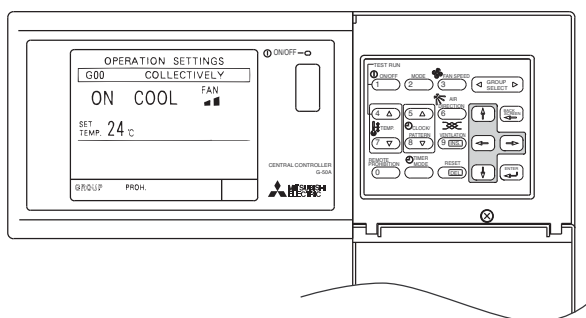


3-5. Central controller G-50A



A. The central controller of G-50A combines Web function (optional), which enable the air conditioner system management on a PC browser screen. *1. The management even carried out at a long distance place via public telephone line.

*1 Microsoft® Internet explorer Ver. 5 or later by Microsoft Corporation is needed. Microsoft® Internet explorer is a registered trade mark of Microsoft Corporation US in the USA and other countries.

B. Together with integrated centralized control software TG-2000A, and/or PLC, many optional functions like "Charging", "Peak-cut", "Energy saving", "General equipment management", "Scheduling" etc, can be carried out. Details, please refer to sections of TG-2000A and PLC software.

C. One G-50A can control maximum 50 Indoor units (including LOSSNAY). The integrated centralized control software TG-2000A can manage maximum 40 G-50As, therefore can manage maximum 2000 Indoor units (including LOSSNAY).

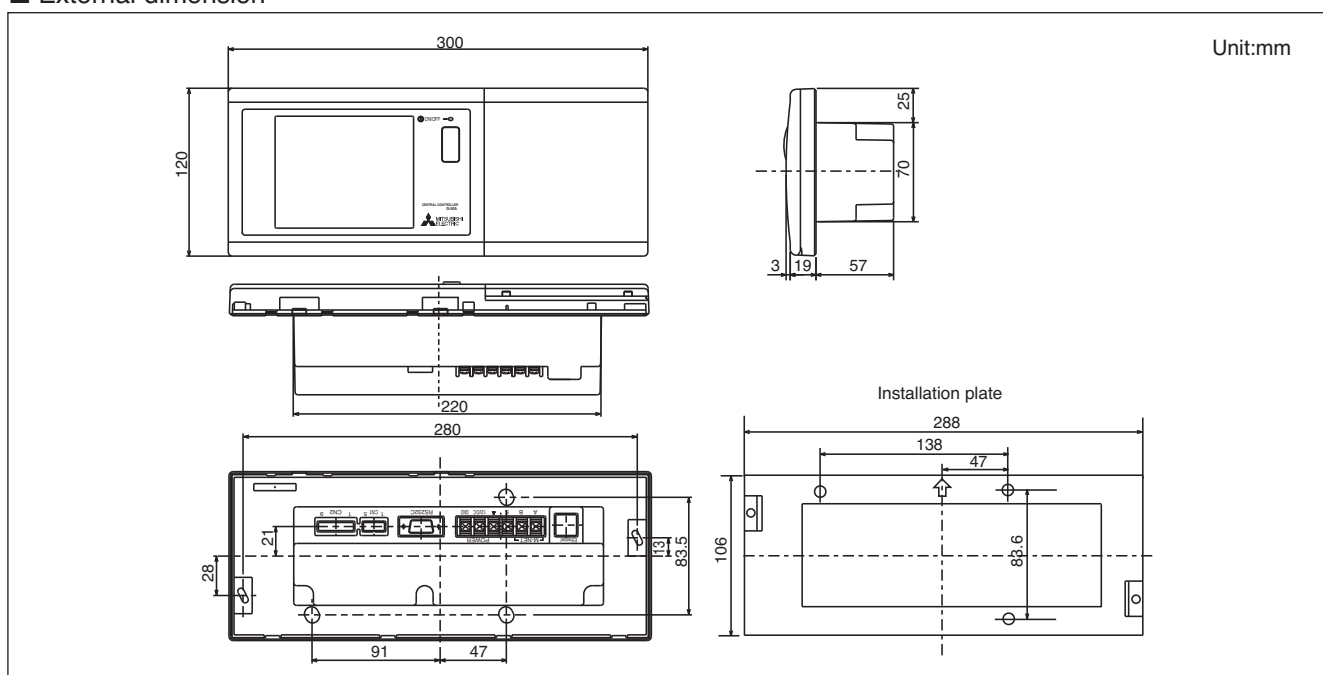
D. Taking advantage of G-50A's Web functions, alarming E-mail containing address and error code can be sent to appointed E-mail address upon any fault happen at the air conditioner system. This could release standby personnel and save operation cost.

■ Functions

□ : Each unit ○ : Each group ● : Each block
△ : Each floor ◎ : Collective X : Not available

Item	Description	Operations	Display
ON/OFF	Run and stop operation for the air conditioner units	○ ◎	○ ◎
Operation mode switching	Switches between Cool / Dry / Auto / Fan / Heat. (Group of LOSSNAY unit : automatic ventilation/ vent - heat interchange/ normal ventilation) Operation modes vary depending on the air conditioner unit. Auto mode is the City Multi R2 and WR2 series only.	○ ◎	○
Temperature setting	Range of temperature setting Cool/Dry : 19°C - 30°C (14°C - 30°C) Heat : 17°C - 28°C (17°C - 28°C) Auto : 19°C - 28°C (17°C - 28°C) () in case of using middle-temperature on PEFY-VMS/VMH-E by setting DipSW7-1 to ON. * Range of temperature settings vary depending on model.	○ ◎	○
Fan speed setting	Models with 5 air flow speed settings: Hi/Mid-2/Mid-1/Low, Auto Models with 4 air flow speed settings: Hi/Mid/Low, Auto Models with 2 air flow speed settings: Hi/Low Fan speed settings vary depending on the model.	○ ◎	○
Air flow direction setting	Air flow direction angles, 4-angle or 5-angle Swing, Auto *1: Louver cannot be set. Air flow direction settings vary depending on the model.	*1 ○ ◎	○
Timer operation	For one day, you can set start/stop three times and you can set enable/disable three times. For a week's schedule, you can store three start/stop patterns and one enable/disable pattern. *2: When the timer is set, "Timer enabled" is shown on the operation setting screen of the LCD.	○ ◎	*2 ○
Permit / Prohibit local operation	Individually prohibit operation of each local remote control function (Start/Stop, Change operation mode, Set temperature, Reset filter). *3: When the local remote controller inactivation command is received from the master system controller, "Disabled" appears in inverted display on the operation setting screen.	○ ◎	*3 ○
Indoor unit intake temperature	Measures the intake temperature of the indoor unit only when the indoor unit is operating.	X	○
Error	When an error is currently occurring on an air conditioner unit, the afflicted unit and the error code are displayed. *4: When an error occurs, the LED flashes. The operation monitor screen shows the abnormal unit by flashing it. The error monitor screen shows the abnormal unit address, error code and source of detection. The error log monitor screen shows the time and date, the abnormal unit address, error code and source of detection.	X	*4 □ ◎
Test run	This operates air conditioner units in test run mode.	○	○
Ventilation equipment	The interlocked system settings can be performed by the master system controller. When setting the interlocked system, you can use the ventilation switch to switch the free plan LOSSNAY settings between "Hi", "Low" and "Stop". When setting a group of only free plan LOSSNAY units, you can switch between "Normal ventilation", "Interchange ventilation" and "Automatic ventilation".	○	○
External input/output	By using accessory cables you can set and monitor the following. Input By level signal: "Batch start/stop", "Batch emergency stop" By pulse signal: "Batch start/stop", "Enable/disable local remote controller" Output "Start/stop", "Error/Normal" *5: Requires the external I/O cable (PAC-YG10HA-E) sold separately.	◎ *5	◎ *5

■ External dimension



3-5. Central controller
G-50A

3-5-1. Power supply to G-50A

G-50A needs DC power supply of 24~30V and 12V; the former is for central control transmission use and the latter is for G-50A's operating and LAN function use. G-50A can have power-supply at following 1,2,3 methods.

3-5-1-1. Power supply unit PAC-SC50KUA is the recommended power supplier for G-50A. The basic scheme is as follows. For details, please refer to 3.13 Power supply unit PAC-SC50KUA.

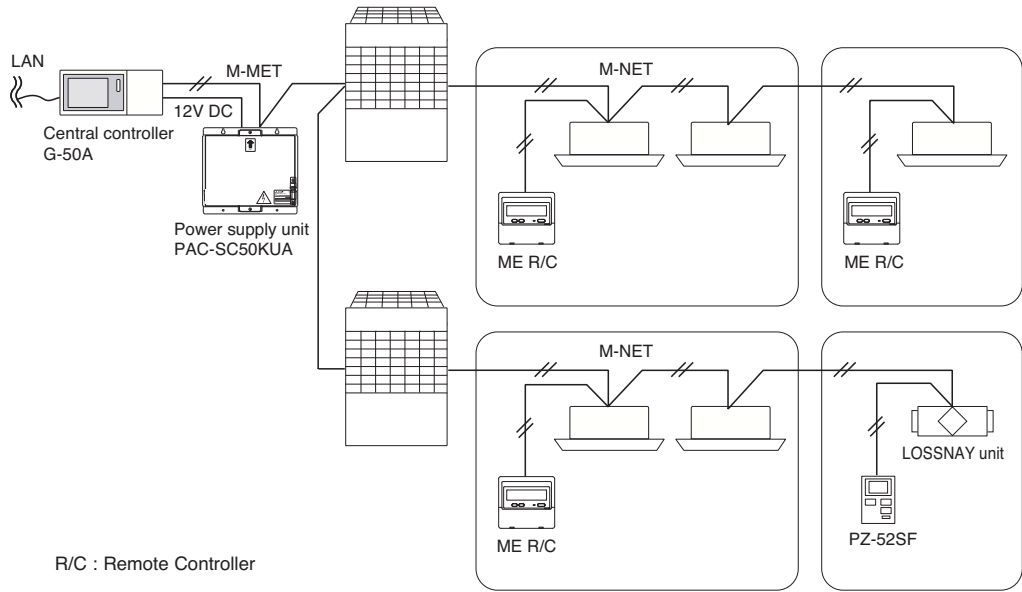


Fig. 3-5-1 G-50A and PAC-SC50KUA basic scheme.

3-5-1-2. Power supply of DC 30V from connector of TB7 or TB3 of Outdoor unit and field supplied DC12V, which specified at Table 3-5-1.

3-5-1-2-1. TB7 and field supplied DC 12V, 0.2A.

As shown at Fig. 3-5-2, G-50A receives power supply of DC 30V from the connector of TB7 at the R410A Outdoor unit together with a field supplied DC12V, 0.2A. In the case, one of the Outdoor units should change its power supply switch of CN41 to CN40.

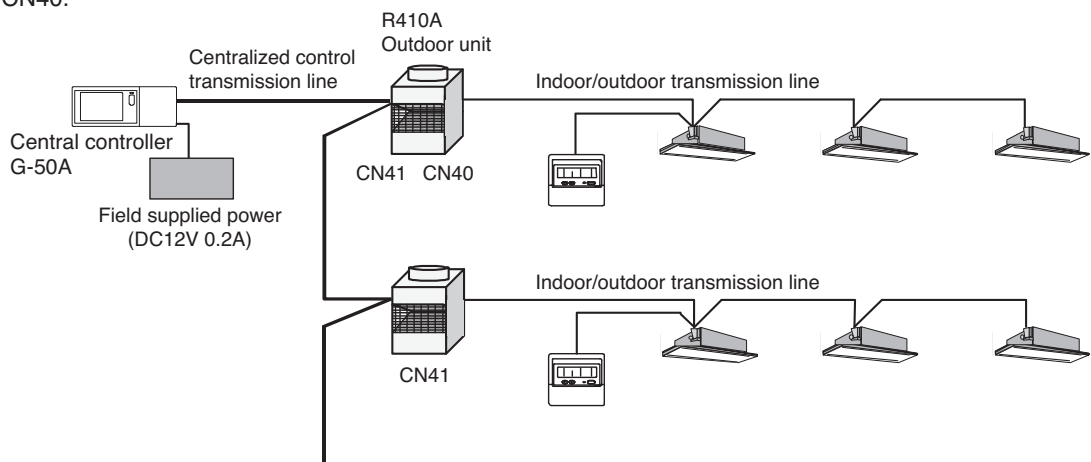


Fig. 3-5-2 G-50A, TB7 and field supplied DC12V scheme.

DC12V Power source should follow the specifications at Table 3-5-1, and the power cable to G-50A should not exceed 10m.

Table 3-5-1 DC12V power specifications	
Source power	DC12V 0.2A (Maximum loading)
Ripple noise	Lower than 150mVp-p
Compatible specification	Authorized or CE marked products. Subject to regulations: IEC60950 (or EN60950) CISPR22/24 (or EN55022/24) IEC61000-3-2/3-3 (or EN61000-3-2/3/3)

3-5. Central controller

G-50A

3-5-1. Power supply to G-50A

3-5-1-2. Power supply of DC 30V from connector of TB7 or TB3 of Outdoor unit and field supplied DC12V, which specified at Table 3-5-1.

3-5-1-2-2. TB3 and DC 12V, 0.2A

G-50A can also receive power supply from TB3 connector of the R410A or R407C, R22 Outdoor unit. Yet, Outdoor unit down will lead down to G-50A too. The kind of connection is possible but not recommended air conditioner system of multiple Outdoor units. The DC 12V 0.2A can be supplied at TB3 connector of PAC-SC50KUA, or a field supplier power complying specification at Table 3-5-1.

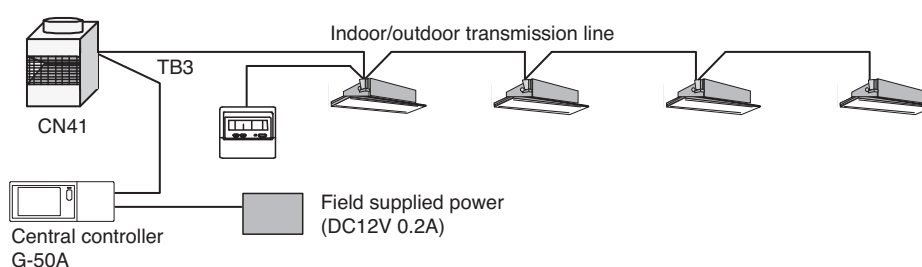


Fig.3-5-3 G-50A, TB3 and field supplied DC 12V scheme.

3-5-1-2-3. The effect on connectable quantity of Indoor unit when TB7 or TB3 is used to supply power to the G-50A.

As Indoor unit controller and system controllers share the power supply from the Outdoor unit, the total power consumption of control use needs following considerations.

Taking the power consumption of the control board of Indoor unit as 1, the equivalent power consumption of the system controller is as follows.

Table 3-5-2 The equivalent power consumption of controllers.

Indoor unit	Central controller (G-50A)	Other system controllers	
		ON/OFF remote controller (AN)	System remote controller (SR) Schedule timer (ST) Group remote controller (GR)
1	0.5	1	0.5

*In order to ensure the transmission quality in start-up of outdoor unit (or during communication traffic), the number of system controllers which connected to indoor/outdoor transmission line in the same system, should not exceed 3.

CAUTION

- Any trouble caused by the failure of the field supplied DC12V power source is not responsible by Mitsubishi Electric Corporation.
- When applying Charge and/or Peak-cut function on G-50A, Power Supply Unit (PAC-SC50KUA) is recommended to use. G-50A is possible to receive power from the one of the Outdoor units, but there is a risk that the failure of power supply from the Outdoor unit will cause G-50A's function-down on the whole system.
- At the air conditioner system of multiple Outdoor units, the connector of CN41 is changed to CN40 at only one of the Outdoor units when TB7 is used to supply power. When the Outdoor unit failed, the connector at another unit can be changed from CN41 to CN40 to recover the power supply, but remember to change the CN40 back to CN41 at the failed Outdoor unit.

3-5. Central controller

G-50A

3-5-2. External input/output usage

3-5-2-1. External signal input function

※ External signal input requires the external I/O adapter (Model: PAC-YG10HA-E) sold separately.

(1) External input

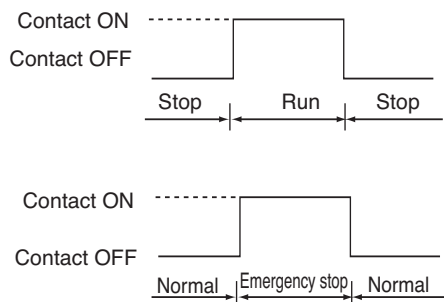
Emergency stop/normal, run/stop and prohibit/enable of local remote controller operation can be controlled for all air conditioners being controlled by using a voltage (DC12V or DC24V) contact signal from an external source.

(Select with the function select setting)

No	External signal input function	Function		Remarks
		No.6	No.7	
1	Do not use external input signal (factory setting)	OFF	OFF	
2	Execute emergency stop/normal with level signal	OFF	ON	The local remote controller ON/OFF operations, and the controller ON/OFF operation and prohibit/enable change operations will be prohibited during emergency stop.
3	Perform ON/OFF with level signal	ON	OFF	The local remote controller ON/OFF operations, and the controller ON/OFF operations and prohibit/enable change operations will be prohibited.
4	Perform ON/OFF, prohibit/enable with pulse signals.	ON	ON	Set the pulse width while the contact is ON to 0.5 to 1 sec.

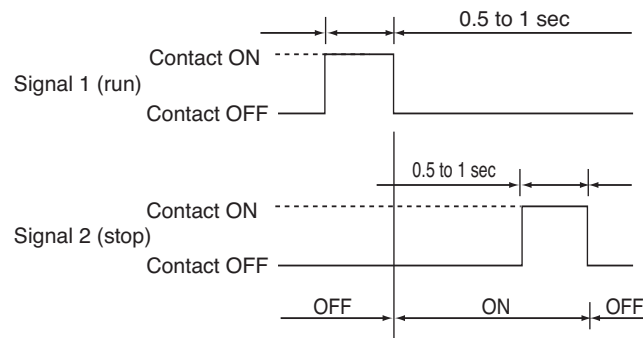
(2) Level signal and pulse signal (DC12V or DC24V)

(A) Level signal



(B) Pulse signal

(Example) for ON/OFF



※ The prohibit/enable input is the same.

(3) External input specifications

CN2	Lead wire	Emergency stop/normal level signal	ON/OFF, level signal	ON/OFF, prohibit/enable pulse signal
No.5	Orange	Emergency stop/normal input	ON/OFF input	ON input
No.6	Yellow	Not used	Not used	OFF input
No.7	Blue	Not used	Not used	Local remote controller operation prohibit input
No.8	Gray	Not used	Not used	Local remote controller operation enable input
No.9	Red	External DC source "+DC12V" or "+DC24V"		

(A) For level signal

- When the emergency stop/normal signal is selected, the status will change from normal to emergency stop when the external input signal contact changes from OFF to ON, and will change from emergency stop to normal when the contact changes from ON to OFF. Emergency stop signal will bring the air conditioners to stop, and canceling the emergency stop will not automatically reset these units. To go back to the previous operation status, they must be manually turned back on.
- When the ON/OFF signal is selected, the status will change from OFF to ON when the external input signal contact changes from OFF to ON, and will change from ON to OFF when the contact changes from ON to OFF.

(B) For pulse signal

- Even if the ON signal is input during ON, the status will remain ON.
- If the local remote controller is prohibited, the ON/OFF operation mode and temperature setting operations by the local remote controller will be prohibited.
- Set the pulse width (contact ON time) to 0.5 to 1 sec.

3-5. Central controller

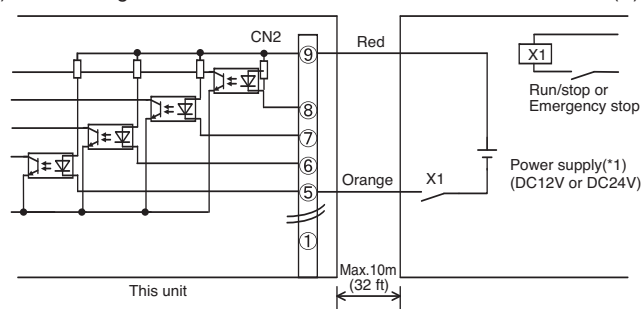
G-50A

3-5-2. External input/output usage

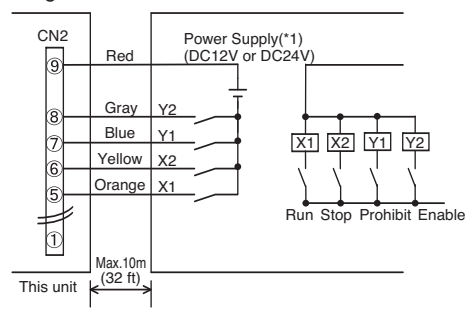
3-5-2-1. External signal input function

(4) Recommended circuit example

(A) For level signal



(B) For pulse signal



Use relays X1, X2, Y1, and Y2 that meet the following specifications.
 Operating coil
 Rated voltage: DC12V, DC24V
 Power consumption: 0.9 W or less
 (*1) Prepare a power supply separately according to the relay being used.
 (DC12V or DC24V)

The contact relay, DC power source, extension cable, etc., must be prepared separately at the site.

The connection cable can be extended up to 10m. (Use a 0.3mm² or larger wire.)

Strip the extra cable near the connector, and securely insulate the exposed section with tape, etc.

3-5-2-2. External signal output function

* External signal output requires the external I/O adapter (Model: PAC-YG10HA-E) sold separately.

(1) External output

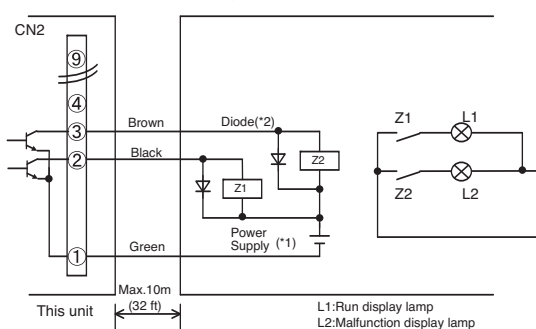
When one or more air conditioners are running, the "ON" signal will be output and if a malfunction occurs in one or more air conditioners, the "Malfunction" signal will be output.

(2) External output specifications

CN 2	Lead wire	Details of each terminal
No.1	Green	Common (External ground)
No.2	Black	ON/OFF
No.3	Brown	Malfunction/normal

The "ON" signal is output even while the "Malfunction" signal is being output.

(3) Recommended circuit example



Use Z1 and Z2 relays having the following specifications.

Operation coil
 Rated voltage : DC12V or DC24V
 Power Consumption : 0.9W or below
 (*1) Prepare a power supply separately according to the relay being used. (DC12V or DC24V)
 (*2) Always insert a diode on both ends of the relay coil.

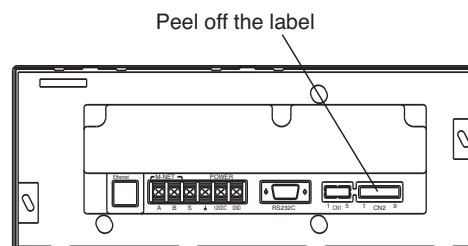
Each element will turn on while ON operation or a malfunction occurs.

The connection cable can be extended up to 10m.

The relays, lamps, diodes and extension cables, etc, must be prepared separately at the site.

NOTE

When connecting the external input/output cables to connector CN2 on the controller, Peel off the label on the controller connector section.



3-5. Central controller G-50A

3-5-3. LAN connection function

When using the LAN connection function, connect the LAN cable to the Ethernet connector of this device.

- * Procure the LAN cable at the site, and use an enhanced category 5 UTP cable.
- * For a description of the IP address setting method, refer to Installation Manual.
- * LAN is 10 BASE-T Specification.

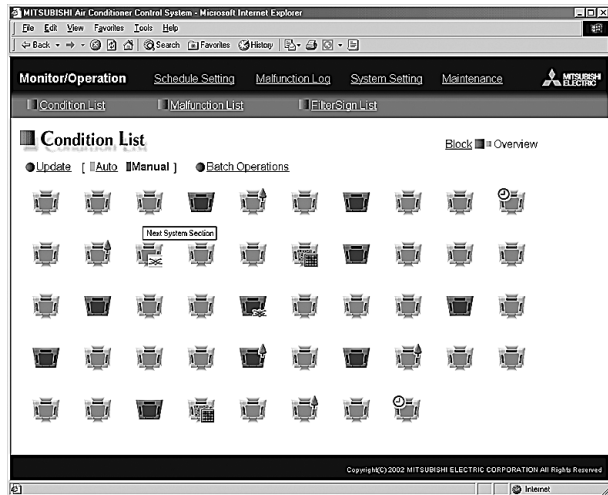


NOTE

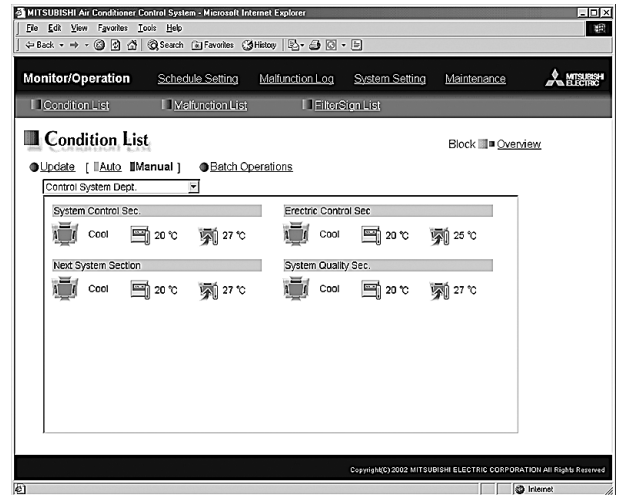
- * Perform the LAN wiring before installation, and wire up to the body by the same method as wiring the M-NET transmission line.
- * When a LAN is already connected, decide the IP address by consultation with the system administrator and connect to the LAN body after changing the IP address.
- * When connecting an LAN connector, space for the connector and wiring is required. Provide this space at this unit and the rear of the electric box. Refer to Installation Manual.
- * When the G-50A cover is opened, the LAN status lamp and LAN changeover switch are accessed. For detailed information, refer to sections 3-2 and 5-9 of the Instruction Book.

3-5. Central controller G-50A

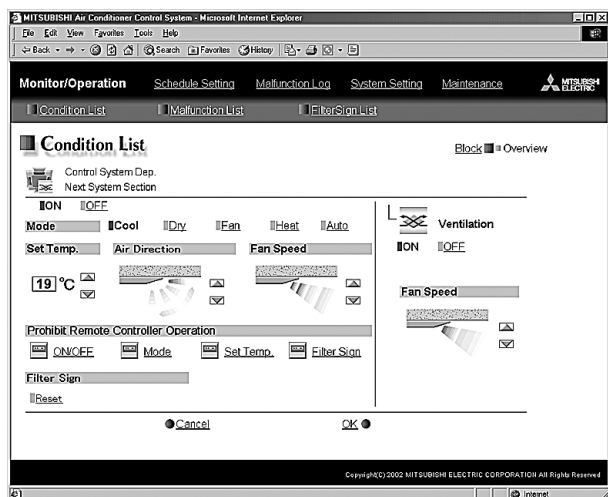
3-5-4. Browser screens of G-50A



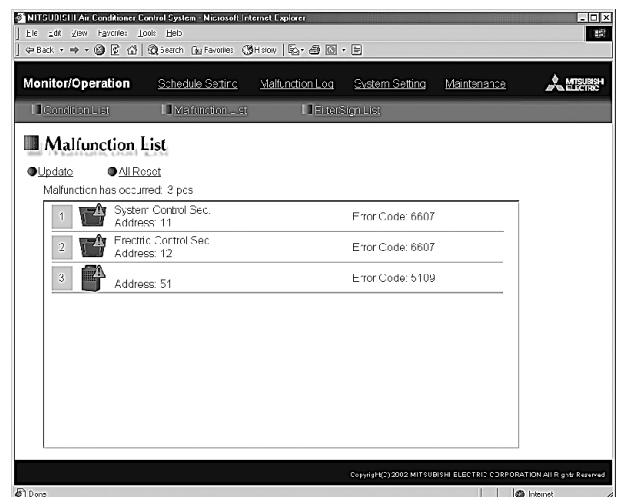
Condition List (Overview)



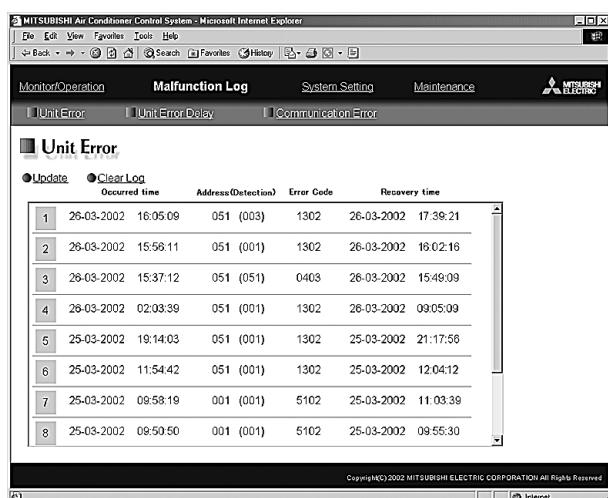
Condition List (Block)



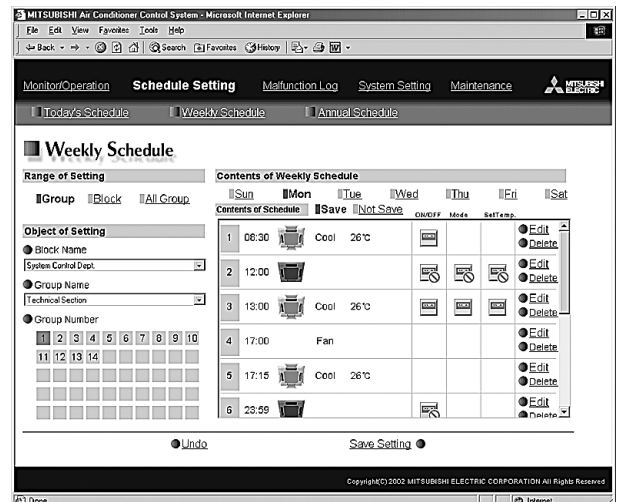
Operation



Malfunction List



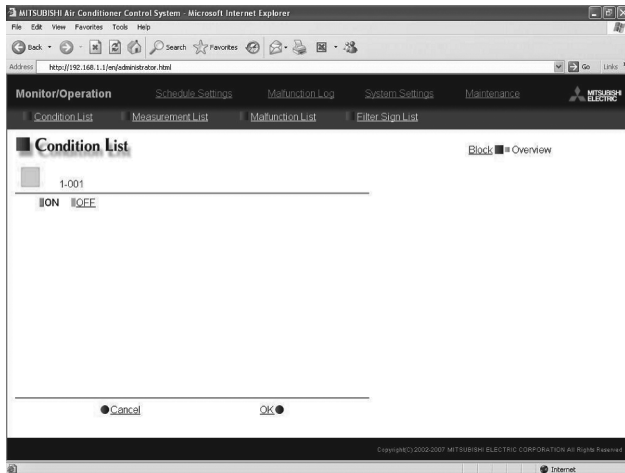
Malfunction Log



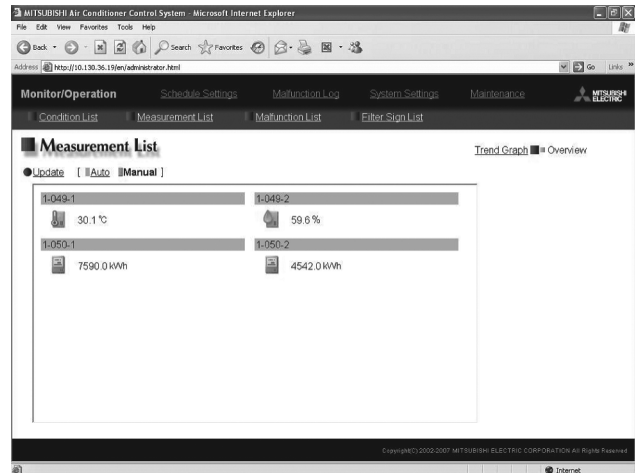
Weekly Schedule

3-5. Central controller G-50A

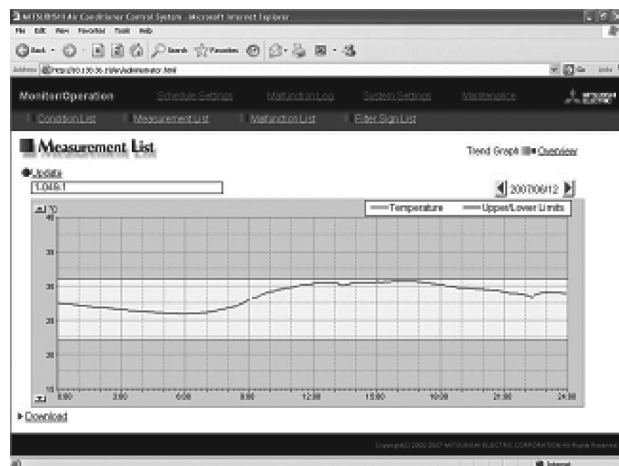
3-5-4. Browser screens of G-50A



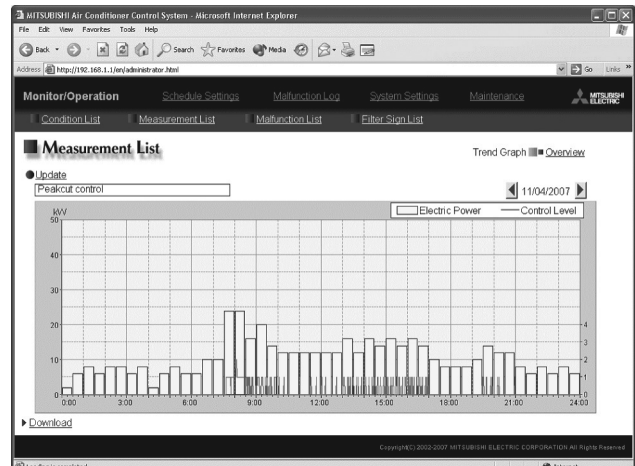
Operation (DIDO Controller)



Measurement status monitor (temperature sensor/humidity sensor /measurement meter)



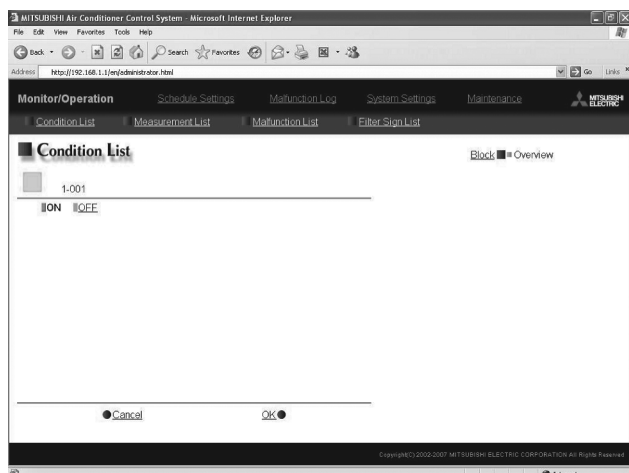
Trend Graph (temperature/humidity)



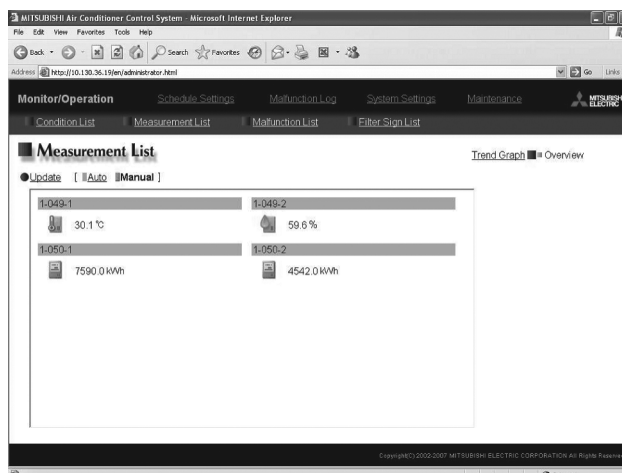
Trend Graph (Peak cut control)

3-6. Central controller G-50A

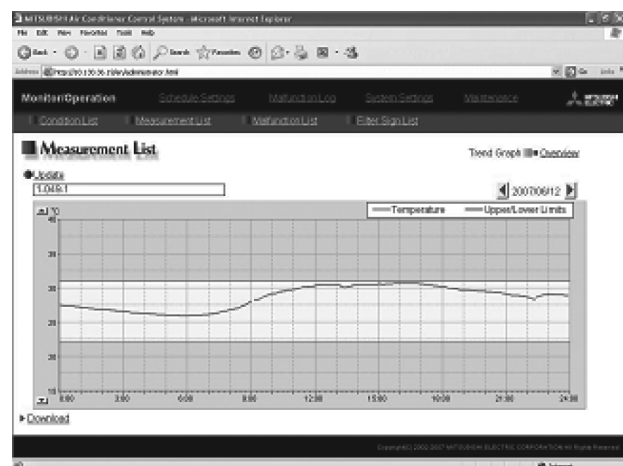
3-6-4. Browser screens of G-50A



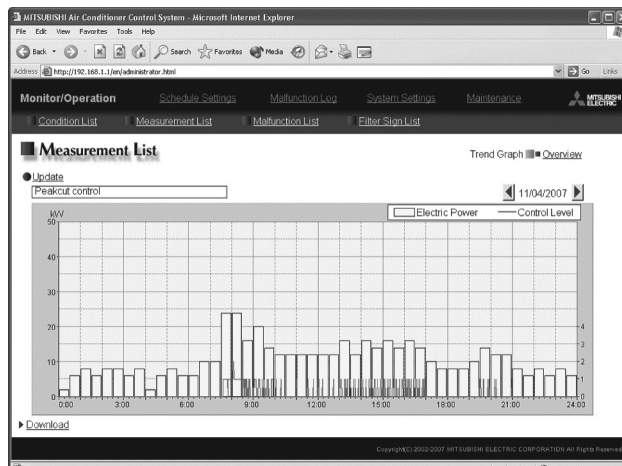
Operation (DIDO Controller)



Measurement status monitor (temperature sensor/humidity sensor /measurement meter)



Trend Graph (temperature/humidity)



Trend Graph (Peak cut control)