Introduction
The Fluke 715 Volt/mA Calibrator is a source and measurement tool for 0 to 24 mA current loop testing and dc voltage from 0 to 20/25 V. The calibrator does not source and measure simultaneously.

Your calibrator is supplied with a holster, a set of test leads, an installed 9 V alkaline battery, and this instruction sheet.

Summary of Calibrator Capabilities

<table>
<thead>
<tr>
<th>Function</th>
<th>Range</th>
<th>Resolution</th>
</tr>
</thead>
<tbody>
<tr>
<td>dc mV input</td>
<td>0 to 200 mV</td>
<td>0.01 mV</td>
</tr>
<tr>
<td>dc mV output</td>
<td></td>
<td></td>
</tr>
<tr>
<td>dc V input</td>
<td>0 to 25 V</td>
<td>0.001 V</td>
</tr>
<tr>
<td>dc V output</td>
<td>0 to 20 V</td>
<td></td>
</tr>
<tr>
<td>dc mA input</td>
<td>0 to 24 mA</td>
<td>0.001 mA</td>
</tr>
<tr>
<td>dc mA output</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loop power output</td>
<td>24 V dc output</td>
<td>N/A</td>
</tr>
</tbody>
</table>
If the calibrator is damaged or something is missing, contact the place of purchase immediately. Contact your Fluke distributor for information about accessories. To order replacement parts or spares, see “Replacement Parts.”

To contact Fluke, call one of the following telephone numbers:

- USA and Canada: 1-888-99-FLUKE (1-888-993-5853)
- Europe: +31 402-675-200
- Japan: +81-3-3434-0181
- Singapore: +65-**-276-6196
- Anywhere in the world: +1-425-356-5500

Address correspondence to:

Fluke Corporation
P.O. Box 9090, P.O. Box 1186,
Everett, WA 98206-9090 5602 BD Eindhoven
U.S.A. The Netherlands

Visit us on the World Wide Web at: www.fluke.com

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>⬤</td>
<td>Earth ground</td>
</tr>
<tr>
<td>⬤</td>
<td>Fuse</td>
</tr>
<tr>
<td>⬤</td>
<td>Battery</td>
</tr>
<tr>
<td>⬤</td>
<td>Refer to this instruction sheet for information about this feature.</td>
</tr>
<tr>
<td>⬤</td>
<td>Double insulated</td>
</tr>
<tr>
<td>⬤</td>
<td>Conforms to relevant Canadian Standards Association directives.</td>
</tr>
<tr>
<td>⬤</td>
<td>Conforms to European Union directives</td>
</tr>
</tbody>
</table>
Safety Information

Use the calibrator only as specified in this sheet, otherwise the protection provided by the calibrator may be impaired.

A Warning identifies conditions and actions that pose hazard(s) to the user; a Caution identifies conditions and actions that may damage the calibrator or the equipment under test.

⚠️ Warning

To avoid possible electric shock or personal injury:

- Never apply more than 30 V between any two jacks (terminals), or between any jack and earth ground.
- Make sure the battery door is closed and latched before you operate the calibrator.
- Remove test leads from the calibrator before you open the battery door.
- Do not operate calibrator if it is damaged.
- Do not operate the calibrator around explosive gas, vapor, or dust.
- When servicing the calibrator, use only specified replacement parts.

⚠️ Caution

Use the proper jacks, function, and range for your measurement or output application.

Turning the Calibrator On

Press the green button to turn the calibrator on and off.

For longest battery life:

- For mA output, use current simulate mode instead of source mode when an external 24 to 30 V loop power supply is available. (See Simulating a Transmitter.)
- Turn off the calibrator when not in use.

Auto Shut-Off (Power Saver) Feature

The Calibrator automatically turns off after 30 minutes of inactivity. To reduce this time or disable this feature:
1. With the Calibrator OFF, press the \(@\) key. P.S.xx is displayed, where xx is the turn-off time in minutes. \(OFF\) means the power saver is disabled.

2. Press \(\uparrow\) and/or \(\downarrow\) to increase or decrease the turn-off time in minutes.

3. To disable, press \(\downarrow\) until the display shows \(OFF\).

**HART™ Resistor Mode**

The calibrator has a user selectable 250 ohm HART™ resistor to facilitate use with HART™ communication devices. The resistor can be switched in/out at any time by simultaneously pressing the \(\uparrow\) and \(\downarrow\) keys. Use a HART™ communicator when measuring dc mA with loop power or sourcing mA.

**Span Check Feature**

The calibrator allows the users to store 0% and 100% setpoints for each output function. Once setpoints are stored, the span check feature allows the user to quickly toggle back and forth from 0% to 100% or to step in 25% increments.

Automatic step and ramp modes can be enabled while in the span check mode by simultaneously pressing the \(\uparrow\) \(\downarrow\) keys. First select the desired output mode (V, mV or mA) then proceed to store the setpoints:

1. Storing 0% and 100% Setpoints
2. Using the \(\uparrow\) \(\downarrow\) controls set the output to the desired output value for 0%.
3. Press the \(\uparrow\) \(\downarrow\) scroll keys simultaneously to store the 0% value.
4. Now using the \(\uparrow\) \(\downarrow\) controls set the output to the desired output value for 100%
5. Again, press the \(\uparrow\) \(\downarrow\) scroll keys simultaneously to store the 100% value.
**Measuring dc Volts**

Press so that INPUT is on the display.

**Sourcing dc Volts**

Press so that OUTPUT is on the display.
Measuring dc mA

Press so that INPUT is on the display

Press to toggle mA and % of 4-20 mA scale

12.325
Measuring dc mA with Loop Power

- Press so that INPUT is on the display
- Press to toggle mA and % of 4-20 mA scale
- +24V output
- Two-wire transmitter
- HART™ Communicator
Using the Current Output Modes

The calibrator provides current output in mA or percent display. Percent is -25.00 to 125.00%, where 0% is 4 mA, and 100% is 20 mA.

In source mode, the calibrator supplies the current. In simulate mode, the calibrator simulates a two-wire transmitter in an externally-powered current loop.

Sourcing mA

Use source mode whenever you need to supply current into a passive circuit such as a current loop with no loop supply. Insert the test leads into the OUTPUT + and – mA jacks as shown below.

Note

A path must exist for current to flow between the OUTPUT + and – mA jacks, otherwise the display will indicate an overload (OL) when you set an output value.
**Simulating a Transmitter**

Use simulate mode when an external 24 to 30 V loop power supply is available.

Insert the test leads into the mA SIMULATE – and + jacks as shown below.
Maintenance
For maintenance procedures not described in this sheet, contact a Fluke Service Center.

In Case of Difficulty
• Check the battery and test leads. Replace as necessary.
• Review this sheet to make sure you are using the correct jacks and pushbuttons.

If the calibrator needs repair, contact a Fluke Service Center. If the calibrator is under warranty, see the warranty statement below for terms. If the warranty has lapsed, the calibrator will be repaired and returned for a fixed fee. Contact a Fluke Service Center for information and price.
**Cleaning**
Periodically wipe the case with a damp cloth and detergent; do not use abrasives or solvents.

**Calibration**
Calibrate your calibrator once a year to ensure that it performs according to its specifications. A calibration manual is available (PN 686540). Call 1-800-526-4731 from the USA and Canada. In other countries, contact a Fluke Service Center.

**Replacing the Battery**

⚠️ **Warning**
To avoid false readings, which could lead to possible electric shock or personal injury, replace the battery as soon as the battery indicator (■) appears.
## Replacement Parts and Accessories

### Replacement Parts

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>PN or Model no.</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td>BT1</td>
<td>9V battery, ANSI/NEDA 1604A or IEC 6LR61</td>
<td>614487</td>
<td>1</td>
</tr>
<tr>
<td>H80M</td>
<td>Holster, Yellow, hanging</td>
<td>H80M</td>
<td>1</td>
</tr>
<tr>
<td>MP85</td>
<td>Case top</td>
<td>620200</td>
<td>1</td>
</tr>
<tr>
<td>MP86</td>
<td>Case bottom</td>
<td>2397526</td>
<td>1</td>
</tr>
<tr>
<td>H2, 3, 4</td>
<td>Case screw</td>
<td>832246</td>
<td>3</td>
</tr>
<tr>
<td>MP89, 90</td>
<td>Non-skid foot</td>
<td>824466</td>
<td>2</td>
</tr>
<tr>
<td>MP8</td>
<td>O-ring for input/output receptacle</td>
<td>831933</td>
<td>1</td>
</tr>
<tr>
<td>MP92</td>
<td>Battery door</td>
<td>619947</td>
<td>1</td>
</tr>
<tr>
<td>H5, 6</td>
<td>Battery door fasteners</td>
<td>948609</td>
<td>2</td>
</tr>
<tr>
<td>S1</td>
<td>Keypad</td>
<td>687100</td>
<td>1</td>
</tr>
<tr>
<td>TL75</td>
<td>Test lead set</td>
<td>TL75</td>
<td>1</td>
</tr>
<tr>
<td>-</td>
<td>Instruction sheet</td>
<td>650314</td>
<td>1</td>
</tr>
<tr>
<td>AC72</td>
<td>Alligator clips</td>
<td>AC72</td>
<td>1</td>
</tr>
<tr>
<td>TL20</td>
<td>Industrial test lead set</td>
<td>TL20</td>
<td>Option</td>
</tr>
<tr>
<td>-</td>
<td>71X Calibration Manual</td>
<td>686540</td>
<td>Option</td>
</tr>
</tbody>
</table>
Specifications
Specifications are based on a one year calibration cycle and apply from +18°C to +28°C unless stated otherwise. “Counts” means number of increments or decrements of the least significant digit.

**DC V Input and Output**

<table>
<thead>
<tr>
<th>Range</th>
<th>Resolution</th>
<th>Accuracy, (\pm\text{(% of Reading + Counts)})</th>
</tr>
</thead>
<tbody>
<tr>
<td>200 mV</td>
<td>0.01 mV</td>
<td>0.015% + 2</td>
</tr>
<tr>
<td>20 V output</td>
<td>0.001 V</td>
<td>0.01% + 2</td>
</tr>
</tbody>
</table>

*Input impedance: 1 MΩ (nominal), < 100 pF
Overvoltage protection: Fuseless
Voltage drive capability: 1 mA*

**DC mA Input**

<table>
<thead>
<tr>
<th>Range</th>
<th>Resolution</th>
<th>Accuracy, (\pm\text{(% of Reading + Counts)})</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 mA</td>
<td>0.001 mA</td>
<td>0.01% + 2</td>
</tr>
</tbody>
</table>

*Overload protection: Fuseless*

**DC mA Output**
Range: 0 mA to 24 mA
Percent display: 0% = 4 mA, 100% = 20 mA
Accuracy: \(\pm(0.01\% \text{ of reading + 2 counts})\)

**Source mode:**
Compliance: 1000 Ω at 20 mA for battery voltage \(\geq 6.8\) V (700 Ω at 20 mA for battery voltage 5.8 to 6.8 V)

**Simulate mode:**
External loop voltage requirement: 24 V nominal, 30 V maximum, 12 V minimum

**Loop Power**
24 V ±10%
General Specifications

Maximum voltage applied between any jack and earth ground or between any two jacks: 30 V

Storage temperature: -40°C to 60°C

Operating temperature: -10°C to 55°C

Operating altitude: 3000 meters maximum

Temperature coefficient: ±0.005% of range per °C for the temperature ranges -10 to 18°C and 28 to 55°C

Relative humidity: 95% up to 30°C, 75% up to 40°C, 45% up to 50°C, and 35% up to 55°C

Vibration: Random 2 g, 5 to 500 Hz

Shock: 1 meter drop test


Power requirements: Single 9 V battery (ANSI/NEDA 1604A or IEC 6LR61)

Size: 32 mm H x 87 mm W x 187 mm L (1.25 in H x 3.41 in W x 7.35 in L);

With holster: 52 mm H x 98 mm W x 201 mm L (2.06 in H x 3.86 in W x 7.93 in L)

Weight: 349 g (12.3 oz);

With holster: 601 g (21.2 oz)
LIMITED WARRANTY & LIMITATION OF LIABILITY

This Fluke product will be free from defects in material and workmanship for three years from the date of purchase. This warranty does not cover fuses, disposable batteries or damage from accident, neglect, misuse or abnormal conditions of operation or handling. Resellers are not authorized to extend any other warranty on Fluke's behalf. To obtain service during the warranty period, send your defective calibrator to the nearest Fluke Authorized Service Center with a description of the problem.

THIS WARRANTY IS YOUR ONLY REMEDY. NO OTHER WARRANTIES, SUCH AS FITNESS FOR A PARTICULAR PURPOSE, ARE EXPRESSED OR IMPLIED. FLUKE IS NOT LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES OR LOSSES, ARISING FROM ANY CAUSE OR THEORY. Since some states or countries do not allow the exclusion or limitation of an implied warranty or of incidental or consequential damages, this limitation of liability may not apply to you.