

Mini TPW maintenance apparatus



- Easy preprogrammed realization
- Inexpensive fixed-point solution
- Training takes just a few hours

If the reason you don't use fixed-point cells is because they're too expensive or too difficult to use, you haven't heard of Hart's mini fixed-point apparatus.

The triple point of water (0.01 °C) is one of the most important temperatures on the ITS-90. Unfortunately, realizing and maintaining triple point of water cells hasn't always been convenient or cost-effective.

Because ITS-90 calibrations require frequent measurements at the triple point of water, and because the triple point of water is often used as a statistical check against the drift of a temperature standard, it is important to be able to realize and maintain well-constructed triple point of water cells easily.

Hart's 9210 TPW Maintenance Apparatus provides built-in programming for the simple supercool-and-shake realization and maintenance of our 5901B Mini TPW Cell. Simply insert the cell, enter the "freeze" mode through the front-panel buttons, have your morning cup of coffee, and when the 9210 audibly alerts you,

remove the Mini TPW Cell and give it a shake to initiate freezing a portion of the water. Re-insert the cell, change the program mode to "maintain," and you've got 0.01 °C for the rest of the day with uncertainty of only ± 0.0005 °C.

Precision-machined thermal blocks can also be used to take advantage of the excellent stability and uniformity of the 9210 for performing comparison calibrations. Multi-hole and custom blocks are available with 178 mm (7 in) depths.

Specifications

Temperature Range	-10 °C to 125 °C
Ambient Operating Range	5 °C to 45 °C
Stability	± 0.02 °C
Vertical Gradient	± 0.05 °C over 100 mm at 0 °C
Plateau Duration	6–10 hours, typical
Resolution	0.01 ° (0.001 ° in program mode)
Display Scale	°C or °F, switchable
Immersion Depth	171 mm (6.75 in) in optional comparison block
Stabilization Time	15 minutes nominal
Preheat Wells	3 wells (for 3.18, 6.35, or 7.01 mm probes [0.125, 0.25, 0.276 in])
Fault Protection	Adjustable software cutout using control probe; separate circuit thermocouple cutout for maximum instrument temperature
Display Accuracy	± 0.25 °C
Comparison Block	Three multi-hole blocks, blanks, and custom blocks available
Well-to-Well Gradient (in comparison block)	± 0.02 °C
Heating Time	Ambient to 100 °C: 45 min.
Cooling Time	Ambient to -5 °C: 25 min.
Comm.	RS-232 included
Power Requirements	115 V ac (± 10 %), 60 Hz, 1.5 A, or 230 V ac (± 10 %), 50 Hz, 0.75 A, 170 W
Exterior Dimensions (HxWxD)	489 x 222 x 260 mm (19.25 x 8.75 x 10.25 in)
Weight	7 kg (15.5 lb) with block

Ordering Information

9210	Mini TPW Maintenance Apparatus	3110-3	Comparison Insert B, 2 holes at 4.76 mm (3/16 in), 2 at 6.35 mm (1/4 in), and 2 at 9.5 mm (3/8 in)
5901B	Mini TPW Cell	3110-4	Comparison Insert C, 6 holes at 6.35 mm (1/4 in)
1904-TPW	Accredited Cell Intercomparison		<i>Call for other comparison insert options.</i>
3110-1	Comparison Insert, Blank		
3110-2	Comparison Insert A, holes at 1.6 mm, 3.2 mm, 4.76 mm, 6.35 mm, 9.5 mm, and 12.7 mm (1/16, 1/8, 3/16, 1/4, 3/8, and 1/2 in)		