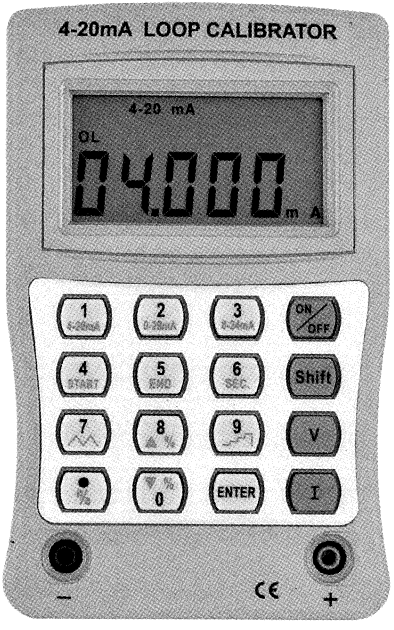
LOOP CALIBRATOR



INSTRUCTION MANUAL

Table of Contents

1. Introduction

This tester has been designed and tested in accordance with the CE safety requirements for electronic measuring apparatus EN61326-1 and other safety standards. Follow all warnings to ensure safe operation.

2. Safety Notes

- Read the following safety information carefully before attempting to operate or service the meter.
- Use the meter only as specified in this manual. Otherwise, the protection provided by the meter may be impaired.
- Rated enviromental conditions:
  (1) Indoor use.
  (2) Installation Category I
  (3) Pollution Degree 2.
  (4) Altitude up to 2000 meters.
  (5) Relative humidity 80% max.
  (6) Ambient temperature 0~40℃.

3. Features:

(1) 4-20mA (1KΩ load, 24V Loop Supply)
(2) 0.025% Basic Accuracy
(3) Simple Operation Interface
(4) Auto Ramp and Step Functions
(5) 0-20mA, 0-24mA selectable
(6) Incremental percentage setting: 0-100%
(7) Warning beeper when output is open
(8) 0-24 V output
(9) The minimum load of 20kΩ on voltage mode.

4. Specification (25℃±5℃≤85%R.H.)

DC CURRENT (1kΩ Max Load, 24v Loop Supply)

RANGE	RESOLUTION	ACCURACY
0-4mA	1uA	±0.025%±10uA
4-20mA	1uA	±0.025%±5uA
20-24mA	1uA	±0.025%±5uA

DC VOLTAGE

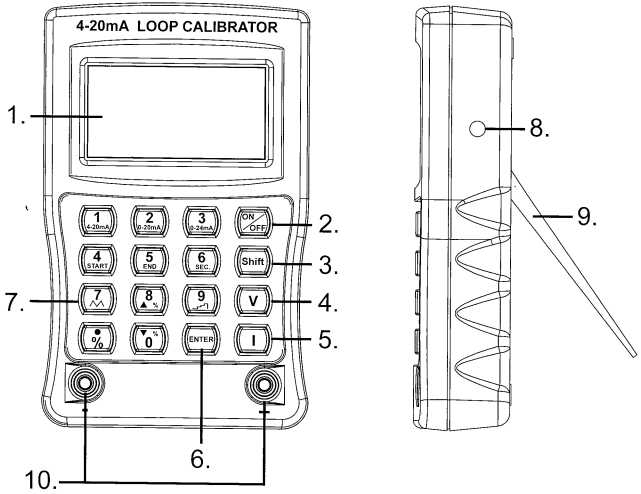
RANGE	RESOLUTION	ACCURACY
0-4V	1mV	±0.05%±10mV
4-20V	1mV	±0.05%±5mV
20-24V	1mV	±0.05%±5mV

- **The minimum load of 20kΩ on voltage mode.**

.GENERAL

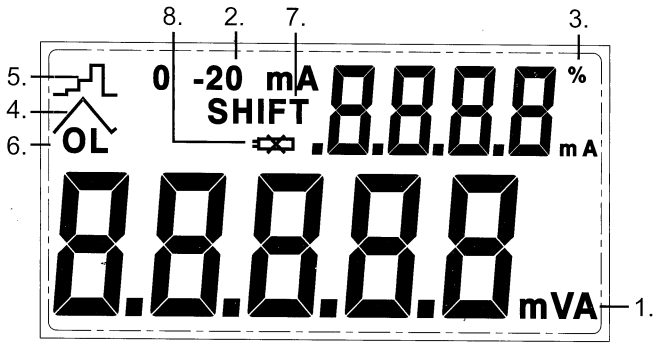
Power Consumption	150mA at 24V 1kΩ load
Operating Temperature	0° C - 50° C
Operating Humidity	≤80% R.H.
Storage Temperature	-10° C - 60° C
Storage Humidity	≤85% R.H.
Power Source	9V x 1 alkaline battery
Dimensions	160 (L) x 100 (W) x 38 (D) mm
Weight	Approx. 350g (battery included)
Accessories	DC adapter, pouch, battery, instruction manual

5. Panel Description



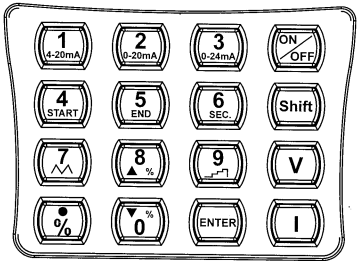
1.LCD Display
2.ON/OFF Button
3.Shift Button
4.Voltage Button
5.Current Button
6.ENTER Button
7.Numerical & Function Keypad
8.DC Adaptor Input Socket
9.Stand
10.Output Terminal

6. Display

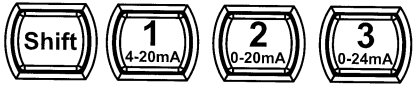


1.mVA: Units
2.0-20mA: Output Range of mA
3.%: Percentage
4. : Ramp
5. : STEP
6.OL: Overload, output open
7.SHIFT:SHIFT functions
8. : low Battery

7. Functions



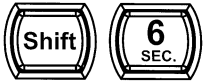
a. Power ON/OFF



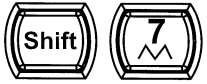
b. Press the SHIFT button and select the desired mA range by pressing one of these three buttons.

c. Press the SHIFT button then press START (#4) button to begin Auto Ramp Function.

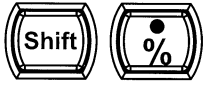
d. Press the SHIFT button then press the END (#5) button to stop Auto Ramp Function.



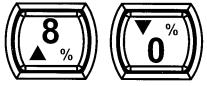
e. Press the SHIFT button then press the SEC. (#6) button to enter the duration in seconds for Auto Ramp Function.



f. Press the SHIFT button then press this button (#7) to begin Auto Ramp Function. Press again to end Auto Ramp Function.



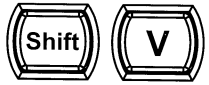
g. Press the SHIFT button then press the % button to select the percentage range.



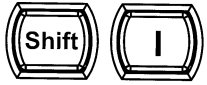
After the percentage range has been entered,use these▲/▼buttons to increase or decrease the percentage incrementally.

h. Press the SHIFT button then press this button (#9) to start the STEP function. Press again to stop the function.

i. Press ENTER button to accept entry of numbers.



j. Press the SHIFT button then press V to change to Voltage setting.

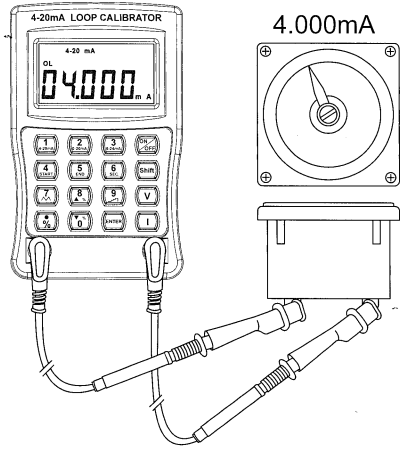


k. Press the SHIFT button then press the I button to return to mA (current) setting.

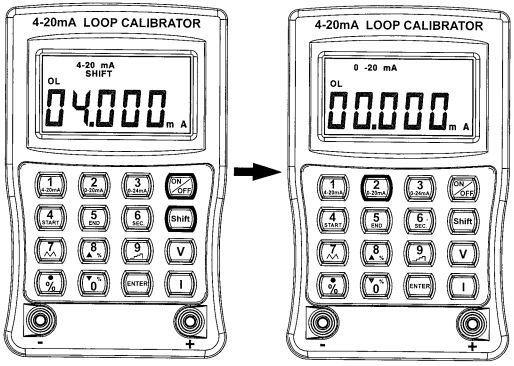
8. Operating Instruction

A. mA Output Selection:

1. Insert the test leads to the black and red terminals on the calibrator accordingly.
2. Connect the leads to the device under test.
3. Press the On/Off button.
4. The device automatically defaults on the 4-20mA range. Press the SHIFT button and select one of the desired range buttons: 1, 2 or 3. The selected range will be displayed on the LCD.

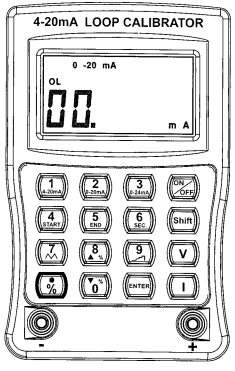


NOTE: A maximum of 5 digits can be entered. If < 5 digits (1 to 4) are entered, you must press the ENTER button to accept end of entry. If > 5 digits, the calibrator will automatically accept the entry and the output specified current.



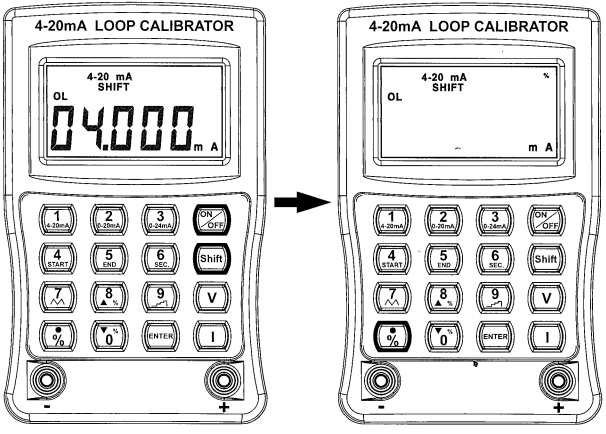
Enter a value less than 1

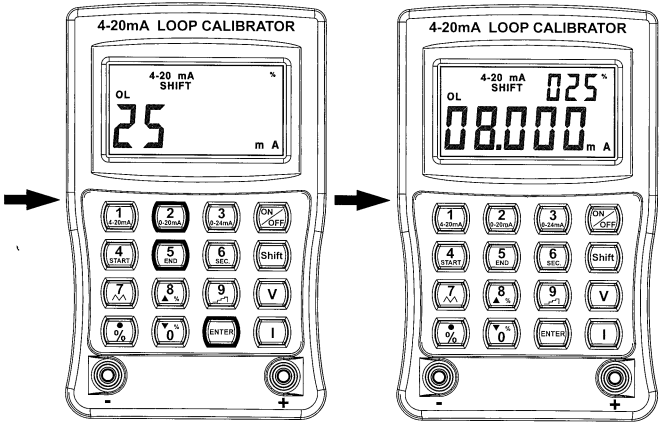
First, select the range 2 or 3. Press the % (decimal) button, then enter the desired value followed by the enter button.



B. Percentage (%) Input:

1. Press the SHIFT button and then the % button (No decimal number. The % resolution is 1%).
2. Select the desired percentage and press ENTER
3. The percentage number will be displayed on the upper right corner of the LCD.
4. The corresponding value is calculated based upon the range selected:
   4-20mA: 1%=0.16mA (start at 4mA)
   0-20mA: 1%=0.2mA
   0-24mA: 1%=0.24mA
5. Press SHIFT button to exit out of Percentage Input mode. The percentage display at the upper left corner of the LCD will disappear, but the value will remain displayed on the LCD.



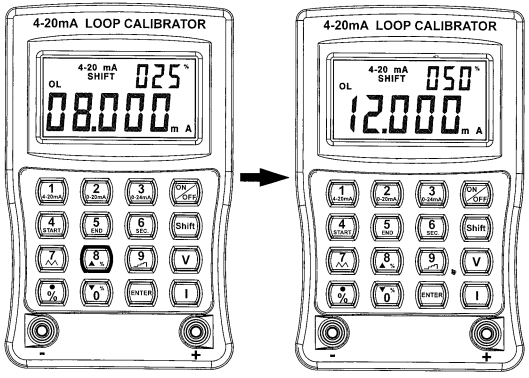


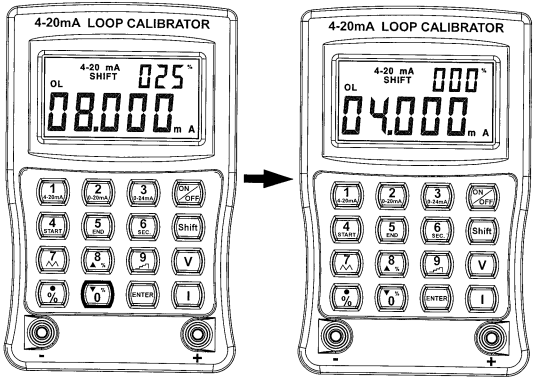
C. Adjusting the Percentage Up and Down:
After the % button has been selected (while still in SHIFT mode), you may adjust the percentage up or down by using the ▲/▼ buttons.

The minimum percentage range is 0%. The maximum percentage range is 100%. If the percentage exceeds the minimum or maximum percentage, the percentage will remain in the previous percentage adjustment.

Example 1: Adjusting the Percentage Up and Down (25%)
25%->50%->75%->100%->75%->50%->25%->0%->25%

Example 2: Adjusting the Percentage Up and Down (30%)
30%->60%->90%->60%->30%->0%->30%

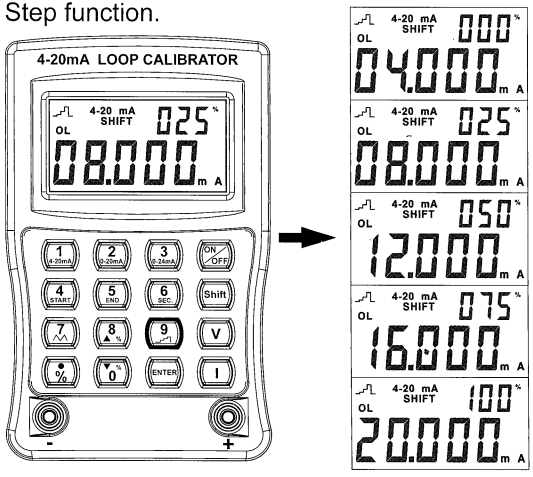




D. Auto Step Function:

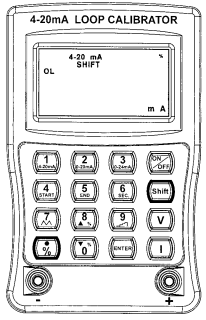
Starting Auto Step Function

1. The default percentage is 25%. And the default duration for Step is 4 seconds.
2. To begin Auto Step Function, press the SHIFT button followed by the # 9 button. Calibrator outputs 0% of the range for 4 seconds. Then it will jump to 25%, displaying the output for another 4 seconds…then
   75% (for 4 seconds)
   100% (for 4 seconds)
   75% (for 4 seconds)
   25% (for 4 seconds)
   0% (for 4 seconds)
   25% (for 4 seconds)
3. Press the number 9 button to temporary stop the Step function.



Step Size (%)

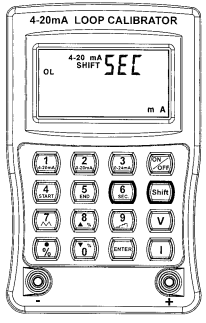
1. Press the SHIFT button and then the % button to enter the percentage value.
2. Then press ENTER.



Example:15%
15% (for 4 seconds)
30% (for 4 seconds)
45% (for 4 seconds)
60% (for 4 seconds)
75% (for 4 seconds)
90% (for 4 seconds)

Duration

1. Press the SHIFT button and then the SEC. (#6) button to enter the value in seconds.
2. Then press ENTER.



75% (for x seconds)
100% (for x seconds)
75% (for x seconds)
25% (for x seconds)
0% (for x seconds)
25% (for x seconds)

E. Auto Ramp Function:

The following is the default setup for Auto Ramp Function:

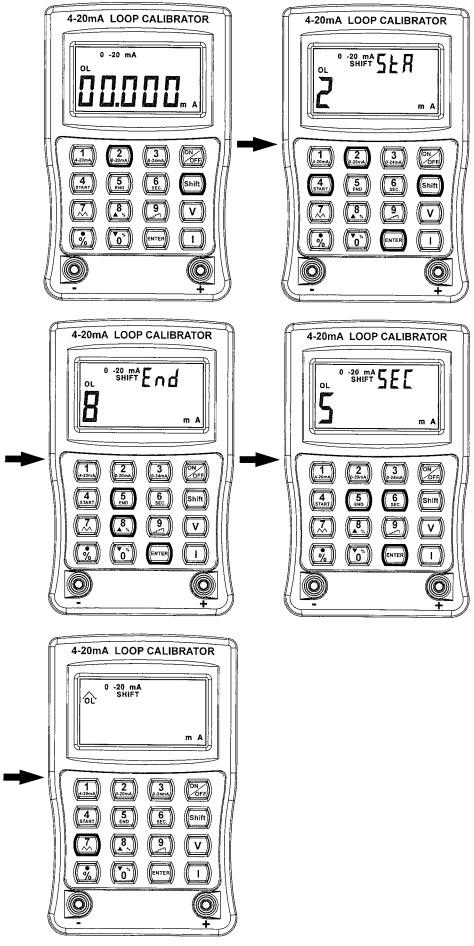
RANGE	START	END	DURATION
4-20mA	4mA	20mA	4 seconds
0-20mA	0mA	20mA	4 seconds
0-24mA	0mA	24mA	4 seconds

Begin the Ramp Function:

1. Press the SHIFT button followed by buttons 1, 2, or 3 for the desired range.
2. Prepare the desired START, END and DURATION values. See instructions for each on page 18. below.
3. After setting the START, END and DURATION values, press the SHIFT button followed by the AUTO RAMP (#7) button.
4. Press the #7 to restart again.
5. To return to the regular output mode, press the SHIFT button again when the ramp function has stopped.

Example:

RANGE	START	END	DURATION
0-20mA	2mA	8mA	5 seconds



F. Establishing the START, END and DURATION of the Ramp Function:

START

1. Press the SHIFT button, then the START (#4) button. STR will be displayed at the upper right corner of the LCD.
2. Enter the desired value and press the ENTER button.

END

1. Press the SHIFT button, then the END (#5) button. End will be displayed at the upper right corner of the LCD.
2. Enter the desired value and press the ENTER button.

DURATION

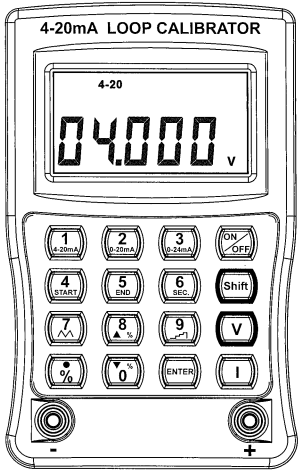
1. Press the SHIFT button, then the SEC. (#6) button. SEC will be displayed at the upper right corner of the LCD.
2. Enter the desired value and press the ENTER button. The range for duration is from 1 to 2000 seconds.

NOTE: Users should set an appropriate value for the duration of ramp function. For a full range ramp, users should enter at least 4 seconds for the duration.

G. Voltage Output (0-24V)

Press the SHIFT button and then the V button. The symbol V will appear at the lower right corner of the LCD. The mA symbol will disappear from the LCD. The values now represent Voltage. The default range is 4-20. The 4-20 now represents 4-20V.

NOTE: To return to Current setting, press SHIFT then press I button.



9. Use the adapter

The calibrator is supplied with a 9V AC adapter. The adapter is located on the right side of the device. The voltage should be regulated between 9 to 12V.

10. Replacing the Battery

When low battery symbol appears on the LCD, replace with new batteries.

1. Ensure the unit is off by pressing the ON/Off button.
2. Remove all test lead terminals.
3. Remove the two screws that secure the bottom case.
4. Replace the battery with a new 9.0V×1alkaline battery. Ensure battery is inserted with the correct polarity.
5. Secure the bottom case with the two screws.

DECLARATION OF CE CONFORMITY

according to EEC directives and NF EN 45014 norm

DECLARATION DE CONFORMITE CE

suivant directives CEE et norme NF EN 45014

CE

SEFRAM INSTRUMENTS & SYSTEMES
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42009 SAINT-ETIENNE (FRANCE)

Declares, that the below mentionned product complies with :
Déclare que le produit désigné ci-après est conforme à :

The European low voltage directive 2006/95/EEC :
La directive Européenne basse tension 2006/95/CE :
NF EN 61010-1 Safety requirements for electrical equipement for measurement, control and laboratory use. Règles de sécurité pour les appareils électriques de mesurage, de régulation et de laboratoire.

The European EMC directive 2004/108/EEC :
Emission standard EN 61326-1 classB, EN 55011 :2009/A1 :2010 group 1 class B
Immunity standard EN 61326-1 : 2006, EN 61000-4-2 :2009, EN 61000-4-3 :2006/A2 :2010, EN61000-4-8 :2010
La directive Européenne CEM 2004/108/CE :
En émission selon EN 61326-1 classB, EN 55011 :2009/A1 :2010 group 1 class B
En immunité selon EN 61326-1 : 2006, EN 61000-4-2 :2009, EN 61000-4-3 :2006/A2 :2010, EN61000-4-8 :2010.

Installation category *Catégorie d'installation* **: 30 V Cat I**

Product name *Désignation* **:** **Process calibrator** *Calibrateur de process*
Model *Type* **:** **4835**

Compliance was demonstrated in listed laboratory and record in test report number
La conformité à été démontrée dans un laboratoire reconnu et enregistrée dans le rapport numéro **RC 4835**

SAINT-ETIENNE the :
September 7th, 2012

Name/Position :
E.CLERJON / Quality Manager