



## **Esco Sample Protection and Remote Monitoring Solutions**

*Sample monitoring made easy*



- **Voyager®** (*Remote Monitoring, Programming, Datalogging Software*)
- **iRMAP™** (*Intelligent Remote Monitoring Application Protocol*)
- **Voyager® Box** (*Web Monitoring and Datalogging System*)
- **PROtect** (*A Completely Independent and Redundant Sample Monitoring System*)
- **SampleTracker** (*Biosample Inventory Management System*)

# Esco Sample Protection and Remote Monitoring Solutions

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## Welcome to Esco

*Esco's Vision is to provide enabling technologies for scientific discoveries to make human lives healthier and safer.*



The Esco Group of Companies is committed to deliver innovative solutions for the clinical, life sciences, research, industrial, laboratory, pharmaceutical, and IVF community. With the most extensive product line in the industry, Esco have passed a number of international standards and certifications, and is operating under ISO 90001, ISO 14001, and ISO 13485. Esco represents innovation and forward-thinking designs, that are of the highest standard quality since 1978.

**Availability and Accessibility.** Esco has headquarters in Singapore, Indonesia, and Philippines, with manufacturing facilities are located in Asia and Europe. Research and Development (R&D) is conducted worldwide spanning the US, Europe and Asia. Sales, services and marketing subsidiaries are located in 42 major markets including US, UK, Japan, China and India. Esco regional distribution centers are located in Singapore, Malaysia, Thailand, Vietnam, Myanmar, Indonesia, Philippines, Bangladesh, Hong Kong, Taiwan, South Korea, China, Japan, India, UAE, Central and South Africa, Denmark, Germany, Italy, Lithuania, Russia, United Kingdom, and USA. Because of our worldwide presence, you can be sure that Esco is within your reach.

**High Quality, Reliable, and Dependable.** Esco products are of high quality, reliable, and dependable; assuring customers of research accuracy. Cross functional teams from Esco Production, R&D, Quality Assurance, and Senior Management, are regularly assembled to review and implement areas for improvement.

**Esco Cares for Your Safety.** Esco focuses on providing safety not just for your samples but also for you and the environment.

**Esco Cares for Your Comfort.** Building ergonomic designs and reducing noise levels of the units ensures comfort for our users.

**Esco Cares for the Environment.** One in every four of Esco's employees is involved in R&D and a number of them evaluate new components and/or designs to produce energy efficient equipment. Being GREEN is more than just modifying parts used to produce a new energy efficient technology, it is also embodied in the every aspect of the company.

**Customer Service and Support.** Our service does not stop once purchase has been done. Esco gives on-time customer service and offers end-user seminars, service training, preventive maintenance, and provides educational materials and informative videos.

As Esco takes the opportunity to respond to the world's needs, we aim not only to contribute in the advancement of scientific discoveries but also in making the world a safer, healthier, and better place to live in.

## Products and Application

### Life Sciences Laboratory Equipment

#### Sample Preparation

- Class I Biological Safety Cabinets
- Class II Microbiological Safety Cabinets
- Class II Type A2 Biological Safety Cabinets
- Class II Type B1 Biological Safety Cabinets
- Class II Type B2 Biological Safety Cabinets
- Class III Biological Safety Cabinets
- Horizontal Laminar Flow Clean Benches
- Vertical Laminar Flow Clean Benches
- Laboratory Animal Research Workstations
- Laboratory Centrifuges

#### Sample Cultivation

- CO<sub>2</sub> Incubators, Direct Heat Air-Jacketed
- CO<sub>2</sub> Incubators with Cooling System
- CO<sub>2</sub> Incubators with Stainless Steel Exterior
- Laboratory Shakers

#### Sample Handling and Analysis

##### PCR Thermal Cyclers

- Conventional Thermal Cyclers

##### PCR Sample Handling

- Microplate Shakers
- PCR Cabinets

#### Sample Storage & Sample Protection Solutions

- Ultra-low Temperature Freezers
- Lab Refrigerators and Freezers
- Sample Database Management Software
- Intelligent Remote Monitoring Application Protocol
- Remote Monitoring, Datalogging, Programming Software
- Wireless Monitoring System

#### Chemical Research

- Ductless Fume Hoods
- Laboratory Fume Hoods
- Fume Hood Airflow Monitors
- Exhaust Blowers
- Powder Weighing Balance Enclosures
- Filtered Storage Cabinet

#### General Equipment

##### Laboratory Thermostatic Products

- Laboratory Oven
- Laboratory Incubator
- Refrigerated Incubator
- Natural Convection Incubator

#### Forensic Sciences

- Evidence Drying Cabinet

### Medical / IVF Equipment

#### Controlled Embryo Handling

- Fertilisafe™ ART Workstation
- AVT-I Anti Vibration Table
- Semi Closed Environment IVF

#### Safe Embryo Culture

- MIRI® Multi room Benchtop Incubator
- CelCulture® CO<sub>2</sub> Incubator
- Mini MIRI® Humidified Benchtop Incubator

#### Innovative Time Lapse Imaging

- MIRI® Time-lapse Incubator

#### Accurate Quality Control

- MIRI® GA Gas and Temperature Validation Unit
- MIRI® GA Mini Gas Validation Unit

#### Unique Consumables

- CultureCoin

### Healthcare

#### Esco Pharma Products

##### Airflow Containment Products

- Pharmacon® Downflow Booths
- Ceiling Laminar Airflow Units
- Laminar Flow Horizontal/Vertical Trolley
- Enterprise™ Laminar Flow Straddle Unites
- Cytoculture™ Cytotoxic Safety Cabinets

##### Isolation Containment

- Aseptic Containment Isolator (ACTI)
- Weighing and Dispensing Containment Isolator (WDCl)
- General Processing Platform Isolator (GPPI)
- Containment Barrier Isolator (CBI)
- Turbulent Flow Aseptic (Grade A) Isolator (TFAI)
- Isoclean® Healthcare Platform Isolator (HPI)
- Streamline® Compounding Isolators (SCI)
- Technetium Dispensing Isolators
- Blood Cell Labeling Isolators
- Open and Closed Restricted Barrier Access Systems (RABS)

##### Cross Contamination Facility Integrated Barrier

- BioPass™ Pass Through
- Infinity® Air Shower Pass Box
- Cleanroom Air Shower
- Infinity® Cleanroom Transfer Hatch
- Infinity® Pass Box
- Soft capsule® Soft Wall Cleanroom
- Dynamic Passboxes and Dynamic Floor Laminar Hatches
- Laminar Flow Storage Cabinet

##### Ventilation Containment

- Ventilated Balance Enclosure

#### VacciXcell Products

##### Bioreactors and Fermenters

- CelCradle™
- TideXcell™
- VacciXcell™ Hybrid Bioreactor

##### Cell Culture Monitoring, Media and Consumables

- Super Plus™
- Plus™ Vero
- Plus™ MDCK
- Plus™ MDCK II
- BioNOC™ II macrocarriers
- GlucCell™ Glucose Monitoring System
- CVD Kit

##### Filling Line Equipment

- Filling Line Isolators
- cRabs (close restricted access barriers)
- oRabs (open restricted access barriers)

##### Integrated Solutions

- Cell Processing Isolator
- Cell Processing Center

#### TaPestle Rx Products and Services

##### PRODUCTS

- Pharmacy Automation and Compounding Supply
- Compounding Pharmacy Isolators (SCI, HPI, CBI, GPPI)
- Safety Cabinets and Enclosures (Class II BSC, VBE, LFC)
- Radiopharmacy Hoods and Isolators
- Aseptic Filling Systems

##### Healthcare and Laboratory Construction Components

- Prefabricated Walls (Airecell®)
- Prefabricated Containerized Facility (Prefab™)
- Series Ceiling Systems
- Hygienic/Hermetic Door Systems
- Surgical Scrub Sinks
- Vinyl Tiles and Epoxy
- Laboratory Fit-outs
  - Worktops
  - Frames
  - Specialty Storage cabinets
  - Service Spines & Reagent Shelving

##### SERVICES

- Conceptualization
- Planning
- Procurement
- Installation

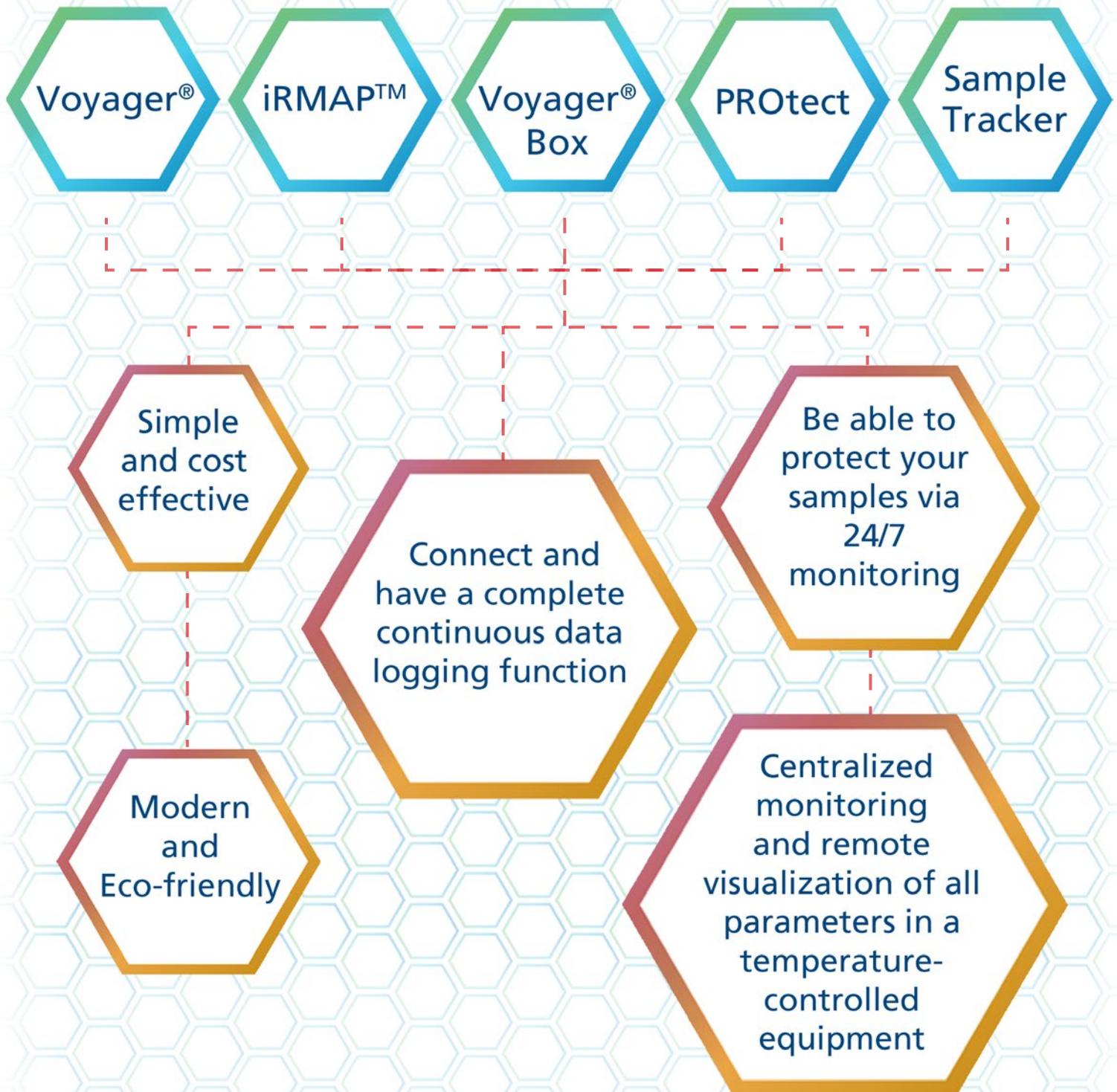
##### FACILITY DESIGNS

- Process Architecture
- Biocontainment/Biosafety
- Pharmacy Compounding/Nuclear Medicine
- Cleanroom, Vaccine and Cell Processing
- Laboratory
- Containerized Facility
- ART/IVF
- Cold Chain

Every precaution has to be taken to protect a sample's integrity.

Be assured with the guaranteed quality of performance and service Esco can provide.

Esco's Sample Protection and Remote Monitoring Solutions provides an extensive solution to prevent loss and spoilage of unique samples and products.



# Voyager®

## Remote Monitoring, Programming, Datalogging Software

Esco Voyager® is a PC-based software package developed for the remote monitoring, datalogging, and programming/ device configuration of Esco controlled environment laboratory equipment. The equipment has the capability to push updates to Esco equipment connected to software. In any event of equipment failure, the software is able to send out remote alarm notification through e-mail or SMS with a modem configured. It is also compliant to 21 CFR Part 11 standard for traceability.

- Ability to generate reports and graph of different device parameters

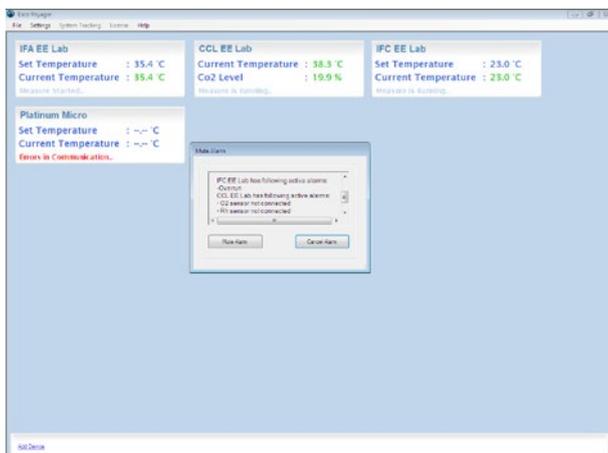
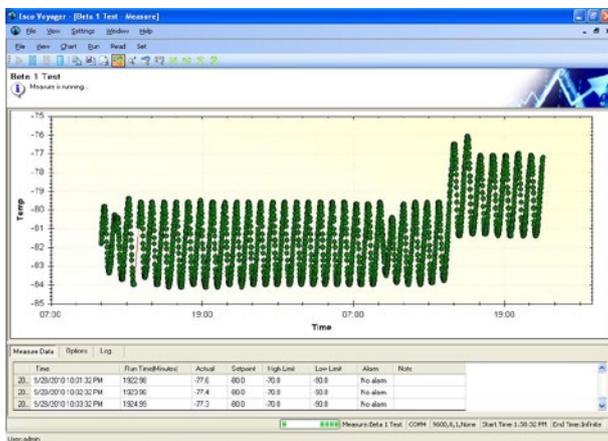
- Protect the samples by providing alarms when exceeding a user-defined parameter limit via automatic email alerts



### Compatible Esco Equipment (Clockwise from top):

- Lexicon® Ultra-low Temperature Freezer (UUS)
- Isotherm® Refrigerated Incubator (IFC)
- Isotherm® Forced Convection Incubator (IFA)
- CelCulture® CO<sub>2</sub> Incubator (CCL)

## KEY FEATURES



## Remote Monitoring

- Automatic, continuous monitoring of device parameters (Temperature, CO<sub>2</sub>, RH, etc.) to validate instrument performance and assay criteria
- Automatic e-mailing of log data at user-defined intervals

## Remote Programming and Equipment Configuration

- Development of programs using a graphical interface, for subsequent download to device memory
- Voyager® software can download user programs to multiple Escro instruments easily insuring consistent setup on multiple devices.
- Configure devices remotely (measurement interval, temperature set point, low temperature alarm point and high temperature alarm point)
- This window also allows the user to choose the method of when and which data can be viewed (spreadsheet, email, web page).

## Datalogging and Graph Functions

- Easy viewing and graphing multiple device parameters remotely in real-time
- Saving and exporting log data in various formats from multiple instruments
- Download of data logs from equipment memory (only for devices with built-in data logging memory, i.e. CO<sub>2</sub> Incubators)

## Alarm

- Alarm is activated if a user-defined parameter limit is exceeded.
- Automatic email alerts
- Documentation of all alarms with time and date stamp

## Voyager® interfaces with individual Esco equipment over various available communication ports with the aid of EscoBUS communications protocol.

### Compatible Equipment

- Lexicon II® – Ultra-Low Temperature Freezer (Silver, Gold, and Platinum)
- CelCulture® – CO<sub>2</sub> Incubator (CCL)
- CelMate® – CO<sub>2</sub> Incubator (CLM)
- Isotherm® – Forced Convection Laboratory Oven
- Isotherm® – Natural Convection Laboratory Incubator (INA)
- Isotherm® – Forced Convection Laboratory Incubator (IFA)
- Isotherm® – Refrigerated Incubator (IFC)



## Installation Requirements



Compatible Equipment



Ethernet Cable



RS 485 Converter



Voyager® Software  
installed in PC or Laptop

- Industrial strength, industry-standard RS485
- EscoBUS communications protocol
- RJ45 ports at rear of each piece of equipment at the rear
- RJ45 to USB interface, plugs into PC USB port
- RJ45 to RS232 interface, plugs into PC DB9/Serial Port
- Each device on the network is assigned with a unique EscoBUS address
- Up to 4 devices of CO<sub>2</sub> Incubator may be daisy-chained to a single PC
- Up to 32 combined devices may be daisy-chained to a single PC
- The maximum distance between equipment is 100 m (328 ft), while the maximum distance between the PC to the last equipment is 1000 m (3280 ft).

## Minimum System Requirements

Operation system: 32-bit or 64-bit Windows 2000, 2003 Server, XP, 7 Professional, and 10.

Memory: 4 GB

Hard disk space: 10 GB

Interface : USB/RS232/ RS485

Prerequisite Software: .NET Framework 2.0 (included)  
Windows Installer 3.1 (included)

\*Internet connection required for email alert feature.

### ORDERING INFORMATION

Software	Item Code	Description
Voyager® and iRMAP™	5250001	Voyager® Software Kit with iRMAP™ subscription for 2 years



# iRMAP™

## (Intelligent Remote Monitoring Application Protocol)

24/7 Sample Monitoring

Intelligent Remote Monitoring Application Protocol (iRMAP™) is a software system for remote monitoring of Voyager®-compatible Esco devices. A user purchases Voyager®, installs it on a PC and connects it up to the network of Esco equipment. The monitoring data is encrypted and transmitted to an Esco server. User will be able to monitor the freezers/ cabinets 24 hours a day, 7 days a week from anywhere in the world.

The iRMAP, in conjunction with the Predictive Failure Monitoring System can also monitor the health of the Esco unit and proactively dispatch service to correct pending and future issues that could threaten customer samples. iRMAP™ can be accessed anytime, anywhere using a web browser/ iOS/ android mobile application.



PC or Laptop with Voyager® Software



PC or Laptop



Android Phone



iOS Phone  
(Beta)



Compatible Esco Equipment

## KEY FEATURES

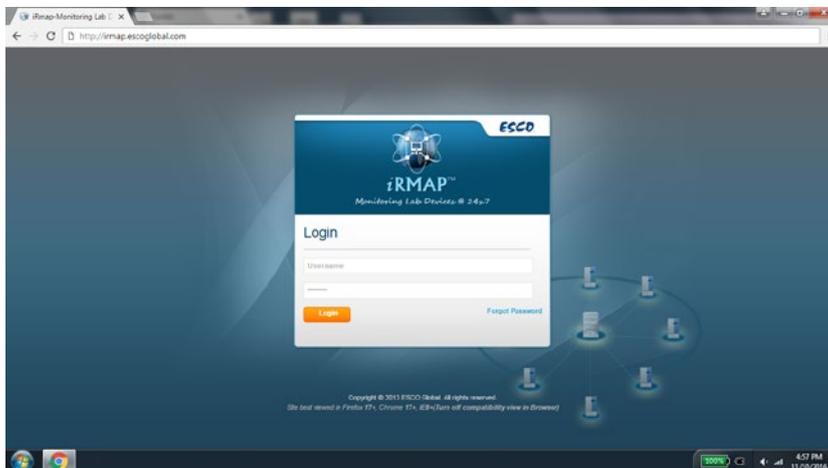
### Sample monitoring anytime, anywhere

- 24/7 sample monitoring via internet browser and mobile iOS/ android application
- In the event that your samples are at risk, user will be consistently notified until situation is resolved.
- Every connected Esco unit's health will be monitored and service will be proactively dispatched to correct pending and future issues that could threaten customer samples.

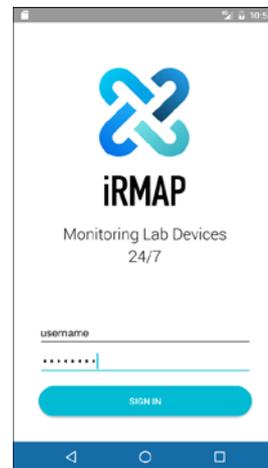


### Accessibility

- Users can access Voyager data logs anytime and at any location using either web browser applications, iOS, and android mobile devices.



PC / Laptop Browser



Android Phones



iOS Phones  
(Beta)

## Alarm

- Alarm is activated if a user-defined parameter limit has exceeded.
- On-screen display of alarm notification and email prompts
- Documentation of all alarms with time and date stamp

**Freezer01 @ Esco Singapore**

Temperature **-82.3°C**  
Measure Status : Measure Active

**-85.0°C**  
Set Point

Alarm Log | Event Log | All Sensors Log | Health Status

Local Time DD/MM/YYYY hh:mm AM/PM	Remote Time (Voyager)	Alarm Log
09-07-2013 5:52 PM	09-07-2013 05:52 PM	CLEAN PEP
09-07-2013 4:06 PM	09-07-2013 04:06 PM	VOLTAGE BELOW CUT OFF LIMIT
09-07-2013 11:23 AM	09-07-2013 11:23 AM	POWER FAILURE
09-07-2013 11:22 AM	09-07-2013 11:22 AM	POWER FAILURE

## Data Log History Display and Graph Functions

- Remote viewing of data log history from multiple devices
- Actual data graph, event and alarm logs history
- Easy export of data as Excel csv file

**Platinum Micro @ Esco Bintan**

Temperature **-66.3°C**  
Measure Status : Measure Active

**-68.0°C**  
Set Point

Alarm Log | Event Log | All Sensors Log | Health Status

Local Time DD/MM/YYYY hh:mm AM/PM	Remote Time (Voyager)	Alarm Log
11-11-2016 9:31 AM	11-11-2016 09:31 AM	CLEAN GASKET
11-11-2016 9:31 AM	11-11-2016 09:31 AM	CLEAN PEP
11-11-2016 9:31 AM	11-11-2016 09:31 AM	CHECK CONDENSER FILTER
11-11-2016 9:17 AM	11-11-2016 09:17 AM	CLEAN GASKET
11-11-2016 9:17 AM	11-11-2016 09:17 AM	CLEAN PEP
11-11-2016 9:17 AM	11-11-2016 09:17 AM	CHECK CONDENSER FILTER
11-11-2016 8:58 AM	11-11-2016 08:58 AM	CLEAN GASKET

**Platinum Micro @ Esco Bintan**

Temperature **-66.3°C**  
Measure Status : Measure Active

**-68.0°C**  
Set Point

Alarm Log | Event Log | All Sensors Log | Health Status

Local Time DD/MM/YYYY hh:mm AM/PM	Remote Time (Voyager) DD/MM/YYYY hh:mm AM/PM	Chamber Set Point °C	High Temperature Limit °C	Low Temperature Limit °C	Chamber temp sensor °C	Ambient sensor °C	Condenser Outlet sensor °C	Heat exchanger Temp sensor °C	Evap In sensor °C	Evap Out sensor °C	Battery Voltage Vdc	AC Voltage Vac
11-11-2016 9:44 AM	11-11-2016 09:44 AM	-68.0	-63.0	-73.0	-66.3	23.5	27.9	-38.7	-80.0	-60.2	12.7	231.4
11-11-2016 9:44 AM	11-11-2016 09:44 AM	-68.0	-63.0	-73.0	-66.3	23.5	27.9	-38.7	-80.0	-60.2	12.7	231.4
11-11-2016 9:35 AM	11-11-2016 09:35 AM	-68.0	-63.0	-73.0	-66.8	24.3	28.9	-37.8	-77.8	-60.9	12.7	231.4
11-11-2016	11-11-2016	-68.0	-63.0	-73.0	-66.9	24.5	29.1	-37.4	-77.1	-60.9	12.7	231.4

**Platinum Micro @ Esco Bintan**

Temperature **-68.5°C**  
Measure Status : Measure Active

**-68.0°C**  
Set Point

Chamber
  Heat Ex
  Amb
  Evap In
  Evap Out
  Condenser
  High Stage
  AC Voltage

Temperature

High Stage

Logs\_11-11-2016 (2).csv

# Voyager® Box

## System Overview

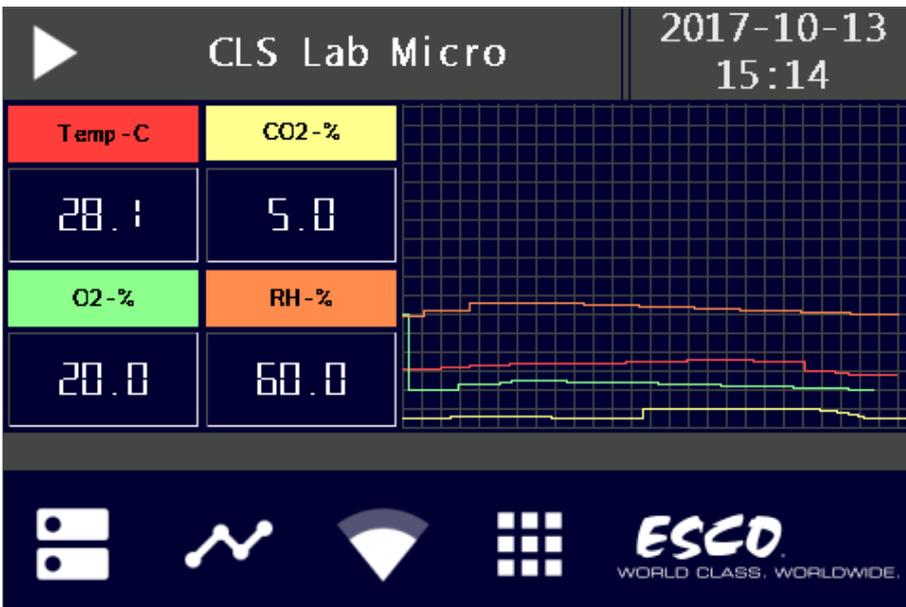
Esco Voyager Box is a web-based application developed for remote monitoring, and datalogging of Esco controlled environment laboratory equipment. The device will enable you to monitor your important equipments wirelessly, wireless Local Area Network (LAN) is needed to access the monitored unit. Each monitored parameters can be viewed using web browser of PC, laptop or smartphone. In any event of equipment failure, the application is able to send out remote alarm notification through SMS or e-mail.



## Compatible Equipment

- Lexicon II® – Ultra-Low Temperature Freezer (Silver, Gold, and Platinum)
- CelCulture® – CO2 Incubator (CCL)
- CelMate® – CO2 Incubator (CLM)
- Isotherm® – Forced Convection Laboratory Oven
- Isotherm® – Natural Convection Laboratory Incubator (INA)
- Isotherm® – Forced Convection Laboratory Incubator (IFA)
- Isotherm® – Refrigerated Incubator (IFC)





### Home Menu

- Touch screen 3,5" display
- Display all monitored parameters
- Access all menu, Wifi connection, add device

The screenshot shows the 'Device' selection screen. It lists five devices: CLS Lab Micro, CCL Lab Electro, IFA Lab Biology, IFC Lab, and ULTF Lab. There are up and down arrow icons on the right side of the list. At the bottom, there are icons for a back arrow, a plus sign in a square, a pencil, and a trash can.

Device	
CLS Lab Micro	▲
CCL Lab Electro	▲
IFA Lab Biology	■
IFC Lab	▼
ULTF Lab	▼

### Add Devices

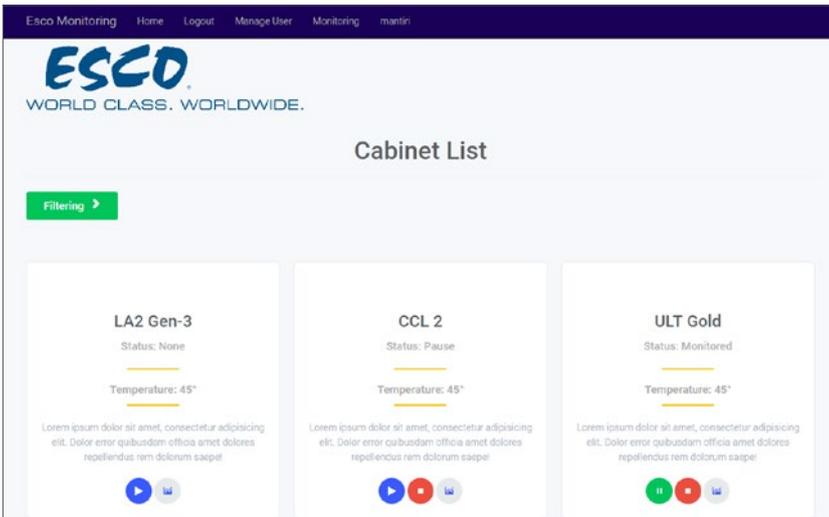
- List monitored device
- Configure measurement
- Add, edit, and delete monitored device

The screenshot shows the 'Measurement' log screen. It displays a table with two columns: 'Time' and 'Log'. The log entries show the date and time of each measurement along with the values for Temp, CO2, O2, and RH. There are up and down arrow icons on the right side of the table. At the bottom, there are icons for a back arrow, a square, a play button, and a grid.

Measurement	
Time	Log
2017-10-13 08:05	Temp: 28.1/CO2: 5.0/O2: 20.0/RH: 60
2017-10-13 08:07	Temp: 27.8/CO2: 5.0/O2: 20.1/RH: 61
2017-10-13 08:09	Temp: 28.1/CO2: 5.0/O2: 20.1/RH: 61
2017-10-13 08:11	Temp: 28.0/CO2: 5.0/O2: 20.0/RH: 60

### Log Measurement

- Measurement history
- Up to 365 days measurement
- Save logging data with USB



## Web Interface

- Access all the monitored device in web browser
- Configure the measurement settings as simply as in VoyagerBox device



## Installation Requirements



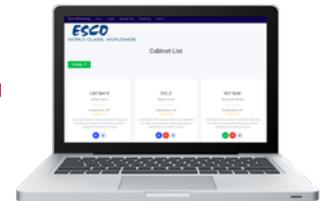
Compatible Equipment



Ethernet Cable



RS 485 Converter



Voyager® Box Software installed in PC or Laptop

## Minimum System Requirements

Operation system: 32-bit or 64-bit Windows 2000, XP, 7

Memory: 512 MB

Hard disk space: 1 GB

Interface: Wifi Connection

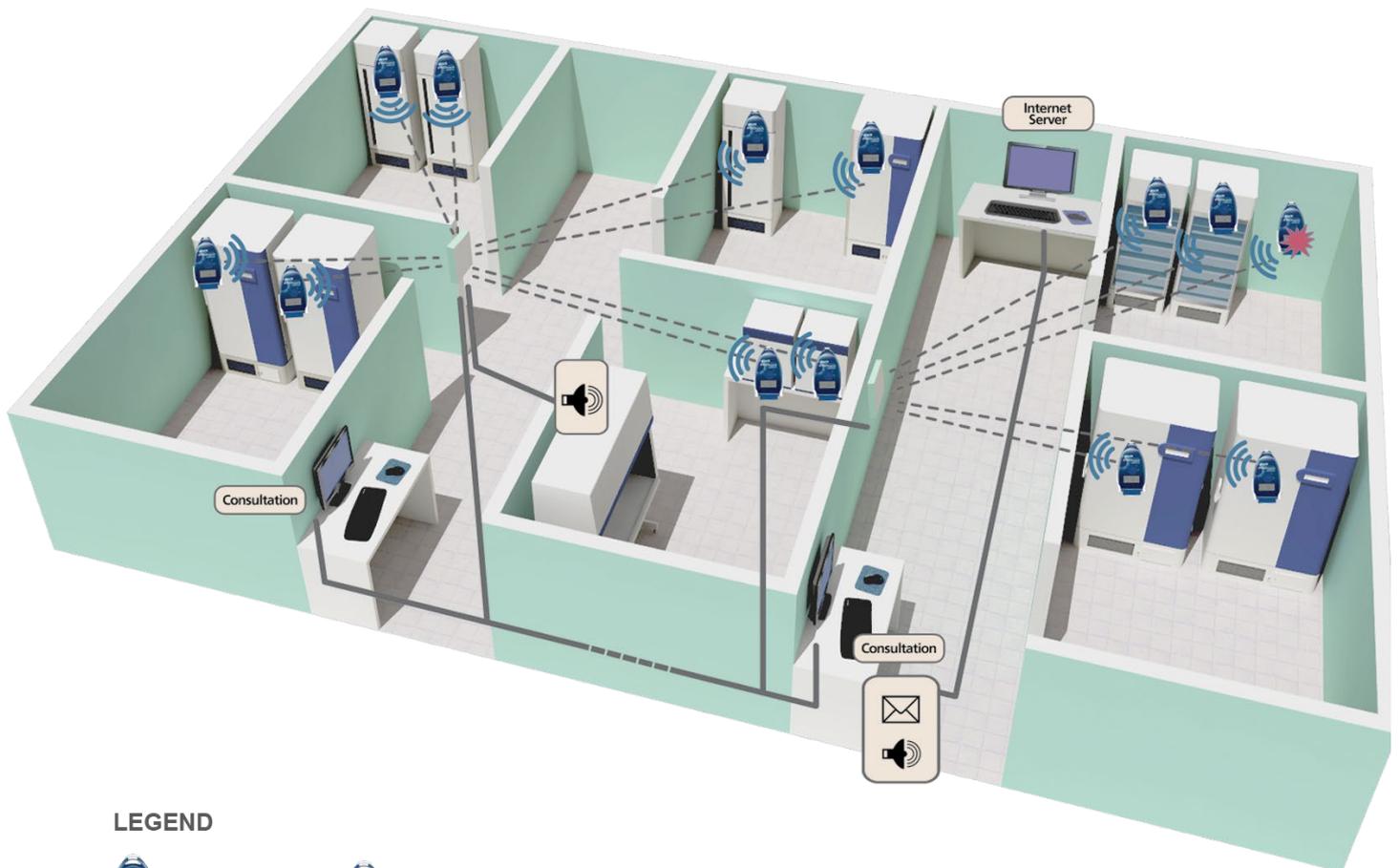
# PROtect

## *A Completely Independent and Redundant Sample Monitoring System*

Esco PROtect monitoring system includes radio frequency recorders which can be connected to any brands of freezer, cold storage system and temperature controlled equipment. These recorders automatically send data to a central server to monitor temperature and other parameters and send real-time alert to users in case of severe failure. Esco PROtect complies with quality assurance procedures that is ISO 17025, ISO 15189 norm, GMP and audit trail traceability for conformance to 21 CFR Part 11.

### **Esco PROtect Wireless Monitoring System can be installed in the following industries/ sectors:**

- Hospitals
- Pharmaceutical Industry
- Blood Bank Centers
- Food Safety Laboratories
- Animal Testing Laboratories
- Drugstores
- Research Centers
- Bio-Banking and Repositories
- Private Clinical Laboratories
- Food Industries
- Universities/Academia
- Cosmetic Industry



#### LEGEND



ESCO Protect  
UN/DG



ESCO Protect  
ALARM



Visual and  
Audible Alert



ESCO Protect  
EMD-1



Email Alert

———— Ethernet network

----- Radio Communication

(200-300m)

## KEY FEATURES

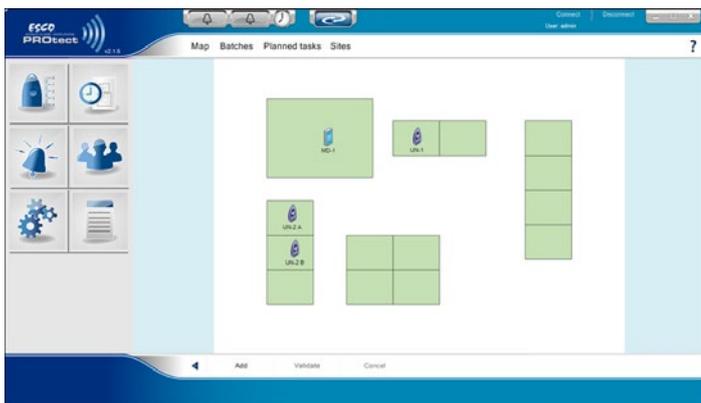


### Real Time Monitoring System

- Wireless Technology that protects your samples 24/7 with continuous data logging function and immediate alarm notifications
- Centralize monitoring for all your equipment (any brands and any models):
  - Temperature for refrigerators, freezers, cold chambers, cryogenic tanks and -80°C freezer
  - Temperature and CO<sub>2</sub> for ovens/incubators
  - Temperature and humidity for climatic chamber, ambient area
- Measurement and recording of physical parameters such as temperature, CO<sub>2</sub>, and humidity
- Direct reading on the display
- Radio frequency has longer battery life and better transmission distance, as compared to Wi-Fi
- In using the radio frequency, repeaters can be installed to extend the distance which cannot be easily done by some Wi-Fi system

### Simple and Cost Effectiveness

- Fast Installation, commissioning and maintenance
- Can centrally monitor integrity of samples even during a power outage or electronic failure of refrigerator, freezer, incubator, oven, etc
- Accurate and efficient compared to manual data readings
- Reduce labor cost for manual data readings. Manual data readings are less accurate, less reliable and time consuming. Saves you time and money.
- Readily accessible thru the display or monitoring software thru PC
- Multi-site installation
- Interchangeable digital probes with embedded memory to facilitate maintenance procedures.
- Modern and eco-friendly



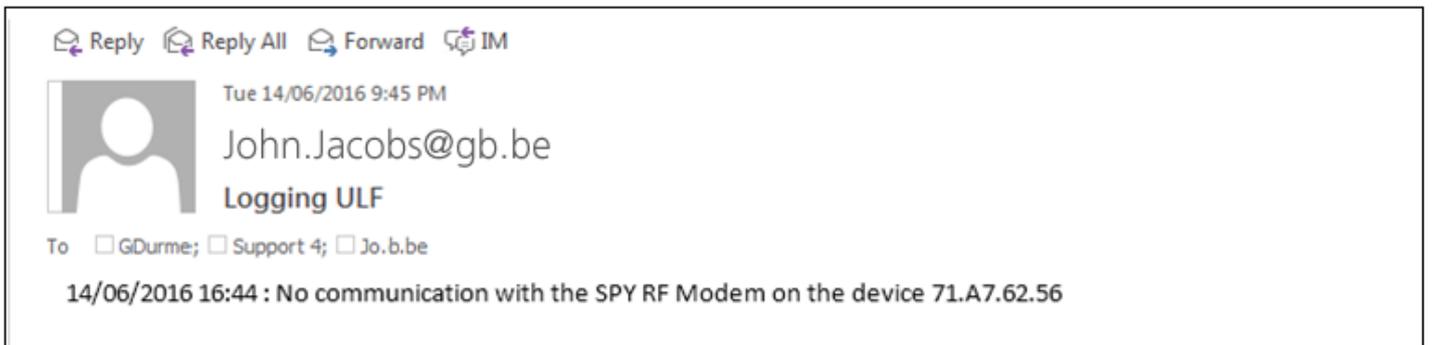
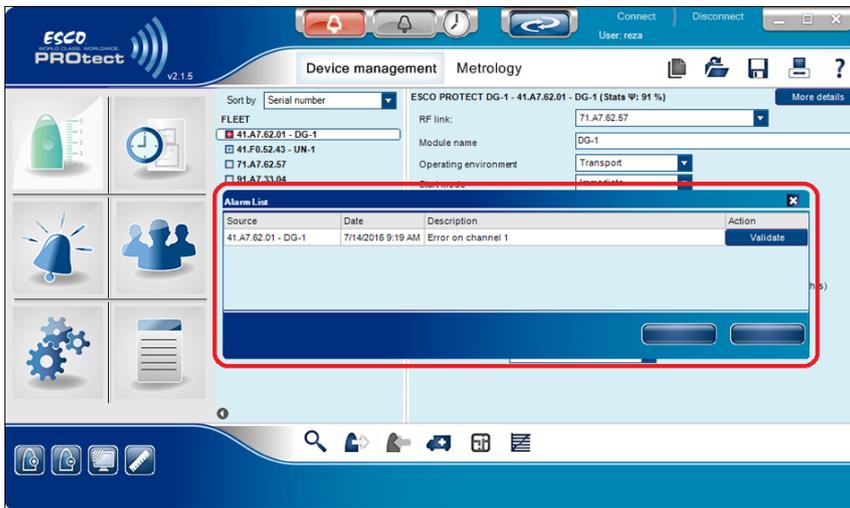
### Traceability and Security – Quality Assurance

- Comply with quality assurance procedures: ISO 17025 and ISO 15189 norms, Good laboratory practices and local regulations recommend the use of tools to guarantee the reliability of your temperature controlled equipment (ultra-low temperature freezers, lab freezers, lab refrigerators, lab ovens, lab incubators, refrigerated incubators, CO<sub>2</sub> incubators, etc).
- Audit trail traceability for conformance to 21 CFR part 11
- Local regulations or recommendations within Quality Management Programs



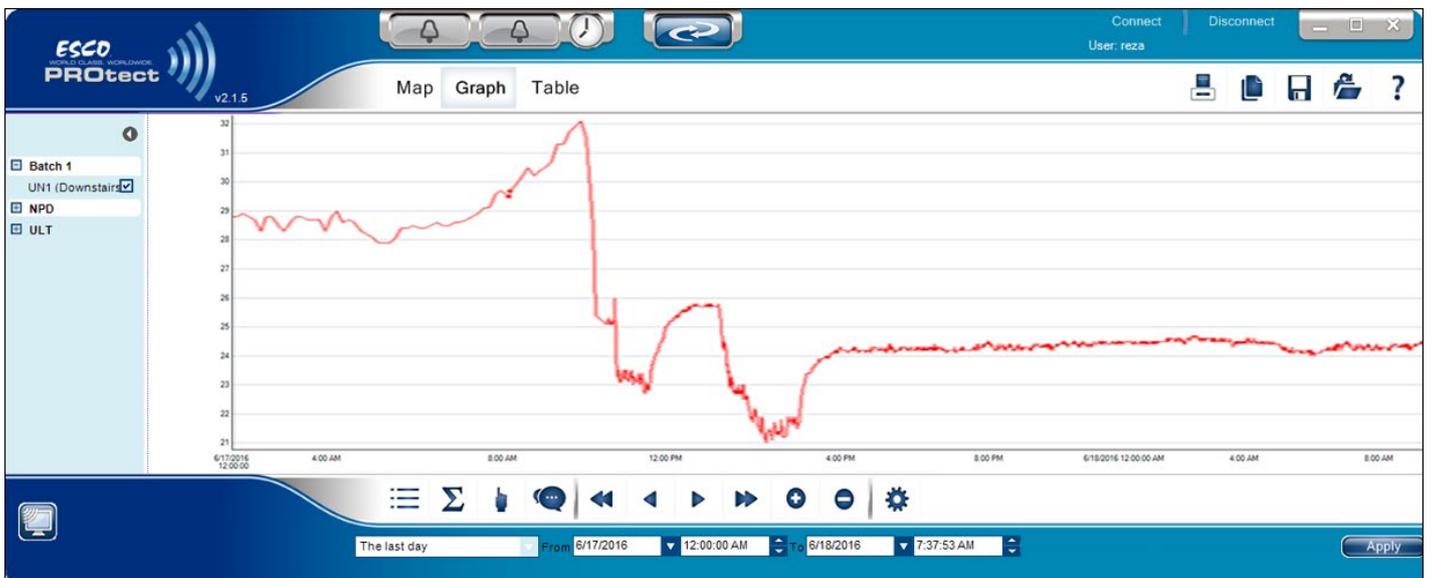
## Alarms

- Real time alarm management
- Warns if problem occurs via audible and visual alarm devices
- Remote alarm notification via SMS/ E-mail

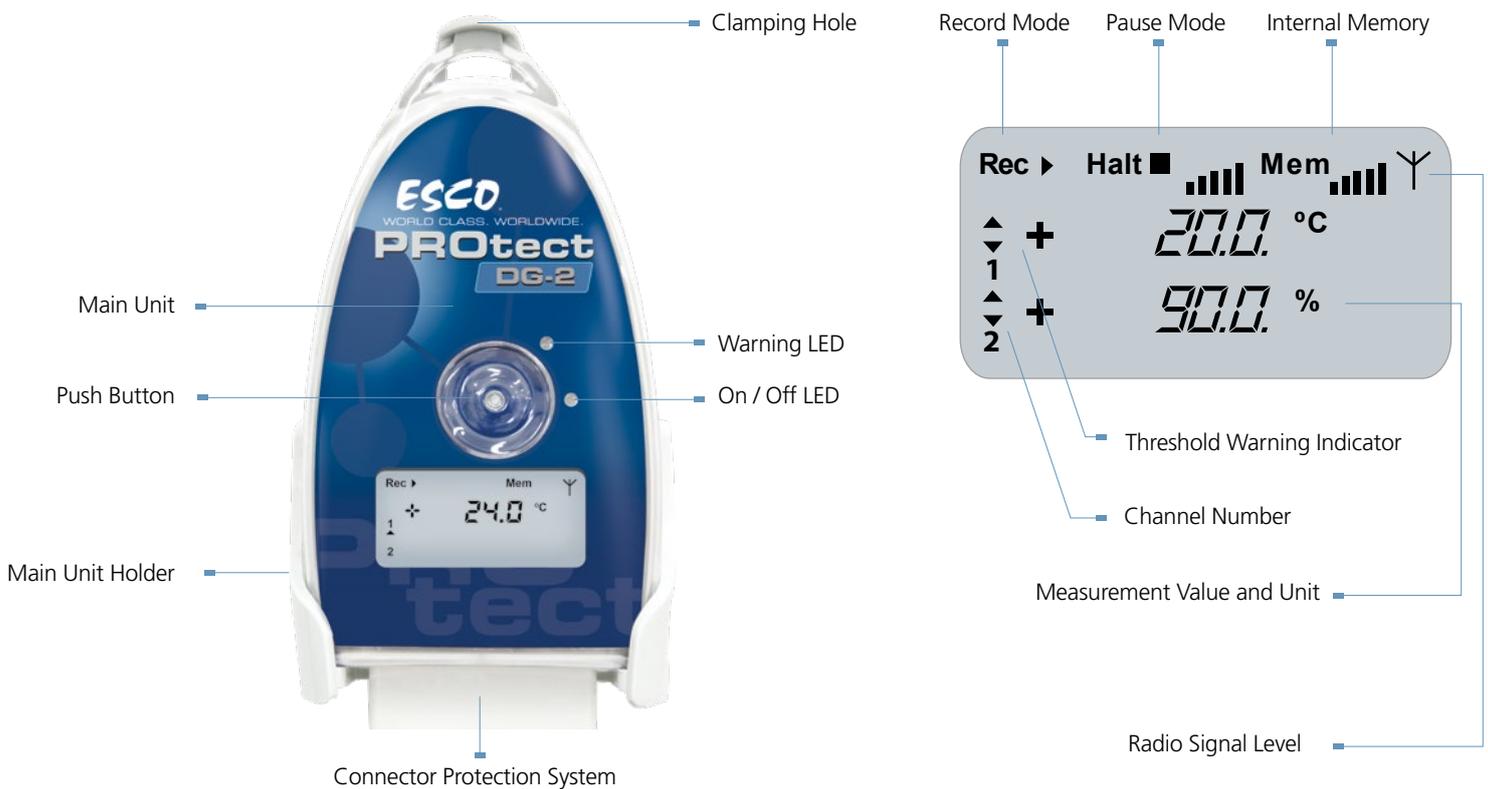


## Remote Monitoring and Datalogging

- Remote visualization of data
- Downloaded database is presented in easy-to-understand reports or graphs
- PROtect software enables to visualize recorders located on the installation map and to manage your alarm



## System Components



## Potential Users of Esco PROtect Wireless Monitoring System

- Hospitals
- Pharmaceutical Industry
- Blood Bank Centers
- Food Safety Laboratories
- Animal Testing Laboratories
- Drugstores
- Hospitals
- Pharmaceutical Industry
- Private Clinical Laboratories
- Food Industries
- Universities/Academia
- Cosmetic Industry

## Minimum System Requirements

### PROtect Server:

Computer Architecture: 32 bit or 64 bit

OS: Windows 2000, XP, Vista, Windows 7 Professional and Windows 2003-2012 Server

RAM: 8 GB

HD: 250 GB capacity

Video Card: VGA compatible 1280 X 1024 32 bit

### PROtect Client:

Computer Architecture: 32 bit or 64 bit

OS: Windows 2000, XP, Vista, Windows 7 Professional, Windows 2003-2012 Server and Windows 10

RAM: 4 GB

HD: 20 GB capacity

Video Card: VGA compatible 1280 X 1024 32 bit

## PROtect can be used on the following regions:

- Europe – 868 Mhz
- Africa – 868 Mhz
- Asia – 868 Mhz
- India – 868 Mhz
- ANZ – 902 Mhz
- North America – 902 Mhz
- South America- 868 Mhz/902 Mhz
- Middle East - 868 Mhz

\* Currently not applicable for South Korea and Japan region

<b>GENERAL SPECIFICATION</b>		
	<b>Esco PROtect UN</b>	<b>Esco PROtect DG</b>
Measurement Range	From -200 °C to + 400 °C / 4-20mA / 0-1V /dry contact	T : -40 °C to +80 °C / tH : -30 °C to +70 °C from 0 to 100% RH non-condensing
Channel Number	1 or 2	1 or 2
Resolution	0,1°C	0,1°C
Operating Conditions	From -30°C to +70°C	From -30°C to +70°C
Power Supply	Lithium battery	Lithium battery
Battery Lifetime	2 years - Replaceable	2 years - Replaceable
Type of Input	External (Pt 100/Pt 1000/CO <sub>2</sub> Probe/ 4-20mA/0-20mA/0-1V/dry contact)	External (temperature, relative humidity and dry contact)
Recording Interval	1 second to 90 minutes	1 second to 90 minutes
Internal Memory	20 000 measurements	20 000 measurements
Radio Range	300 m	300 m
Radio Bande	868 Mhz or 902 Mhz ISM	868 Mhz or 902 Mhz ISM
Power	25 mW	25 mW
Digital Display	Yes	Yes
Dimension	123 x 69 x 35 mm	123 x 69 x 35 mm
Protection Index	IP65	IP65
Conformities	EN 12 830, ROHS, CE, FCC, ETS 300-220	EN 12 830, ROHS, CE, FCC, ETS 300-220
Part number	868 Mhz UN-1: 1081050 UN-2: 1081052 902 Mhz UN-1: 1081051 UN-2: 1081053	868 Mhz DG-1: 1081054 DG-2: 1081056 902 Mhz DG-1: 1081055 DG-2: 1081057
Included	User manual, wall-mounting bracket and cable input protection	User manual, wall-mounting bracket and cable input protection

## Ordering Information

### Modems, Relays and Alarm System

Product Image	Item Codes	Description	Features/Specification
	1081050	Esco PROtect UN-1 868 Mhz band	<ul style="list-style-type: none"> <li>• Single Channel RF Transmitter, -200°C to + 400°C; 4-20mA; 0.1V ; Dry Contact</li> </ul>
	1081051	Esco PROtect UN-1 902 Mhz band	
	1081052	Esco PROtect UN-2 868 Mhz band	<ul style="list-style-type: none"> <li>• Dual Channel RF Transmitter, -200°C to + 400°C; 4-20mA; 0.1V ; Dry Contact</li> </ul>
	1081053	Esco PROtect UN-2 902 Mhz band	
	1081054	Esco PROtect DG-1 868 Mhz band	<ul style="list-style-type: none"> <li>• Single Channel RF Transmitter, -40°C to +80°C / tH : -30°C to +70°C from 0 to 100% RH non-condensing</li> </ul>
	1081055	Esco PROtect DG-1 902 Mhz band	
	1081056	Esco PROtect DG-2 868 Mhz band	<ul style="list-style-type: none"> <li>• Dual Channel RF Transmitter, -40°C to +80°C / tH : -30°C to +70°C from 0 to 100% RH non-condensing</li> </ul>
	1081057	Esco PROtect DG-2 902 Mhz band	
	1081058	Esco PROtect MD-1 868 Mhz band	<ul style="list-style-type: none"> <li>• Connects to your PC, it enables communication with Esco PROtect UN/DG</li> <li>• Communicates with an unlimited number of recorders.</li> <li>• Remote alarm driven by integrated dry contact output (vocal telephonic transmitter, buzzer, light).</li> <li>• Software, PC or power supply failure alarm.</li> <li>• Can be used with or without Esco PROtect Relay.</li> </ul>
	1081059	Esco PROtect MD-1 902 Mhz band	
	1081060	Esco PROtect EMD-1 868 Mhz band	<ul style="list-style-type: none"> <li>• Enables Ethernet connection to maximize distances between recorders and PC servers</li> </ul>
	1081061	Esco PROtect EMD-1 902 Mhz band	
	1081062	Esco PROtect RL-1 868 Mhz band	<ul style="list-style-type: none"> <li>• Enables direct RF communication to maximize distances between recorders and PC servers.</li> <li>• Works with external power supply and supplied with a rechargeable battery.</li> <li>• Includes two power ranges:               <ol style="list-style-type: none"> <li>a) 25 mW to communicate with recorders</li> <li>b) 500 mW to communicate with Modem</li> </ol> </li> </ul>
	1081063	Esco PROtect RL-1 902 Mhz band	
	1081064	Esco PROtect AM-1 868 Mhz band	<ul style="list-style-type: none"> <li>• Provides real time warning if a problem occurs</li> <li>• Integrated sound and visual alarm.</li> <li>• Works with an external power supply and supplied with a backup battery.</li> <li>• Push button for local alarm acknowledgement.</li> <li>• Relay output to trigger remote alarm (vocal telephonic transmitter)</li> <li>• Warns Esco PROtect software when the battery is low.</li> </ul>
	1081065	Esco PROtect AM-1 902 Mhz band	

## Ordering Information

Options and Accessories			
Product Image	Item Codes	Description	Features/Specification
	1081066	PROtect Test-1 868 MHz	<ul style="list-style-type: none"> <li>Use as a recorder to test connection between modem and recorder with actual percentage signal</li> </ul>
	1081067	PROtect Test-1 902 MHz	
	1081068	PROtect Modem Test-1 868 MHz	<ul style="list-style-type: none"> <li>Use as a modem to test connection between modem and recorder with actual percentage signal</li> </ul>
	1081069	PROtect Modem Test-1 902 MHz	
	1081070	PROtect Software and Dongle	<ul style="list-style-type: none"> <li>Remote visualization of data.</li> <li>Downloaded database is presented in easy to understand reports or graphs.</li> <li>PROtect software enables to visualize recorders located on the installation map and to manage your alarm.</li> <li>Compliant with FDA (CFR 21 part 11)</li> </ul> <p><i>Note: PROtect software and dongle needs to be installed even if one (1) PROtect recorder (UN or DG) is connected to the equipment.</i></p>
	1081071	Audible and Visual Alarm Device	<ul style="list-style-type: none"> <li>Warns if an alarm occurs.</li> <li>Works with an external power supply.</li> <li>Connects directly to PROtect Modem or to PROtect Alarm.</li> <li>Audible and visual Alarm.</li> </ul>
	1081072	PT100 Probe Class B	<ul style="list-style-type: none"> <li>Measurement range: -200°C to + 260°C</li> <li>Type of cable: 3 wires (3m)</li> </ul>
	1081288	PT100 Probe Class A	
	1081289	PT100 Probe Class 1/3 DIN	
	1081073	Digital Temperature Probe	<ul style="list-style-type: none"> <li>Type of probe: Dallas</li> <li>Measurement range: -40°C to + 80°C (-45°C max) accuracy: ± 0.3°C</li> <li>Type of cable: flat 3m cable</li> <li>Embedded memory for gauging parameters storage</li> </ul>
	1081075	Battery for Recorders	<ul style="list-style-type: none"> <li>Lithium Battery for 10 pcs</li> </ul>
	1081170	Digital Temperature / Humidity Probe	<ul style="list-style-type: none"> <li>Measurement range : -40 +80°C /0 100%HR</li> <li>Type of probe for T°: Pt 100 Class A</li> <li>Class A</li> <li>Accuracy: ±2%HR from 0 to 90%HR ±3%HR from 90 to 100%HR</li> <li>Power: delivered by the SPYRF recorder</li> </ul>
	1081169	Digital Temperature/ Humidity Probe with 3m Extension Lead	
	1081293	Digital Temperature/ Humidity Probe with 12m Extension Lead	
	1081166	Digital (Low) Temperature	<ul style="list-style-type: none"> <li>Type of probe: Low Temp Stainless Steel probe</li> <li>Type of cable: 3m Teflon Cable</li> <li>Measurement range from 0°C to -200°C accuracy: ± 0.2°C</li> <li>Immersion of cable: continuous immersion in water and glycolic solutions and punctual immersion in alcoholic solutions"</li> </ul>
	1081080	Universal Adaptor Cable for CO <sub>2</sub> and DP sensors	<ul style="list-style-type: none"> <li>(5m) with connector IP67 for PROtect UN and DG.</li> </ul>

## Ordering Information

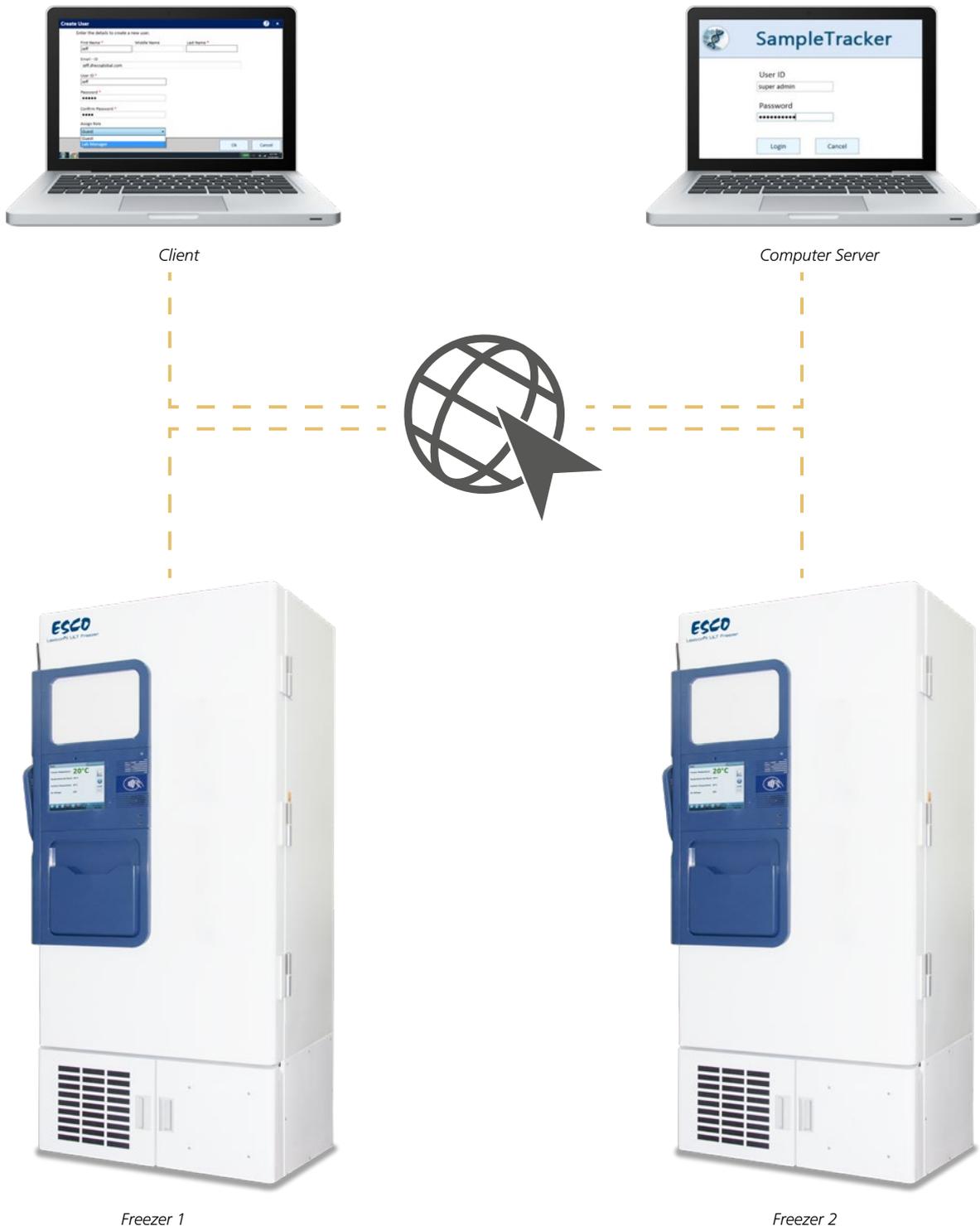
Options and Accessories			
Product Image	Item Codes	Description	Features/Specification
	1081165	Extension Lead for Probe	<ul style="list-style-type: none"> <li>• 3m Extension Lead for Digital Temperature Probe</li> </ul>
	1081262	SMS Modem	<ul style="list-style-type: none"> <li>• Warns if any alarm occurs by sending SMS to receiver's number</li> <li>• Needs a SIM card</li> <li>• Supports multiple receiver's number</li> <li>• USB Connection</li> </ul>
	1081076	PROtect CO <sub>2</sub> Probe	<ul style="list-style-type: none"> <li>• Measurement range : 0 – 20%</li> <li>• Output : 4-20 mA</li> <li>• Mounting : Wall mounting bracket supplied</li> <li>• Supply: 100-240 VAC</li> </ul>
	5072029	PROtect Differential Pressure Probe	<ul style="list-style-type: none"> <li>• Measurement Range: -100 Pa to +100 Pa</li> <li>• Output: 4 - 20 mA</li> <li>• Supply: 100-240 VAC (include Power Supply 1081263)</li> </ul>
	1081078	Power Supply for Modem	<ul style="list-style-type: none"> <li>• Power Supply for MD-1, EMD-1, AM-1</li> </ul>
	1081079	Power Supply for Relay	<ul style="list-style-type: none"> <li>• Power supply for RL-1</li> </ul>
	1081167	PROtect Door Contact (With Sliding Doors)	<ul style="list-style-type: none"> <li>• Use to sense door contact that door is open or close</li> </ul>
	1081168	PROtect Door Contact (Non-Sliding Doors)	<ul style="list-style-type: none"> <li>• Use to sense door contact that door is open or close</li> </ul>
	5072009	PROtect GSM Auto Dialer set	<ul style="list-style-type: none"> <li>• Warns if any alarm occurs by call receiver number (auto dialer)</li> <li>• Needs a SIM card</li> <li>• Supports until three (3) receiver numbers</li> <li>• Supply: 100-240 VAC (include Power Supply 1081291)</li> </ul>

# SampleTracker

## System Overview

SampleTracker is a comprehensive Bio sample Inventory Management solution. The Software tracks the sample management activities throughout its life cycle. The software scope covers all the features and functionalities required for the Sample Inventory Management and Tracking for all sizes of laboratories, managing different types of samples and having various types of storages. Flexibility in configuration of laboratories and sample attributes is one of the unique characteristics of SampleTracker.

SampleTracker automatically generates a unique identification number for each sample, which makes it easy for users to trace the sample as and when required



## KEY FEATURES

### Laboratory Storage Management

- Detail storage definition and configuration
- User able to manage their sample such as save, update and save as another storage
- User will allow to design their own storage template such as capacity and details storage information

### Lab Management

- Detail hierarchies as a configuration template
- navigate through all the configuration templates listed

### Query Builder

- User will allow to create their own query to search the specific data from database
- User can save the most popular queries and can use these queries in future instead of creating new query every time

**Manage Label Stationeries**

Create, Edit or Delete custom label stationeries. These can be used in label template creation.

**Select the stationery type**  
Standard is provided by system based on industry standards. Custom is user-created.

Standard
  Custom
  U.S.
  Metric

Edit Delete

Label Type	Vendor Name	Product Code	Label Size	Sheet Size	Labels Per Sheet
Using paper sheets	Avery-Custom	74520-Custom	3 X 4 inch	11 X 4.25 inch	3
One Label	Avery12	59731	2 X 4 inch	11 X 8.5 inch	10
Using paper sheets	Avery Custom	8168-Cutom	5 X 3.5 inch	11 X 8.5 inch	4

User allow to mark their sample that will help them for identifying the individual label in the million samples

**Edit Label Stationery Avery Custom-11138-Custom**

Label Height/Width Should Be Greater Than 1.35 Inch / 34.29 mm For Barcode Readability.

Edit label stationery details

Vendor Name \*

Product Code \*

Label Size \*  
 Width  inch Height  inch

Corner Radius

Sheet Size \*  
 Width  inch Height  inch

## SampleTracker / Alto Platinum Controller functions

**SampleTracker**  
Tracking made simpler

Username:

Password:

q w e r t y u i o p  
 a s d f g h j k l return  
 .?123 .?123

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### Login to SampleTracker

At the Alto Platinum controller home screen go to application and select Inventory System

Type in username and password at SampleTracker login screen.

### Performing SampleTracker Functions

- **CHECK IN:** It allows user to Check In the samples again into the system after processing. Only Checked Out samples can be Checked In.
- **CHECK OUT:** It allows user to take out the samples for processing. Only Checked In samples can be Checked out.
- **DISPOSE:** Dispose option deletes the selected samples. This option can be used to remove unwanted or degraded samples so that these positions are available for new samples. Any one of Checked In, Checked Out or Moved Out State allows disposal of the samples.

**SampleTracker** Page 1

Query:

And/OR	Field	Operator	Value
None	Type	Equals	Heart Sample

Sample Id	Sample Barcode	Sample State	Storage Path
Sayid Hassan	1508201300000002	Checked In	Server 1 - Compartment 1 ...

Back Check In Check Out Execute Attach Dispose Next

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### Minimum System Requirements

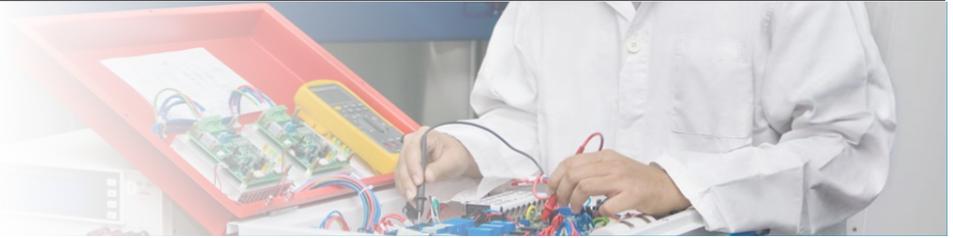
#### SampleTracker Server

- Operating system: Windows XP, 7 Professional, 8 and Windows 2003-2012 Server. (English)
- Memory: 8 GB
- Hard disk space: 4 GB
- Prerequisite Software: .NET Framework 4.0 (included) SQL Server 2008 R2 Express (included) or higher

#### SampleTracker Client

- Operating system: Windows XP, 7 Professional, 8 and Windows 2003 and 2008 Server (English)
- Memory: 8 GB
- Hard disk space: 20 GB
- Prerequisite Software: .NET Framework 4.0 (included)

## After Sales Services



### Parts Availability

Whenever service is needed and parts are required, minimizing downtime is a critical objective. Statistical usage analysis helps Esco to predict parts life, permitting Esco to manage logistics and stage proper inventories around the world. The combination of predictive maintenance, historical data and geospecific proximity assures our customers that parts and labor are available whenever service is scheduled through the local sales organization.

### Registration, Documentation and Instruction

Quality control at Esco extends from research and development through engineering, manufacturing, shipment, delivery and customer feedback. Esco maintains an aggressive program to encourage warranty card registration by mail, email or online submission so that we know where Esco products are located and how they are being used. Rest assured that all information disclosed from warranty registrations will be kept confidential. All Esco products include unique serial numbers for identification. Documentation for all performance tests is archived and maintained for customer reference.

### Online Technical Information

Site preparation instructions are useful before product arrival and installation. Installation and start-up manuals, operation manuals and quick reference guides are available anytime from the Esco resources online.

### NSF International Accreditations

The National Sanitation Foundation (NSF) International is an independent, non-profit organization that provides standards development, product certification, auditing, education and risk management for public health and the environment.

In line with Esco's commitment in providing world class services worldwide, Esco has a large contingent of NSF accredited certifiers which makes Esco not only an **Excellent Standards COmpany** but also an **Excellent Service COmpany**, which exemplifies Esco's collective quest of being an **Eternally Successful COmpany**.

The NSF mark is your assurance that the product complies with all the standard requirements, tested by one of the most respected independent certification organizations in existence today. NSF conducts periodic unannounced inspections and product testing to verify that the product continues to comply with the standard. It is valued by consumers, manufacturers, retailers and regulatory agencies worldwide.

### References and Links

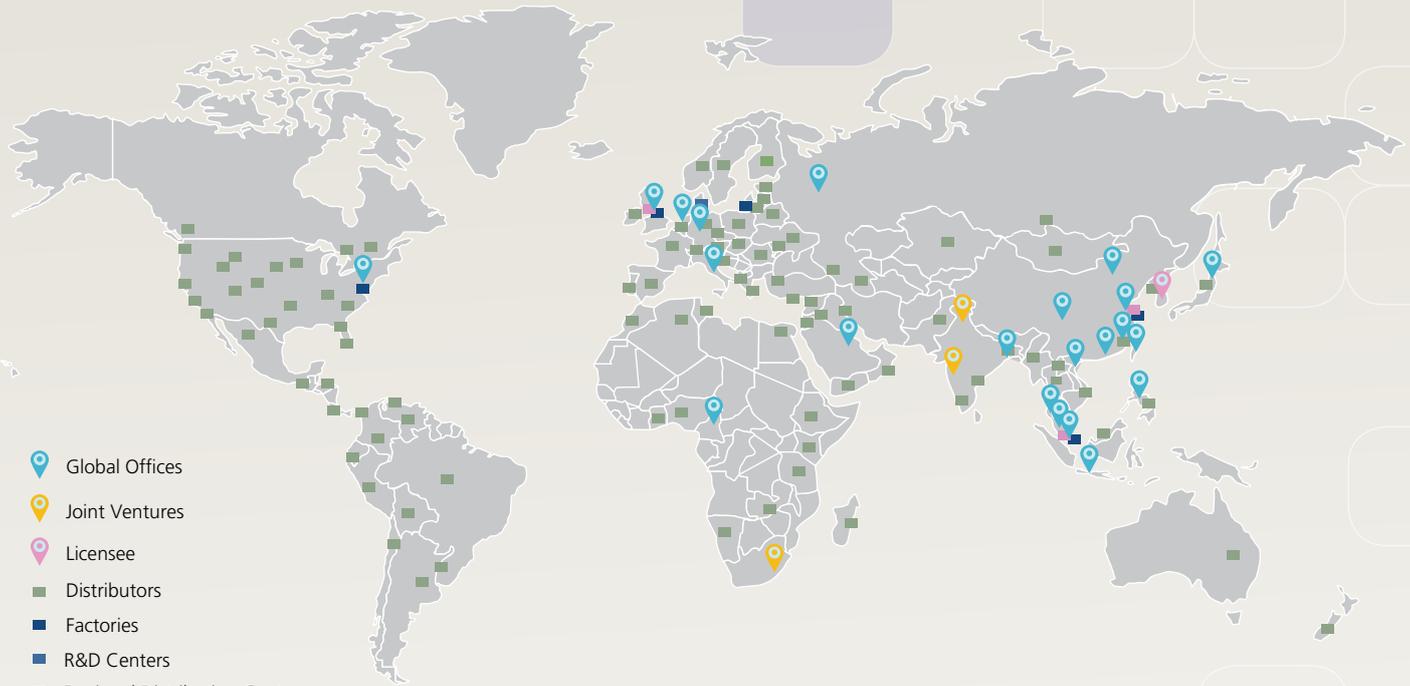
For more information, you can visit Esco at [www.escoglobal.com](http://www.escoglobal.com)

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