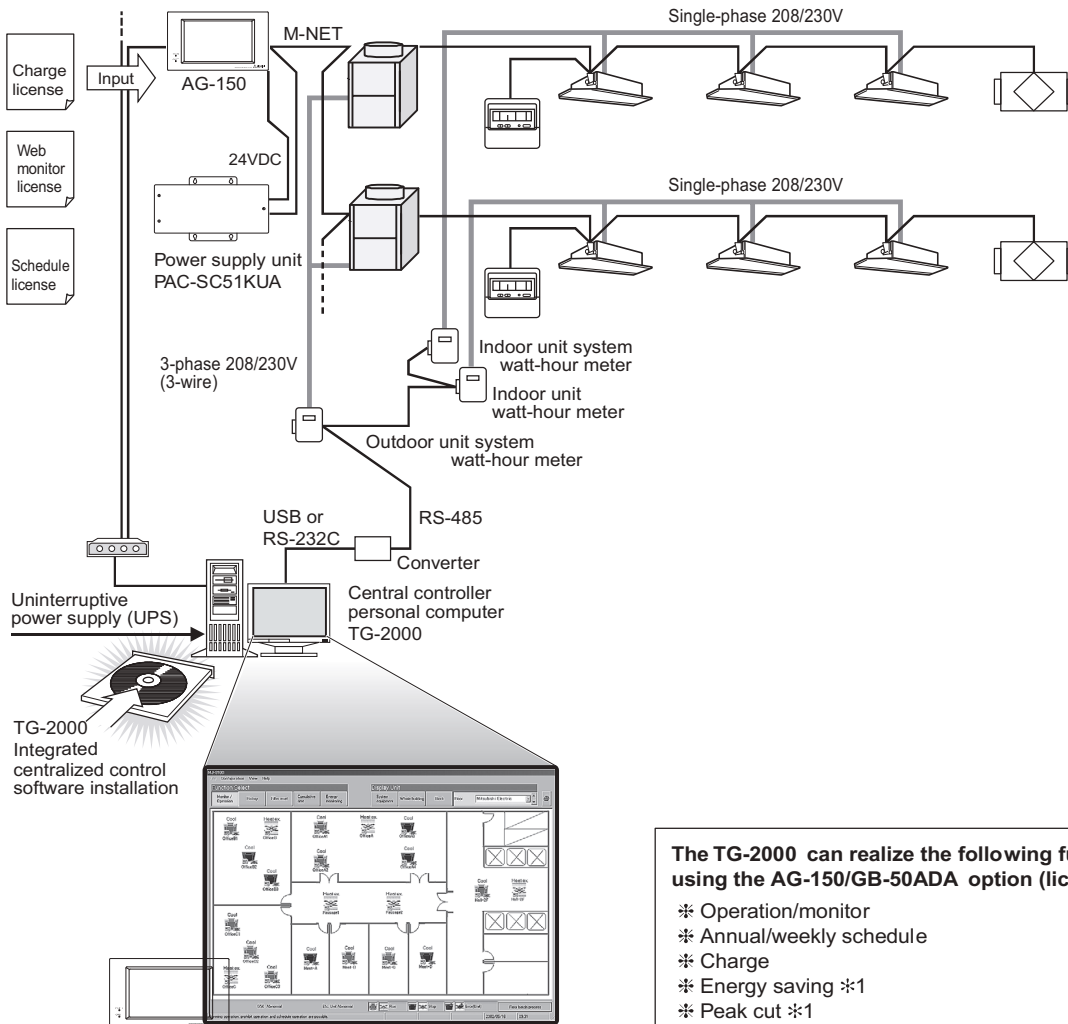


3-9. Integrated centralized control software [TG-2000]

3-9-1. Example of Basic System Configuration.



The TG-2000 can realize the following functions using the AG-150/GB-50ADA option (license).

- * Operation/monitor
- * Annual/weekly schedule
- * Charge
- * Energy saving *1
- * Peak cut *1
- *1: Compatible with TG-2000A Ver. 4.10 and higher, G-50A Ver. 2.51 or later.

■ Main features of TG-2000A

- ① Up to 2000 indoor units (40 AG-150, GB-50ADA units) can be operated and monitored simultaneously
 - ② The air-conditioner layout can be displayed on the screen, making control and operation easier.
 - ③ The annual and weekly schedules can be set. Two schedules, such as the summer master and winter master, can be saved in the weekly schedule.
 - ④ Air-conditioning charges can be calculated based on the multiple air-conditioner usage results. The power apportionment percentage data and apportioned power rate can be calculated for each indoor unit using the power apportionment function, and can be output as a CSV format file. * Power apportionment charging is not possible with the old model, A control or K control.
 - Charging without WHM : The user manually inputs the power rate to calculate the air-conditioning charges. (Using a tool)
 - RS-485 WHM charging : The RS-485 WHM value is automatically tabulated to calculate the air-conditioning charges.
 - ⑤ Night Set-Back function operation is possible with schedule settings. *1,4
 - ⑥ General equipment can be operated and monitored. *2
 - *1: Compatible with TG-2000 Ver. 4.10 or later, G-50 Ver. 2.51 or later.
 - *2: Compatible with TG-2000 Ver. 4.30 or later, G-50 Ver. 2.51 or later.
 - *3: Compatible with TG-2000 Ver. 4.60 or later, G-50 Ver. 2.70 or later.
 - *4: With Night Set-Back function, the CITY MULTI system can run at heating mode with target temperature set to 54°F /12°C under schedule control. This function can protect the room from dropping down to extremely low temperature at mid-night.
- Note: AG-150 (Ver. 1XX Series) will be compatible with TG-2000 Ver. 5.5 or later. Depending on the versions of TG-2000 and G(B)-50, some functions may not be available.

3. SYSTEM CONTROLLER

3-9-2. List of TG-2000 functions

The data for each GB-50 can be grouped and used to control the operation of up to 2000 units in floor or block units, from the personal computer screen. By using a watt-hour meter or DIDO (PAC-YG66DCA), the power rate can be ap and other general equipment can be controlled.

List of integral software functions

Item	Details	GB-50 license			
		Web monitor	Charge	Schedule	Energy saving
ON/OFF	The units can be turned ON and OFF for all floors or in block, floor or group units.	√			
Operation modes	The operation mode can be switched between COOL, DRY, FAN, AUTO and HEAT for all floors or in block, floor or group units.	√			
Temperature setting	The room temperature can be set for all floors or in block, floor or group units. Set temperature range COOL / DRY : 66°F to 86°F / 19°C to 30°C HEAT : 63°F to 82°F / 17°C to 28°C AUTO : 66°F to 82°F / 19°C to 28°C ※ Depends on indoor unit model.	√			
Fan speed	The fan speed can be set to four stages for all floors or in block, floor or group units.	√			
Air direction	The air direction can be set in four vertical directions or to swing for all floors or in block, floor or group units.(The selectable air direction differs according to the model.)	√			
Interlocked unit ON/OFF (LOSSNAY)	If there is an interlocked unit (LOSSNAY), the unit can be turned ON (strong/weak) or OFF for all floors or in block, floor or group units. (The ventilation mode cannot be selected for interlocked units.)	√			
Local operation prohibit	The items for which operation with the local remote controller are to be prohibited can be selected for all floors or in block, floor or group units. (The items that can be prohibited are ON/OFF, operation mode, set temperature and filter sign reset.)	√			
Annual / weekly schedule	The annual/weekly schedule function can be used by registering the license. Two settings, such as seasonal settings for summer and winter, can be saved.	√		√	
Power rate apportionment charging (power rate manual input)	By registering the AG-150/GB-50ADA unit license number, power rate apportionment percentage data for each indoor unit can be output in CSV format.The power rate for each tenant can be easily calculated by having each user input the power rate manually.	√	√		
Power rate apportionment charging	An RS-485 watt-hour meter is connected to calculate the air-conditioning charges based on the amount each tenant's air-conditioner has operated. Two charging rates can be applied per day.	√	√		
History	Up to 3000 items for the error history and up to 10000 items for operation history can be saved. Each history file can be output as a daily report or monthly report in CSV format. The max. no. of error history data that can be saved depends on the type of errors and the no. of connected AG-150/GB-50ADA units. The operation history consists only of the operations carried out with the TG-2000, and is limited to some limited operation items.	√			
Operation time monitor	The cumulative operation time of each indoor unit can be viewed or output as a CSV format file. (This function is valid only when the charging function license is registered.)	√	√		
Filter sign display mask	Automatic display of the filter sign can be disabled. (System batch.) In this case, the filter sign state is confirmed with manual operations .	√			
Night Set-Back function ※1,2	Heating from 54°F / 12°C and higher can be set using the schedule.	√		√	
Set temperature limit ※1	The set temperature lower limit can be set for cooling and the upper limit for heating.	√			
Control other general equipment	The ON/OFF status of the connected general equipment and the error status can be changed or monitored from the DIDO (PAC-YG66DCA).	√			

※1: Compatible with TG-2000 Ver. 4.10 or later, G-50 Ver. 2.51 or later.

※2: With Night Set-Back function, the CITY MULTI system can run at heating mode with target temperature set to 54°F / 12°C under schedule control. This function can protect the room from dropping down to extremely low temperature at midnight.

Note: Depending on the versions of TG-2000 and G(B)-50, some of the functions may not be available for use.

3. SYSTEM CONTROLLER

- (2). The data for each AG-150 can be grouped and used to control the operation of up to 2000 units in floor or block units, etc., from the personal computer screen. By using a watt-hour meter or DIDO (PAC-YG66DCA), the power rate can be apportioned, and other general equipment can be controlled.

List of integral software functions

Item	Details	AG-150 license		
		Web monitor	Schedule	Energy management
ON/OFF	The units can be turned ON and OFF for all floors or in block, floor or group units.	✓		
Operation modes	The operation mode can be switched between COOL, DRY, FAN, AUTO and HEAT for all floors or in block, floor or group units.	✓		
Temperature setting	The room temperature can be set for all floors or in block, floor or group units. Set temperature range COOL / DRY : 19°C to 30°C / 66°F to 86°F HEAT : 17°C to 28°C / 63°F to 82°F AUTO : 19°C to 28°C / 66°F to 82°F ※ Depend on the model	✓		
Fan speed	The fan speed can be set to four stages for all floors or in block, floor or group units.	✓		
Air direction	The air direction can be set in four vertical directions or to swing for all floors or in block, floor or group units. (The selectable air direction differs according to the model.)	✓		
Interlocked unit ON/OFF (LOSSNAY)	If there is an interlocked unit (LOSSNAY, the unit can be turned ON (strong/weak) or OFF for all floors or in block, floor or group units. (Note that the ventilation mode cannot be selected for interlocked units.)	✓		
Local operation prohibit	The items for which operation with the local remote controller are to be prohibited can be selected for all floors or in block, floor or group units. (The items that can be prohibited are ON/OFF, operation mode, set temperature and filter sign reset.)	✓		
Annual / weekly schedule	The annual/weekly (season: weekly x 2) schedule function can be used by registering the license. Five settings, such as seasonal settings for summer and winter, can be saved.	✓	✓	
Power rate apportionment charging (power rate manual input)	By registering the AG-150/GB-50ADA unit license no., the power rate apportionment percentage data for each indoor unit can be output in CSV format. The power rate for each tenant can be easily calculated by having each user input the power rate manually.	✓		✓
Power rate apportionment charging	An RS-485 watt-hour meter is connected to calculate the air-conditioning charges based on the amount each tenant's air-conditioner has operated. Two charging rates can be applied per day.			
History	The error history and up to 10000 items for operation history can be saved. Each history file can be output as a daily report or monthly report in CSV format. The maximum number of error history data that can be saved depends on the type of errors and the number of connected AG-150A units. The operation history consists only of the operations carried out with the TG-2000A, and is limited to some limited operation items.	✓		
Operation time monitor	The cumulative operation time of each indoor unit can be viewed or output as a CSV format file. (This function is valid only when the charging function license is registered.)	✓		✓
Filter sign display mask	Automatic display of the filter sign can be disabled. (System batch.) In this case, the filter sign state is confirmed with manual operations.	✓		
Night Set-Back function ※1	Heating from 12°C / 54°F and higher can be set using the schedule function.	✓		
	This function helps keep the indoor temperature in the temperature range while the units are stopped and during the time this function is effective.	✓		
Set temperature limit ※2	The set temperature lower limit can be set for cooling and the upper limit for heating.	✓		
Control other general equipment	The ON/OFF status of the connected general equipment and the error status can be changed or monitored from the DIDO (PAC-YG66DCA).	✓		

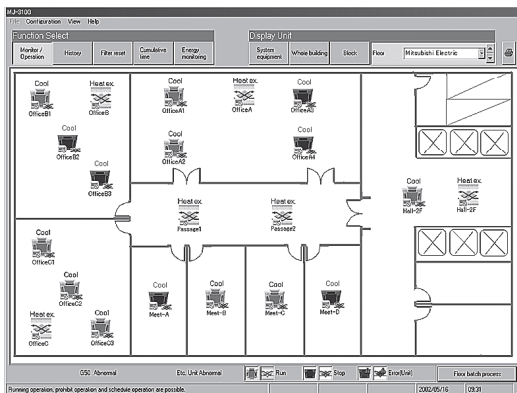
※1 : With Night Set-Back function, the CITY MULTI system (PUMY models excluded) can run at heating mode with target temperature set to 12°C / 54°F under schedule control. (It depends on the outdoor unit model.) This function can protect the room from dropping down to extremely low temperature at midnight.

※2 : This function cannot be used with the MA remote controller. (It depends on the indoor unit model.)

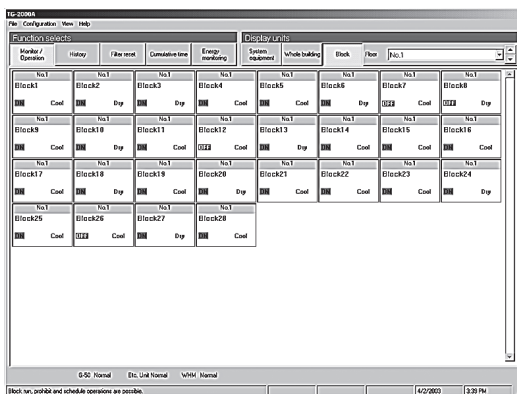
Note : Depending on the versions of TG-2000 and AG-150, some of the functions may not be available for use.

3. SYSTEM CONTROLLER

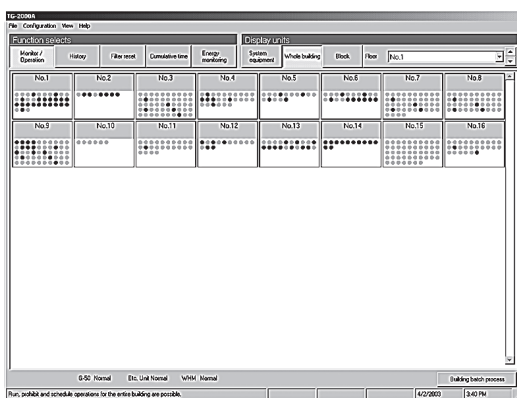
3-9-3. Browser screens of TG-2000



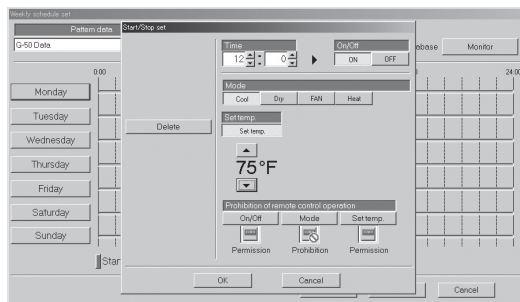
Floor screen



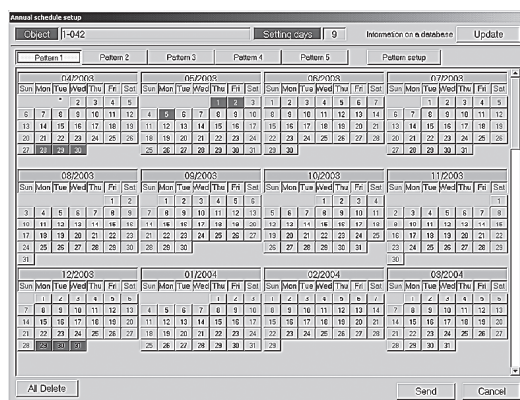
Block screen



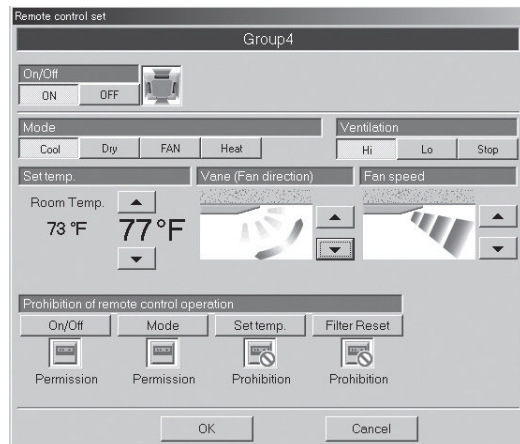
All floor screen



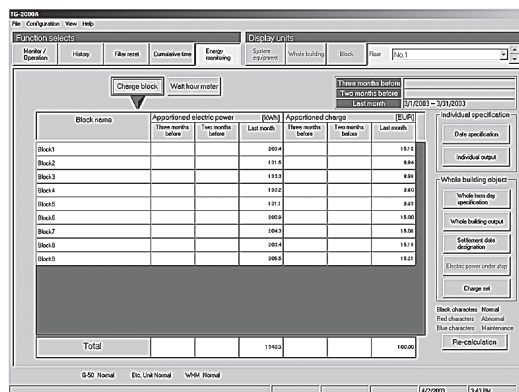
Weekly schedule screen



Annual schedule screen



Operation setting screen



Air-conditioning charge screen

3-9-4. Requirements (system recommendations)

We recommend the following software and hardware when using this application (TG-2000).

	TG-2000 version	System Requirements
When AG-150/GB-50ADA-compatible TG-2000 is used	TG-2000 Ver.5.50 or later *1	OS : Windows Vista/XP Refer to the table below for details.

*1 : TG-2000 Ver.5.20 is upgraded to Ver.5.50 or later.

Item	Requirement		Recommended
PC	PC/AT interchangeable machine (Recommended: IBM, HP,DELL)		Operation check completed, using, HP and DELL (Business model is recommended)
CPU	Core™ 2 Duo 1.66GHz or faster (Windows Vista for Core 2 Duo)		Core™ 2 Duo 2.4GHz or faster
	Pentium® M 1.7GHz or faster		Pentium® M 2.0GHz or faster
	Pentium® 4 2.4GHz or faster		Pentium® 4 2.8GHz or faster
Memory	In Windows Vista : 1GB or more		2GB or more
	In Windows XP / 2000 : 512MB or more		1GB or more
HDD	Standard	6GB or more (2GB or more of C drive free space necessary)	40GB or more of C drive free space necessary When using the trend function, the drive used for automatic output must have the following free space according to the number of groups. 200 groups = 2GB, 500 Groups = 5GB, 1000 groups = 10GB, 2000 groups = 20GB
	Wide area	20GB or more (Free space)	Standard : max. 200MB/site
Storage device	CD-ROM drive, USB drive		Devices other than those shown at the left may also be installed.
Resolution	1024 x 768 or higher, 65536 colors or more		
Serial port	1 port or more		Required when using RS-485 communication WHM
LAN	1 port (10BASE-T/100BASE-TX)		* 1
Modem	56K modem or TA		Required when using a modem in wide area mode.
USB	2 port or more		It uses it for the data backup.
OS	Windows® Vista Business Service Pack 2		English version only *Computer must support each OS.
	Windows® XP Professional Service Pack 3 *2		English version only *Computer must support each OS.
	Windows® 2000 Professional Service Pack 4 *2		English version only *Computer must support each OS.
Other	Computer must be dedicated for this use (TG-2000).		Must be used for 24-hour constant operation (Only some functions. Refer to the TG-2000 manual for details.)

*1 Purchase the option, or use the equipment recommended for the computer when purchasing the computer.

*2 Make sure that the correct version of Service Pack is installed. If the wrong version of Service Pack is installed, TG-2000 will not be set up properly.

* The above contents are subject to change along with TG-2000 version upgrade.

3. SYSTEM CONTROLLER

3-9-5. Compatible Units

The TG-2000 has two main functions: centralized control of air conditioners and cost accounting. However, not all functions are available with all air conditioners.

Table: Compatible units and function list (○ : supported, △ : Certain restrictions apply, × : Not supported)

Function Model	Control/ Maintenance	Charging (Billing) without WHM	Charging (Billing) with WHM	Energy Saving /Peak Cut
Y series	○	○ *1		○
H2i series	○	○ *1		○
R2 series	○	○ *1		○
WR2 series	○	○ *1		○
WY series	○	○ *1		○
S series	○	○ *1		○ *6
Indoor unit	○	○ *2		○
LOSSNAY	○	○ *3		△ *7
Air To Water Booster unit	○	×	△ *11	△ *12
Air To Water HEX unit	○	×	△ *11	△ *12
"A" control type *4	○ (Adapter required)	○ *1,5		△ *8
Room Air Conditioner	○ (Adapter required)	×	△ (Requires separate watt hour meters Bills calculated based on the reading of each watt hour meter)	△ *10

*1 : Can be calculated for each charging block. May not be available with some older models.

*2 : Indoor unit models before Free Plan models do not support a charge apportioning billing method based on the "capacity save". The existence of even a single unit of those types in the system requires that the method of charge apportioning billing be set to either "Thermo on time" or "Fan operation time".

*3 : LOSSNAY groups to which the remote controller is connected support the charging system.

*4 : Not all of the A-control units support these functions. The calculation of the charge for the auxiliary heater may not be handled by these units.

*5 : For A-control units, use the apportioned charging methods that are listed in "Thermo on time" or "Fan operation time" section.

Otherwise, install an watt-hour meter for each unit.

*6 : Outdoor unit capacity control function is not available.

*7 : Only the function to stop the units is available.

*8 : Inverter models support the outdoor unit capacity save control function.

*9 : Outdoor unit Thermo-OFF control function is not supported. Only the fan speeds control function is available.

*10 : Only the temperature control function or the function to stop the units is available.

*11 : For the charge apportioning of Air To Water Booster unit and Air To Water HEX unit, connect the unit to individual watt-hour meter.

Although only the heating capacity is listed in the specification of Air To Water Booster unit, the "cooling" value is used for the Capacity and Power input of indoor unit parameter for Energy-Monitoring Set Up.

The setting is already made with the cooling value for the models registered in Set-up of model name.

For Air To Water Booster unit and Air To Water HEX unit, the charging function supports only the primary refrigerant system of those units.

(Each unit obtains the reading of its watt-hour meter.)

*12 : Capable of Thermo-OFF control (fan operation control) and bringing the units to stop only.