General Specifications

InfoEnergy Overview

GS 34P03A41-01E

■ OVERVIEW

InfoEnergy is a system supporting processes of energy conservation activity, using STARDOM autonomous controller FCN (Field Control Node)/FCJ (Field Control Junction). Besides the conventional features of monitoring energy consumption, InfoEnergy relates the consumption energy to the equipment operation status for supporting the detection of energy loss. Moreover, this system can run energy-saving control application built arbitrarily and manage operating time of energy consumption equipment.

■ FEATURE

Easy to install
For the structure distributing the monitoring window generated within FCN/FCJ via Web, InfoEnergy does not need special software to be installed on PC side, and does not need to apply big burden to Network either. In addition, since the existing intranet can be used and the dedicated LAN is not required, network construction cost is sharply reducible.

Support detail analysis of each device's energy consumption
InfoEnergy can acquire the various signals such as flow rate, pressure and equipment status. Therefore, the operation status of equipment can be compared with energy consumption. Analysis such as efficiency of the device and stand-by electricity, which cannot be performed only with monitoring the energy consumption, can be supported.

Saving energy in the same system
User's control applications performing the energy conservation can run without adding any PLCs.

Support the maintenance/management of equipment
The energy consumption equipment can be efficiently managed and maintained. E.g. the notification of the overhaul timing depending on operation times/hours, the aged deterioration monitoring.

Notify an alert to operators via e-mail
Various alerts are sent to the operators via e-mail even when they are not monitoring.

Quick response to the expansion and reconfiguration of the system
With dedicated definition tool, measurement point can be easily added and changed without requiring any programming effort.

Everyone can monitor everywhere
There's no need of exclusive software in monitoring PC. The energy-saving state can be monitored on Web browser of any PCs on Network. Therefore, energy-saving awareness of all staffs is raised since they can monitor the energy-saving state of their own division. Beside, this system can restrict the windows that can be monitored depending on the access level.

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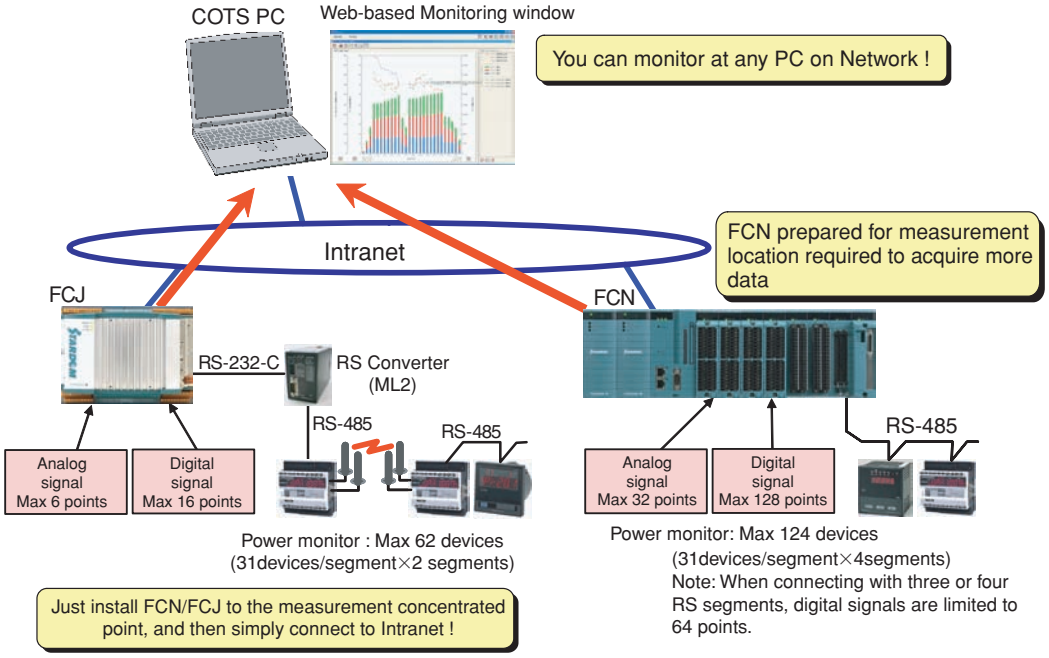

Fig System structure

■ HARDWARE REQUIREMENT

● FCN/FCJ

Autonomous controller	Style
FCJ	S2 or later (*1, *3)
CPU Module of FCN	S2 or later (*2, *3)

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*1: Autonomous controller for EconoPilot (NFJT100-S200) can not be used.
*2: This package cannot be used for CPU redundant configuration of FCN.
*3: 512 MB of FCN/FCJ system card is required. (The FCN/FCJ system card is enclosed with InfoEnergy software license. When purchasing spare parts, please be careful about the capacity of FCN/FCJ system card.)
Note: When there is possibility of power interruption in the electric supply to FCN/FCJ, please connect an uninterruptible power supply system (UPS).

● PC for Setting/Monitoring

PC for monitoring

Item	Contents
PC Model	IBM PC/AT compatible
CPU	PentiumIII, Celeron 600MHz or better
Ethernet Adapter	Which can run on the following OS
OS	Windows 2000 Professional SP4 Windows XP HOME Edition SP1, SP2 Windows XP Professional SP1, SP2
Web Browser	Internet Explorer 6.0 (SP1, SP2) + Sun Java Plug-in 1.4.2_09 (*1)

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*1: Sun Java Plug-in can be downloaded from Monitoring window of InfoEnergy.

PC for setting

Item	Contents
PC Model	IBM PC/AT compatible
CPU	PentiumIII, Celeron 600MHz or better
Ethernet Adaptor	Which can run on the following OS
CD-ROM drive	Necessary when installing this package
CompactFlash reader/writer	Necessary when creating FCN/FCJ system card (Which can run on the following OS)
OS	Windows 2000 Professional SP4 Windows XP Professional SP1, SP2
Web Browser	Internet Explorer 6.0 (SP1, SP2) + Sun Java Plug-in 1.4.2_09 (*1)

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*1: Sun Java Plug-in can be downloaded from Monitoring window of InfoEnergy

■ FUNCTIONAL SPECIFICATION

● Data acquisition function

(a) Acquired data type/Point

The data type/point, which can be acquired in this system, are as follows.

Data type	FCJ	FCN	
Yokogawa power monitor (*1)	Max 62 (*2) (RS-485: 31 devices ×2 segments)	Max 124 (*3) (RS-485: 31 devices ×4 segments)	Max 62 (*3) (RS-485: 31 devices ×2 segments)
Analog input signal	Max 6 points	Max 32 points (*4)	Max 32 points (*4)
Digital input signal (*5)	Max 16 points	Max 64 points (*6)	Max 128 points (*6)

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*1: Connectable power monitor is as below. (Each monitor can co-exist on the same RS-485 segment) UPM100(UPM101), UPM01, UPM02, UPM03, PR201, UZ005

*2: 31 devices can be connected with each RS-232-C port of FCJ (2 Ports). RS converter (Yokogawa product ML2, etc.) converting from RS-232-C to RS-485 and RS-232-C cable between FCJ and RS converter are required for each segment.

*3: 31 devices can be connected with each port of 2ports on RS-422/RS-485 communication module (NFLR121). Two pieces of NFLR121 modules are required when connecting with more than 3 segments. RS-232-C port on CPU module cannot be used.

*4: The following FCN analog input modules can be defined.
NFAI135, NFAI141, NFAV141, NFAV142, NFAI143, NFAV144

*5: Status and pulse signal can be input as digital input signal. Signal type can be specified to each channel. However, all the channels of the digital input module NFDV157 and 33-64 channels of NFDV161 are restricted to status signal.

*6: The following FCN digital input modules can be defined.
NFDV151, NFDV157, NFDV161, NFDV141, NFDV142

(b) Measured data items

Power monitor data

The following data measured by each power monitor is acquired via RS-485 communication.

Data item		UPM100 UPM101	PR201	UZ005	UPM01 UPM02 UPM03
Voltage of each phase (*1)		YES	YES	YES	YES
Current of each phase (*1)		YES	YES	YES	YES
Power	Active power	YES	YES	YES	YES
	Reactive power	CND	–	–	YES
	Apparent power	YES	–	–	–
Energy (*2)	Active energy	YES	YES	YES	YES
	Reactive energy (*3)	CND	–	–	–
	Apparent energy	YES	–	–	–
	Regenerative energy	NO	–	–	–
Power factor		CND	CND	CND	
Frequency		YES	–	–	
Total harmonic distortion factor		–	–	–	CND

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YES: Data that is measurable

CND: Data that is measurable when specifying option on power monitor side

–: Data is not be measured by power monitor

NO: Data is not supported by InfoEnergy

*1: Measurable phase depends on the specification of the power monitor's phase and line type.

*2: The energy value on InfoEnergy does not match the one on power monitor.
Because InfoEnergy independently sets the start point of integration and the difference from it's point becomes the energy of InfoEnergy.

*3: Both of LEAD and LAG are measured.

Analog signal data

Analog signals are acquired, and scaled (*1) instantaneous value and integrated value (minutes integration, hour integration) are generated.

*1: Scaling can be defined to 7 digits number including decimal point and sign.

Digital signal data (status data)

Status signals are acquired, and ON/OFF instantaneous value (*2) and total ON counts / ON hours are generated.

*2: Arbitrary comment such as "Run" and " Stop" (up to 8 character) can be defined to instantaneous value of ON/OFF signal.

Digital signal data (pulse data)

Pulse signals are acquired and integrated value with weighted ratio (pulse weight (*3)) is generated.

*3: Pulse weight can be set up within 0.0 to 10000.0.

(c) Sampling Period
The sampling period of data is as follows.

- Power monitor data: within 1 minute
  (It changes depending on the device number on RS-485 segment.)
- Analog input signal, digital input signal:1 second

● Power monitor parameter setting function

Using definition tool of InfoEnergy, user can load and set various parameters of connected power monitor such as VT (PT) ratio, CT ratio and pulse weight of pulse output signal.

Loading and setting item

- VT (PT) ratio, CT ratio
- Low cut value
- Pulse unit, ON pulse width of pulse output signal corresponding to active energy
- Pulse unit, ON pulse width of pulse output signal corresponding to reactive energy
- LAG/LEAD selection of pulse output signal corresponding to reactive energy
- Scale High/Low of analog output signal corresponding to active energy

Note: Propriety of setting output signal depends on the power monitor's specifications. Please refer to the power monitor's specification.

● Grouping data generation function

It is the function to generate grouping data by adding up the power monitor active energy, or integrated value of pulse signal with weighted ratio.

This data is saved as a “grouping tag”. Grouping tag generates and saves data by acquiring and grouping them.

Note: A grouping tag can generate the saved data only (report data). It cannot generate real-time data.

The example of "grouping tag" is shown as below.

Ex 1: Grouping tag “Assembly line energy consumption” under the following condition
100% of No.1 power monitor's energy
70% of No.5 power monitor's energy
50% of integrated value of 8th channel pulse signal
Assembly line energy consumption =
1.0 * No.1 power monitor data
+ 0.7 * No.5 power monitor data
+ 0.5 * 8ch. pulse signal data

Ex 2: Grouping tag “Painting process energy consumption” under the following condition
60% of No.4 power monitor's energy subtracted from 100% of No.2 power monitor's energy
Painting process energy consumption =
1.0 * No.2 power monitor data
- 0.6 * No.4 power monitor data

Ex 3: Grouping tag “Assembly line energy consumption” under the following condition
No.10 power monitor's energy (KWh)
No.12 power monitor's energy (MWh)
Assembly line energy consumption (MWh) =
0.001 * No.10 power monitor data
+ 1.0 * No.12 power monitor data

Grouping Tag specification

Definition specification	Explanation
Definable grouping tag number	20 tags
Calculating source data	Power monitor's active energy Integrated value collected as pulse signals (*1)
Calculation timing	At the time of saving daily/ monthly /annual report data
Factor setting range	Arbitrary

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*1: Only the data of the same controller can be used. When grouping data by including the data of any other controller, use the “addition tag” discussed later in “Data calculation function”.

● Data save function

It is the function to save the specified data to FCN/FCJ system card.

Data save function consists of

- Report data save function
- Historical trend data save function

Report (daily/monthly/annual report) data

Data for daily/monthly/annual report is saved.

Report data specification

Function		Specification
Definable data number		Max 1000 data
Logging interval		Daily report: Select from 1 hour, 30 minutes, and 15 minutes (*1) Monthly report: 1day Annual report: 1month
Logging data type	Power monitor (except integrated electric energy)	Instantaneous value at the time of logging timing Average value/maximum value/minimum value during logging period.
	Power monitor (integrated electric energy)	Integrated energy during logging period
	Analog signal data	Instantaneous value at the time of logging timing Integrated value/average value/maximum value/minimum value during logging period.
	Status signal data	Total ON counts or ON hours during logging period
	Pulse signal data	Integrated value during logging period
	Grouping data	Integrated value during logging period
Closing time		Daily report: 0:00, Monthly report: 1st day of each month at 0:00, Annual report: Jan 1st at 0:00
Closing data type		Maximum value, minimum value, average value, and integrated value among logging data of daily/monthly/annual report
Data saving term (*2)		Daily report: Refer to “table saving term of daily report” Monthly report: 5years Annual report: 5years
Generated file unit		Daily report: Everyday, Monthly report: Every month, Annual report: Every year
File acquisition method		By installing the saved data file acquisition tool (Log Collector) on PC, CSV file can be automatically acquired at the specified time.

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*1: Only one data recording period of daily report can be specified for each FCN/FCJ.
Recording period is unchangeable for each data.

*2: The data over data saving term is automatically deleted. If data over saving term is needed, back it up on the PC using the saved data file acquisition tool (Log Collector).

Table Saving term of daily report (when a 512 MB system card is used)

		Logging interval		
		60 min	30 min	15 min
Data Number	751 to 1000	4years (48months)	2years 2months (26months)	1year (12months)
	501 to 750	5years (60months)	3years (36months)	1year 6months (18months)
	251 to 500	5years (60months)	4years (48months)	2years 4months (28months)
	101 to 250	5years (60months)	5years (60months)	4years (48months)
	1 to 100	5years (60months)	5years (60months)	5years (60months)

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Historical trend data
This data is mainly used for more detailed analysis than daily report.

Historical trend data specification

Function	Specification
Definable data number	Max 1000 data items. (However, the maximum number of data that can be saved in one day is 1,200,000; so for example, if the data is all 5-second period data, the maximum number of data items that can be saved per day is 69.)
Logging interval	5 seconds, 10 seconds, 30 seconds, 1 minute, 5 minutes, 10 minutes, 15 minutes (can be specified for each data)
Logging data type	Power monitor data except integrated electric energy Instantaneous value of analog signal data, status signal data
Data saving term	Maximum days which 1,200,000 data can be saved. Data saving term depends on the definable data items, logging interval of each data. (*1, *2)
Generation file unit	Day by day
File acquisition method	By installing the saved data file acquisition tool (Log Collector) on PC, CSV file can be automatically transferred at the specified time.

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*1: The example of calculating historical trend data saving term is shown as below.

Ex 1) When 96 data of 1minute period data are defined.

Saved data items per day :
60min. * 24hr * 96data
= 138240 data

Data saving term :
1200000 / 138240 = 8.68
→8 days

Ex 2) When 6 data of 5seconds period data, 19 data of 30 seconds period data, 43 data of 5 minutes period data are defined.

Saved data in 1 day of the 5 seconds periods data :
12 * 60min. * 24hr * 6data
= 103680 data

Saved data in 1 day of the 30 seconds period data :
2 * 60min. * 24hr * 19data
= 54720 data

Saved data in 1 day of the 5 minutes periods' data :
12 * 24hr * 43data
= 12384 data

Total data items per 1 day :
170784 data

Data save period :
1200000 / 170784 = 7.03
→7days

*2: The data over data saving term (days) is automatically deleted. If data over saving term is needed, back it up on the PC using the saved data file acquisition tool (Log Collector).

● External data reference function

It is the function to refer to the "external data". The "external data" is the data that is not acquired from power monitor or Input signal.

External data can be referred by transferring data in CSV file format to FCN/FCJ.

Ex)

Data which is not acquired from input signal

Target value or standard value of daily/monthly/annual report

Past actual data which was being collected before InfoEnergy installation

External data type

External data type	Explanation
Daily variable data	The data which changes everyday such as production volume. Daily data is inputted into CSV file prepared every month. (It is displayed on monthly report window.)
Monthly variable data	The data which changes every month such as production volume. Monthly data is inputted into CSV file prepared every year. (It is displayed on annual report window.).
Hourly fixed data	The data which does not change everyday such as target value or standards value. Hourly fixed data is inputted into CSV file prepared as hourly fixed data file. The data input unit is 15min., 30min. or 1 hour.(It is displayed on daily report window.)
Daily fixed data	The data which does not change every month such as target value or standards value. Daily fixed data is inputted into CSV file prepared as daily fixed data file. (It is displayed on monthly report window.)
Monthly fixed data	The data which does not change every year such as target value or standards value. Monthly fixed data is inputted into CSV file prepared as monthly fixed data file. (It is displayed on annual report window.)

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External data definition specification

Definition spec	Explanation
Definable data number	Up to 250 data for each external data type
Data use method	Data in CSV file format can be displayed on each report window. It can be the source of the calculation tag.

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● Data calculation function

It is the function to calculate the various data saved as report data or external data.

The calculated data can be displayed on report window as “Calculation Tag”.

Energy consumption can be analyzed by calculating various data from various angles with this calculation function.

Note: A calculation tag only has arithmetic formula. When displaying data on report window as daily/monthly/annual report, displayed data is generated by calculating each saved data.
The calculated data itself is not saved as a report data.
However, it is possible to generate and save data for the calculation tag on the PC when acquiring data using the saved data file acquisition tool (Log Collector).

As shown in the following table, there are 3 kinds of calculation tags for each calculation type.

Calculation tag type

Calculation tag type	Explanation
Addition tag	Add up the data which is multiplied daily/monthly/annual report data by coefficient. Coefficient range:Arbitrary
Ratio tag	Divide daily/monthly/annual report data by other daily/monthly/annual report data. The data such as unit energy consumption, efficiency data can be generated. Ex) "unit energy consumption" = "consumption energy" / "production volume" "compressor efficiency" = "flow rate" / "consumption energy"
Conversion tag	Multiply the daily/monthly/annual report data by coefficient. The data such as CO_2 conversion can be generated. Ex) "CO_2 conversion data" = "coefficient" * "consumption energy"

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Note: The calculated result can be used in other calculation formula. For example, the result calculated with the addition tag can be converted CO_2 data with conversion tag.

Definition specification of calculation tag

Definition specification	Explanation
Definable calculation tag number	Max 100 tags for each calculation tag type
Calculated source data	Various report data, external data (Report data and external data of other FCN/FCJ can also be specified)

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● Alarm function

It is the function to detect and notify the alert of FCN/FCJ and the acquired data alarm. The detected alarm can be notified via e-mail or historically displayed on monitoring window.

Alarm object

System alarm:

Detect alert of FCN/FCJ, communication error with power monitor.

Acquired data alarm:

Detect the following alarms set to each acquired data.

Object data	Detectable alarm
Power monitor data (except power factor data)	LL/L/H/HH alarm, IOP alarm
Analog data	LL/L/H/HH alarm, IOP alarm
Power factor data	LL/L alarm, IOP alarm
Status data	when it is ON
Status integrated data	H alarm of ON hours/ON times

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Note: LL, L, H, HH, and IOP are as follows.
LL : Low Low alarm, L: Low Alarm, H : High Alarm, HH : High High Alarm
IOP : Input Open (Alarm is generated when data exceeds the range of normal value, e.g. disconnection of signal line). Both IOP_H (IOP High) and IOP_L(IOP Low) are detected.

Alarm notification

E-mail delivery :

A message is sent to the defined e-mail address when alarm occurs.

Supports the authentication function of SMTP servers (SMTP Authentication/Pop Before SMTP).

Note: SMTP server is required on Network.
The alarm e-mail receiving may be delayed because of the status of SMTP server and network load. Please do not use this function for urgent application.

Alarm Summary Display

Alarm log is displayed on Alarm summary window.

Display number: 1000 alarms (The older one is deleted orderly. Alarm recovery information is also included in display number.)

Note: Care must be taken since any alarm history shown in the Alarm Summary window volatilizes when the FCN/FCJ is turned off. However, it is possible to acquire alarm history on the PC for a maximum of the past seven operating days, including the current day, using the saved data file acquisition tool (automatic alarm history acquisition at a predefined time is also possible).

● Time synchronization function

It is the function to synchronize the internal time of FCN/FCJ with the time of SNTP server. With this function, time of plural FCN/FCJ can be synchronized.

● Monitoring window function

The following windows are delivered to monitor and analyze status of energy use.

- TOP window
- Target management window
- Report window
- Historical trend window
- Real-time data display window
- Tag viewer window
- Alarm summary window
- Demand monitoring window(Option)

Monitoring window specification

Function	Explanation
Definable window number	Max 40 windows (Total monitoring windows except TOP window. Tag viewer window is limited to one window. Alarm summary window is limited to one window. Plural windows can be defined to other type windows.)
Number of connection clients	Max 10 clients (*1)
Data display method	Java applet
Data communication method	HTTP Protocol
Data update	Manual update (the following windows can be auto-updated) (*2) • Real-time data display window • Tag viewer window
Display data from plural FCN/FCJs	On the following windows, data from plural FCN/FCJs can be displayed on the same window. • Target management window • Report window • Real-time data display window

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*1: The above-mentioned number of clients is the number of clients which can update the displayed data on one monitoring window every 10 seconds. When displaying two or more windows on one client PC, the number of displayed windows becomes the number of clients.
Although 10 or more client PCs can be connected, window might not be displayed or updating data might be delayed in that case. At that time, please try it again after one minute.
Since communication resource consumption at the time of starting Web connection is more than one at the time of updating data, 10 clients cannot be connected with the same FCN/FCJ at the same time. In this case, please delay the connection timing about 1 minute.

*2: Please be careful with the communication load on network when updating data automatically.

TOP window

This window is first displayed when accessing to FCN/FCJ. It has the following functions.

- Display bulletin board (Display user messages)
- Go to monitoring window
- Install Java Plug-in into monitoring PC.

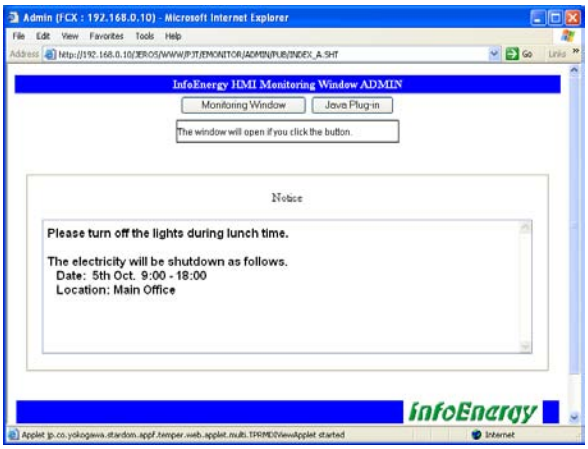

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Figure TOP window

Target Management Window
This window is used to learn the targets and results of energy conservation activity. It compares the target of monthly or annual usage with the actual usage such as currently used energy, and displays each department energy conservation achievement ratio in graphical or tabular format. In a graphical window, the ratio of the number of days past at the point when the window is opened is compared with the actual usage, with the target of monthly or annual usage defined as 100%.

Function	Explanation
Number of displayed data items	20
Selectable results data	Report data, calculation tag
Target data	External data is specified.
Content of displayed data	The actual current performance level is displayed for the current-month/current-year readings. (An earlier month's/year's data can also be displayed by specifying a month. In this case, the window shows the final results of actual performance for that month/year.)
Data updating period	Daily (Display windows are generated using data acquired until the day before. These windows cannot be updated automatically.)
CSV file export	Data shown in a tabular window is saved in the monitoring PC as a CSV file.

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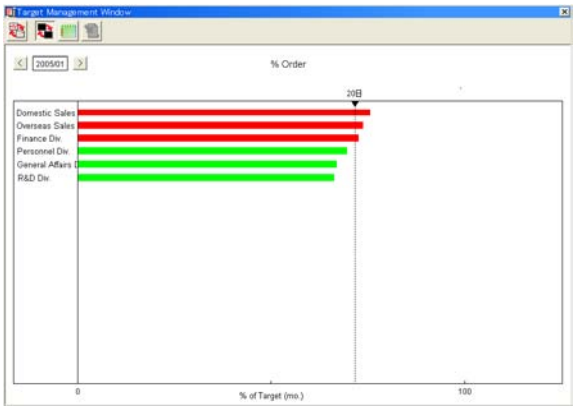

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Figure Target Management Window (Graphical)

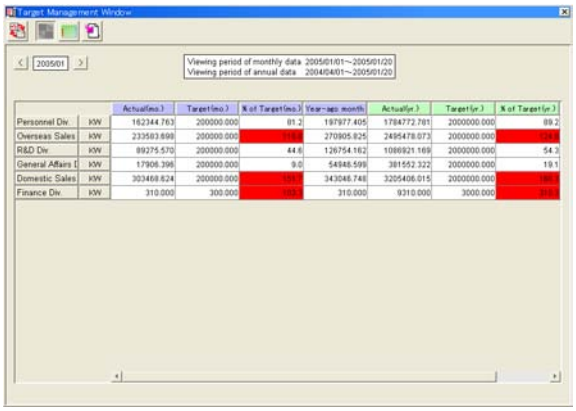

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Figure Target Management Window (Tabular)

Report Window

This window is for analyzing status of energy use. Report data (daily/monthly/annual report) is displayed with graph or report format.

Status of energy use is analyzed by comparing the various data such as report data, calculation tag and external data on this window.

Function	Explanation
Displayed data number	Definable data number: Max 64 data per window (Maximum of 3 kinds of unit can be defined on one window by displaying 3 Y-axes) Displayed data number: Max 32 data per window (Up to 32 data can be selected from defined data as a displayed data) Data from plural FCN/FCJs can be defined to the same window.
Displayed data type	Report data, calculation tag, external data
Updating displayed data	Specify the month and date manually (Auto-update is not enabled.)
Viewing period	Daily report: 6 to 48 hours' worth of data, which unit is 15, 30 or one hour, is displayed on one window. Monthly report: 7 days to 2 months' worth of data, which unit is one day, is displayed on one window Annual report: 6to 24 months' worth of data, which unit is one month, is displayed on one window.
Past data comparison	The past data and the current data can be overlapped on the same window. (Data saved on FCN/FCJ system card up to 5 years can be used as a past data.)
Period of view	The data currently displayed with industrial unit is displayed with 0 - 100% ratio in graph format.
Zoom function	The area, which is dragged with mouse, is expanded.
Numeric data display	The data name, date, value of the spot on graph pointed by mouse is displayed on popup window.
Auto-scaling	Auto-scaling so that the maximum data may become about 80 % of Y-axis max value on graph.
Closing data display	The maximum value / minimum value / average value / integrated value among the displayed data are displayed.
CSV file export	The current displayed data is saved to the monitoring PC with CSV file format.
Window print	The currently displayed graph and report are printed.

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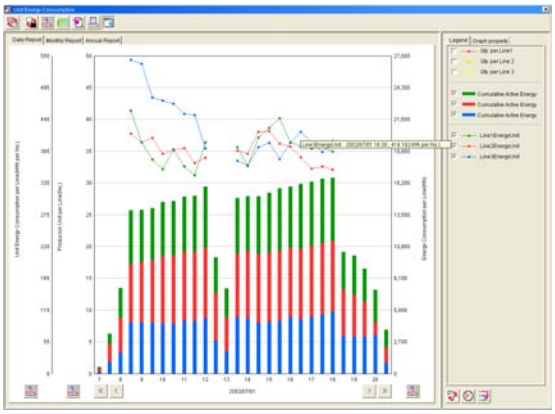

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Figure Report window (Graphic format)

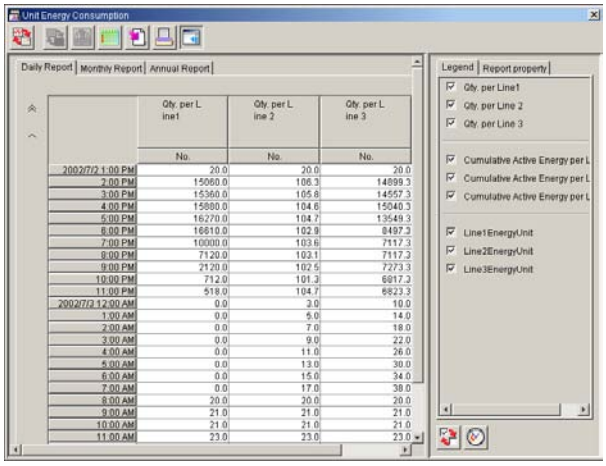

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Figure Report window (Report format)

Historical trend window
This window is for displaying the saved historical trend data as a trend graph.

Function	Explanation
Displayed data number	Definable data number: Max 32 data per window (Maximum of 3 kinds of unit can be defined on one window by displaying 3 Y-axes) Displayed data number: Max 16 data per window (Up to 16 data can be selected from defined data as a displayed data)
Displayed data type	Historical trend data (Mixing display of the data with different recording period, and analog / status data is enabled. Up to 8 status data can be displayed at the same time.)
Updating displayed data	Specify the time manually (Auto- update is not enable)
Viewing period	5 minutes to 24 hours worth' of data, saved in periods of 5 seconds to 15 minutes, is displayed in one window.
Past data display	Days of which the data is saved.
Zoom function	The area, which is dragged with mouse, is expanded.
Cursor function	The data on the cursor, which is axis indicating time, is displayed.
Numeric data display	The data name, date, value of the spot pointed by mouse on graph is displayed on popup window.
CSV file export	The current displayed data is saved to monitoring PC with CSV file format.
Window print	The currently displayed graph is printed.
Auto-scaling	Auto-scaling so that the maximum data may become about 80 % of Y-axis max value on graph.

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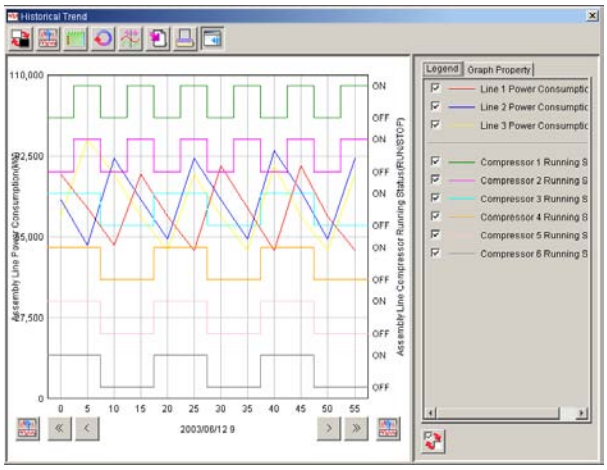

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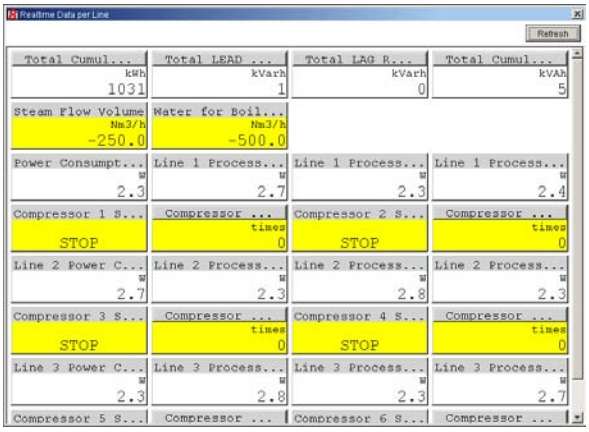
Figure Historical trend window

Real-time data display window
This window is for monitoring the current status of major data. Analog, status and pulse instantaneous value and integrated value can be freely laid out on the window. The alarm status can be notified by the change of background color.

Function	Explanation
Displayed data number	Max 32 data per window (Data from plural FCN/FCJs can be defined to the same window.)
Display layout	Default: 4column38row (Number of columns can be changed up to 32)
Displayed data type	Instantaneous value, integrated value of each data
Updating displayed data	Manual update (Auto-update is enabled. Update period: 10seconds -)
Change background color	The background color of each frame is changed according to the data status. Normal analog data: White • Communication error or data error: Yellow • LL/L/H/HH alarm: Red • Alarm status data is ON: Red • Status display status data is ON: Green

T18 E.EPS



F06E.EPS

Figure Real-time data display window

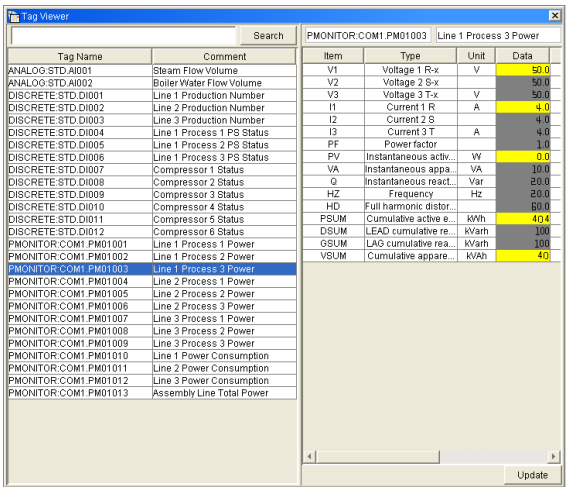
Tag viewer window

This window is for displaying each instantaneous value of the various power monitor, analog, status and pulse input signals. On this window, you can confirm status when checking installation of input signal, and confirm the low priority data that is not defined on real-time data display window.

Note: This window is prepared by default so that window definition is not required.

Function	Explanation
Displayed data	All data acquired from power monitor, analog data, status data and pulse data are displayed. Alarm setting value is displayed. Alarm status is displayed by the change of background color of each displayed data. • Normal: White • Error: Yellow • Alarm: Red
Updating displayed data	Manual update (Auto-update is enabled. Update period: 10seconds -)

T19E.EPS



F07E.EPS

Figure Tag viewer window

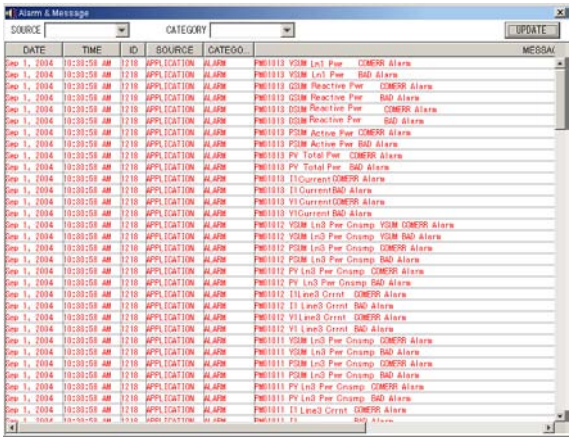
Alarm summary window

This window is for displaying the detected alarm log. Occur/Recover status of system alarm or acquired data alarm is displayed.

Note: This window is prepared by default so that window definition is not required.

Function	Explanation
Log data number	Max 1000 (the older is deleted orderly)
Updating displayed data	Manual update(Auto-update is not enable)

T20E.EPS



F08E.EPS

Figure Alarm summary window

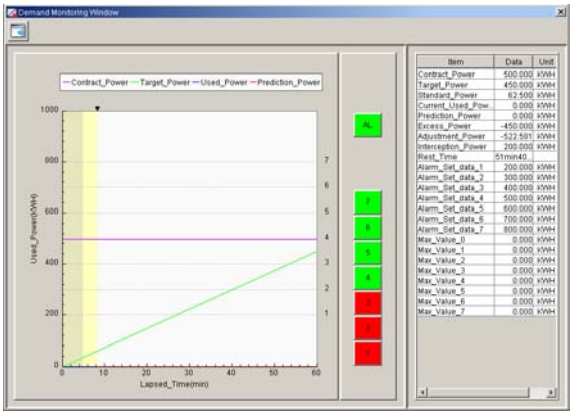
■ OPTIONAL SOFTWARE

The following optional software packages are available for the InfoEnergy.

For more information, see InfoEnergy Optional Software (GS 34P03A42-01E).

● InfoEnergy Demand Monitoring Portfolio

This software predicts the electric energy at the end of the demand monitoring period and monitors alarms by monitoring the used electric energy during the period. The predicted demand and the alarm status can be monitored on the demand monitoring window.

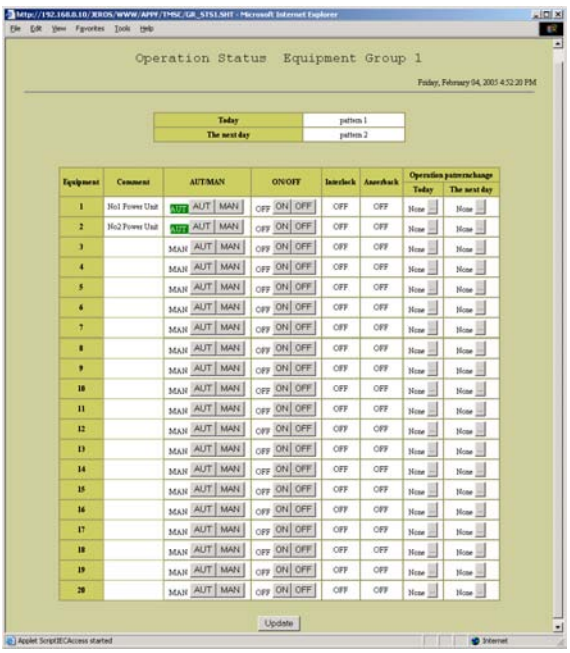


F12E.EPS

Figure Demand Monitoring Window

● InfoEnergy Time Scheduler Portfolio

This software performs automatic start/stop control on air-conditioning systems, shared lighting equipment, and so on. It performs start/stop control according to the schedule set on a day-of-week or date-and-time basis.



F13E.EPS

Figure Time Scheduler Status Window

■ STYLE OF InfoEnergy SUPPLY

The following products are required for InfoEnergy system.

Classification	Product	Remark
FCN/FCJ Hardware	Autonomous Controller FCN/FCJ (*2)	
InfoEnergy Software (*1)	InfoEnergy Software License	
	InfoEnergy Demand Monitoring Portfolio License	Option (Select if necessary)
	InfoEnergyTime Scheduler Portfolio License	Option (Select if necessary)
	Additional InfoEnergy Software License	Select when adding the acquired data to existing system
CD-ROM	FCN/FCJ Software medium (*2)	
	InfoEnergy Software medium	
Operation manual	InfoEnergy Operation	
	InfoEnergy Configuration	
	InfoEnergyTime Scheduler	

T22E.EPS

*1: Each FCN/FCJ hardware requires software license.

*2: Please refer to the following GS for Autonomous controller FCN/FCJ, and FCN/FCJ software medium.
FCN/FCJ Autonomous Controller Functions (GS 34P02Q01-01E)
FCJ Autonomous Controller Hardware (GS 34P02Q11-01E)
FCN Autonomous Controller Hardware (GS 34P02Q12-01E)

Note: In addition to the above products, COTS USB CompactFlash reader/writer is required. This CompactFlash reader/writer is used for setting up FCN/FCJ system card.

■ MODEL AND SUFFIX CODES

● InfoEnergy software medium

		Description
Model	NT206AJ	InfoEnergy software media
Suffix Codes	-P	Programs (including electronic documents)
	C	CD-ROM
	1	Always 1
	1	Always 1
	E	English Version

T23E.EPS

Note: InfoEnergy software and InfoEnergy option software, and the electronic documents are available on this CD-ROM.

● InfoEnergy Software License

		Description
Model	NT8880J	InfoEnergy Software License
Suffix Codes	-L	License
	M	With Java Function
	4	System Card for FCN/FCJ: 512 MB
	0	Yokogawa Power Monitor: 0
	1	Yokogawa Power Monitor: 62 (FCJ: Up to 2 RS-485 segments, FCN: Up to 4 RS-485 segments) (*1)
	2	Yokogawa Power Monitor: 124 (Up to 4 RS-485 segments) (Only For FCN) (*1)
	0	Direct Analog Input: 0 Input
	1	Direct Analog Input: 6 Input, (Only For FCJ)
	2	Direct Analog Input: 16 Input, (Only For FCN)
	3	Direct Analog Input: 32 Input, (Only For FCN)
	0	Direct Digital Input: 0 Input
	1	Direct Digital Input: 16 Input, (Only For FCJ)
	2	Direct Digital Input: 64 Input, (Only For FCN)
	3	Direct Digital Input: 128 Input, (Only For FCN) (*1)
	1	Always 1
	E	English Version

T24E.EPS

*1: When a power monitor is connected with 3 or more RS-485 segments, up to 64 point direct digital signals can be input.

Note :
- This license is required for each controller (FCN/FCJ)
- This license cannot be applied to dual-redundant CPU of FCN.
- This package contains the following functions
  - FCN/FCJ Basic Software License for Single CPU (System Card for FCN/FCJ: 256MB)
  - E-mail Application Portfolio License
  - Web Application Portfolio License
  - Additional I/O Credit License (Only for "Analog/ Digital Input" specified by Suffix Codes)
  - Communication with Yokogawa power monitor

● Additional InfoEnergy Software License

		Description
Model	NT8885J	Additional InfoEnergy Software License
Suffix Codes	-L	License
	W	Issued at Web
	1	Yokogawa Power Monitor: 0->62 monitors (*1)
	2	Yokogawa Power Monitor: 62->124 monitors (Only For FCN) (*2,*3)
	3	Direct Analog Input: 0->6 Inputs, (Only For FCJ)
	4	Direct Analog Input: 0->16 Inputs, (Only For FCN)
	5	Direct Analog Input: 16->32 Inputs, (Only For FCN)
	6	Direct Digital Input: 0->16 Inputs, (Only For FCJ)
	7	Direct Digital Input: 0->64 Inputs, (Only For FCN)
	8	Direct Digital Input: 64->128 Inputs, (Only For FCN) (*4)
	1	Always 1
	A	Standard

T26E.EPS

*1: This license does not support more than 2 RS-485 segments. (Up to 2 segments).
*2: This license cannot be added to FCN with 65 point or more direct digital input signals
*3: RS-485 segments are up to 4.
*4: This license cannot be added to FCN with more than 2 RS-485 segments.
Note: With this license, the number of direct input signals or Yokogawa power monitors is added to InfoEnergy Software License "NT8880J".
Ex.When adding 17 points of direct analog input to "NT8880J-LM21001E" (62 Yokogawa power monitors connection), "NT8885J-LW41A" (0->16 Inputs) and "NT8885J-LW51A"(16->32 Inputs) need to be ordered.

■ ORDERING INSTRUCTIONS

Specify models and suffix codes.

■ RELATED DOCUMENTS

InfoEnergy Optional Software
GS 34P03A42-01E
FCN/FCJ Autonomous Controller Functions
GS 34P02Q01-01E
FCJ Autonomous Controller Hardware
GS 34P02Q11-01E
FCN Autonomous Controller Hardware
GS 34P02A12-01E
Field connection specification
GS 34P02Q30-01E
Analog I/O Modules
GS 34P02Q31-01E
Digital I/O Modules
GS 34P02Q35-01E
Serial Communication Module
GS 34P02Q36-01E

■ TRADEMARKS

The following name is the trademark or registered trademark of each company.

- STARDOM, FA-M3
- Microsoft, Windows, Internet Explorer, Excel
- Ethernet
- MELSEC, SYSMAC

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