

Quality is more than a word

ESPEC

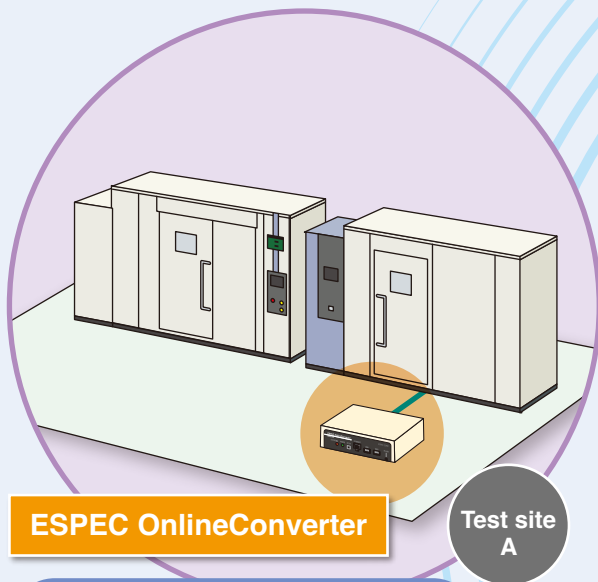
ESPEC ONLINE SERIES



Online Operations Expanding the Possibilities for Environmental Testing

Along with environmental test chambers, ESPEC provides network-based remote management and central control systems.

Allows the user to also check the operating conditions from a remote office or home, assisting with test management during remote working.



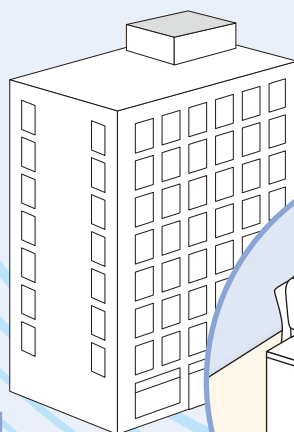
Chambers can be remotely operated using a web browser even when the chamber does not support network connections.



It is now possible to check the chamber operating conditions and edit programs even during business trip.

Check the operating conditions and the samples in the test areas* of multiple chambers from a remote location.

* A separate Chamber Camera is required.



ESPEC OnlineCore



Video explanation of the ESPEC OnlineCore central control system

Useful for remote monitoring! Chamber Camera



See here for details.



► Details: P.11

RS-485 LAN converter

ESPEC OnlineConverter

Adding network functions on network inapplicable ESPEC chambers

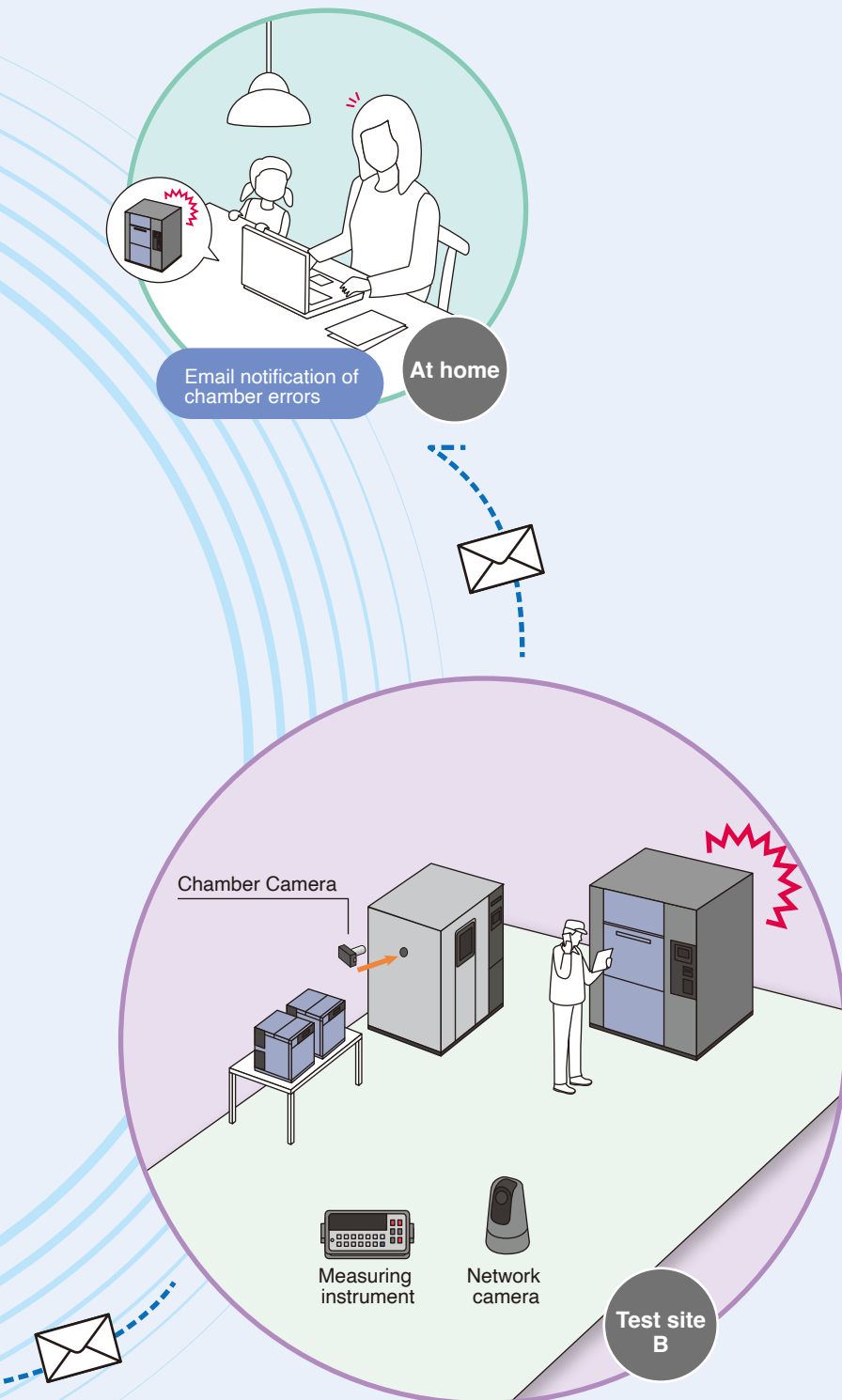
P.4

Central control system

ESPEC OnlineCore

Centralized management of environmental test chambers and peripheral equipment

P.5 to 10



Environmental Test Chamber Web Functions

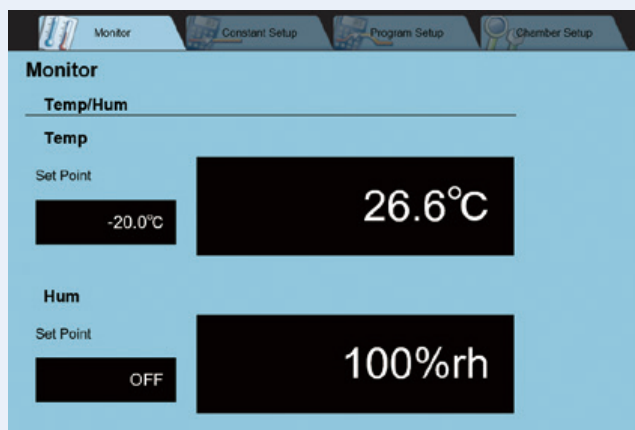
Online management through web browser

Environmental test chambers that include a web application can be operated remotely from a web browser.



Image

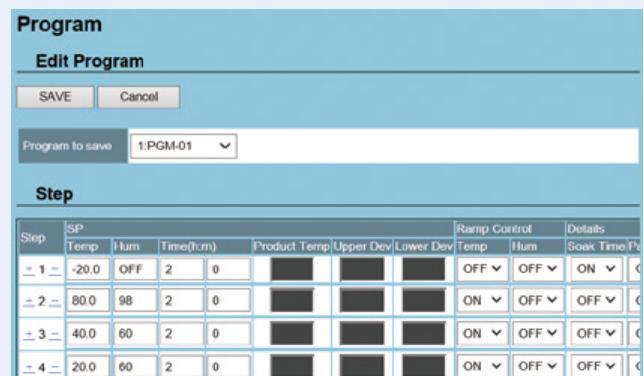
Monitor the chamber operating conditions



Chamber monitor

Edit the test conditions and turn operation ON/OFF

Program patterns can be saved to a PC and copied to other chambers.

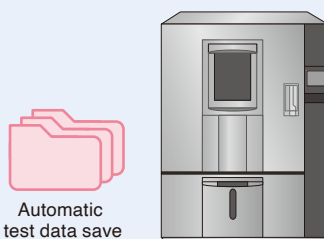


Editing of program patterns

Automatic data save

Temperature and humidity data from a set period of time is saved at the test chamber.

From a web browser, the user can download the test data for the desired period and display it in a graph.



- * The data save period varies depending on the chamber and data collection cycle.
- * Viewing data requires the Pattern Manager Lite PC application.

E-mail notifications

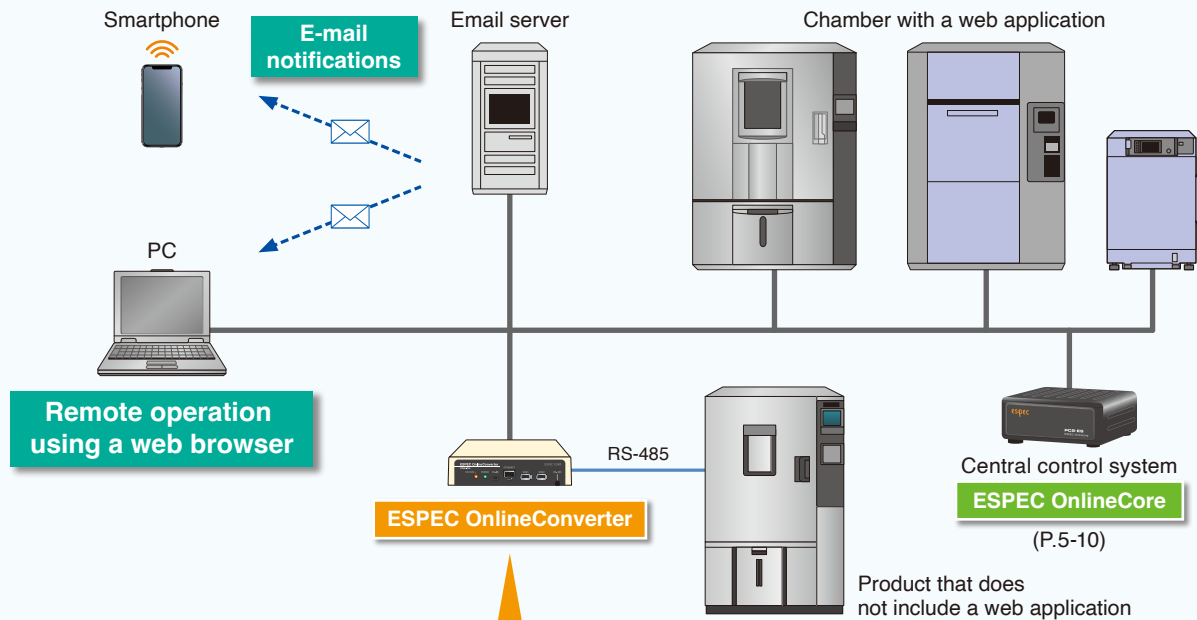
Email is sent to the registered address to notify the user when an alarm occurred at a chamber.

By identifying chamber trouble as early as possible, it is possible to prevent damage to the test specimen and readjust the testing schedule.



Alarm email

Image of connections



ESPEC OnlineConverter

By connecting an ESPEC OnlineConverter LAN converter to the RS-485 communication port of a chamber that does not include a web application, it becomes possible to monitor the operating conditions, edit the test conditions, operate the chamber, and save the data from a web browser.



Following products need OnlineConverter

Product name	Model	Product name	Model	
Temperature (& Humidity) Chamber Platinous K Series	PR, PL, PSL, PDR, PDL, PCR, PWL, PU, PG, PWU	Thermal Shock Chamber TSA Series	TSA-□□1, □□2	
Walk-In Temperature (& Humidity) Chamber H Series (P Instrumentation)	TBE, TBL, TBR, TBF, TBU, TBUU, EBE, EBL, EBR, EBF, EBU, EBUU	Thermal Shock Chamber	TSD-100	
Free Access Environmental Chamber	PFL, PFU	Compact Thermal Shock Chamber	TSE-11-A	
Environmental Stress Chamber ARseries (P Instrumentation)	ARG, ARL, ARS, ARU	Liquid to Liquid Thermal Shock Chamber	TSB-21, 51	
Platinous Vibro Series	PVL, PVS, PVU, PVG	Temperature Chamber Series	PV(H)-212, 222, 232, 332 STPH-102, 202 SPH(H)-102, 202, 302, 402 IPH(H)-202 PH(H)-102, 202, 302, 402 SSPH-102, 202 GPH(H)-102, 202	
Bench-top Type Temperature (& Humidity) Chamber	SH / SU-□□1		Large Volume Temperature Chamber	(H)LKS-3C, 4C
Constant Climate Cabinet	LH / LHL / LHU / LU-□□3			Clean Oven
Compact Ultra Low Temperature Chamber (P Instrumentation)	MC-711P, 811P			
Faster Temperature (& Humidity) Chamber	SMG, SML, SMS, SMU-2			
Rapid-Rate Thermal Cycle Chamber	TCC-150W			
Highly Accelerated Stress Test System	EHS-□□1 (M) (MD)			

Depending on the year of manufacture and customer requests, chambers may be equipped with a terminal other than RS-485. Therefore be sure to check the actual chamber. A connection is not possible if the RS-485 terminal is already in use.

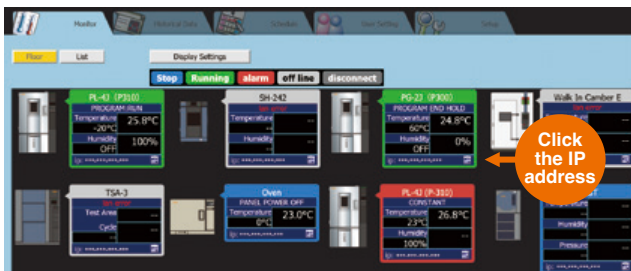
Centralized management of environmental test chamber peripheral equipment

The operating status of multiple chambers can be quickly ascertained via a web browser just by connecting to an Intranet environment. Can also be used in a closed network.



Central management monitor

- Up to 100 environmental test chambers and peripheral equipment units can be connected.
- The operation state, measured values, and other data from the connected equipment can be checked.
- The layout, display format, sizes, and other characteristics of the connected equipment on the monitor can be changed.
- Change between a floor display and list display.
- Open chamber webpages (by clicking their IP addresses).



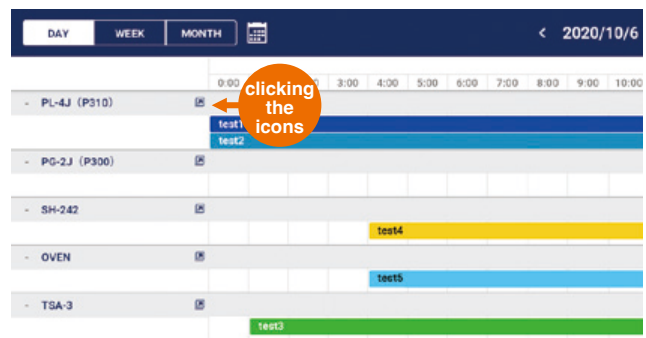
Floor display



List display

Schedule management

- Manage the schedules of registered chambers.
- Display the schedules of specified chambers.
- Send email notifications at the start/end of schedules.
- Open chamber webpages from the schedule screen (by clicking the icons).



Schedule management screen

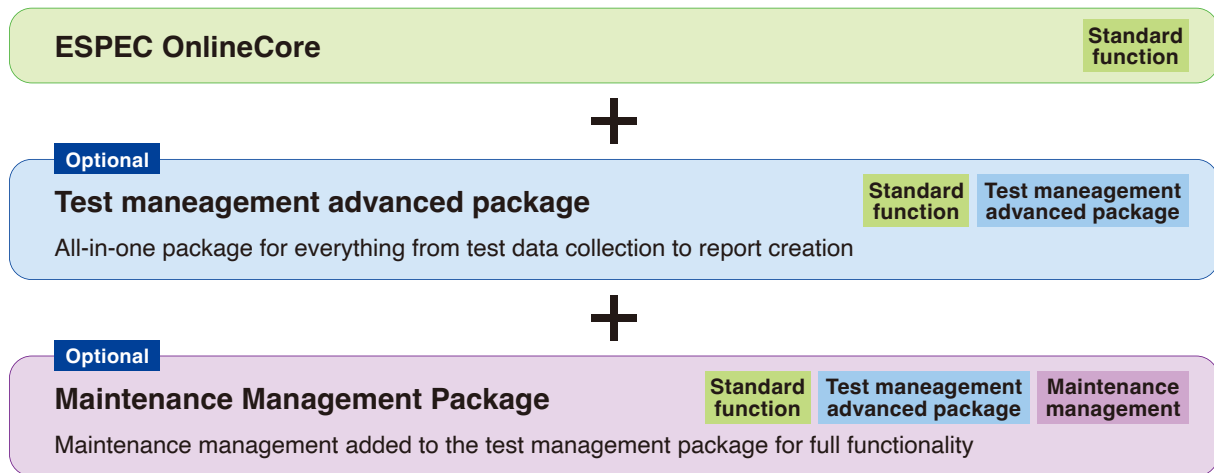
OnlineCore applicable product lineup

Product name	Model	Product name	Model
Temperature (& Humidity) Chamber Platinous J Series	PR, PL, PU, PSL, PG, PHP, PDR, PDL, PCR	Low Temperature (& Humidity) Chamber	CRH-□□ 2
Walk-In Temperature (& Humidity) Chamber E Series	TBE, TBL, TBR, TBF, TBU, TBUU, EBE, EBL, EBR, EBF, EBU, EBUU	Thermal Shock Chamber TSA Series	TSA-□□ 3
High-Power Temperature (& Humidity) Chamber (N Instrumentation)	ARG, ARL, ARS, ARU, ARSF, ARGF	Thermal Shock Chamber	TSD-101-W
Bench-top Type Temperature (& Humidity) Chamber	SH/SU-□□ 2	Compact Thermal Shock Chamber	TSE-12-A
Constant Climate Cabinet	LH / LHL / LHU / LU-□□ 4	Liquid to Liquid Thermal Shock Chamber	TSB-22, 52
Compact Ultra Low Temperature Chamber	MC-712, 812	Vacuum Oven	LCV-234, 244
Faster Temperature (& Humidity) Chamber	SMG, SML, SMS, SMU-21	Electrochemical Migration Evaluation System	AMI
Rapid-Rate Thermal Cycle Chamber	TCC-151	Conductor Resistance Evaluation System	AMR
Highly Accelerated Stress Test System	EHS-□□ 2 (M) (MD)	Web Manager	WMA-STD, WMA-TS, WMA-Multi
Stability Test Chamber	CSH-□□ 2 (HG)	RS-485 LAN Converter	CONV-L4
Stability Test Chamber	CWH	Web Support	PN5-L4
		ESPEC OnlineConverter	PN5-CN

Central control system ESPEC OnlineCore

PCS-ES

ESPEC OnlineCore has standard and optional functions.



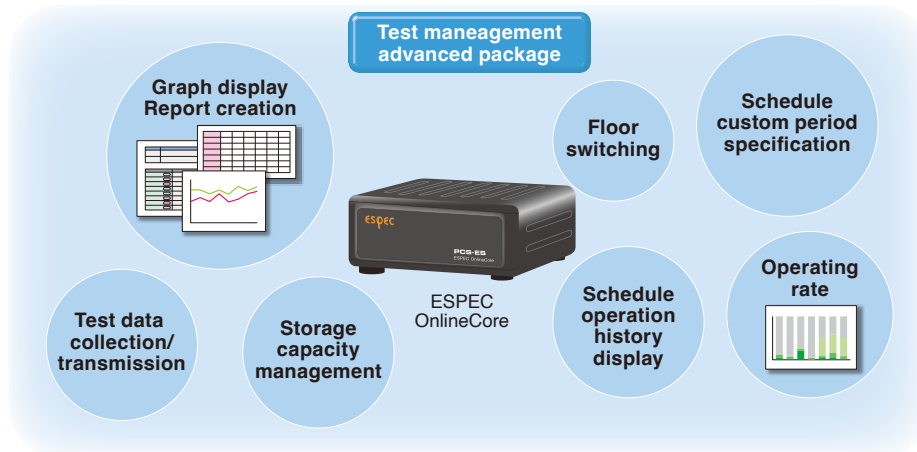
* The Test management advanced package is required to use the Maintenance Management Package.

ESPEC OnlineCore function list

Function		Description	Standard function	Test management advanced package	Maintenance management
Central monitor	Floor display	Monitors the operation states, settings, and measured values of up to 100 chambers. The chamber layout can be changed.	✓	✓	✓
	List display	Changes the monitor screen to a list.	✓	✓	✓
	Floor switching	Switches the floor screen to 1 of 10 created floors.		✓	✓
Chamber history	Operation history	Saves the start/stop history of chamber operation.	✓	✓	✓
	Sampling data	Displays graphs, creates reports, and outputs CSV files.		✓	✓
	Operating rate	Automatically calculates this rate for each chamber.		✓	✓
Schedule	Test planning	Receives entered schedules.	✓	✓	✓
	Operation history display	Shows the operation results on the schedule.		✓	✓
	Display switching	Selects the display mode from day, week, and month.	✓	✓	✓
	Custom period specification	Sets the custom schedule to display.		✓	✓
Maintenance management	Start/stop notification	Sends a notification email at the set date and time.	✓	✓	✓
	Chamber information	Displays the chamber management information and specifications, saves the user's manual and similar documents as PDFs, displays the maintenance plans, and aggregates data to save.			✓
	Maintenance plans	Manages the schedules of maintenance work such as diagnosis, repair, inspection, and calibration.			✓
	Maintenance data aggregation	Aggregates the chamber's maintenance costs and maintenance operation count from its operating rate and registered maintenance plan.			✓
User settings		Sets the user rights and password.	✓	✓	✓
System settings	Sampling data collection	Sets the chamber's sampling data collection.		✓	✓
	Sampling data transmission	Transmits (backs up) the chamber sampling data collected with ESPEC OnlineCore.		✓	✓
	Maintenance management data transmission	Saves the maintenance management file and transmits (backs up) the data.			✓
	Backup management	Backs up the information registered with ESPEC OnlineCore.	✓	✓	✓
	Storage capacity management	Displays the ESPEC OnlineCore memory information.		✓	✓

<Test management advanced package>

All-in-one package for everything from test data collection to report creation



Test planning and progress management

- The operation history display visualizes the test progress and shows the operation state, start date and time, estimated end date and time, and graph.

DAY	WEEK	MONTH	CUSTOM	2021/3/9 - 2021/3/11
				3/9 (Tue) 0:00 6:00 12:00 18:00 0:00 6:00 12:00 18:00 0:00 6:00 12:00
-	PL-J (P-310)			CONSTANT (1 CONSTANT-G1) testB
-	UTC_PL1_P300			
-	PL-J (P-300)			testA
-	TSA (P-310)			CONSTANT
-	UTC_SH-241			

Schedule progress screen

Monitor display for each group

- Connected equipment can be grouped as needed, according to individual floors, rooms, or other units.
- Up to 10 groups can be registered.

The dashboard displays the status of equipment in 'room1 - 1-A'. Each equipment card shows its name, current temperature, humidity, and operational status (e.g., 'Running', 'alarm', 'off line').

Display of the selected floor

Automatic aggregation of chamber operating rate

- Understanding the operating status makes it easier to plan for chamber expansion or dismantling.
- The operating rate and operating time for the selected period are calculated automatically for each chamber, and CSV output allows data for all connected equipment to be output at once.

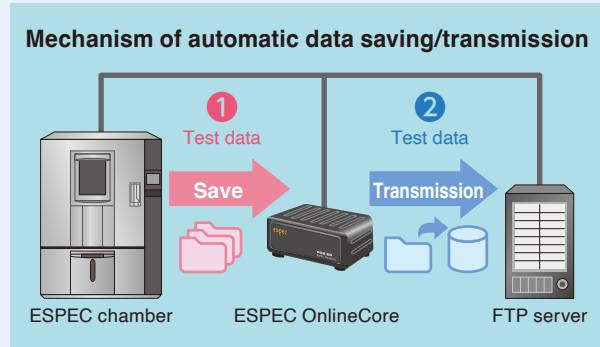
Date	Operation Ratio	UnConnected Time
2021/03/12 (Fri)	100 [%]	0.1 [hour]
2021/03/13 (Sat)	100 [%]	0 [hour]
2021/03/14 (Sun)	100 [%]	0 [hour]
2021/03/15 (Mon)	100 [%]	0 [hour]

Save the long duration test data

- The test data files stored in ESPEC chambers are saved in ESPEC OnlineCore.
- The storage capacity is enough for around 10 years of data from 100 chambers.
- * This may vary depending on the data collection cycle and other conditions.

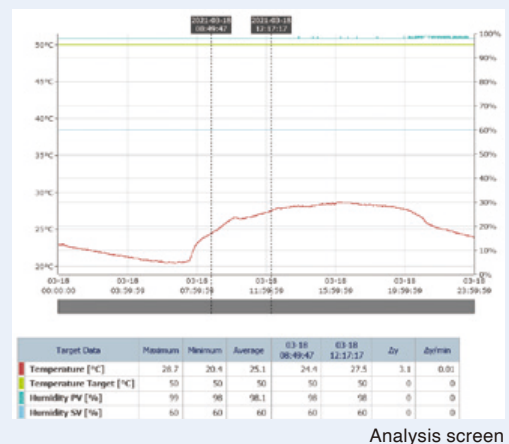
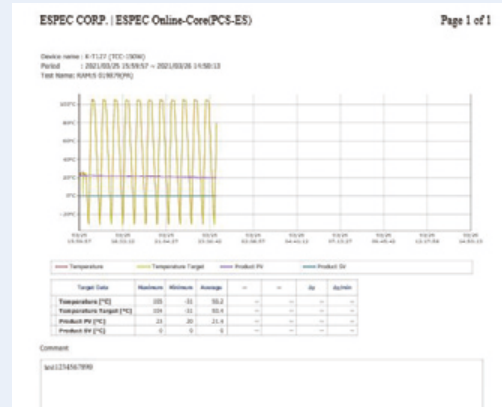
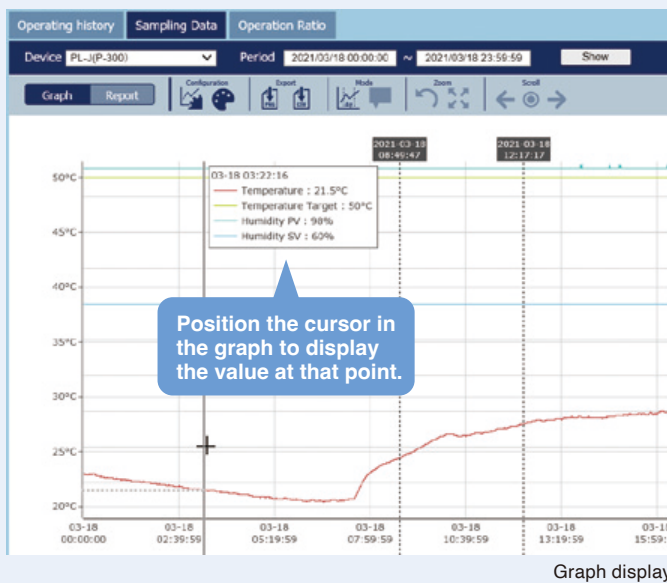
Automatic transmission of test data

- Test data is automatically transmitted to the specified FTP server and saved as backup for redundant management.
- * The FTP server must be prepared by the customer.
- Conforms to data management (collection, storage) in the ISO/IEC17025 requirements.



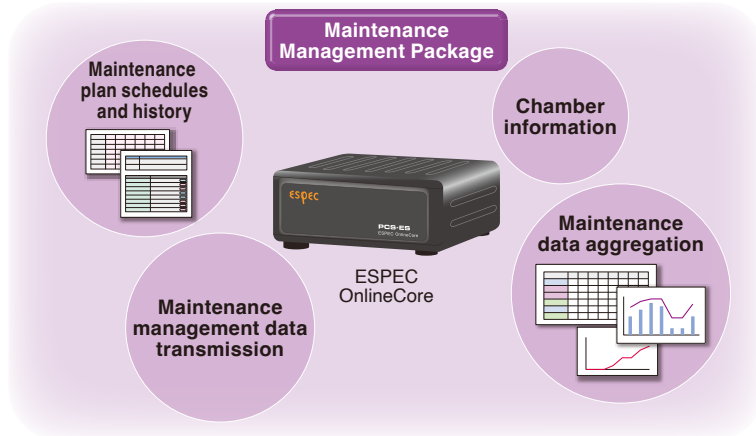
Automatic creation of graph display and test reports

- Create test schedules, graph displays of any test period from the operation history, and test reports.
- Graph display, comment input, simplified analysis, and conversion to CSV output files are all possible.



<Maintenance Management Package>

Reduce various parts of chamber management work and increases operation efficiency



Together with the test management functions, centrally managing chamber maintenance data with ESPEC OnlineCore makes it possible to efficiently check the required information when necessary. Conforms to data management (collection, storage) in the ISO/IEC17025 requirements.

Central management of repair history

Maintenance plans

- The list shows the registered schedules and records of diagnoses, repairs, inspections, calibrations, etc.
- Use the settings to filter the list of saved plans to view.

ID	Name	Start Date and Time	Device	Category	Status	Summary	Description
32	Planned	2025/02/16 15:00	PL-43 (P318)	Diagnosis	Weak report	Repair work for poor temperature control	Replacement of electrical components - Temperature controller unit (Sensor K) - Temperature detection unit (ES-42) - Temperature control power board
31	Done	2025/02/16 14:00	SH-242	Diagnosis	Weak report	Repair work for poor temperature control	Replacement of electrical components - Temperature controller unit (Sensor K) - Temperature detection unit (ES-42) - Temperature control power board
30	Planned	2025/02/11 00:30	PL-43 (P318)	Diagnosis	Weak report	Repair work for poor temperature control	Replacement of electrical components - Temperature controller unit (Sensor K) - Temperature detection unit (ES-42) - Temperature control power board
29	Planned	2025/02/09 08:00	PG-23 (P300)	Diagnosis	Weak report	Repair work for poor temperature control	Replacement of electrical components - Temperature controller unit (Sensor K) - Temperature detection unit (ES-42) - Temperature control power board
27	Planned	2025/11/27 00:00	SH-242	Diagnosis	Weak report	Repair work for poor temperature control	Replacement of electrical components - Temperature controller unit (Sensor K) - Temperature detection unit (ES-42) - Temperature control power board
18	Planned	2025/11/12 13:00	SH-242	Inspection	Inspection	Regular inspection by the manufacturer once a year	Inspection - maintenance - Operation check
9	Planned	2025/11/20 13:00	PL-43 (P318)	Diagnosis	Weak report	Repair work for poor temperature control	Replacement of electrical components - Temperature controller unit (Sensor K) - Temperature detection unit (ES-42) - Temperature control power board
24	Done	2025/09/02 13:00	PL-43 (P318)	Diagnosis	Weak report	Repair work for poor temperature control	Replacement of electrical components - Temperature controller unit (Sensor K) - Temperature detection unit (ES-42) - Temperature control power board
15	Done	2025/01/10 15:00	OVN	Diagnosis	Weak report	Repair work for poor temperature control	Replacement of electrical components - Temperature controller unit (Sensor K) - Temperature detection unit (ES-42) - Temperature control power board
12	Done	2025/12/09 08:00	PG-23 (P300)	Inspection	Inspection	Regular inspection by the manufacturer once a year	Inspection - maintenance - Operation check

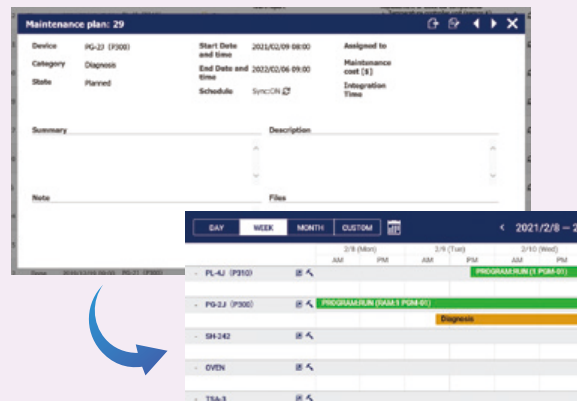
Maintenance plan list screen

- Save work reports and other such data in PDF format.



Screen for an individual maintenance plan

- Enter a maintenance plan to display its linked schedule.



Linked schedule

Streamlining test preparation with sharable test information

Chamber information

- Register management information and chamber specifications.
Check the temperature and humidity range as well as the test area size when selecting the chamber.

Asset No. AA-T-01
Manager QCU Smith
Contact 789-000
Introduced date 2019/10/01
Discarded date #
Operating time 3,718 H

Maker ESPEC
ESPEC Maintenance history inquiry system (E)
Customer support ()

Spec: Files Maintenance plans Collection

Spec (1)
Type PLJ (P310)
Model PL-4J
Serial No. 3405789

Temperature range -40
Humidity range 20
Internal Dimension 1000 mm

DAY WEEK MONTH CUSTOM

PL-4J (P310) PROGRAMRUN (1 PGM-01)

PL-4J (P310)
TEMPERATURE RANGE: -40°C ~ 100°C
HUMIDITY RANGE: 20% ~ 98%
INTERNAL DIMENSIONS: 1000MM x 1000MM x 800MM
SHELF: TWO-TIER
CABLE PORT: 100Φ LEFT-SIDE

OVEN
TSA-3
TSE-1

Select a schedule in the list with the cursor to check the registered chamber information.

- Save the user's manual and other such related documents for prompt reference when an error occurs or when chamber operation is difficult.

Asset No. AA-T-01
Manager QCU Smith
Contact 789-000
Introduced date 2019/10/01
Discarded date #
Operating time 4,580 H

Maker ESPEC
ESPEC Maintenance history inquiry system (E)
Customer support ()

Spec: Files Maintenance plans Collection

Files
400104000200_1.pdf Operation Manual (Basic guide)
400104000401_1.pdf Operation Manual (Controller guide)

Click the icon to display the document.

ESPEC

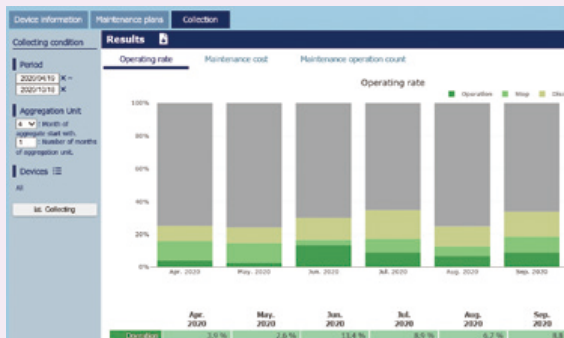
Operation manual / Basic guide
Temperature (and humidity) chamber
Platinous J series
PR/PL/UP/SL/PG/
PHP/PDR/PDL/PCR (Instrumentation)

Automatic aggregation of everything from chamber maintenance costs to operating rate

Maintenance data aggregation

The operating rate, maintenance costs, and maintenance operation count can be aggregated yearly for all chambers or separately for each chamber, which is useful for managing budgets and planning facilities.

- Aggregate the operating rate for the following categories: operation, stoppage, communication impossible, and no data.



Operating rate aggregation for all chambers

Average per device

Devices	Oper ation	Stop	Commu nication	No d.ta
PL-4J (P310)	43.7	43.4	6.1	9.8
PG-2J (P300)	59.5	25.7	5.0	9.8
SH-242	16.2	49.1	24.6	9.8
Oven	42.8	43.0	3.5	9.8
TSA-3	0.0	1.9	0.3	97.8
TSE-1	0.0	0.0	53.6	46.4
TSD-1	0.0	0.0	90.2	9.8

Averages for each chamber

- Aggregate the costs registered to the maintenance plan.



Cost aggregation for all chambers

Average per device

Devices	Oper ation	Repa ir	Inspe ction	Callb ack	Disa ble	Sum
PL-4J (P310)	30,000	50,000	0	80,000	0	150,000
PG-2J (P300)	0	75,000	65,000	0	0	140,000
SH-242	30,000	0	35,000	0	0	65,000
Oven	20,000	30,000	55,000	0	0	105,000
TSA-3	0	0	0	0	0	0
TSE-1	0	0	0	0	0	0
TSD-1	0	0	0	0	0	0
Walk In Chamber E	45,000	0	85,000	86,000	0	216,000

Costs for each chamber

Examples of Customization

HD/4K Chamber Camera

Useful for remote monitoring of test samples during test

Especially useful for monitoring samples those that may physically change while under test.

HD Chamber Camera can record and capture images of the entire sample in the chamber. Suitable for monitoring overall changes.

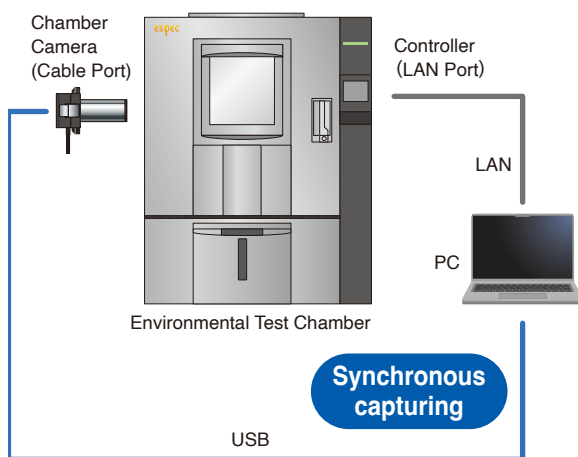
4K Chamber Camera can provide ultra high-definition images of the surface shape and color changes of sample in the chamber. Ideal for visual evaluation of detailed condition of the sample during the test.



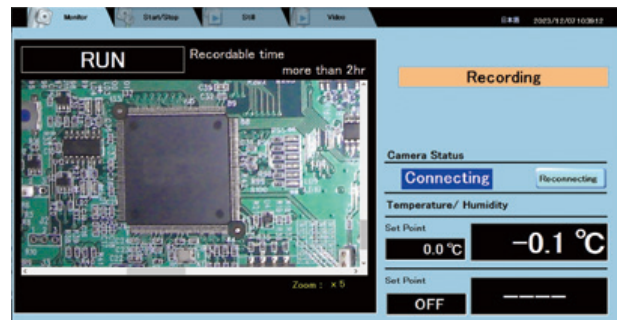
YouTube video
Quick look

Check the sample from a remote location.
▶ P.13

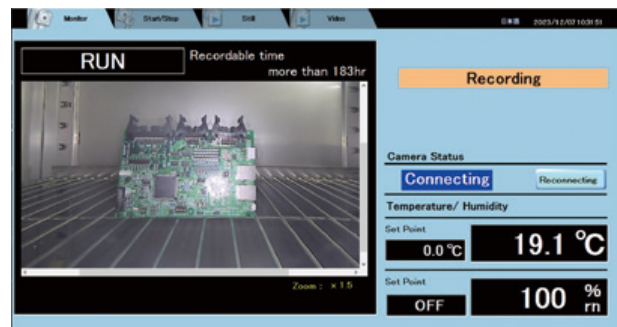
Application



Select the camera type to match your needs



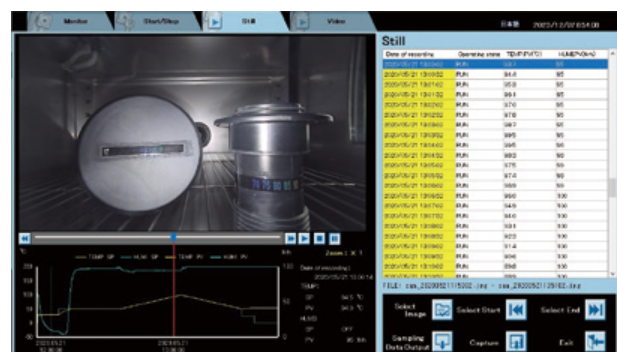
Sample view of upscaling image at 4K Chamber Camera



Sample view of entire test area at HD Chamber Camera

Features

- Can be used in harsh temperature and humidity conditions.
- Clear view inside test area
- Simple and easy installation
- Sync the chamber operation with the camera images



Examples of Customization

HD/4K Chamber Camera

Camera

Product name	4K Chamber Camera	HD Chamber Camera
Model	SUC-1000-4K	SUC-0030-HD
Available chamber *	Platinous J Series, Bench-Top Series, etc.	
Allowable range of use	Temperature: -40°C to + 150°C Humidity:0 to 98%rh	
Resolution	4K (3840x2160)	HD (1280x720)
Interface	USB 2.0 *Cable connection (USB Type A)	
Camera weightInter	Approx.750g	Approx.700g
Dimensions (mm)	W124xH98xD164	W124xH98xD156.5

*Controller P310 and P200. Cable port ϕ 50mm or ϕ 100mm is required.

*AC adapter: AC100 to AC230V with 5 types of conversion plugs

*2 types of adapters included (ϕ 50-D70 for Bench-Top Series, ϕ 100-D100 for ϕ 100 cable port)

*2 year warranty, CE standard, RoHS standard



4K Chamber Camera



HD Chamber Camera

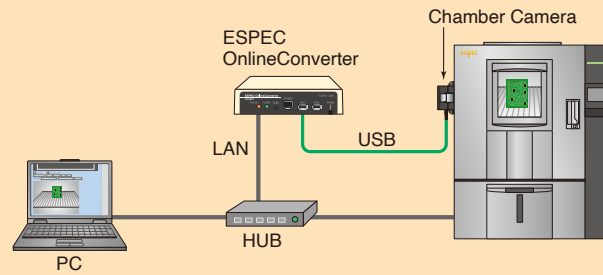
Application (ES-ImageFit)

The dedicated application (ES-ImageFit) controls a Chamber Camera and performs synchronous capturing of sample images and chamber operation (test data/trend graphs).

Product name	4K Chamber Camera	HD Chamber Camera
Screen Specifications	Four screen settings: camera monitor, settings (video/still image), still image playback, and video playback	
PC Specs (OS/CPU)	Windows10/ core i5 or higher	
Zoom function	x1/x2/x4/x5	x1/x1.5/x2
Video	Windows10/ core i5 or higher	
	Frame rate: 3 fps/5 fps	Frame rate: 5 fps/10 fps
Shooting time (reference) *Free space: 250GB	File capacity: 57 MB/min (3 fps) Continuous shooting time: approx.73 hours (3 fps)	File size: 2.5 MB/min (5 fps) Continuous shooting time: approx.1,660 hours (5 fps)
Still image	Shooting interval: 1 sec to 60 sec *JPEG	
Shooting time (reference) *Free space: 250 GB	File size: 2 MB/sheet Continuous shooting time: approx. 34 hours (1 sec/interval)	File size: 0.2 MB/sheet Continuous shooting time: approx. 340 hours (1 sec/interval)

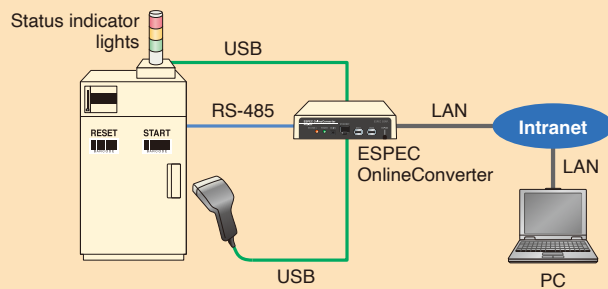
Support for Chamber Camera

Monitor images of the sample remotely from a travel destination or at home. Images and test data can be downloaded, and can be replayed synchronized by using the special Chamber Camera application.



Barcode automatic operation system

Begin registration and testing simply by scanning a barcode, without changing the settings for each specimen. This also prevents errors in configuring the settings and other human errors. Specimen history data (operator, specimen, chamber name, operation start/end times, number of alarms) and test log data are saved automatically. This data can be used to ensure traceability of test results.



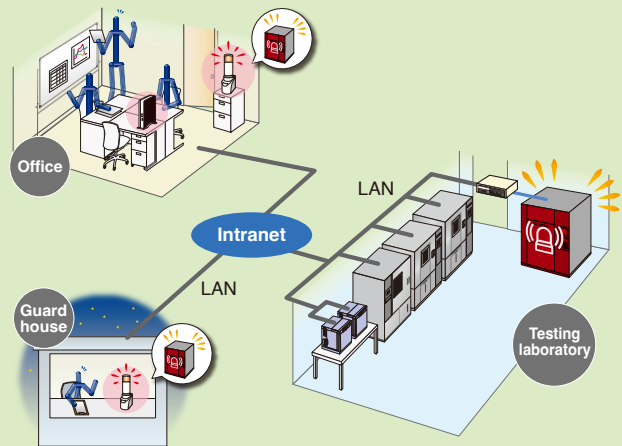
Examples of Customization

ESPEC OnlineCore add-on

Office notification indicator light

Install an indicator light connected to a network in the office. The indicator light activates (illuminates, buzzer sound) for notification when ESPEC OnlineCore detects a chamber alarm.

The activation times and days of the week can be set, for example to activate in the office during the day and in the guard house at night.

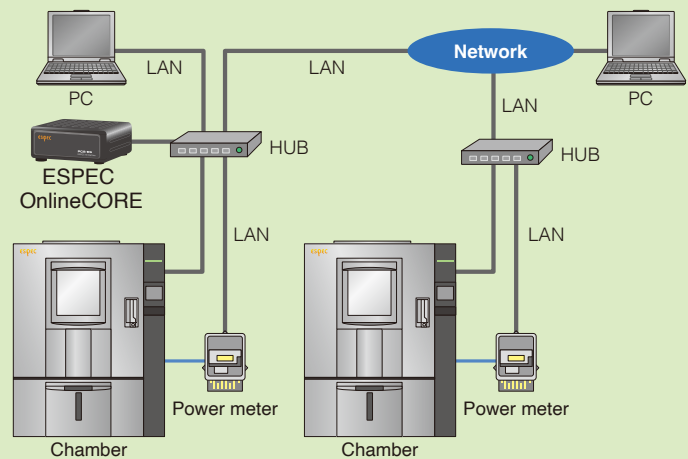


Power monitor

The power monitor displays the power consumption, instantaneous current, and other power-related information for the environmental test chamber.

The monitor can also be linked to program operation periods to display the power consumption, CO₂ emissions, and graphs for visual confirmation of changes in power.

The ability to visualize power consumption and CO₂ emissions helps reduce the amount of consumed electricity and manage carbon neutrality.



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