

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

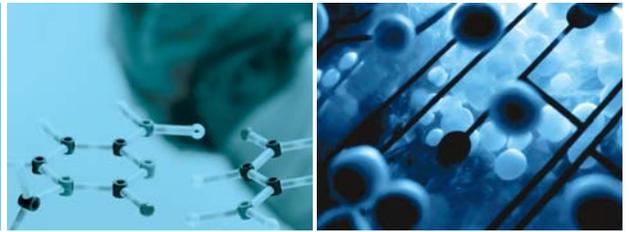
- You would have Innovative User Experience on the full touch-screen LCD controller
- All the equipments in a lab, or, even in multiple labs, can be controlled at your fingertips using Smart phone or Laptop.

“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

» 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

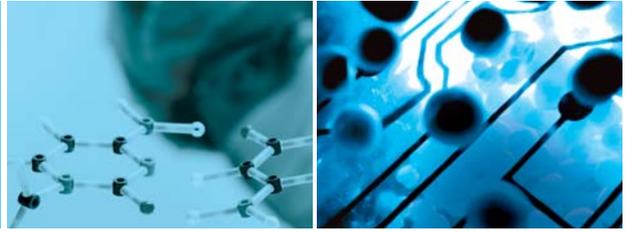


» Internet Connectivity with WiFi

- 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



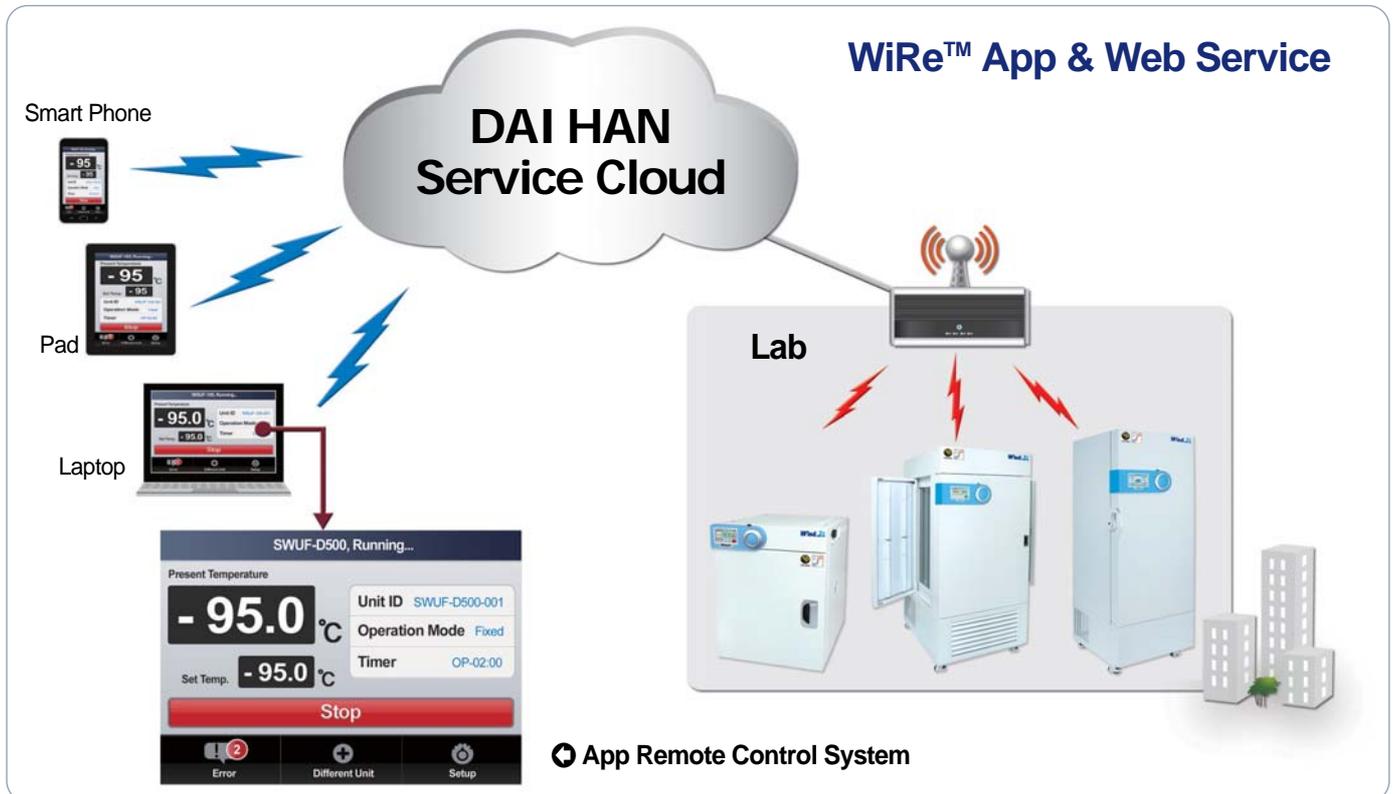
WiRe™ App & Web service enables gathering, analyzing, and sharing of experimental data, and direct control of the unit is possible as well, anywhere and at any time.

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™ SON SMART Ovens, Gravity Convection-type, 32-/50-/105-/155 Lit. NEW
 with Smart-Lab™ Controller, 4" Full Touch Screen, Fuzzy-PID Control, WiRe™ Service, with Certi. & Traceability, up to 230°C, ±0.5°C



Standard Model, "ThermoStable SON-105"

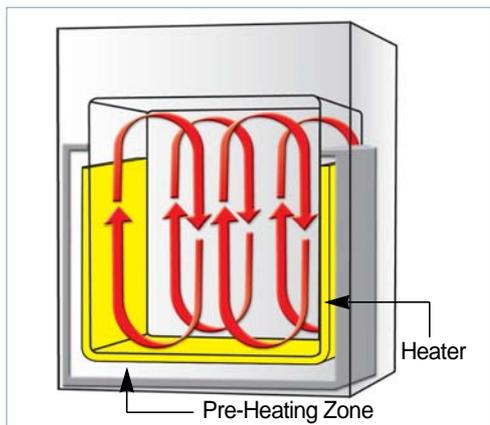
- with Certificate & Traceability : Controlled by Serial Number, Certificate, Delivery-information, and Traceable Data Base System
- Digital Fuzzy Control System Implementing Superior Temperature Accuracy
- Optimized Air Flow by Gravity Convection Mechanism
- **Smart-Lab™ Controller** ■ CE Certified ■ UL/CUL Certified
- **GD(Good Design)-mark** ■ **PL(Product Liability) Insurance**

- * Suitable for Drying, Baking, Conditioning, Curing, Pre-Heating and Aging
- * The Best Temp. Uniformity & Accuracy by High Performance Heating Mechanism : 3-Side Heating
- * Optimized Air Flow by Gravity Convection
- * Ergonomic Design 4" Full Touch Screen TFT LCD(Smart-Lab™ Controller)
- * WiRe™ App & Web Service. * Automatic Data Recording
- * Self-Diagnostic Function * Internet Connectivity with WiFi
- * Variable Program Setting for Multiple Patterns with Multiple Segments
- * The Recorded Data could be transferred to PC by USB memory
- * Controller SW can be upgraded through USB port.
- * Compact New Body Design * 2ea of Stainless steel Wire Shelves Included
- * RS232C Interface for Monitoring and Controlling with PC
- * Ambient to 230°C of Temp. Range, Fluctuation of ±0.5°C at 100°C
- * Corrosion Resistant 304 Stainless steel Chamber
- * Over Temperature & Over Current Protection, Sensor Error Detection

Specification

"ThermoStable SON" Model		Standard Model			
		SON-32	SON-50	SON-105	SON-155
				Window Model	
		SON-W105	SON-W155		
Capacity		32Lit	50Lit	105Lit	155Lit
Dimension (w×d×h)	Interior (mm)	310×290×360	370×350×420	485×409×535	550×474×600
	Exterior (mm)	458×557×664	518×647×724	653×712×882	718×777×947
Heater Power		500 W	650 W	1.4 kW	1.6 kW
Temp.	Range	Ambient Temperature +5°C to 230°C			
	Fluctuation	± 0.5°C at 100°C, ± 0.6°C at 150°C			± 0.5°C at 100°C, ± 0.8°C at 150°C
	Variation	± 1.2°C at 100°C, ± 2.2°C at 150°C			
	Sensor	PT 100			
Control Resolution		±0.1°C			
Heat-up Time		30 min. to 100°C, 43 min. to 150°C	30 min. to 100°C, 45 min. to 150°C	35 min. to 100°C, 50 min. to 150°C	
Recovery Time (Door open 30sec)		8 min. to 100°C, 10 min. to 150°C		12 min. to 100°C, 10 min. to 150°C	
Controller		Smart-Lab™ Controller			
RS232 Port		Available to connect with PC			
Display		4" Full Touch Screen TFT LCD			
Timer		99hr 59 min (delay/continuous function)			
Material	Internal	Stainless steel (#304)			
	External	Powder Coated steel			
	Insulation	Glass Wool			
Shelves		2ea of Stainless steel Wire Shelves included, Load per Shelf : 16 kg			
Ventilation		Ventilation hole with Stainless steel Cap, Hole Diameter 40mm			
		1ea	2ea		
Circulation		Gravity Convection Type			
Safety device		Over Temp. and Over Current Protector, Sensor Error Detector			
Others		UL/CUL Certified, CE Certified, GD-mark Storage Function (Temp. and Time) Locking Mode (Jog-Dial Input Disabled) Alarm (Error Status and Timer-end)			
Net Weight (kg)		36	44	69	78
Packing Size (w×d×h) (mm)		562×664×747	622×754×807	743×819×1,068	808×884×1,133
Shipping Weight (kg)		43	59	79	92
Power Consumption		502 W	674 W	1390 W	1566 W
Energy Consumption, at 100°C		90 Wh	117 Wh	187 Wh	204 Wh
, at 150°C		181 Wh	230 Wh	337 Wh	398 Wh
Power Supply		1Phase 120V, 60Hz or 230V, 50/60Hz			

* Other Specifications are available upon Customer's Request.



The Best Temp. Uniformity & Accuracy by High Performance Heating Mechanism (Gravity Convection-type)



Display of Smart-Lab™ Controller

※ See page 6 ~ 11 for the Feature of Smart-Lab™ System

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<Continued from... **DAIHAN ThermoStable™ SON SMART** Ovens, Gravity Convection-type >

Ordering Information

Standard Model, Gravity/Natural Flow, with Wire Shelves

DH.SWON05032	Oven, Standard, 230V, 32 Lit., "ThermoStable SON-32"
DH.SWON05050	, 50 Lit., "ThermoStable SON-50"
DH.SWON05105	, 105 Lit., "ThermoStable SON-105"
DH.SWON05155	, 155 Lit., "ThermoStable SON-155"
DH.SWON06032	Oven, Standard, 120V, 32 Lit., "ThermoStable SON-32"
DH.SWON06050	, 50 Lit., "ThermoStable SON-50"
DH.SWON06105	, 105 Lit., "ThermoStable SON-105"
DH.SWON06155	, 155 Lit., "ThermoStable SON-155"

Built in Viewing Window Model, Gravity/Natural Flow, with Wire Shelves

DH.SWON07105	Oven, Window, 230V, 105 Lit., "ThermoStable SON-W105"
DH.SWON07155	, 155 Lit., "ThermoStable SON-W155"
DH.SWON08105	Oven, Window, 120V, 105 Lit., "ThermoStable SON-W105"
DH.SWON08155	, 155 Lit., "ThermoStable SON-W155"

Spare Wire Shelves, Stainless steel

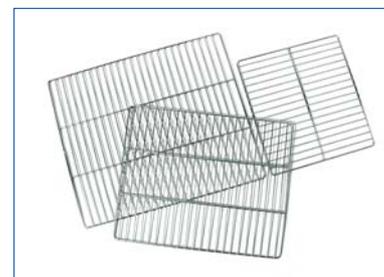
DH.WON11032	Wire Shelf, for 32 Lit., "ONS032", w280×d280mm
DH.WON11050	, for 50 Lit., "ONS050", w340×d310mm
DH.WON11105	, for 105 Lit., "ONS105", w455×d375mm
DH.WON11155	, for 155 Lit., "ONS155", w520×d440mm

Validation (IQ, OQ) Service

DH.SWON31032	Validation Service(IQ, OQ), "SONV1032", for "SON-32"
DH.SWON31050	, "SONV1050", for "SON-50"
DH.SWON31105	, "SONV1105", for "SON-105"
DH.SWON31155	, "SONV1155", for "SON-155"
DH.SWON32105	Validation Service(IQ, OQ), "SONV2105", for "SON-W105"
DH.SWON32155	, "SONV2155", for "SON-W155"



Window Model, "ThermoStable SON-W105"



Wire Shelves, Stainless steel
(Included)

>> DAIHAN WiRe™ App & Web Service



4" 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

※ See page 6 ~ 11 for the Feature of Smart-Lab™ System