

PR381 Series Temperature & Humidity Standard Chamber

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PANRAN



The upgraded

Calibrating all kinds of digital and mechanical thermo-hygrometers

- ✓ Temperature control range covers -50°C to 85°C
- ✓ Humidity operating range: 10%RH~95%RH
- ✓ Humidity stability: $\pm 0.3\%RH/30$ minutes
- ✓ Support Panran Smart Metrology APP

I. Overview

The PR381/383 series temperature and humidity standard chambers are high-performance temperature and humidity generators, suitable for calibrating various types of digital and mechanical thermohygrometers. Equipped with Panran's latest developed temperature and humidity controller, these series products not only expand the operating range of temperature and humidity but also achieve significant improvements in key technical parameters such as humidity control speed and stability.

1.1 Appearance



▲ PR381A Temperature & Humidity Standard Chamber

PANRAN instruments are available in South Africa from Intercal (Pty) Ltd

sales@intercal.co.za

www.intercal.co.za

+27 11 315 432

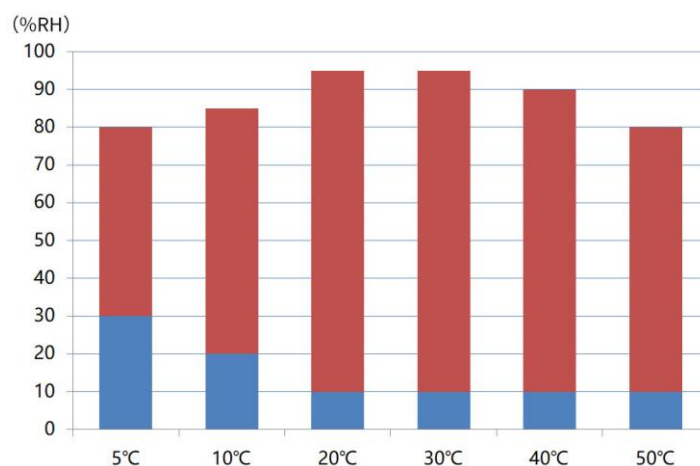


▲ PR383A/B Temperature & Humidity Standard Chamber

1.2 Product Features

■ Humidity can be Controlled Over Wide Temperature Area

The temperature control range covers -50°C to 85°C. Within the temperature range of 20°C to 30°C, humidity control from 10%RH to 95%RH can be achieved. Within the temperature range of 5°C to 50°C, humidity control from 30%RH to 80%RH can be achieved.



▲ Effective Temperature & Humidity Working Area (red part)

■ Excellent Humidity Control Performance

The application of the new temperature and humidity control technology brings not only a significant expansion of the operating range of temperature and humidity but also a substantial improvement in key humidity control parameters, with humidity fluctuation better than $\pm 0.3\%RH$ per 30 minutes.

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■ **Dedicated Temperature and Humidity Controller**

The new generation Panran PR2612 main controller features a specially designed decoupling algorithm for temperature and humidity sources, which automatically controls physical parameters such as heating, cooling, humidification, dehumidification, and air speed based on the set temperature and humidity values as well as the ambient temperature and humidity.

■ **Powerful Environmental Adaptability**

It adopts a closed-loop circulation structure, is insensitive to ambient temperature and humidity factors, and features strong tolerance, allowing it to operate for extended periods in a normal temperature environment of 10°C to 28°C.

■ **Rich Human-machine Interaction Functions**

It features a 7-inch color touchscreen that displays a wealth of process control parameters and control curves, and includes auxiliary functions such as one-key start, alarm settings, SV preset, and timed start/stop.

■ **Practical structure and reasonable layout (PR383)**

The equipment features innovative designs such as three-sided enlarged windows and foldable trays, which enhance visibility and operability, thereby making temperature and humidity calibration work more convenient, efficient, and labor-saving.

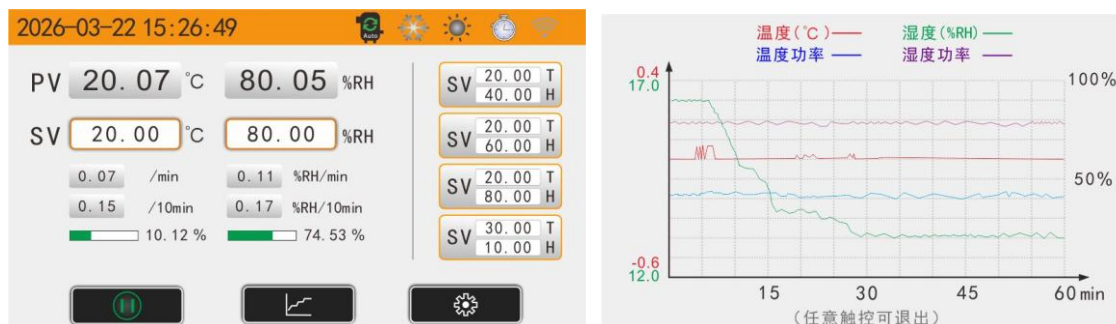
■ **Support PANRAN Smart Metrology APP**

With the optional WiFi module, the Panran Smart Metrology APP enables remote operation of the temperature and humidity standard chamber. The remote operation includes viewing or modifying various real-time parameters, start/stop functions, and more.

■ **Optional Automatic Reading Device**

An optional automatic reading module is supported. When combined with dedicated host computer software, it performs high-precision image recognition and automatic interpretation on both digital and mechanical instruments, enabling unmanned data acquisition and recording during the calibration process.

1.3 Partial working interface



Note: The above shows the screen interface of the PR383. The screen interface of the PR381A is portrait-oriented.

II. Models and Technical Parameters

2.1. Basic Technical Parameters

Item/Model	PR381A	PR383A	PR383B
External Dimensions	178cm×105cm×70cm	190cm×133cm×100cm	190cm×133cm×100cm
Working Cavity	50cm×60cm×50cm	77cm×80cm×77cm	77cm×80cm×77cm
Total area of observation windows	0.44m ²	1.1m ²	1.1m ²
Effective Volume	150L	400L	400L
Weight	350kg	550kg	450kg
Rated Power	3kW	5kW	3kW
Power Supply	220V AC, 50Hz	380V AC, 50Hz	220V AC, 50Hz
Operating Environment	10~28°C, ≤75%RH		

Note: The dimensions of the working cavity and the overall dimensions are given as height × depth × width. The overall dimensions do not include the tray.

2.2 Temperature and Humidity Control Parameters

Item/Model	PR381A	PR383A	PR383B
Temperature Control Range	-20°C~65°C	-50°C~85°C[Note 4]	-20°C~65°C
Humidity Control Range	10~95%RH@(20°C~30°C) 30~80%RH@(5°C~50°C)	10~95%RH@(20°C~30°C) 30~80%RH@(5°C~50°C)	10~95%RH@(20°C~30°C) 30~80%RH@(5°C~50°C)
Auxiliary Cooling	●	●	●
Temperature Resolution	0.01°C		
Temperature Uniformity	≤0.05°C @ 20°C (Note 3) ≤0.15°C @ (15~30°C) ≤0.3°C @ other temperature ranges		
Temperature Stability	≤±0.1°C/30minutes		

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Rate of Temperature Change	$\leq 0.02^{\circ}\text{C}/\text{minute}$			
Temperature Accuracy	$\pm 0.1^{\circ}\text{C}$			
Humidity Resolution	0.01%RH			
Humidity Uniformity	$\leq 0.8\%\text{RH}$			
Humidity Stability	$\leq \pm 0.3\%\text{RH}/30\text{minutes}$			
Rate of Humidity Change	$\leq 0.3\%\text{RH}/\text{minute}$			
Humidity Accuracy	$\pm 1.0\%\text{RH} @ (15 \sim 30^{\circ}\text{C})$			
	$\pm 1.5\%\text{RH} @ \text{other temperature ranges}$			
Temperature Adjustment Time	20°C to -20°C 60minutes 20°C to 0°C 30minutes 20°C to 65°C 40minutes	20°C to -50°C 110minutes 20°C to -20°C 30minutes 20°C to 85°C 30minutes	20°C to -20°C 60minutes 20°C to 0°C 30minutes 20°C to 65°C 40minutes	
Humidity Adjustment Time	(20°C 20%RH) to (20°C 80%RH) 8minutes (20°C 80%RH) to (20°C 20%RH) 10minutes			

Note 1: The auxiliary cooling circuit adopts air-cooling method.

Note 2: The test is performed in accordance with the *JJF1564-2016 Calibration Specification for Temperature and Humidity Standard Chambers*. Technical specifications not otherwise specified in the table are valid over the full range.

Note 3: When the set temperature is 20 °C, the central area of the working cavity within 100 mm × 100 mm × 100 mm meets the requirements of the *JJF1171-2024 Calibration Specification for Temperature and Humidity Itinerant Detecting Instruments*.

Note 4: A customizable temperature range of -50 °C to 180 °C is available.