	0.33 °C	0.40 °C
	-100 °C	-25 °C	0.20 °C	0.24 °C
	-25 °C	120 °C	0.16 °C	0.19 °C
	120 °C	410 °C	0.14 °C	0.18 °C
S	410 °C	1300 °C	0.21 °C	0.27 °C
	-50 °C	250 °C	0.58 °C	0.58 °C
	250 °C	400 °C	0.34 °C	0.35 °C
	400 °C	1000 °C	0.31 °C	0.33 °C
T	1000 °C	1760 °C	0.30 °C	0.40 °C
	0 °C	250 °C	0.56 °C	0.56 °C
	250 °C	1000 °C	0.36 °C	0.36 °C
	1000 °C	1400 °C	0.30 °C	0.37 °C
U	1400 °C	1750 °C	0.35 °C	0.46 °C
	-270 °C	-150 °C	0.51 °C	0.63 °C
	-150 °C	0 °C	0.18 °C	0.24 °C
	0 °C	120 °C	0.13 °C	0.16 °C
mV	120 °C	400 °C	0.12 °C	0.14 °C
	-200 °C	0 °C	0.56 °C	0.56 °C
	0 °C	600 °C	0.27 °C	0.27 °C

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
Pt 3926, 100 Ω	630 °C	800 °C	0.04 °C	0.05 °C
	-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
Pt 3916, 100 Ω	400 °C	630 °C	0.03 °C	0.04 °C
	-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
Pt 385, 200 Ω	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
	-200 °C	-80 °C	0.31 °C	0.38 °C
	-80 °C	0 °C	0.32 °C	0.38 °C
Pt 385, 500 Ω	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, 1000 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
Ni 120, 120 Ω	400 °C	600 °C	0.16 °C	0.19 °C
	600 °C	630 °C	0.16 °C	0.19 °C
	-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
Cu 427, 10 Ω ^[2]	260 °C	300 °C	0.07 °C	0.09 °C
	300 °C	400 °C	0.07 °C	0.09 °C
	400 °C	600 °C	0.07 °C	0.09 °C
	600 °C	630 °C	0.08 °C	0.09 °C
	-80 °C	0 °C	0.02 °C	0.02 °C
	0 °C	100 °C	0.02 °C	0.02 °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
Pt 3926, 100 Ω	630 °C	800 °C	0.050 °C	0.057 °C
	-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
Pt 3916, 100 Ω	400 °C	630 °C	0.041 °C	0.046 °C
	-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
Pt 385, 200 Ω	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
	-200 °C	-80 °C	0.008 °C	0.009 °C
	-80 °C	0 °C	0.012 °C	0.013 °C
Pt 385, 500 Ω	0 °C	100 °C	0.015 °C	0.017 °C
	100 °C	260 °C	0.020 °C	0.022 °C
	260 °C	300 °C	0.020 °C	0.022 °C
	300 °C	400 °C	0.050 °C	0.053 °C
	400 °C	600 °C	0.053 °C	0.057 °C
	600 °C	630 °C	0.070 °C	0.075 °C
Pt 385, 1000 Ω	630 °C	630 °C	0.071 °C	0.076 °C
	-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
PtNi 385, 120 Ω (Ni120)	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
	-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
Cu 427, 10 Ω ^[2]	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
	YSI 400	15 °C	50 °C	0.005 °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.

RangeDetermined by pressure module

Accuracy/ResolutionDetermined by pressure module

Units

- PSIpounds per square inch
- inH₂O4°Cinches of water at 4 degrees Celsius
- inH₂O20°Cinches of water at 20 degrees Celsius
- cmH₂O4°Ccentimeters of water at 4 degrees Celsius
- cmH₂O20°Ccentimeters of water at 20 degrees Celsius
- BAR.....bars
- mBAR.....millibars
- KPAL.....kilopascals
- inHg 0°Cinches of mercury at 0 degrees Celsius
- mmHG 0°Cmillimeters of mercury at 0 degrees Celsius
- Kg/cm²kilograms per square centimeter

