

5960A

Triple Point of Argon System

Technical Data

Breakthrough primary temperature standards capability

The Fluke Calibration 5960A Triple Point of Argon System enables primary standards laboratories to realize the argon triple point using a consistent, reproducible process with the lowest uncertainty of any commercially available system. The Fluke Calibration system produces a 30-hour temperature plateau and provides multiple entrant wells to increase SPRT calibration efficiency and throughput.

- Low uncertainty of 0.25 mK
- Temperature plateau duration longer than 30 hours
- Four entrant wells with radial uniformity less than 0.05 mK
- 480 mm total immersion depth
- Argon purity of 99.9999%
- Multi-language display support

Low calibration uncertainty

A number of technology advancements are designed into the Fluke Calibration 5960A system to achieve a low uncertainty of 0.25 mK. For example, the argon cell is carefully built with an ultra-clean process using 99.9999% (six nines) purity argon resulting in an uncertainty factor from impurities of 0.015 mK. The deep, 480 mm immersion depth of the entrant well minimizes the effects of stem conduction to less than 0.01 mK and radial uniformity to less than 0.05 mK.

High lab throughput

The 5960A system utilizes liquid nitrogen (LN₂) in a Dewar vessel surrounding an argon cell to achieve -189.3442 °C. A digital controller combined with a heater maintains a temperature plateau lasting up to 30 hours with 0.1 mK variation without using complicated pressure controls. By regular renewal of liquid nitrogen

in the system, the plateau length can even be extended to four days. The system's long, stable temperature plateau lets you carry out your SPRT calibrations with better quality and more efficiency. Four entrant wells increase lab productivity by allowing you to calibrate four SPRTs simultaneously.



Ease of operation and maintenance

The display panel of the 5690A provides a simple menu structure with soft function keys for setup and programming the argon system. The readout displays simultaneously the set-point temperature, actual control sensor temperature and percent heater power. The display is selectable in eight languages—English, French, Spanish, Italian, German, Russian, Chinese, and Japanese.

Applying positive pressure with helium or dry nitrogen to an entrant well port prevents your SPRTs from being bound in the entrant well by freezing moisture. You can insert and remove SPRTs as desired from the system over the duration of a single plateau. Other systems require that you first melt the cell in order to add or remove an SPRT.

5960A Triple Point of Argon System specifications

Assigned value	-189.3442 °C
Argon gas purity	99.9999% (6N purity)
Uncertainty (k=2)	0.25 mK
Length of plateau (0.1 mK)	>30 hours
Argon cell depth	160 mm
Total immersion depth	480 mm
Number of entrant wells	4
Radial uniformity	0.05 mK
Entrant well inner diameter (ID)	8.0 mm
Argon gas volume	13.4 moles (535 grams)
Liquid nitrogen Dewar volume	44.2 liters
Display resolution	0.001 °C
Set-point accuracy	0.1 °C (adjustable)
Power requirements	100 V to 115 V (± 10%) 50/60 Hz, 230 W 230 V (± 10%) 50/60 Hz, 230 W
System fuse ratings	115 V: 2 A T 250 V / 230 V: 1 A T 250 V
Size (HxWxD)	952 mm x 673 mm x 483 mm (37.5 in x 26.5 in x 19 in)
Weight	94 kg (207 lb)

*Measured from the bottom of the probe well to the surface of argon sample

Customer provided equipment

Additional equipment is required to operate the Fluke Calibration 5960A Triple Point of Argon System. The equipment includes a mechanical vacuum rotary vane pump, stainless steel flexible hoses, a self-pressurized liquid nitrogen Dewar (50 liters), and a helium gas cylinder. This equipment may already be available in most primary temperature or pressure labs. Recommended suppliers and equipment part numbers can be provided by Fluke Calibration upon request.



Fluke Calibration. Precision, performance, confidence.™

Electrical	RF	Temperature	Pressure	Flow	Software
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Ordering information
5960A Triple Point of Argon System

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