

## TECHNICAL DATA

# Fluke Calibration 9103/9140 Field Dry-Well



## Key features

- Accuracy to  $\pm 0.25^{\circ}\text{C}$  and comes with an RS-232 interface.
- The 9103 covers below-ambient temperatures as low as  $-25^{\circ}\text{C}$ . The 9103 is stable to  $\pm 0.02^{\circ}\text{C}$
- The 9140 has a temperature range of  $35^{\circ}\text{C}$  to  $350^{\circ}\text{C}$ . The 9140 has a stability of  $\pm 0.05^{\circ}\text{C}$ .
- Features designed with user convenience and productivity in mind.

## Product overview: Fluke Calibration 9103/9140 Field Dry-Well

These two units beat every other comparable dry-well in the industry in performance, size, weight, convenience, ease of calibration, software, and price. In addition, the heating and cooling rate of each of these dry-wells is adjustable from the front panel, thermal switches can be checked for actuation testing, and multiple-hole inserts are available for a variety of probe sizes.

Hart dry-wells are easy to calibrate. You don't even have to open the case. This means less maintenance costs and less down time when they do need calibration.

Our Interface-it software lets you adjust set-points and ramp rates, log dry-well readings to a file, create an electronic strip chart, and perform thermal switch testing with data collection. The software is written for Windows and has a great graphical interface. Regardless of whether you want basic software or a completely automated calibration system, we've got what you want. Read about all our great packages starting on page 80.

Every dry-well we ship is tested at our factory, and every unit comes with a NIST-traceable calibration. There's no extra charge for the report, because we consider it an essential ingredient in our quality program. You shouldn't have to pay extra for calibration procedures we perform anyway.

## 9103

The 9103 covers below-ambient temperatures as low as  $-25^{\circ}\text{C}$ . The 9103 is stable to  $\pm 0.02^{\circ}\text{C}$ , and its display is calibrated to an accuracy of  $\pm 0.25^{\circ}\text{C}$  at all temperatures within its range. In just eight minutes,  $0^{\circ}\text{C}$  is reached, and  $100^{\circ}\text{C}$  is reached in six minutes, so your time is spent calibrating—not waiting.

The 9103 reaches temperatures  $50^{\circ}\text{C}$  below ambient, so  $-25^{\circ}\text{C}$  is reached under normal ambient conditions. Our competitors like to advertise their units as reaching  $-45^{\circ}\text{C}$  when they really mean  $-45^{\circ}\text{C}$  below ambient, which typically means it will go to  $-20^{\circ}\text{C}$ . Our unit does not require you to work in a walk-in freezer to achieve its full advertised range.

Choose one of three removable inserts sized for probes from  $1/16$  inch to  $1/2$  inch in diameter. Insert A handles a full range of probe sizes with a single well of each size. Insert B features two wells each of  $3/8$ ,  $1/4$ , and  $3/16$  inches in diameter for doing comparison calibrations. Insert C has six  $1/4$ -inch-diameter wells for multiple probe calibrations, and Insert D has three pairs of metric sized wells.

## 9140

The 9140 has a temperature range of  $35^{\circ}\text{C}$  to  $350^{\circ}\text{C}$ , and it reaches its maximum temperature in 12 minutes. At six pounds, it's small enough to easily carry in one hand. It's truly a unique innovation in dry-wells.

The unit has a stability of  $\pm 0.05^{\circ}\text{C}$  or better and a uniformity of at least  $0.4^{\circ}\text{C}$  in the largest-diameter wells and  $0.1^{\circ}\text{C}$  in the smaller wells. Despite its small size, this unit performs.

Use the display, calibrated to  $\pm 0.5^{\circ}\text{C}$ , as your reference, or use an external thermometer for maximum calibration accuracy. With three removable inserts to choose from, the 9140 is as versatile as it is fast.

## Specifications: Fluke Calibration 9103/9140 Field Dry-Well

| Specifications          | 9103  | 9140  |
|-------------------------|---|---|
| Range                   | $-25^{\circ}\text{C}$ to $140^{\circ}\text{C}$<br>( $-13^{\circ}\text{F}$ to $284^{\circ}\text{F}$ )<br>at $23^{\circ}\text{C}$ ambient | $35^{\circ}\text{C}$ to $350^{\circ}\text{C}$<br>( $95^{\circ}\text{F}$ to $662^{\circ}\text{F}$ )        |
| Accuracy                | $\pm 0.25^{\circ}\text{C}$ (holes greater than $1/4"$ [ $6.35\text{mm}$ ]): $\pm 1^{\circ}\text{C}$                                     | $\pm 0.5^{\circ}\text{C}$ (holes greater than $1/4"$ [ $6.35\text{mm}$ ]): $\pm 1^{\circ}\text{C}$        |
| Stability               | $\pm 0.02^{\circ}\text{C}$ at $-25^{\circ}\text{C}$<br>$\pm 0.04^{\circ}\text{C}$ at $140^{\circ}\text{C}$                              | $\pm 0.03^{\circ}\text{C}$ at $50^{\circ}\text{C}$<br>$\pm 0.05^{\circ}\text{C}$ at $350^{\circ}\text{C}$ |
| Well-to-well uniformity | $\pm 0.1^{\circ}\text{C}$ between similarly sized wells   | $\pm 0.1^{\circ}\text{C}$ with similarly sized wells  |
| Heating times           | 18 minutes from ambient to $140^{\circ}\text{C}$  | 12 minutes from ambient to $350^{\circ}\text{C}$  |

|                            |   |   |
|----------------------------|---|---|
| Cooling times              | 20 minutes from ambient to -25°C  | 15 minutes from 350°C to 100°C  |
| Stabilization time         | 7 minutes   | 7 minutes   |
| Immersion depth            | 124 mm (4.875 in)   | 124 mm (4.875 in)   |
| Inserts                    | Insert A, B, C, or D included (specify when ordering)                         |   |
| Outside insert dimensions  | 31.8 mm dia. x 124 mm (1.25 x 4.88 in)  |   |
| Computer interface         | RS-232 included with free Interface-it software (Model 9930)                  |   |
| Power                      | 115 V AC (±10%), 1.3 A or 230 V AC (±10%), 0.7 A, switchable, 50/60 Hz, 150 W | 115 V AC (±10%), 4.4 A or 230 V AC (±10%), 2.2 A, switchable, 50/60 Hz, 500 W |
| Size (W x H x D)           | 143 x 261 x 245 mm<br>(5.63 x 10.25 x 9.63 in)                                | 152 x 86 x 197 mm<br>(6 x 3.375 x 7.75 in)                                    |
| Weight                     | 5.7 kg (12 lb)  | 2.7 kg (6 lb)   |
| NIST-traceable certificate | Data at -25°C, 0°C, 25°C, 50°C, 75°C, 100°C, and 140°                         | Data at 50°C, 100°C, 150°C, 200°C, 250°C, 300°C, and 350°C                    |

## Ordering information



### Fluke 9103

Fluke Calibration 9103 Field Dry-Well

Insert, blank (cold side)

-25°C to 140°C

### Fluke 9103-A

Fluke Calibration 9103-A Field Dry-Well

Insert "A", miscellaneous (cold side)

-25°C to 140°C

Wells: 1/16" (1.6 mm), 1/8" (3.2 mm), 3/16" (4.8 mm), 1/4" (6.35 mm), 3/8" (9.5 mm) and 1/2" (12.7 mm)

### Fluke 9103-B

Fluke Calibration 9103-B Field Dry-Well

Insert "B", comparison (cold side)

-25°C to 140°C

Wells: 2 at 3/16" (4.8 mm), 2 at 1/4" (6.35 mm), and 2 at 3/8" (9.5 mm)

### Fluke 9103-C

Fluke Calibration 9103-C Field Dry-Well

Insert "C", six 1/4 in wells (cold side)

-25°C to 140°C

Wells: 6 at 1/4" (6.35 mm)

### Fluke 9103-D

Fluke Calibration 9103-D Field Dry-Well  
Insert "D", comparison - metric (cold side)  
-25°C to 140°C

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Wells: 2 at 3 mm, 2 at 4 mm, and 2 at 6 mm

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### **Fluke 9140**

Fluke Calibration 9140 Field Dry-Well  
Insert, blank  
35°C to 350°C

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### **Fluke 9140-A**

Fluke Calibration 9140-A Field Dry-Well  
Insert "A"  
35°C to 350°C

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Wells: 1/16" (1.6 mm), 1/8" (3.2 mm), 3/16" (4.8 mm), 1/4" (6.35 mm), 3/8" (9.5 mm) and 1/2" (12.7 mm)

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### **Fluke 9140-B**

Fluke Calibration 9140-B Field Dry-Well  
Insert "B"  
35°C to 350°C

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Wells: 2 at 3/16" (4.8 mm), 2 at 1/4" (6.35 mm), and 2 at 3/8" (9.5 mm)

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### **Fluke 9140-C**

Fluke Calibration 9140-C Field Dry-Well  
Insert "C"  
35°C to 350°C

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Wells: 6 at 1/4" (6.35 mm)

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### **Fluke 9140-D**

Fluke Calibration 9140-D Field Dry-Well  
Insert "D"  
35°C to 350°C

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Wells: 2 at 3 mm, 2 at 4 mm, and 2 at 6 mm

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**Fluke Corporation**

PO Box 9090, Everett, WA 98206 U.S.A.

**For more information call:**

In the U.S.A. (800) 443-5853

In Europe/M-East/Africa

+31 (0)40 267 5100

In Canada (800)-36-FLUKE

From other countries +1 (425) 446-5500

**BUT. FLUKE SOUTH EAST ASIA PTE LTD**

Menera Satu Sentra Kelapa Gading #06-05

Jl. Bulevar Kelapa Gading Kav. LA# No. 1

Summarecon Kelapa Gading

Jakarta Utara 14240

Indonesia

Tel: +62 21 2938 5922

Email: info.asean@fluke.com

[www.fluke.com/id-en](http://www.fluke.com/id-en)

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04/2025

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