

Lab Equipments are also evolving like your smart phone in hand

Now, it's



“SMART is the right way to do something in the Lab as well.”

Some tens of equipment are required in the lab for any kind of chemical or biological experiment.

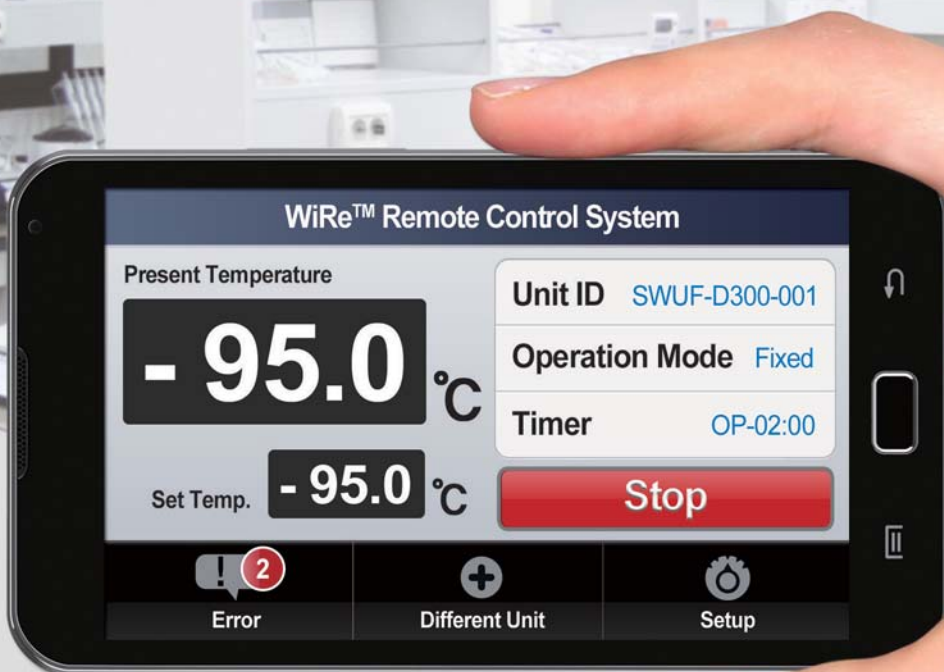
A fact is that a scientist has to walk around in the lab periodically and monitor every equipment to watch if the experimental procedure is going well without any problem.

In spite of the limited manpower, time and space, scientists have a common mission to get the best result in their experiments, and it's not a simple issue to incorporate a certain innovative way to improve laboratory productivity.

Now, DAIHAN Scientific is going to take an initiative to change existing situation in the labs. So called, **Smart-Lab™ Equipment** is being introduced now here for the first time in the world, which will definitely **change the way to work in the labs.**

and smart TV at home

the time to innovate your lab with Smart-Lab™ Equipments



“Remote Laboratory” - No limitation on Time and Place

- It's possible to monitor and control Wisdom Smart-Lab™ Equipments through App or Web at any time and anywhere you are.

“Intuitive Use” - Easiest way to monitor and control

- You would have Innovative User Experience on the full touch-screen LCD controller
- All the equipments in a lab, or, even in multiple labs, can be controlled at your fingertips using Smart phone or Laptop.

“Secure Laboratory” - Self-diagnostics & Real-time notification

- Based on Self-Diagnostic System, any operational error of the equipment is noticed to the user and to the Service Center, automatically.

Maximum Convenience by Advanced Digital Technology

Smart-Lab™ Equipments



Like your Smart Phone in hand, and Smart TV at Home,
Now, the Various Kinds of Equipment in Your Lab can be SMART!!

Make your Works and Laboratories SMART
with DAIHAN Smart-Lab™ Equipments & WiRe™ App & Web Service.

DAIHAN Smart-Lab™ Equipments

The Smart-Lab™ System is an innovation of laboratory equipments. DAIHAN Smart-Lab™ equipments include two types controller, 4-inch or 7-inch, full-touch screen controller, integrating the most extensively applied Android System and Internet Connectivity. At anytime, anywhere you are, and anyhow, you can check and control all the equipments in your lab using your smart phone, tablet on the web.

No Button. No Knob. Simply Touch!!
DAIHAN SMART line of Lab Equipments with
Full Touch Screen Controller and Internet Connectivity!!

» Features

- 4" or 7" Full Touch Screen TFT LCD
- Ergonomic Design for Intuitive User Interface
- Program Control : Multiple Pattern with Multiple Segments
- Data Recording : On-Screen Temperature Chart
- USB storage for Recorded Data
- Internet Connectivity with WiFi
- Remote Monitoring and Control by WiRe™ Service
- **Storage Management function :**
Record the location of samples in the chamber and find easily afterwards, on screen (for ULT Freezers)
- **Self-Diagnostic Function :**
Automatic Check & Alarm for the Failures in Key Parts
- Real-time Notification of any Failure in the Equipment to the User(s), to the Service Man and to Supplier, through WiRe™ Service



DAIHAN Smart-Lab™ Controller

The DAIHAN Smart-Lab™ Controller is embedded in all of Wisd Smart-Lab™ equipments, which has a lot of useful functions like data recording, Storage management, and self-diagnostic function and so on.

These functions are unique and innovative in the laboratory equipments. And the controller is connected with researcher's Smart phone, tablet or laptop computer through internet, by WiFi, so scientists are able to check all the equipments in the laboratory at any time, and at any place.



» Ergonomic Screen Design

- 4" or 7" Full Touch Screen TFT LCD
- Intuitive User Interface
- No-extra Button, Knob or Switch
- All the main Functions and Parameters are displayed on the Main Screen.
- Simple Touch to set the Temperature, Time, and other parameters



» Automatic Data Recording

- High Resolution Graphic Display
- On-Screen Temperature Chart : Check the Temperature Record Graph on the Screen and could see the Details by Zoom-in & Zoom-out enabled at your finger tips.
- The Recorded Data could be transferred to PC by USB Memory.

No.	Start Segment	End Segment	Count	Delete
01	No Segment !	No Segment !	No Count !	Delete
02	No Segment !	No Segment !	No Count !	Delete
03	No Segment !	No Segment !	No Count !	Delete
04	No Segment !	No Segment !	No Count !	Delete

Buttons: Select Patterns, Repeat Count: 1, Select Patterns Link, Select Segment, Select Segment, Count

» Program Control

- Variable Program Setting for Multiple Patterns with Multiple Segments
- Preview window offered to check simply the input patterns
- Very easy to input and edit patterns



» Self Diagnostic Function

- Automatic Check & Alarm for the Failures in Key Parts of the equipment
- Real-time Notification of any Failure in the Equipment to the User(s), to the Service Man and to Supplier, through WiRe™ Service.
- Implemented by LIN and empowered by WiRe™ Service

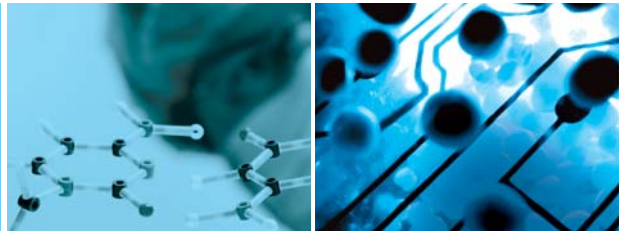


» Internet Connectivity with WiFi

- Remote Control is available for all the Equipments in the laboratory using Smart Phone, tablet or on the Web.
- Available WiRe™ App & Web Service

Maximum Convenience by Advanced Digital Technology

Smart-Lab™ Equipments



WiRe™ App & Web Service



WiRe™ App & Web service enables gathering, analyzing, and sharing of experimental data, and direct control of the unit is possible as well, anywhere and at any time.

When a defect of the unit occurs, it is processed by self-diagnostic system automatically. If you want to get safe and reliable data comfortably, it's a Smart choice to be Supported by WiRe™ service.

*At anytime, Anywhere you are, and Anyhow, you can check and Control All the Equipment in your Lab **Using Your Smart Phone or on the Web.***

» Features

- Developed by Advanced Web Technology
- Available in all the PCs, Laptops and MACs
- Almost same UI as the Touch Screen Controller on the Equipment is available
- Support all different kinds of Web browser based on HTML Standards
- Offering Android App and Apple iOS App



» WiRe™ Remote Control System

- Anytime, anywhere you are, and anyhow, you can check and control the Freezer in your Lab using your smart phone or web.
- It is possible to monitor and control the Smart-Lab™ equipment through all smart phone, tablet and web without restraint of time and place.



» Device Settings and User Registration

- A single unit can be remote controlled by multiple users
- A single user can remote control multiple units in the Lab
- Smart-Lab™ equipments offer registration of multiple users with simple account information



» Self Diagnostic Function

The Self-Diagnosis System senses a certain defect within the unit, and reports it to the service center through the servers operated by DAIHAN. The Service Center verifies the defects of the unit received, and could offer prompt service.



Display Error Status Reporting

» Smart-Lab™ Equipment lines

ThermoStable™ SIG- / SIF-Series of General Purpose Incubators	P.112~113, 116~117
ThermoStable™ SIR-Series of Low Temperature Incubators	P.126~127
ThermoStable™ SON- / SOF-Series of General Purpose Ovens	P.148~149, 152~153
ThermoStable™ SOV-Series of Vacuum Ovens.....	P.160
ThermoStable™ GC-Series of Growth Chambers	P.48~49, 130~131
SimpleFreez™ & DuoFreez™-Series of Ultra Low Temperature Freezers	P.166~181
SMART Refrigerated Bath Circulators	Coming soon
SMART Shaking Incubators	Coming soon
SMART Temp. & Humidity Chambers	Coming soon
SMART Cold Lab Chambers	Coming soon

DAIHAN ThermoStable™ GC SMART Plant Growth Chamber, Smart-Lab™ System, 432-/864- Lit. NEW
 with Smart-Lab™ Controller, CFC-Free, 0~12,000 - or 15,000-Lux, 30~95% RH, 10~60°C, with Certi. & Traceability



SMART Plant Growth Chamber
 "ThermoStable GC-1000"



Main Display of Smart-Lab™ Controller



Graph Display of Smart-Lab™ Controller



Program Set Display of Smart-Lab™ Controller

- with Certificate & Traceability :
 Controlled by Serial Number, Certificate, Delivery-information, and Traceable Data Base System
- Suitable for Plant Growth, Stability, Product Self-life QC Testing
- Ergonomic Screen Design 7" Full Touch Screen TFT LCD (Smart-Lab™ Controller)
- WiRe™ App & Web Service. ■ Automatic Data Recording
- Self-Diagnostic Function
- Variable Program Setting for Multiple Patterns with Numerons Segments
- The Recorded Data could be transferred to PC by USB memory
- Controller SW can be upgraded through USB port.
- CE Certified ■ PL (Product Liability) Insurance

- * Inner Tempered Glass Door with Silicone Packing offers easy Observation without Door Opening
- * Humidity Control by Capacitive Humidity Sensor provides Accurate Control from 30 to 95%RH
- * Smart-Lab™ Controller Provides Precise Temperature, Relative Humidity and Illumination Control - Maintain Uniformity and Accuracy of Growth Circumstance
- * 3-/4- Side Light Bank System : Intensity of Light is controlled by 8-levels and Displayed on LCD
- * Over Temperature & Over Current Protection, Sensor Error Detection, Leakage Breaking

Specification

Models		ThermoStable GC-450	ThermoStable GC-1000
Capacity		432 Lit.	864 Lit.
Temp.	Range & Variation	10°C ~ 60°C, ±1°C at 20°C	
	Fluctuation	± 0.5°C at 10°C, ± 0.5°C at 25°C (0% light intensity) ± 1°C at 10°C, ± 1°C at 25°C (100% light intensity)	
Humidity	Range & Variation	30% ~ 95% RH, ±3% at 60°C	
	Fluctuation	±1%	
	Humidifier	Evaporation by Fan with Heater	
Illumination	Range	0 to 12,000 Lux	0 to 15,000 Lux
	Lamp	FPL 55W × 14	FPL 55W × 28
	Bank	3 Side Walls	3 Side Walls & Ceiling
Temp. & Humidity Sensor		Temp. : PT100, Humidity : Capacitive Sensor	
Heat-up Time (up to 37°C)		11 min. (0 % illumination) / 9 min. (100 % illumination)	
Cool-down Time (down to 10°C)		13 min. (0 % illumination) / 15 min. (100 % illumination)	
Temp. Recovery (After Door was opened for 30sec)		3 min. at 10°C, 1 min. at 37°C (0 % illumination) 5 min. at 10°C, 1min. at 37°C (100 % illumination)	
Heating Power /Consumption	for Temp.	1.5 kW	3.0 kW
	for Humi.	1.5 kW	3.0 kW
Compressor		1/2 HP	1 HP
Refrigerant		CFC-Free(R-404A) Refrigeration System	
Display		7" Full Touch Screen TFT LCD (Smart-Lab™ Controller)	
Controller		Smart-Lab™ Controller	
Program Function		Temperature and Humidity : 120 Patterns, 1,200 Segments Light Bank : 7 steps	
Door	Internal	Tempered Safety Glass with Silicon Packing	
	External	3-Side Magnetic Packing Door with Light Bank	
Shelves		4 Teflon Coated steel Shelves	8 Teflon Coated steel Shelves
Permitted Total Load		64 kg (16kg × 4 Shelves)	128 kg (16kg × 8 Shelves)
Safety Circuit		Over Temp Protector, Over Current & Leakage Breaker	
Material		Internal : Stainless steel (# 304), External : Power Coated steel	
Dimension (w × d × h)	Interior (mm)	650 × 700 × 1,050	1,200 × 790 × 1,050
	Exterior (mm)	850 × 1,090 × 1,965	1,400 × 1,150 × 1,965
Packing Size & Gross Weight		1,400 × 1,220 × h2,210mm, 435 kg	1,600 × 1,500 × h2,200mm, 585 kg
Power Consumption		4.8 kW	6.5 kW
Power Supply*		1 Phase - AC 120V, 60Hz or - AC 230V, 50/60Hz 3 Phase - AC 380V, 50/60Hz	1 Phase - AC 230V, 50/60Hz 3 Phase - AC 380V, 50/60Hz

* Other Specifications are available upon Customer's Request.

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Cat. No	Description	Articles
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<Continued from... **DAIHAN ThermoStable™ GC SMART Plant Growth Chamber**>

Ordering Information

432 Lit. Plant Growth Chamber “ThermoStable™ GC-450”, 0~12,000 Lux

- DH.SWGC00450* Plant Growth Chamber, 1 Phase, 230V, “ThermoStable GC-450”
- DH.SWGC50450* , 1 Phase, 120V, “ThermoStable GC-450”
- DH.SWGC60450* , 3 Phase, 380V, “ThermoStable GC-450”

864 Lit. Plant Growth Chamber “ThermoStable™ GC-1000”, 0~15,000 Lux

- DH.SWGC01000* Plant Growth Chamber, 1 Phase, 230V, “ThermoStable GC-1000”
- DH.SWGC61000* , 3 Phase, 380V, “ThermoStable GC-1000”

* -marks : Included Water Tank(with Silicon Tube) and Lux Meter

Spare Wire Shelves, Teflon Coated steel

- DH.WGC10450 (1) Wire Shelf, Teflon Coated, w640×d620mm, “GCS450”, for 432Lit.
- DH.WGC11000 , w580×d620mm, “GCS1000”, for 864Lit.

Validation (IQ, OQ) Service

- DH.SWGC30450 Validation Service(IQ, OQ), “SGCV450”, for “ThermoStable GC-450”
- DH.SWGC31000 , “SGCV1000”, for “ThermoStable GC-1000”



SMART Plant Growth Chamber “ThermoStable GC-1000”

»» DAIHAN WiRe™ App & Web Service



7" Full Touch Screen TFT LCD (Smart-Lab™ Controller)

It is possible to monitor and control the Smart-Lab™ equipment through all smart phone, tablet and web without restraint of time and place.



WiRe™ App & Web Service



(1) Wire Shelves, Teflon Coated steel (Included)



Water Tank/Silicon Tube/Lux Meter (Included)

※ Smart-Lab™ System Refer to Page. 6 ~ 11