Field Dry-Well Calibrators

Features

- **Lightweight and very portable**
- **Accuracy to ±0.25 °C**
- **RS-232 and Interface-*it* software included**
- **Easy to recalibrate**

If you've been using dry-well calibrators for field work, you know there's a lot more to a dry-well than its temperature range and stability. Size, weight, speed, convenience, and software are also significant.

Field dry-wells need to be portable, flexible, and suitable for high-volume calibrations or certifications. If they're not, you'll soon forget about the great stuff the sales rep told you and realize what you've really bought.

At Hart Scientific, we use dry-wells every day in our manufacturing and calibration work, and we know what makes a dry-well easy and productive to use—which is exactly how users describe our series of field dry-wells. These dry-wells work for you instead of the other way around.

These three 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.

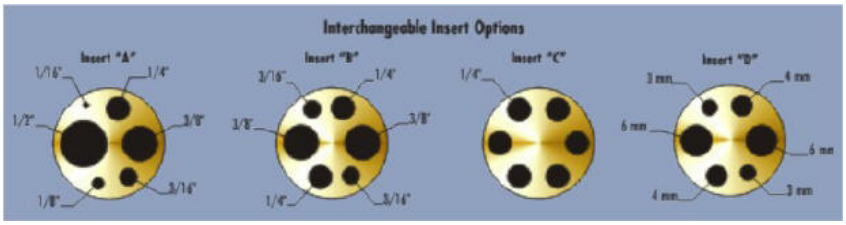
Every dry-well we ship is tested at our factory, and every unit comes with a NIST-traceable calibration. There's no extra charge for the report, because we consider it an essential ingredient in our quality program. You shouldn't have to pay extra for calibration procedures we perform anyway.

Model 9103

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

The 9103 reaches temperatures 50 °C below ambient, so –25 °C is reached under normal ambient conditions. Our competitors like to advertise their units as reaching –45 °C when they really mean –45 °C below ambient, which typically means it will go to –20 °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.



Model 9140

The 9140 has a temperature range of 35 °C to 350 °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 ±0.05 °C or better and a uniformity of at least 0.4 °C in the largest-diameter wells and 0.1 °C in the smaller wells. Despite its small size, this unit performs.

Use the display, calibrated to ±0.5 °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.

TTI Instruments
TOTAL TEMPERATURE INSTRUMENTATION INCORPORATED

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Model 9141

Here's an upright unit you're going to love. It does calibrations up to 650 °C, weighs only eight pounds, and heats up to 650 °C in only 12 minutes—12! This dry-well does everything but get legs and walk to the job for you. (And we're working on one that does that too.)

This four-inch-wide dry-well is amazing. You can control all functions from the front panel or hook it up to your PC with its built-in RS-232 port. And just like the 9140, it works with all of our software described on page 80.

It has three removable well inserts available, an optional carrying case, a NIST-traceable calibration, and the best price in the industry.

Ordering Information	
9103-X	Dry-Well (specify X, X = A, B, C, or D included insert)
3103-1	Insert, blank
3103-2	Insert A
3103-3	Insert B
3103-4	Insert C
3103-6	Insert D
9316	Rugged Carrying Case
9140-X	Dry-Well (specify X, X = A, B, C, or D included insert)
3140-1	Insert, blank
3140-2	Insert A
3140-3	Insert B
3140-4	Insert C
3140-6	Insert D
9308	Rugged Carrying Case
9141-X	Dry-Well (specify X, X = A, B, C, or D included insert)
3141-1	Insert, blank
3141-2	Insert A
3141-3	Insert B
3141-4	Insert C
3141-6	Insert D
9309	Rugged Carrying Case

Specifications	9103	9140	9141
Range	–25 °C to 140 °C (–13 °F to 284 °F) at 23 °C ambient	35 °C to 350 °C (95 °F to 662 °F)	50 °C to 650 °C (122 °F to 1202 °F)
Accuracy	±0.25 °C	±0.5 °C (holes greater than 1/4" [6.35 mm]: ±1 °C)	±0.5 °C to 400 °C; ±1.0 °C to 650 °C (holes greater than 1/4": ±2 °C)
Stability	±0.02 °C at –25 °C ±0.04 °C at 140 °C	±0.03 °C at 50 °C ±0.05 °C at 350 °C	±0.05 °C at 100 °C ±0.12 °C at 500 °C ±0.12 °C at 650 °C
Well-to-Well Uniformity	±0.1 °C between similarly sized wells	±0.1 °C with similarly sized wells	±0.1 °C below 400 °C, ±0.5 °C above 400 °C with similarly sized wells
Heating Times	18 minutes from ambient to 140 °C	12 minutes from ambient to 350 °C	12 minutes from ambient to 650 °C
Cooling Times	20 minutes from ambient to –25 °C	15 minutes from 350 °C to 100 °C	25 minutes from 650 °C to 100 °C
Stabilization Time	7 minutes		
Immersion Depth	124 mm (4.875")		
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)		28.5 mm dia. x 124 mm (1.12 x 4.88 in)
Computer Interface	RS-232 included with free Interface-*it* software (Model 9930)		
Power	115 VAC (±10 %), 1.3 A or 230 VAC (±10 %), 0.7 A, switchable, 50/60 Hz, 150 W	115 VAC (±10 %), 4.4 A or 230 VAC (±10 %), 2.2 A, switchable, 50/60 Hz, 500 W	115 VAC (±10 %), 8.8 A or 230 VAC (±10 %), 4.4 A, switchable, 50/60 Hz, 1000 W
Size (WxHxD)	143 x 261 x 245 mm (5.63 x 10.25 x 9.63 in)	152 x 86 x 197 mm (6 x 3.375 x 7.75 in)	109 x 236 x 185 mm (4.3 x 9.3 x 7.3 in)
Weight	5.7 kg (12 lb.)	2.7 kg (6 lb.)	3.6 kg (8 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	Data at 100 °C, 200 °C, 300 °C, 400 °C, 500 °C, and 600 °C

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