

General Specifications

Overview of eCUBE Remote Equipment Monitoring and Control Solution



GS 34P03A01-01E

GENERAL

eCUBE is a system solution that monitors the status of equipment 24 hours a day and manages and stores the resulting data. It also provides information to assist in making accurate analyses of failure causes, and facilitates appropriate preventative and predictive maintenance.

An eCUBE system is comprised of the following components to offer remote monitoring functionality: eCUBE units which collect data from on-site equipment, an eCUBE center which consolidates all the eCUBE units, client PCs which provide data collected on eCUBE units, and an eCUBE net which connects these components.

eCUBE SYSTEM COMPONENTS

The eCUBE system consists of the following components:

● eCUBE Unit

The eCUBE unit collects signal data from on-site equipment, then stores and visualize them and detects alarms. Upon detecting an alarm, the unit notifies the eCUBE center and/or sends an e-mail.

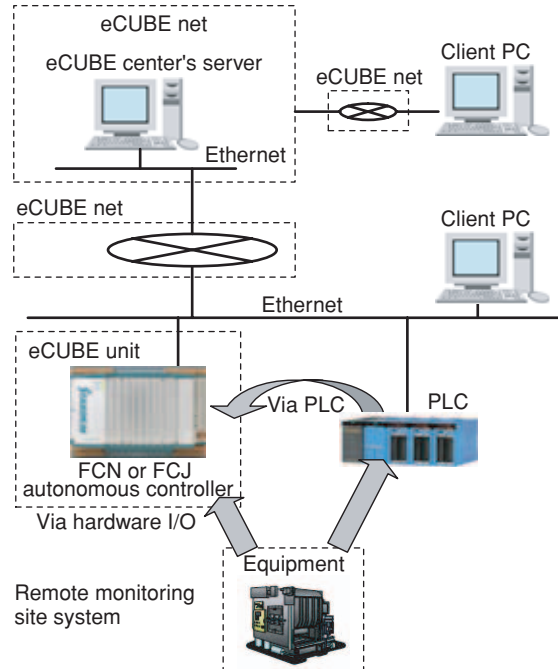
● eCUBE Center

The eCUBE center consolidates two or more eCUBE units-such as receiving alarm events from them, storing data over a prolonged period of time, saving event data to facilitate analysis of failure causes, creating reports on a regular basis, and notifying pre-registered recipients of failure occurrence.

Users can configure their own eCUBE center, or Yokogawa can provide them with service from its eCUBE center as an application service provider.

● eCUBE Net

The eCUBE net is a network that connects the eCUBE units and the eCUBE center, which is typically an Ethernet LAN but can also employ wireless LAN, PHS, ISDN, VPN, or other types of networks.



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Figure eCUBE System Components

● Client PCs

Client PCs can be used for both of the eCUBE's system configurations: standalone and center monitoring types.

A client PC employed in a standalone configuration can display overviews, current values, trends, and other data with a Web browser.

When combined with optional packages, it can also add other functions such as report printing and event data display.

On the other hand, client PCs in a center monitoring configuration provide their functionality by connecting to the eCUBE center but can also provide the same monitoring function as those in a standalone configuration.

■ eCUBE SYSTEM CONFIGURATION

The eCUBE delivers solutions to a variety of systems, ranging from a single piece of equipment to equipment scattered over a wide area, depending on user needs and system scale.

Standalone and center monitoring configurations are available for eCUBE for accommodating different numbers of equipment monitored and the extent of the installation location.

● Standalone Configuration

The standalone configuration consists of eCUBE units and a client PC.

It is suitable for systems with a relatively small number of pieces of equipment to be monitored.

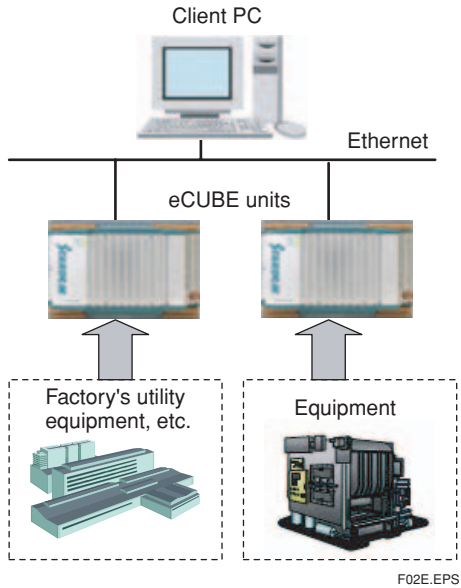


Figure Standalone eCUBE System

● Center Monitoring Configuration

The center monitoring configuration consists of eCUBE units, an eCUBE center, and a client PC.

It is suitable when a large number of pieces of equipment are monitored or when the equipment is scattered over a wide area.

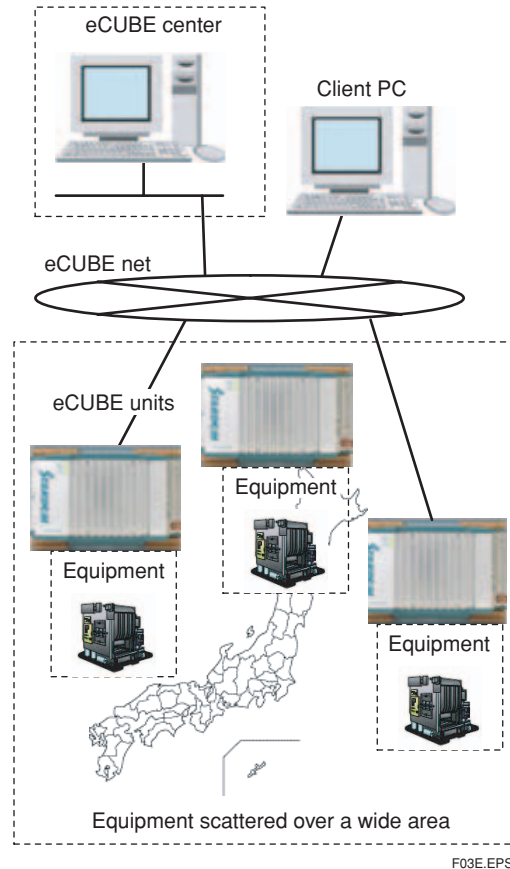


Figure Center Monitoring eCUBE System

■ eCUBE FEATURES

The eCUBE offers the following advantages:

easy Connection

Remote monitoring can be easily realized by adding eCUBE units to existing equipment. Data can be collected from equipment by capturing signals either from hardware I/O or existing PLC communication through the Ethernet or RS-232-C.

Collected data can be monitored on a client PC's Web browser.

easy Engineering

The eCUBE automatically creates programs that run on the eCUBE units when the system functions are defined. There is no need to learn any programming language.

Elimination of programming and debugging greatly facilitates the introduction of the eCUBE and minimizes the installation and maintenance costs as well.

easy Maintenance

In case of failure, the site status can be quickly determined from remote monitoring of equipment thereby reducing the number of on-site repairs.

eCUBE units are easy to maintain, as software loading to eCUBE units, software upgrading, and system configuration can be remotely performed through the eCUBE net.

Other services are also available, which include an agent service to monitor users' equipment 24 hours a day.

■ eCUBE REMOTE MONITORING FUNCTIONS

eCUBE provides diverse remote monitoring functions as follows:

Monitoring

Users can monitor equipment from anywhere without being on-site.

Alarm notification

Applicable persons can be notified of alarm occurrence by e-mail or other means.

A versatile capability of assessing alarms enables selective notification of alarms.

Corrective maintenance

Analog and discrete data before and after the issuance of an alarm can be rapidly stored, expediting the identification and analysis of the cause.

Preventive/Proactive maintenance

Based on collected data, the eCUBE assists users in conducting preventative/predictive maintenance and failure trend analysis of equipment.

It also keeps such data as running counts and times for effective consumable replacement and maintenance work for equipment.

Reporting

Reports can be automatically created on a daily and monthly from the equipment's operation data, expediting administrative work.

Operation

Alarm settings and event processing settings can be changed, and running counts and times can be reset.

■ eCUBE FUNCTIONS AND PRODUCTS

The table below shows eCUBE's functions and corresponding products. See the following documents for the function details:

- eCUBE unit: GS 34P03A02-01E "eCUBE Unit"
- Client PC for standalone configuration: GS 34P03A03-01E "eCUBE Optional Packages"

Table eCUBE Remote Monitoring Functions

Items	On-site Functions (*1)		eCUBE Center's Functions
Monitoring	<ul style="list-style-type: none"> • Display of current values with a Web browser • Monitoring of alarms 		Viewing of information within eCUBE units with a Web browser
Operation	Change of alarm conditions with a Web browser		Change of alarm conditions with a Web browser
Alarm notification	Sending of e-mail upon detecting alarms	eCUBE Alarm Package	Display of eCUBE center alarms Sending of e-mail upon detecting alarms from eCUBE center
Corrective maintenance	Event data collection and storage	eCUBE Event Data Viewer Package	Display of eCUBE center's event data
Preventative/predictive maintenance	Minutely/Hourly data collection and storage	eCUBE File Converter Package	Analysis of equipment failure trends
		eCUBE CSV Converter	
Reporting	Hourly data collection and storage	eCUBE Report Package	eCUBE center reporting

□ : eCUBE unit functions

▒ : Functions of optional packages for client PCs in a standalone configuration

■ : eCUBE center functions

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*1: For details about optional packages, see GS 34P03A03-01E "eCUBE Optional Packages."

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