

FLUKE®

718 30G/100G

Pressure Calibrator

Product Overview

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LIMITED WARRANTY & LIMITATION OF LIABILITY

This Fluke product will be free from defects in material and workmanship for three years (one year for pump assembly) 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.

Accessing the Users Manual

The *718 Pressure Calibrator Users Manual* is available on the 718 CD included with your calibrator.

Contacting Fluke

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

USA: 1-888-99-FLUKE (1-888-993-5853)

Canada: 1-800-363-5853

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.

Pressure Calibrator

Introduction

The Fluke Model 718 30G and 718 100G Pressure Calibrators (hereafter called “Calibrator”) can do the following:

- Calibrate P/I (pressure to current) transmitters.
- Measure pressure via a 1/8-inch NPT pressure fitting and an internal pressure sensor or via a Fluke 700 Series Pressure Module.
- Measure current up to 24 mA.
- Simultaneously display pressure and current measurements.
- Supply loop voltage.

The Calibrator makes 5-digit pressure readings in the following units: psi, inH₂O at 4 °C, inH₂O at 20 °C, kPa, cmH₂O at 4 °C, cmH₂O at 20 °C, bar, mbar, kg/cm², inHg, and mmHg. Full scale pressure sensor input is as follows:

- Model 718 30G: 30 psi (206.85 kPa, 2.0685 bar). “OL” appears at 33 psi.
- Model 718 100G: 100 psi (689.5 kPa, 6.895 bar). “OL” appears at 120 psi.

The Calibrator measures pressure sensor inputs in the units shown in Table 1.

For Pressure Modules, full scale readings for all pressure ranges can be made in psi, kPa, and inHg units. To avoid display overflow, full scale readings are limited to 1000 psi in cmH₂O, mbar, and mmHg units, and 3000 psi in inH₂O units. Pressures of at least 15 psi must be measured for meaningful readings in bar and kg/cm² units.

Table 1. Pressure Sensor Range and Resolution

Displayed Pressure Units	Model 718 30G Range and Resolution	Model 718 100G Range and Resolution
psi	-12.000 to 30.000 psi	-12.00 to 100.00 psi
inH ₂ O at 4°C	-332.16 to 830.40 inH ₂ O	-332.2 to 2768.0 inH ₂ O
inH ₂ O at 20°C	-332.75 to 831.87 inH ₂ O	-332.8 to 2772.9 inH ₂ O
cmH ₂ O at 4°C	-843.6 to 2109.0 cmH ₂ O	-843.6 to 7030.0 cmH ₂ O
cmH ₂ O at 20°C	-845.2 to 2113.0 cmH ₂ O	-845.2 to 7043.0 cmH ₂ O
bar	-0.8274 to 2.0685 bar	-0.8274 to 6.8950 bar
mbar	-827.4 to 2068.5 mbar	-827.4 to 6895.0 mbar
kPa	-82.74 to 206.85 kPa	-82.74 to 689.50 kPa
inHg	-24.432 to 61.080 inHg	-24.43 to 203.60 inHg
mmHg	-620.6 to 1551.4 mmHg	-620.6 to 5171.5 mmHg
kg/cm ²	-0.8437 to 2.1090 kg/cm ²	-0.8437 to 7.0306 kg/cm ²

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. To order replacement parts or spares, see the user-replaceable parts list near the end of this manual.

- TL75 test leads (one set)
- AC70A Alligator clips (one set)
- Holster
- *718 Product Overview Manual*
- *718 CD-ROM* (contains Users Manual)

Safety Information

Use the Calibrator only as specified in the Users Manual, 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 the mA terminals, or between either of the mA terminals and earth ground.
- Remove the test leads from the Calibrator before you open the battery door.
- Make sure the battery door is closed and latched before you operate the Calibrator.
- Do not operate the Calibrator if it is damaged.
- Do not operate the Calibrator around explosive gas, vapor, or dust.
- When using probes, keep fingers behind the finger guards on the probes.
- Use only two 9 V batteries, properly installed in the calibrator case, to power the calibrator.
- Follow all equipment safety procedures.
- Turn off circuit power before connecting the calibrator mA and COM terminals in the circuit. Place calibrator in series with the circuit.
- When servicing the Calibrator, use only specified replacement parts.
- Do not allow water inside the case.

⚠ 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.

To avoid a violent release of pressure in a pressurized system, shut off the valve and slowly bleed off the pressure before you attach or detach the internal pressure sensor or Pressure Module fitting to the pressure line.

To avoid overpressure damage, do not apply pressure to the internal pressure sensor input that exceeds the following:

- Model 718 30G: 30.000 psi, 206.85 kPa, or 2.0685 bar. “OL” appears at 33 psi.
- Model 718 100G: 100.00 psi, 689.5 kPa, or 6.895 bar. “OL” appears at 120 psi.

To avoid corrosion in the pressure sensor, use the Calibrator only with media compatible with glass, ceramic, silicon, RTV, nitrile (Buna -N), type 303 stainless steel, and nickel.

To avoid mechanically damaging the Calibrator:

- Do not apply torque between the pressure fitting and the Calibrator case. See Figure 1 for the proper use of tools.

To avoid misleading readings, disconnect the Pressure Module connector at the Calibrator.

To avoid damage to the Pressure Module, refer to the related Instruction Sheet.

To avoid damage to the pump, use with dry air and non-corrosive gases only. Use of the optional Fluke 700-ILF In-Line Filter may help isolate the pump from contaminates.

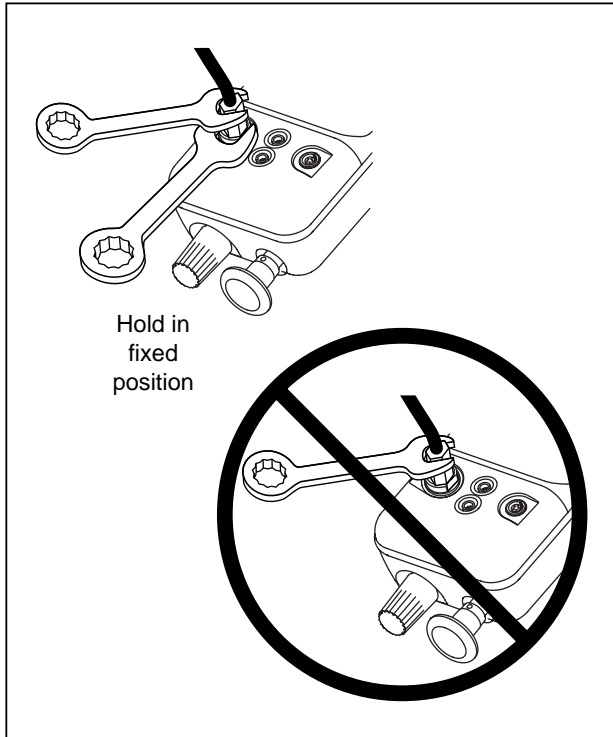


Figure 1. Connection Technique

Table 2. International Electrical Symbols

Symbol	Meaning
	Earth ground
	Fuse
	Battery
	Refer to the manual for information about this feature.
	Double insulated
	Conforms to relevant Canadian Standards Association directives.
	Conforms to relevant European Union directives
	Pressure

Getting Acquainted with the Calibrator

Press **Ⓢ** to turn the Calibrator on and off. The Calibrator displays pressure and current measurements simultaneously. See Figure 2.

The upper part of the display shows the applied pressure or vacuum. (Vacuum is shown as a negative value.) Press **UNITS** to select a different unit. When you cycle the power off and on, the Calibrator retains the unit you last used.

The lower part of the display shows the current (up to 24 mA) applied to the current (mA) inputs. The current inputs are fused with a 0.125 A, 250 V fast fuse (Littelfuse® type 2AG).

To source loop voltage, press **UNITS** while pressing **Ⓢ** on.

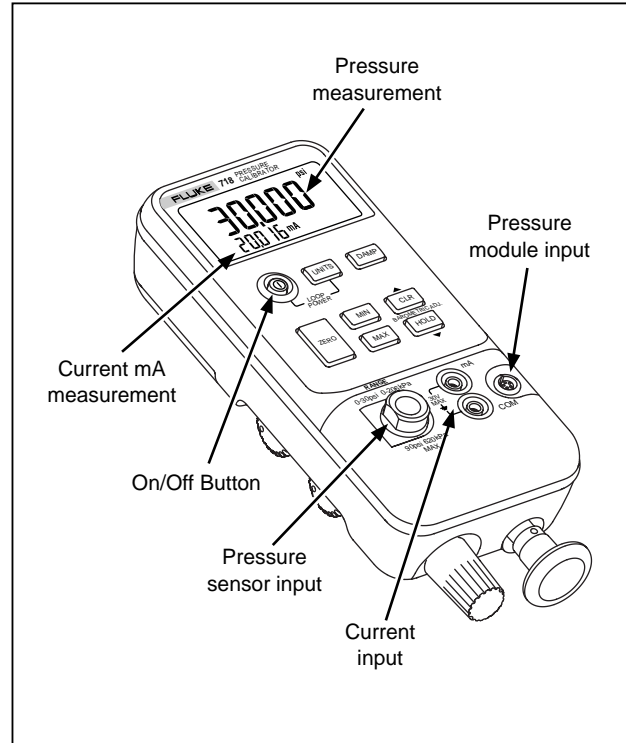



Figure 2. Front Panel Features

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Pushbuttons

Pushbutton operation is described in Table 3.

Table 3. Pushbutton Functions

Pushbutton	Description
UNITS	Press to select a different pressure unit. All units are available when the pressure sensor input is used. For higher pressure module inputs, inappropriate (out-of-range) units are not available. Press  on while pressing UNITS to source loop voltage.
DAMP	Turns pressure reading damping on and off. With damping on, the Calibrator averages several measurements before displaying a reading.
ZERO	Press to zero the pressure display. Vent pressure to atmosphere before you press this pushbutton. With an Absolute Pressure Module, see special instructions below.
MIN	Press and hold to read the minimum pressure and current readings since power was turned on or CLR was pressed.
CLR	Press to clear the MIN and MAX memories.
MAX	Press and hold to read the maximum pressure and current readings since power was turned on or CLR was pressed.
HOLD	Press HOLD to freeze the display. The HOLD symbol appears on the display. Press HOLD again to resume normal operation.

Pump Features

Refer to Table 4 and Figure 3.

Table 4. Pump Features

Item	Description
Pressure Vacuum Switch	Rotate forward (clockwise) for pressure, backward (counter-clockwise) for vacuum.
Pressure Vacuum Release Valve	Rotate fully backward (counter-clockwise) to release all pressure or vacuum. (Rotate slightly for partial release.) Rotate fully forward (clockwise) to close valve.
Fine Adjustment Knob	Rotate either direction for precise adjustment of applied pressure or vacuum. Full rotation is about 30 turns.
Internal Pump	Increase pressure on the inward stroke. In vacuum mode, decrease pressure on the outward stroke.

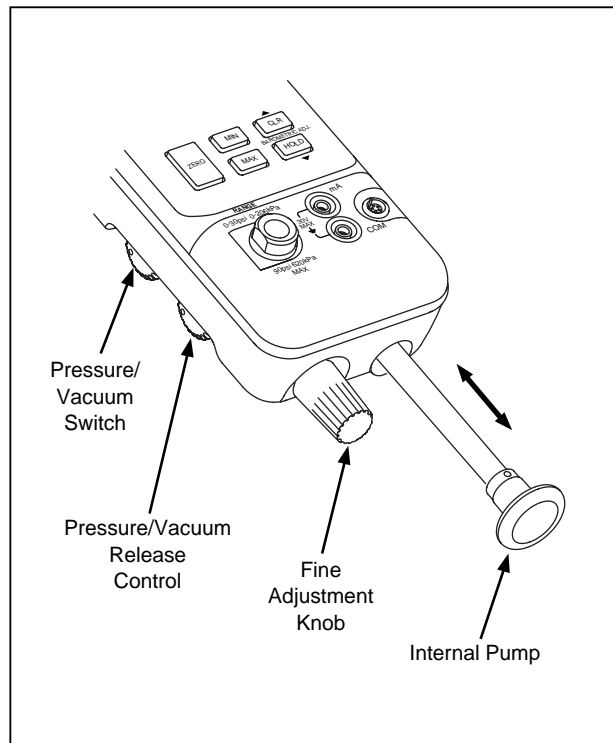


Figure 3. Pump Features

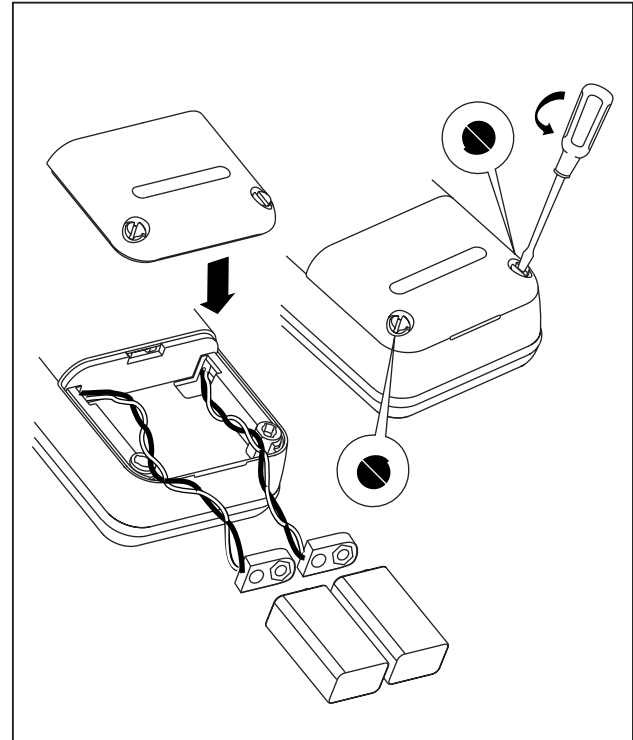
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Replacing the Batteries

When the **+** symbol appears on the display, replace the two 9 V alkaline batteries. Refer to Figure 4.

⚠ Warning

To avoid false readings, which could lead to possible electric shock or personal injury, replace the batteries as soon as the battery indicator **+** appears.



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Figure 4. Battery Replacement

Specifications

Specifications are based on a one year calibration cycle and apply for ambient temperature from +18 °C to +28 °C unless stated otherwise. "Counts" are the number of increments or decrements of the least significant digit.

Pressure Sensor Input, 718 30G

Range	Accuracy
-12 to 30 psi (-82.7 to 206.85 kPa)	±0.05 % of range
<i>Maximum nondestructive pressure: 3X top of range (90 psi, 620 kPa, 6.2 bar)</i> <i>Temperature coefficient: 0.01 % of range per °C for temperature ranges -10 °C to 18 °C and 28 °C to 55 °C</i>	

Pressure Sensor Input, 718 100G

Range	Accuracy
-12 to 100 psi (-82.7 to 689.5 kPa)	±0.05 % of range
<i>Maximum nondestructive pressure: 2X top of range (200 psi, 1380 kPa, 13.8 bar)</i> <i>Temperature coefficient: 0.01 % of range per °C for temperature ranges -10 °C to 18 °C and 28 °C to 55 °C</i>	

Pressure Module Input, 718 30G and 718 100G

Range	Resolution	Accuracy
(determined by Pressure Module)		

DC mA Input, 718 30G and 718 100G

Range	Resolution	Accuracy, ±(% of Reading + Counts)
24 mA	0.001 mA	0.025 + 1
<i>Overload protection: 125 mA, 250 V fast acting fuse</i> <i>Temperature coefficient: 0.005 % of range per °C for temperature ranges -10 °C to 18 °C and 28 °C to 55 °C</i>		

Loop Supply 718 30G and 718 100G

24 V dc nominal

General Specifications

Maximum voltage applied between either mA terminal and earth ground or between the mA terminals: 30 V

Storage temperature: -40 °C to 60 °C

Operating temperature: -10 °C to 55 °C

Operating altitude: 3000 meters maximum

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 Hz to 500 Hz

Shock: 1 meter drop test

Safety: Certified as compliant to CAN/CSA C22.2 No. 1010.2:1995. Complies with ANSI/ISA S82.01-1995.

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

Size: 60 mm H x 87 mm W x 210 mm L (2.38 in H x 3.41 in W x 8.28 in L); with holster: 66 mm H x 94 mm W x 216 mm L (2.61 in H x 3.72 in W x 8.5 in L)

Weight: 737 g (26 oz); with holster: 992 g (35 oz)

Parts

Replacement parts are listed in Table 5. These parts can be ordered by contacting Fluke. Refer to the Users Manual for a complete list of user-replaceable parts.

Table 5. Parts

Description	PN/ Model	Qty
Fuse, 125 mA, 250 V fast Δ To ensure safety, use exact replacement only.	686527	1
9 V battery, ANSI/NEDA 1604A or IEC 6LR61	614487	2
AC70A alligator clip, red	738047	1
AC70A alligator clip, black	738120	1
Holster, Yellow	664182	1
TL75 test lead set	TL75	1
Pump assembly, 718 30G	691383	1
Pump assembly, 718 100G	691748	1
Pump seal kit	691805	Opt
718 Product Overview Manual	1549632	1
718 CD-ROM (contains Users Manual)	1574463	1
71X Series Calibration Manual	686540	Opt

