Now, it's

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

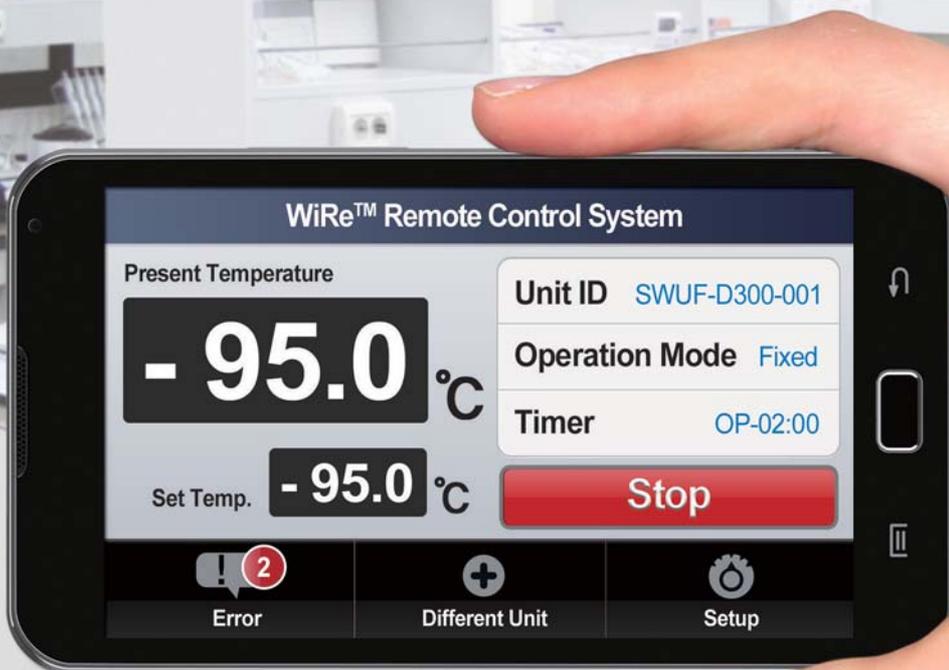Some tens of equipment are required in the lab for any kind of chemical or biological experiment.
A fact is that a scientist has to walk around in the lab periodically and monitor every equipment to watch if the experimental procedure is going well without any problem.
In spite of the limited manpower, 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.*

d, and smart TV at home

the time to innovate your lab with *Smart–Lab™ Equipments*

WiRe™ Remote Control System

Present Temperature

- 95.0 ℃

Set Temp. **- 95.0** ℃

Unit ID	SWUF-D300-001
Operation Mode	Fixed
Timer	OP-02:00

Stop

| Error (2) | Different Unit + | Setup |

"Remote Laboratory" - No limitation on Time and Place

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

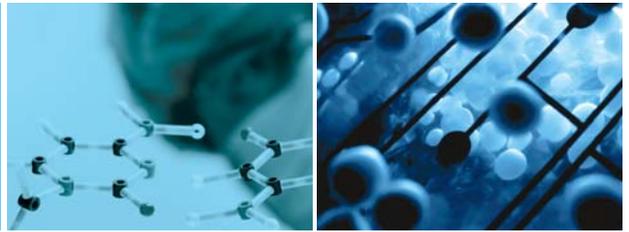## "Intuitive Use" - Easiest way to monitor and control

- 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.

![Wisd LABORATORY INSTRUMENTS]

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 managment, 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.

>> 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.
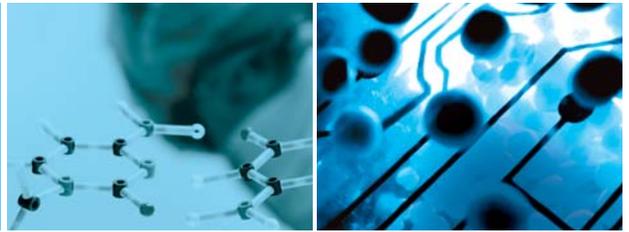- Implemented by LIN and empowered by WiRe™ Service

>> 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

Wisd
LABORATORY INSTRUMENTS

Maximum Convenience by Advanced Digital Technology
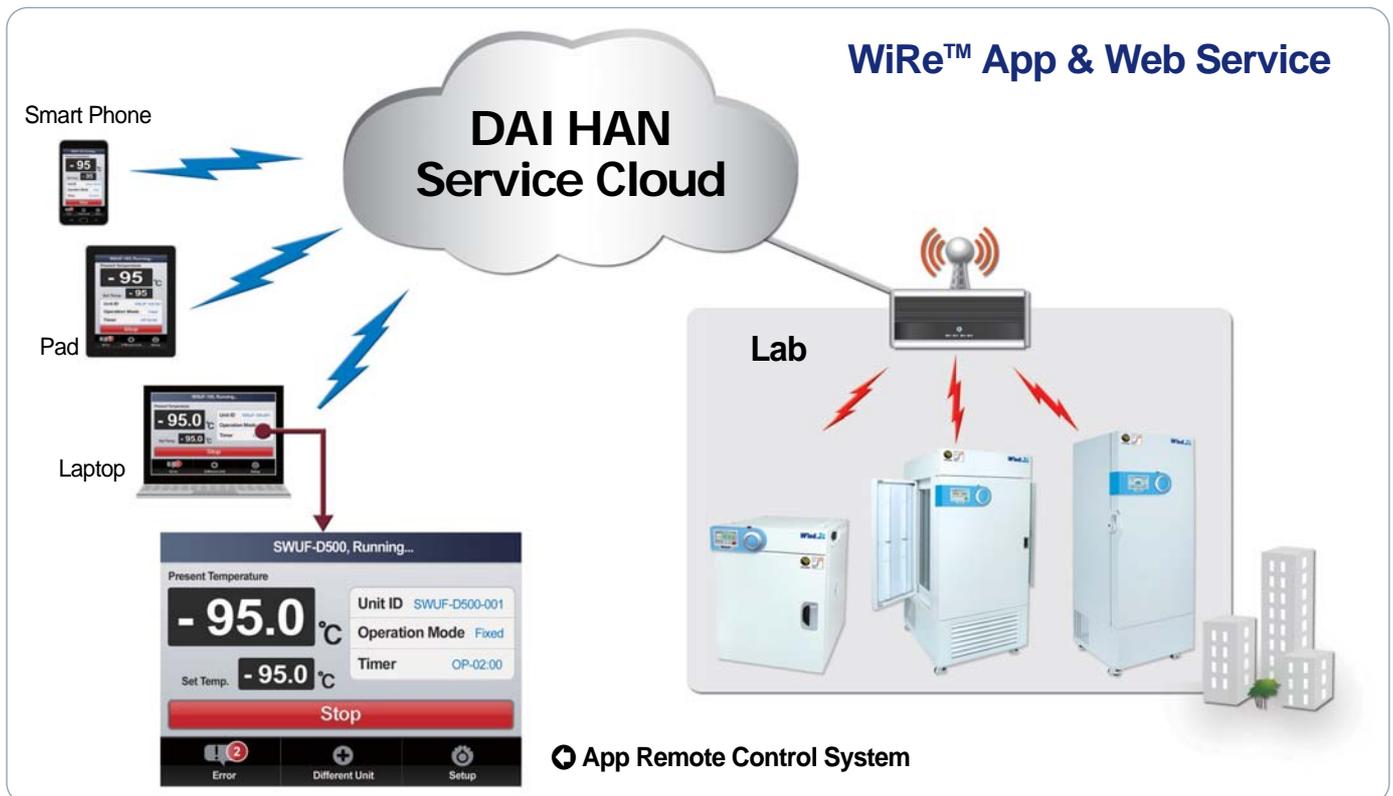
Smart-Lab™ Equipments

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™ App & Web Service

Smart Phone

DAI HAN Service Cloud

Pad

Lab

Laptop

SWUF-D500, Running...

Present Temperature

- 95.0 ℃

Unit ID   SWUF-D500-001
Operation Mode   Fixed
Timer   OP-02:00

Set Temp. - 95.0 ℃

Stop

Error   Different Unit   Setup

↻ **App Remote Control System**

⟫ 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.

Error Status Reporting

DAI HAN Service Cloud

Error Status Reporting

DAIHAN Service Center

Freezer

Service for Advanced Prevention

Display Error Status Reporting

⟫ Smart-Lab™ Equipment lines

DAIHAN ThermoStable™ SOV SMART Vacuum Ovens, Highly Safety Viewing Window, 18.6-/30-/69-Lit., up to 200℃ 🔴NEW
with Smart-Lab™ Controller, 4˝ Full Touch Screen, Fuzzy-PID Control, Superior Temp. & Vacuum Accuracy, 10~750 mmHg

SMART Vacuum Oven "ThermoStable SOV-30"

Wisd 2-Year Warranty

- **with Certificate & Traceability : Controlled by Serial Number, Certificate, Delivery-information, and Traceable Data Base System**
- **Suitable for Drying, Baking, Conditioning, Curing, Out-Gassing Solids and Liquids, Vacuum Embedding, Moisture Testing, Plating and Aging Test**
- **Very Easy and Convenient for Vacuuming and Venting, Easy to read Vacuum Gauge**
- **Highly Safety Viewing Window (Tempered Safety Glass+ Polycarbonate Window)**
- **Smart-Lab™ Controller** ■ **PL (Product Liability) Insurance**
- **UL/CUL Certified** ■ **CE Certified**

∗ RS232C Interface for Remote Monitoring and Controlling with PC
∗ Superior Uniformity and Stability ∗ Compact New Body Design
∗ High Quality Door Sealing : High Temperature Grade Silicone Molded Gasket
∗ Over Temperature & Over Current Protection and Sensor Error Detection
∗ Ergonomic Design (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.

Display of Smart-Lab™ Controller

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

(1) Standard Shelf, Aluminum (Included)

Specification

Model		ThermoStable SOV-20	ThermoStable SOV-30	ThermoStable SOV-70
Capacity		18.6 Lit.	30 Lit.	70 Lit.
Vacuum Range		10 ~ 750 mmHg		
Temp.	Range / Sensor	Ambient +5℃ to 200℃ / PT100		
	Accu./ Uniformity	± 0.5℃ at 100℃ / ±2.0℃ at 100℃		
Heating Power/Consumption		300W×2ea	300W×2ea	400W×4ea
Heat-up Time		50 min. to 100 ℃, 90 min. to 150 ℃		
Timer & Alarm		99hr 59min (with delay / Continuous run.), Error status & Timer-end		
Display		4˝ Full Touch Screen TFT LCD		
Controller		Smart-Lab™ Controller		
Resolution		Control : ±1.0℃, Display : ±1.0℃		
Shelves		Included 2ea Aluminum Shelves		
Safety Circuit		Over Temp. and Over Current Protector, Sensor Error Detector, Leakage Breaker		
Material		Internal : Stainless steel (＃304), External : Powder Coated steel, Window : Tempered Safety Glass 12T, Poly Carbonate 5T for Safety		
Others		Program Function, WiRe™ App & Web Service.		
Dimension (w×d ×h)	Interior (mm)	265×290×265	300×330×300	400×435×400
	Exterior (mm)	472×443×542	507×483×577	570×588×677
Vacuum Inlet Valve Size		od. 10 mm		
Net Weight		48 kg	56 kg	82 kg
Packing Size (w×d×h) (mm) & Gross Weight		572×660×840	710×762×970	780×826×1,030
		67 kg	76 kg	114 kg
Power Consumption		600 W	600 W	1.7 kW
Power Supply & Cord Plug∗		1 Phase, AC 120V, 60Hz or AC 230V, 50 / 60Hz		

∗ Other Specifications are available upon Customer's Request.

Ordering Information

DH.SWOV03020	Vacuum Oven, **230V, 18.6 Lit., "ThermoStable SOV-20"**
DH.SWOV03030	, **30 Lit., "ThermoStable SOV-30"**
DH.SWOV03070	, **70 Lit., "ThermoStable SOV-70"**
DH.SWOV04020	Vacuum Oven, **120V, 18.6 Lit., "ThermoStable SOV-20"**
DH.SWOV04030	, **30 Lit., "ThermoStable SOV-30"**
DH.SWOV04070	, **70 Lit., "ThermoStable SOV-70"**

Spare Aluminum Shelves
DH.WOV11020	(1) Standard Shelf, Aluminum, **"OVS020",** w295×d285×h98mm, for **18.6 Lit.**
DH.WOV11030	, **"OVS030",** w295×d285×h98mm, for **30 Lit.**
DH.WOV11070	, **"OVS070",** w395×d395×h130mm, for **70 Lit.**

Validation (IQ, OQ) Service
DH.SWOV31020	Validation Service(IQ, OQ), **"SOVV020",** for **"ThermoStable SOV-20"**
DH.SWOV31030	, **"SOVV030",** for **"ThermoStable SOV-30"**
DH.SWOV31070	, **"SOVV070",** for **"ThermoStable SOV-70"**

Vacuumer® Precision Vacuum Pumps, "VOP"-Series, 50 ~ 120Lit.
with Double-Stage, Direct Drive & Oil Sealed Rotary Type, Gas Ballast Valve Installed

■ *Gas Ballast Valve Installed*

∗ Double Stage Vacuum Pump
∗ Over Current Protection
∗ Physical and Chemical Apparatus Industries
∗ Industrial Machines
∗ Vacuum Pumping System

■ *Oil Back Flow Prevention Mechanism Installed*

∗ Easy-to-use Large Finger Grips
∗ Installed Filter Prevent Sludge Contamination
∗ Vacuum Evaporation Equipment
∗ Vacuum Dryer
∗ Vacuum Freeze Dryer. Etc

(1) VOP-60

(2) VOP-100

Specification

Model	"VOP-60"	"VOP-100"
Pumping Speed (50/60Hz)	50 / 60 Lit./min	100 / 120 Lit./min
Ultimate Pressure (Pa)	$6.7 \times 10^2 (6.7 \times 10^{-1})$	
Motor Power	Single Phase 220V, 200W, 4poles	Single Phase 220V, 400W, 4poles
Motor Speed(50/60Hz)	1430 / 1730 RPM	
Recommended Oil	COSMA-100	
Oil Capacity(mL)	800	900
Suction Pipe(o.d×i.d)	NW25(KF25)	
Temp. Range	7~40℃	
Weight	17kg	25kg
Dimensions(w×d×h)(mm)	165×411×234	171×464×238

∗ Per Customer's request various specifications are available.
∗ Using the Macleod gauge the ultimate pressure is measured. The measurements from the pirani gauge are show In( )

(3)

Ordering Information

V3.VOP060 (1) Vacuum Pump, **"VOP-60"**, 50 / 60 Lit./min, (50 / 60Hz), 220V
V3.VOP100 (2)   , **"VOP-100"**, 100 / 120 Lit./min, (50 / 60Hz), 220V

Optional Accessories for VOP-series

V3.OMT150 (3) Oil Mist Trap for **"VOP-60" / "VOP100"**
V3.COS101 (4) Oil for Vacuum Pump VOP-series, 1Lit.
V3.COS104 (5)   , 4Lit.

※ **Selection Guide**
We Recommend "VOP-60" Vacuum Pump for 18.6- / 30-Lit. Vacuum Oven(P.159~160)
We Recommend "VOP-100" Vacuum Pump for 70Lit. Vacuum Oven(P.159~160)

(4) 1Lit.

(5) 4Lit.