

R1 Temperature/Humidity Chamber

Operating manual and applicable equipment

S-THSC R1 series / NEX1200 version



Check	Details
Controller	NEX1200
Operating temperature	Use the supplied temperature/humidity range
About this edition	English translation and re-edited version of the supplied Korean operating manual. Match it to the equipment nameplate, controller and supplied configuration before use.

Photographs are representative examples. Appearance and controls can vary with manufacturing date or custom configuration. Do not apply these instructions to a different controller.

Contents: applicable model / safety and installation / equipment and operation / controller / maintenance and faults / warranty and GHT support.

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Safety precautions

Read this manual and your facility procedures before use. Only authorised, trained personnel may operate the equipment. DANGER, WARNING and CAUTION identify precautions against electric shock, fire, explosion, burns and equipment damage.

Hazard	Required precautions
DANGER	Do not place explosive or flammable substances in the chamber. Do not install near ignition sources or where combustible gas or organic-solvent vapour may be present.
WARNING: electricity	Use a correctly rated, earthed supply matching the nameplate. Avoid overloaded multi-outlet connections. Never operate electrical parts with wet hands. Do not earth to gas pipes, plastic water pipes or telephone lines.
WARNING: heat	The chamber, door and exhaust become hot. Allow adequate cooling before opening or unloading. Use protective equipment suited to the temperature and task.
WARNING: service	Only qualified service technicians may dismantle, modify or inspect internal parts. Stop operation, cool the equipment and isolate the supply before cleaning, maintenance or moving.
Abnormal operation	If there is unusual noise, odour, smoke, leakage current or other abnormal behaviour, stop use, make the area safe, isolate the supply and contact GHT.

Do not wash by spraying water. Keep ventilation openings clear. Avoid moisture, dust, corrosive gases, direct sunlight, rain and external heat sources. Install indoors on a firm, level surface. Do not tilt, lay down or strike the equipment during transport.

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Configuration, water and operation

This chamber maintains temperature and humidity for durability and other tests. Components include a viewing window, temperature/humidity sensors, perforated shelves, water tank, level indication, low-water alarm, lighting and power controls. Match the controller to the version on the cover.

Source performance statements: standard and R1 chambers report internal tests within $\pm 1^{\circ}\text{C}$ and $\pm 2\%$ humidity at $85^{\circ}\text{C}/85\%$. The benchtop source states deviations within $\pm 1^{\circ}\text{C}$ and $\pm 2\%$. These are not a blanket guarantee for all conditions or evidence of independent certification.

1. Check installation, rated supply and earth, then fill the tank with suitable water. Use distilled/deionised water or the specified filtered water. Do not use tap water, groundwater or water of unknown composition.
2. Turn the main breaker and POWER ON. Check the display, fan and water level. Open the Vent Hole appropriately and avoid loading samples that obstruct circulation.
3. Set temperature and humidity and start. After operation, beware of hot vapour; open only at a safe temperature to remove residual moisture. Cool before switching off the main supply.

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Cooling, dehumidification and water system

The refrigeration unit has a protective temperature limit. The standard source describes inhibition above a normal limit of 60°C. On changing from hot to cold operation, allow natural cooling to the protective temperature; this can take time. Do not alter the protection setting, including on R1 versions.

Dehumidification condenses moisture on the evaporator. If the compressor is inhibited at high temperature, open the designated cable port as directed for the actual unit to allow natural moisture exhaust. This increases water consumption; watch the level.

Long operation can ice the evaporator, preventing temperature/humidity control and overloading refrigeration. Include a defrost stage without humidity control, within the chamber temperature limits.

Do not use an electronic humidity sensor at 100°C or above. At humidity of 98% or higher, condensation may form. Remove droplets with a soft cloth, or dry for at least 30 minutes at a 0% humidity setting. Keep the drying temperature below the sensor limit and within the actual specification.

The internal tank pump supplies humidification water. Identify the manual tank drain, manual chamber return valve and automatic drain on the actual equipment. In non-humidified sub-zero operation, the arrangement returns humidification water to the tank.

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Inspection, cleaning and storage

Check the low-water alarm and humidifier-heater surface quarterly. Sample leachates can affect piping and parts, so include weekly inspections where required by the test conditions.

Clean the chamber approximately monthly. Stop, cool and isolate power before removing shelves and draining the chamber and tank. Only a technician should remove heater covers; wear gloves against sharp stainless-steel edges.

Use a soft cloth with neutral detergent or compatible alcohol to remove scale from the humidification reservoir, level sensor and heater. Do not use thinner or incompatible solvents, or block the pipes with debris. Rinse with distilled water, close the drain, circulate clean water and drain again.

Wipe the exterior with a suitable cloth. Have a technician remove electrical-area dust or work inside covers. Do not disturb the pressure-adjustment silicone hose. Remove condenser dust approximately monthly.

Avoid benzene, sharp implements, hot water or cleaning methods that damage coatings, rubber or plastics. For storage, unplug, drain all water, clean the door packing, store accessories, wrap the unit and lock its castors.

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Fault checks

Symptom	Checks
No power	Check plug, switches, building supply and distribution board.
Temperature does not rise	Check whether T over-temperature protection is set too low. The source mentions 150°C or above, but the supplied equipment setting and rating take precedence. Do not raise protection beyond its rating.
Humidity does not rise	Check tank level and water delivery. The source gives H protection at 120°C. A technician should inspect H.SSR indications and distinguish heater from control faults.
Temperature/humidity will not fall	Check R protection (source: 60°C; some custom units 80°C), refrigeration, condenser dust and evaporator ice. Lack of compressor vibration below 20°C also requires technician inspection.
Breaker trips	Breaker, humidifier-heater leakage or motor faults may be involved. Do not repeatedly reset; isolate the supply and arrange inspection.

Live testing inside covers and inspection of SSRs, wiring and heaters are for qualified technicians only. Report the model, serial number, set conditions and fault circumstances to GHT.

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NEX1200: menus and display

Menu	Purpose
Operating status	Monitors temperature/humidity PV, SP, output MV, status, pattern and segment.
Program settings	Edits temperature, humidity, transition times and other pattern conditions.
Operating settings	Selects constant-setpoint or program operation, timed runs and related conditions.
Data management	Graph display and storage. Save important data to external memory.
Communications faults	I/O COM, NO1.0, NO2.0 and similar messages identify I/O-board communication faults. Arrange technician inspection.

Touch the top-left of the operating-status screen to enter power-saving display; touch again to return. If main-menu access is restricted, the authorised administrator must enter the password. Do not bypass access controls.

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NEX1200: constant-setpoint operation

Select constant-setpoint operation under operating mode, then open operating status. Touch the temperature/humidity SP entry areas and use the keypad. Allowed ranges follow the equipment input and supplied configuration.

Press Start and check the temperature/humidity confirmation before running. Whether confirmation appears depends on screen settings.

The running screen shows temperature PV/SP and output, humidity PV/SP and output, status and date/time. SP may be changed while running; assess effects on the test first.

Stop ends operation. A configured user-output button switches an assigned relay, for example chamber lighting. Use previous/next screen buttons to access details.

After a timed run expires, the display shows constant-setpoint completion. Touch the message to return to stopped status and clear the completion relay.

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NEX1200: details and graphs

The detail screen shows contact states, temperature AT, humidity AT, starting/ending times for timed runs, elapsed/set time, active PID group and total operating time.

Contact indicators are red for ON and white for OFF. Choose displayed contacts in status-lamp settings, up to 20 points. AT-button visibility depends on PID-group configuration.

Graphs display temperature/humidity PV, SP and MV, and external-memory capacity/usage. Unchecking a trace only hides it; it does not delete data. Check again to restore it.

The time axis is adjustable from 10 minutes to 24 hours; default 30 minutes. It returns to 30 minutes on re-entry. The source describes return to the operating screen after about 9 minutes without input.

Data in internal memory survive power-off, but oldest records are overwritten first when capacity is exceeded (FIFO). Save important records to external memory.

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NEX1200: program operation

A program controls successive segments, each with starting conditions, target SP and time to target. Select pattern operation under operating mode.

Edit and save the pattern under program settings. Select the pattern number in operating status and verify conditions in the start confirmation.

An unconfigured pattern cannot be selected or run. The pattern number cannot be changed while running. Check the number range permitted by the actual controller.

The running screen shows current temperature/humidity, status, test name, pattern/segment and date/time. With TSP display selected, it also shows segment temperature/humidity targets and outputs.

HOLD maintains/releases the current setpoint. ADVANCE ends the current segment and moves directly to the next, so assess the effect on the test before using it. Stop ends operation.

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NEX1200: monitoring and completion

The detail screen shows contact states, start/end times, pattern/segment numbers, pattern repetition, segment elapsed/set time, active PID, segment repetition and total elapsed operating time. Repetition values show completed count / set count.

View the complete edited pattern graph and start/cancel temperature or humidity AT at the current SP when these buttons are enabled in PID settings. Running-only buttons do not appear on the stopped screen.

Program graphs use the same PV/SP/MV selection, external-memory and time-axis controls as constant operation. The same internal storage, FIFO-overwrite and external-backup precautions apply.

After all segments finish, program completion alternates red/white approximately every second. Touch the message to return to stopped status and turn the completion relay OFF.

Names and screen layouts may differ by software and supplied configuration. Authorised technicians must check alarm, sensor, PID and other administration settings.

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Maintenance, faults and warranty

Stop, cool and isolate the supply before wiping with a soft cloth. Use only cleaning agents compatible with the materials; keep water and solvents out of electrical parts. Contact GHT for appropriate genuine or specified replacement parts.

If there is no power, check the external supply, plug and main breaker. Internal wiring, fuse, SSR and heater checks must be performed by a qualified technician with safe supply isolation. Users must not remove covers for live inspection.

If temperature does not rise, check the setpoint, operating state, over-temperature setting and heater indicator. Some source instructions mention setting protection at least 20% above the test temperature. Do not exceed the equipment or sample limit; ask GHT to confirm the correct setting.

For storage, clean and dry, unplug and protect against foreign matter. Close the oven vent when stored unused. Drain water-based equipment.

Warranty: the source manuals state one year from purchase or delivery. Confirm the applicable period, start date, transport charges and other terms in the GHT quotation/supply documents. Disaster, fire, flooding, unsuitable environments, misuse and unauthorised dismantling/modification are excluded. Humidity-chamber heaters are excluded as consumables in the source.

Contact GHT

GHT CO., LTD.

E-mail: lee@actinova.kr

TEL: +82-31-484-1065

Provide the model, serial number, delivery date, operating conditions, symptoms and photographs.