

# PRECISION HUMIDITY AND TEMPERATURE GENERATOR

## MODEL : HCAL 1104U



## INTRODUCTION

The HCAL 1104U is a precision generator of controlled Humidity and Temperature environment inside the chamber. It has huge volume of chamber size to perform a rapid and easy calibration of multiple portable instruments, sensors, transmitter, data logger of different manufacturers. The HCAL 1104U is to generate range from 5°C to 60°C / 3% RH to 95% RH and Psychrometric Calculated Dew point indication range from -30°C to 45°C. It has an advantage of external Humidifier for easy maintenance and refilling of water, Semi portable and onsite transportable.

The HCAL 1104U working in the principle of mixed flow method for generating the Humidity. A desiccant cell is used to De-Humidify the chamber for low Humidity and Humidifier generates high Humidity. A solid state peltier element is used for heating and cooling the chamber. The HCAL 1104U improved version has metrology level performance in terms of Control stability and uniformity gradients.

## APPLICATIONS

- Calibration & Testing Laboratory
- Pharmaceutical
- Sensor Manufacturers
- Research Institutes, etc.,.

# FEATURES

- ✓ 7" True colour TFT Touch screen display
- ✓ Wide range from 3% RH to 95% RH & 5°C to 60°C
- ✓ Dew point temperature indication range -30°C to 45°C
- ✓ Display Resolution 0.01%RH / 0.01°C
- ✓ Improved design to provide metrology level performance in terms of chamber stability and uniformity gradient
- ✓ Psychrometric converted indication of Dew point, Wet bulb temperature etc.,
- ✓ Fast raising and Quick settling
- ✓ Large chamber size
- ✓ Replaceable front door to suitable for multi brand probe & portable indicator calibration
- ✓ Semi portable and onsite transportable
- ✓ Ideal for lab and field calibration
- ✓ Solid state heating & cooling technology
- ✓ ISO/IEC 17025 Accredited calibration certificate
- ✓ Optional calibration software to record, Data analysis & generate calibration reports

# TECHNICAL SPECIFICATIONS

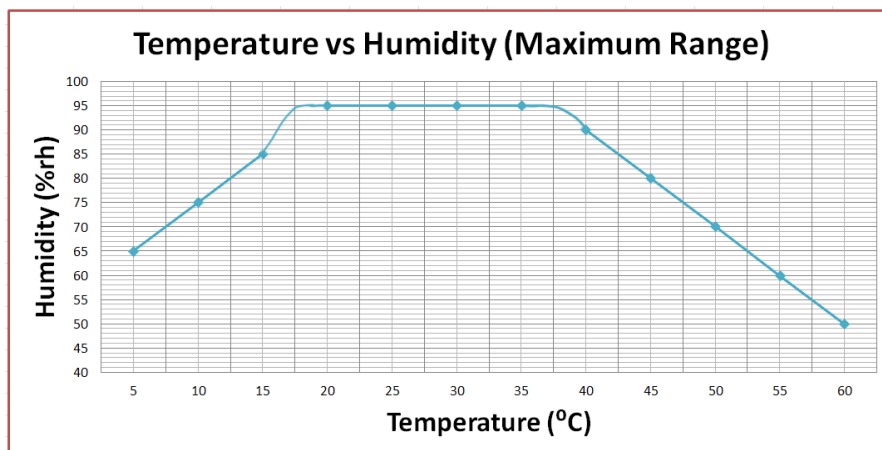
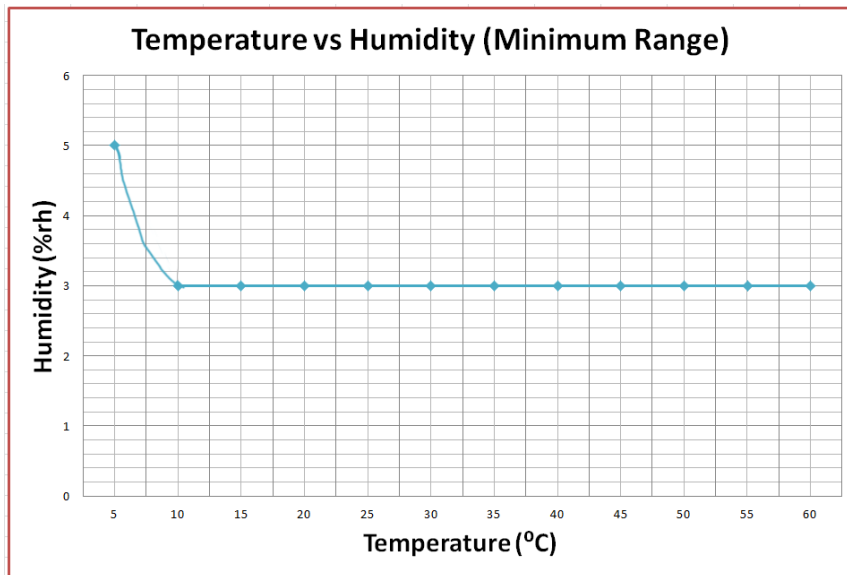
MODEL	HCAL 1104U
Display	7" True colour TFT LCD Display with Touch screen
Control Range*	5 to 60°C / 3 to 95 % RH*
Dew point Temperature range (psychrometric calculated)	-30°C to 45°C
Psychrometric calculated indication	Dew / Frost point ( Dp / Fp ) Wet Bulb Temperature ( Tw ) Vapour partial pressure ( E ) Vapour Saturation pressure ( Ew ) Mixing ratio by weight (dry) ( g / kg ) Enthalpy ( H ) ( KJ / kg ) Specific Humidity (moisture) ( g / kg ) Absolute Humidity (moisture) ( g / m <sup>3</sup> ) Volume mixing ratio (dry) ( ppm )
Calculation method	WMO method
Resolution	0.01 °C / 0.01% RH
Display stability	Better than ± 0.03 °C / ± 0.15% RH
Chamber stability @25°C ** Temperature: Humidity:	± 0.1°C ± 0.3 % RH
Chamber Uniformity @25°C** Temperature: Humidity:	± 0.2°C ± 0.5 % RH
Test sensor insert port	Inter changeable Acrylic door is provided on front side of the chamber with pg21 gland (cable or sensor size range from 13 to 18mm) x 3nos
External Humidifier Water tank capacity	6 litres (approx.) (NOTE : 3 liter filling is enough for our application)
Humidifier Liquid	Distilled water
Humidifying Time	2 %RH / sec (50 to 90 % RH)
Dehumidifying Time	6 %RH / sec (50 to 10 % RH)

Test chamber area	230mm DIA x 170mm D (Approx)
Power supply	230V AC $\pm$ 10% / 50Hz (Optional 110V AC)
Power Consumption	1000 VA
Construction	Inner chamber SS 310 / outer MS powder coating
Overall Dimension	436mm L x 676mm W x 368mm H (Approx.)
Weight	44 kg (without Accessories) + 6 kg (standard accessories) (Approx.)

**Note :**

- \* 1. Temperature range applicable @ ambient Temperature of 25°C.
  - 2. Refer the Humidity range chart on page no: 3. It may vary depends on ambient Temperature and water Temperature of the external Humidifier.
  - \*\* Stability & Uniformity are evaluated @ ambient Temperature of 25°C.
- Due to continuous product improvements, Published specifications may change with out notice

## Temperature Vs Humidity Charts



# SANSEL SOFT HCAL Calibration software (optional)

Fully automatic Documentation calibration software "SANSEL SOFT" is provided with HCAL 1104U to calibrate different variety of UUC automatically from your PC or Laptop and generate the calibration report with exact results without your presence always near HCAL 1104U, will save your time to concentrate in various jobs. The SANSEL SOFT calibration software having easy following steps makes your calibration easy, effective & time saver.

## Step 1

- ❖ Create tag of Device / Unit under calibration (DUC/ UUC)
- ❖ Select tag of Device / Unit under calibration (DUC/ UUC) (if already tag created)

## Step 2

- ❖ Create / Specify calibration procedure

## Step 3

- ❖ Select mode of calibration

## Step 4

- ❖ Initialize source Calibrators

## Step 5

- ❖ Perform calibration

## Step 6

- ❖ Specify Report number, Conclusion & Remarks

## Step 7

- ❖ Print / Export Report

SANSEL SOFT designed for perform calibration on field instruments with the use of standards and software communication. This software designed in the way, user can easily perform calibration. SANSEL SOFT has powerful database support to maintain complete track records of each device calibration for long time. SANSEL SOFT supports communication interface standards RS 485 and provides facility to add new standard/DUC instrument library. SANSEL SOFT increases Standard's Life-time by eliminating key operations and saves maintenance cost.

## Standard Delivery

1. Basic Instrument
2. External Humidifier system
3. Desiccant cells – 2nos
4. Molecular sieve Desiccant
5. Interchangeable Acrylic door (plain)
6. Spare fuses
7. Instruction manual
8. Mains card
9. Traceable calibration certificate

External Humidifier System



## Optional

1. Master Hygrometer with sensor
2. Additional Molecular sieve Desiccant
3. Additional Interchangeable Acrylic door (custom special holes)
4. Carrying case
5. PC Interface software

Carrying case (optional)



## SANSEL INSTRUMENTS AND CONTROLS SANSEL CALIBRATION LABORATORIES

ISO/IEC 17025 Accredited Calibration Laboratory by NABL CC - 2879  
(Thermal, Mechanical, Electro-Technical, Dimension Parameters)

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