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LG

LG LGMV 4.0

Installation Manual

Model : PRCTSH1

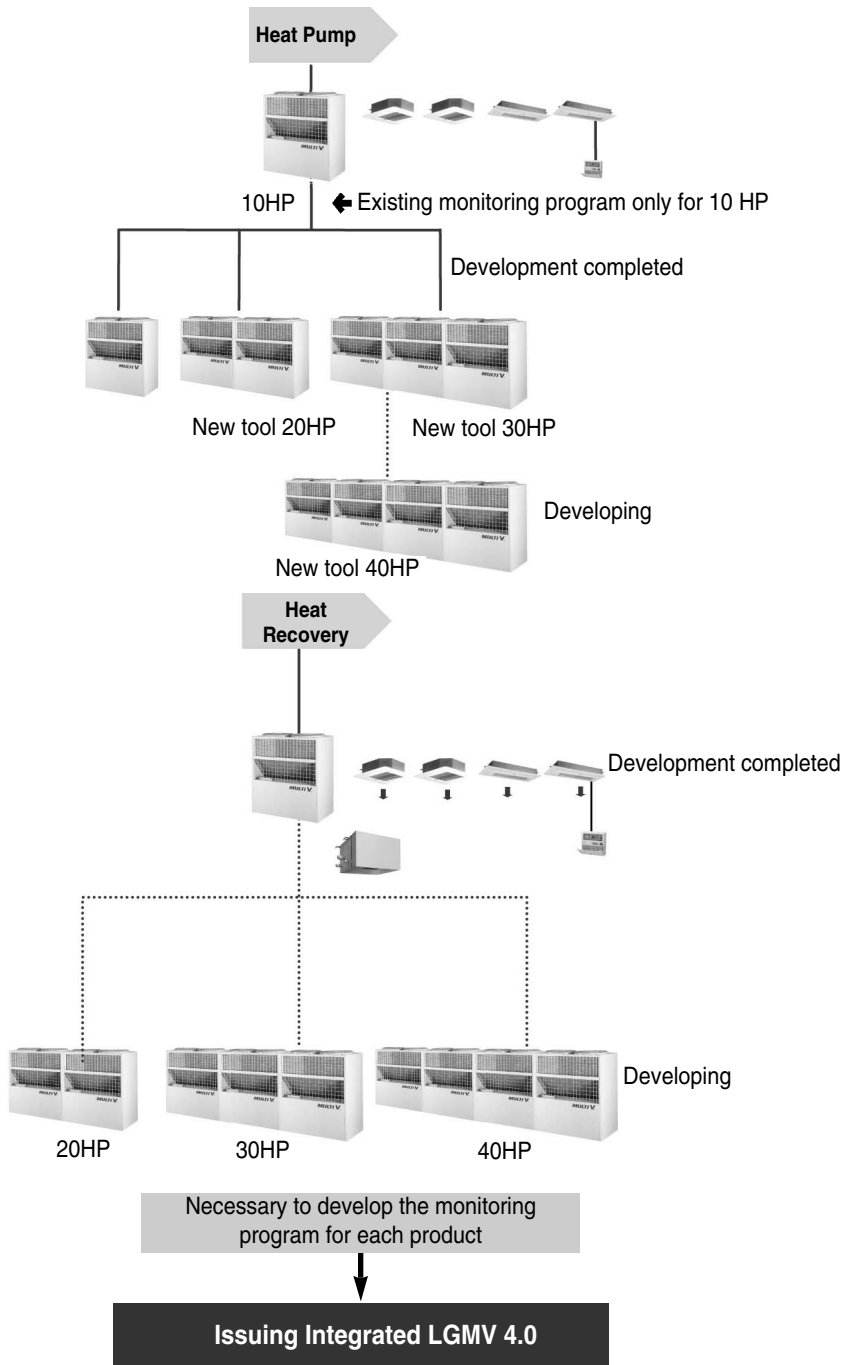
IMPORTANT

- Please read this Installation Manual carefully and thoroughly before installing and operating your room air conditioner.
- Please retain this Installation Manual for future reference after reading it thoroughly.

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LGMV 4.0 Overview



Parts

- Parts of LGMV



LGMV 4.0 CD

(Program + Install manual)

+



HARD LOCK Key

* NOTE : Recommended PC Specification to install LGMV Main program

- CPU : Over Pentium IV 1.6GHz
- Main Memory : Over 256MB
- Operating System : Windows NT/ 2000/ XP/ 2003 (include Microsoft Java VM)
- Hard Disk : More than 600MB when operating
- Web browser : Over Internet Explore 5.0

Programs in CD

1. Check below files listed in CD

Name ▲	Size	Type	Modified
hdd32		File Folder	2005-04-01 오전 1:58
LGMV Installation Manual	753 KB	Adobe Acrobat Doc...	2005-04-01 오전 1:58
LGMV_TOTAL4.0	1,902 KB	Windows Installer P...	2005-04-01 오전 1:58

2. Description of file in CD

- LGMV Installation Manual : LGMV 4.0 Installation Manual
- hdd32 : Hard Lock Program(LGMV 4.0 Security Program)

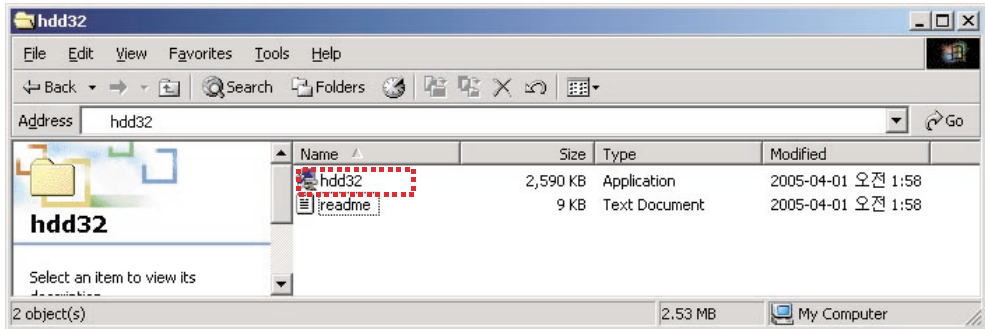


- LGMV_TOTAL4.0.msi : LGMV 4.0 Main Software Installation file

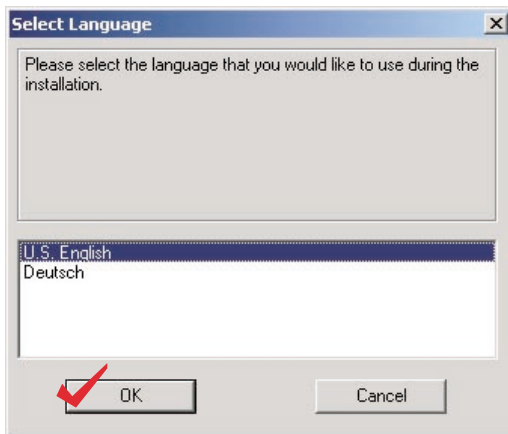
Installation

1. Hard Lock Program Installation

(1) 2 files appear when hdd32 folder is opened



(2) Execute hdd32.exe file. The following window pops up.
- Follow the below mentioned procedure

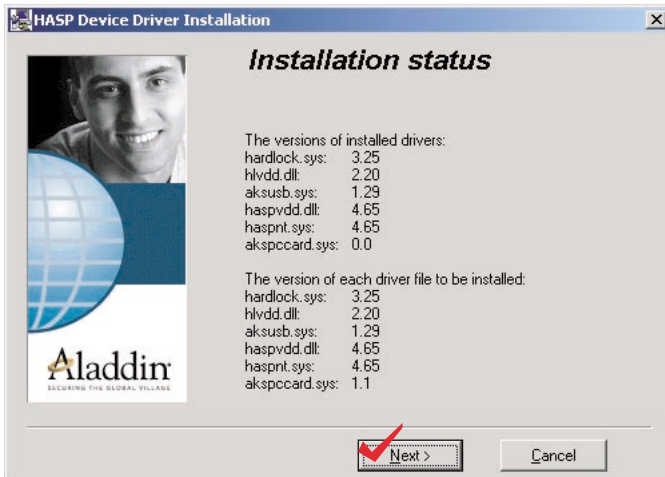


Select U.S.English and then click 'OK' button





Click 'Next' button



Click 'Next' button





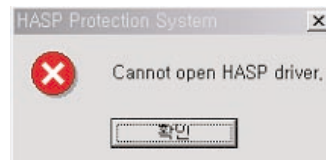
Click 'Finish' button to complete the installation of Hard Lock program

(3) Insert Hard Lock Key in PC Parallel Port

* NOTE : If you don't insert Hard Lock Key before LGMV main program execution, below error message will appear.



Hard Lock Key



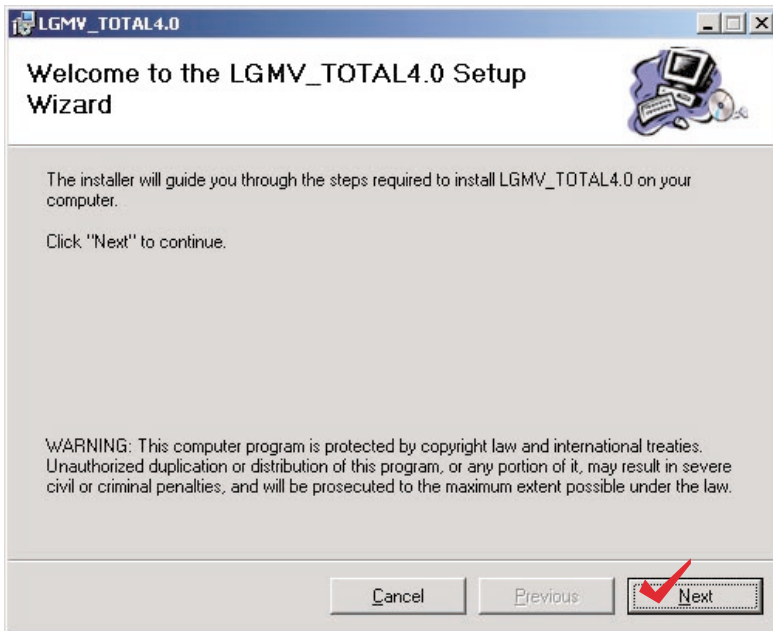
2. Installation of Main LGMV Program

(1) Select LGMV_TOTAL4.0

Name ▲	Size	Type	Modified
hdd32		File Folder	2005-04-01 오전 1:58
LGMV Installation Manual	753 KB	Adobe Acrobat Doc...	2005-04-01 오전 1:58
LGMV_TOTAL4.0	1,902 KB	Windows Installer P...	2005-04-01 오전 1:58

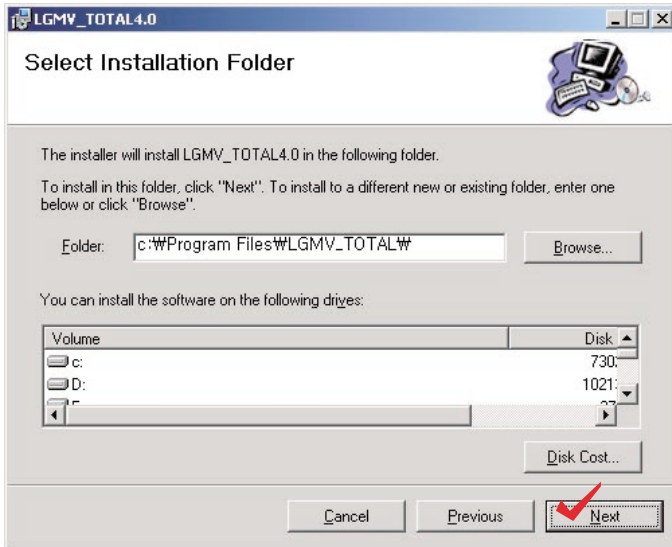
(2) Execute LGMV_TOTAL4.0.msi file. The following window pops up.

- Follow the below mentioned procedure

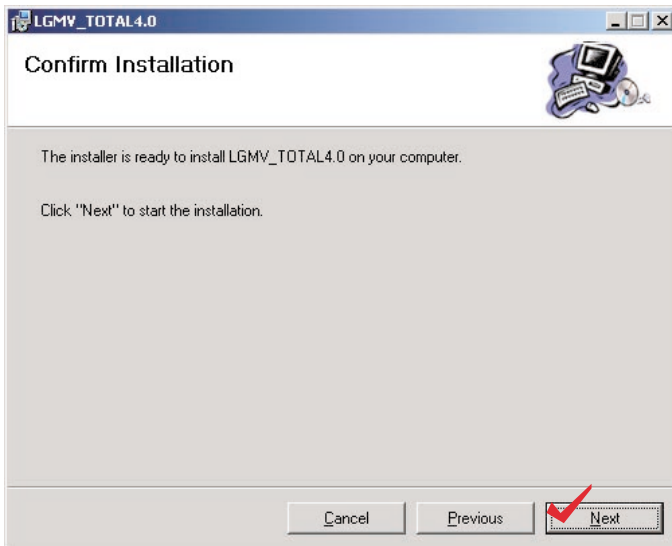


Click 'Next' button



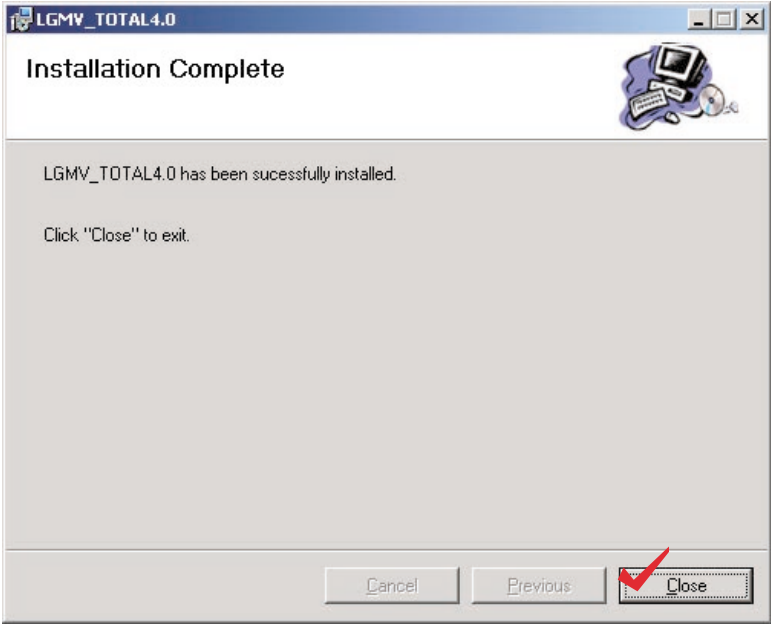


Click 'Next' button



Click 'Next' button





Click 'Close' button to complete the LGMV_TOTAL4.0



3. Port set-up

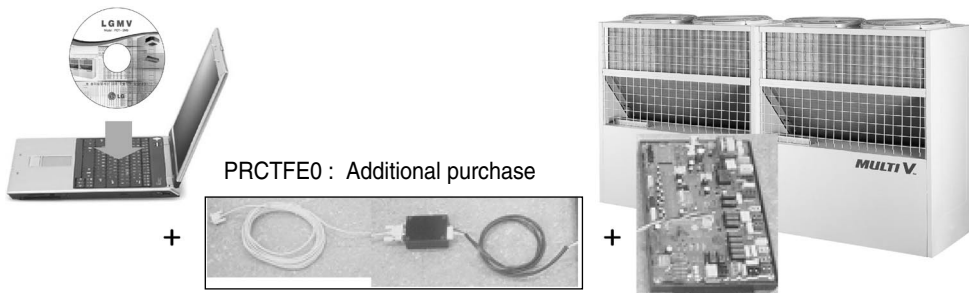
LGMV 4.0 Program will be operated correctly when it is connected COM1

Serial port : COM1 port only

In case that there is not RS232 Serial port in your notebook, use USB port of your PC.

Refer to '(2) Setting the USB port as the serial port' on page 14.

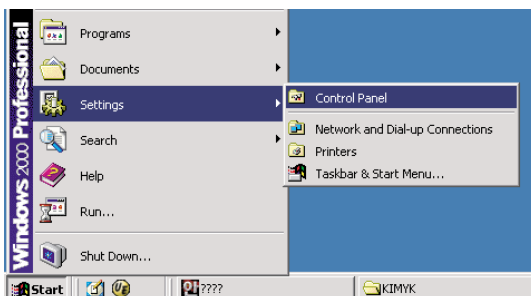
(1) Check COM1 port



System Overview In case of RS 232 Serial PORT In PC

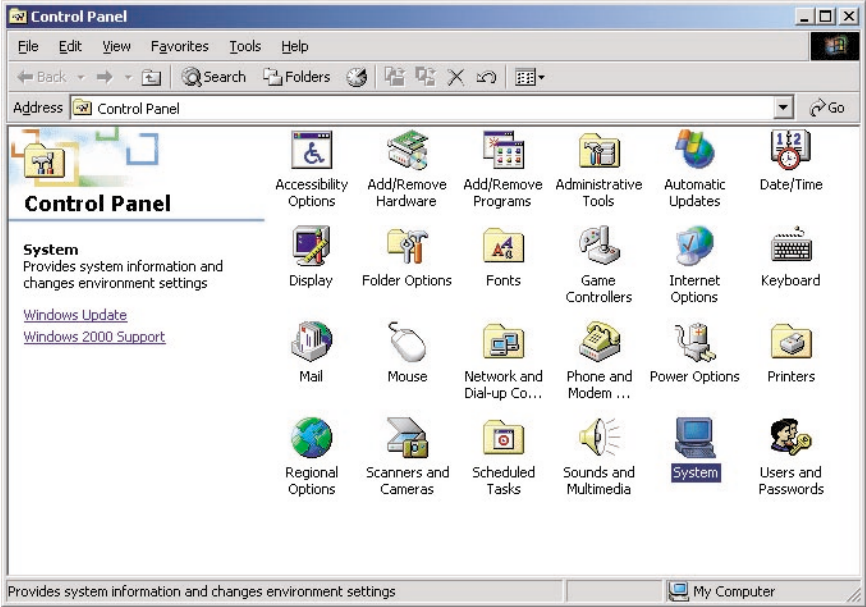
PRCTFE0 connection should be done as the above picture and it would be connected to the main PCB connector of outdoor unit.

To check COM1 port, follow the below procedure

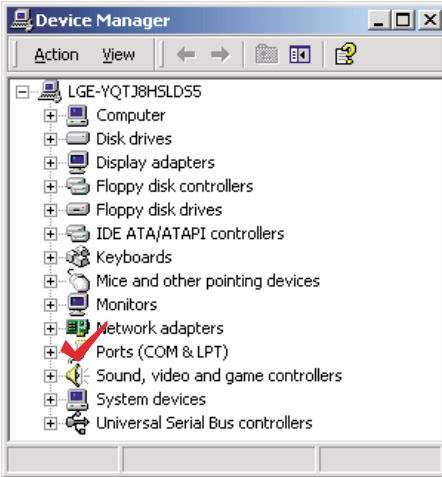
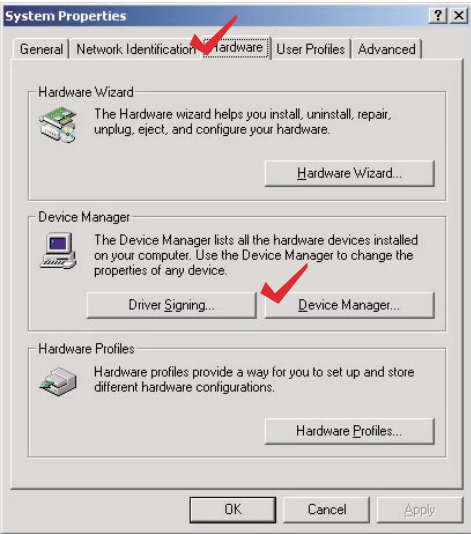


Select 'Start' -> 'System' -> 'Control Panel' then you can see and choose the 'System' icon in 'Control Panel'

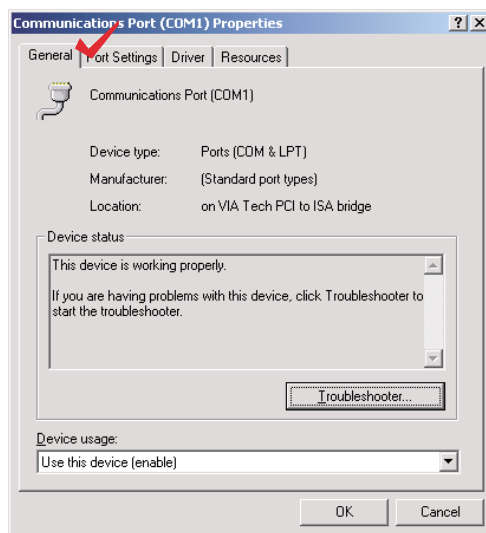
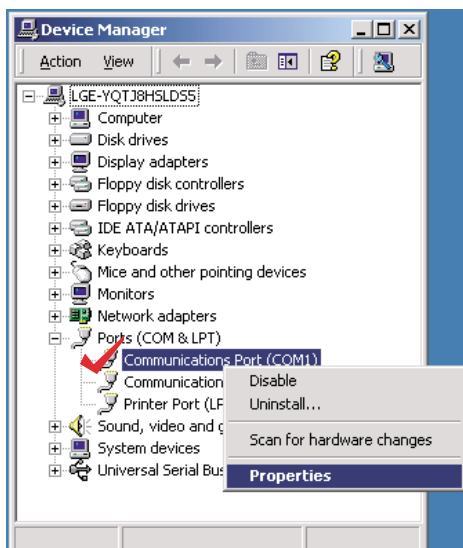




Select 'Hardware' in 'System Properties' window

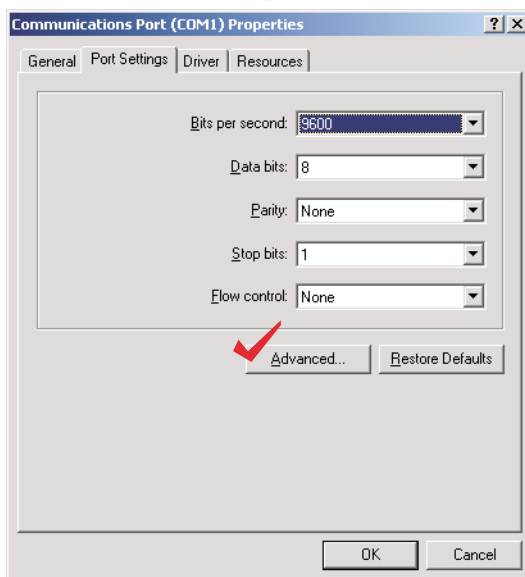


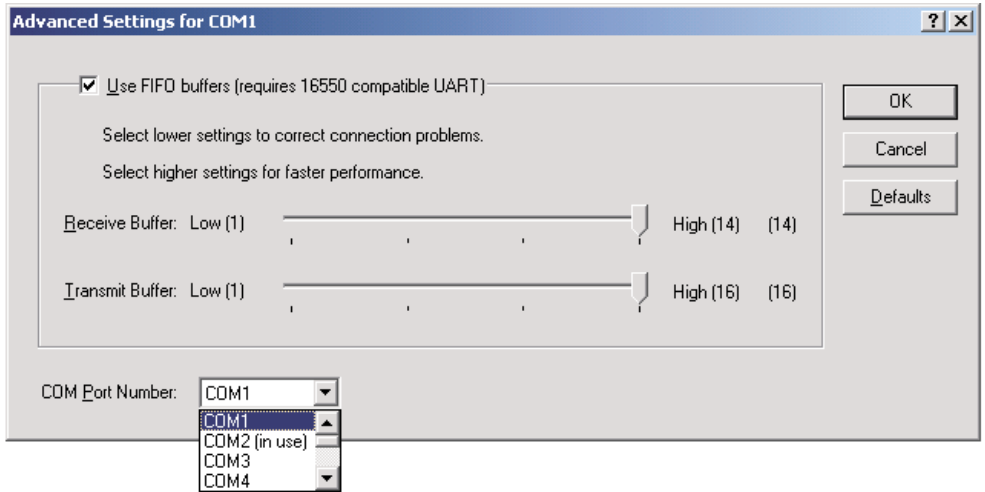
Select 'Device manager' and then 'Device Manager' window appears.
Then select 'Ports(COM & LPT)' in 'Device manager' window



Select 'Communication Port', click right button of your mouse, and choose 'Properties' as shown above

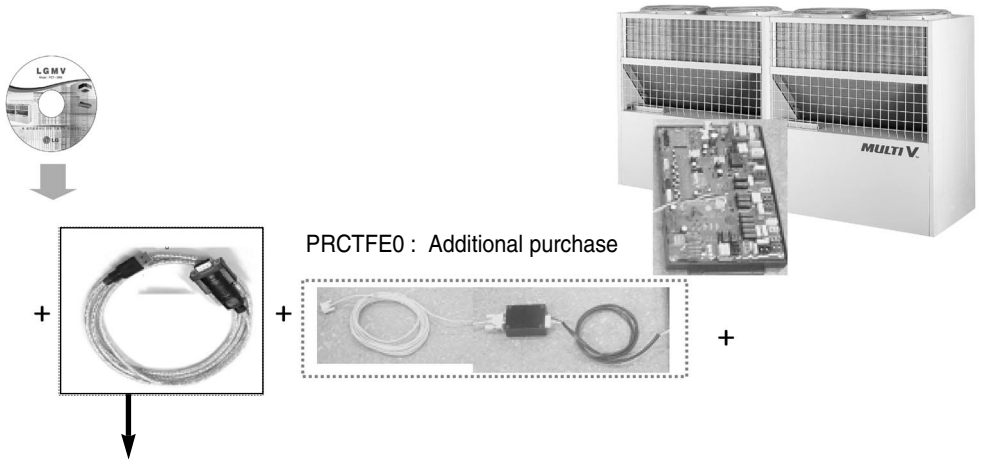
Select 'Port Settings' in 'Communication Port' window and click 'Advanced' button.





Check 'COM1' port and click 'OK' Button

(2) Setting the USB port as the serial port



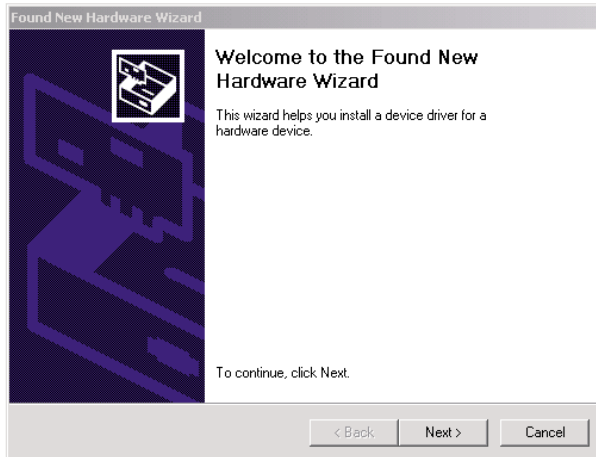
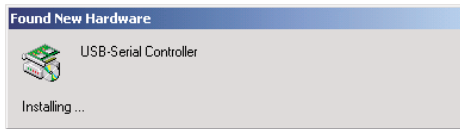
* NOTE : Purchase 'USB to 232 Serial Converter' by yourself.(Local sourcing)

System Overview in case of using USB-Serial converter in PC
 PRCTFE0 connection should be done as shown above and it would be connected to main PCB connector of the outdoor unit.

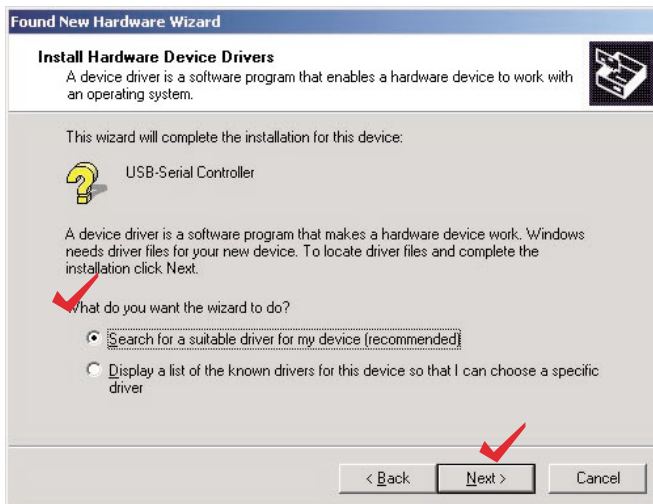
- Insert the USB-Serial converter into the USB port.

You can see the below window and setup the program.

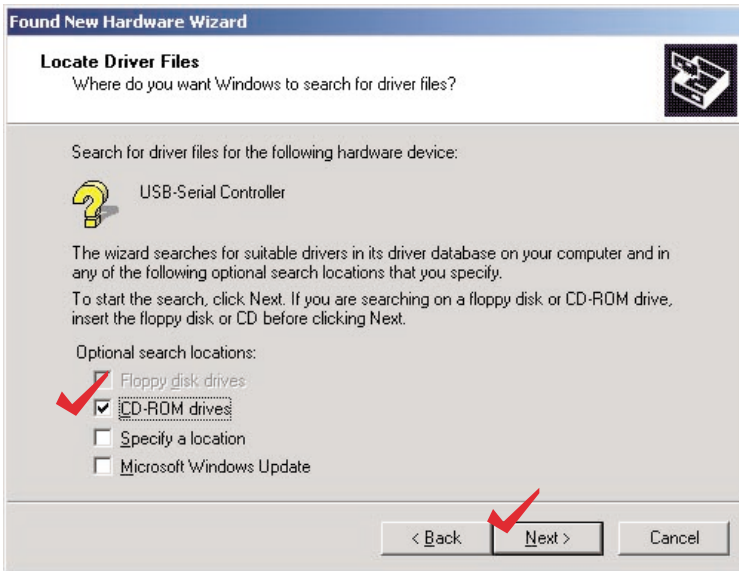
Follow the below mentioned procedure.



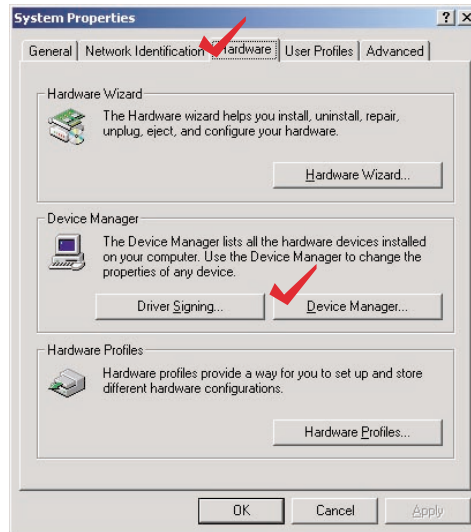
Click 'Next' button at 'Welcome to the Found New Hardware Wizard'.



Select 'Search for a suitable driver for my device', and then click 'Next'.

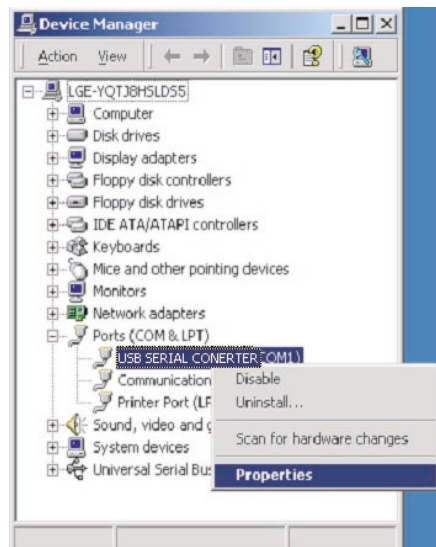
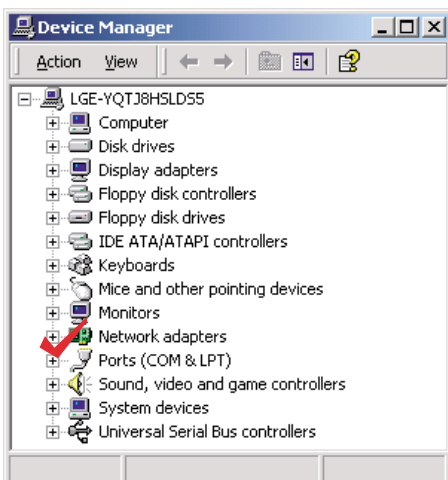


Select 'CD-ROM drive,' insert the installation CD, and then click 'Next.'

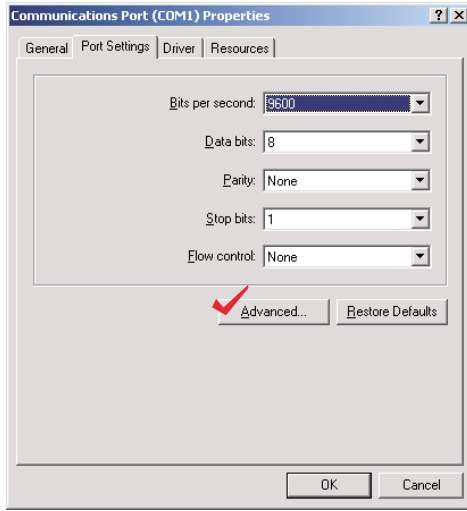


Select the registration information by selecting 'My computer' at the desktop and then click the right button of the mouse.

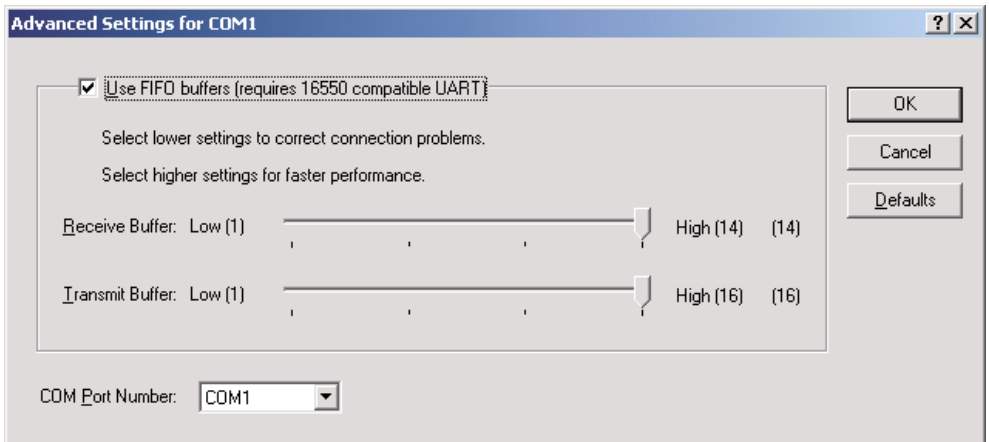
Select the device manager from the hardware of the registration information and select 'USB to Serial Converter' at the port as shown at the below figure



Select 'USB to Serial Converter' and click right button of your mouse and choose 'Properties'.



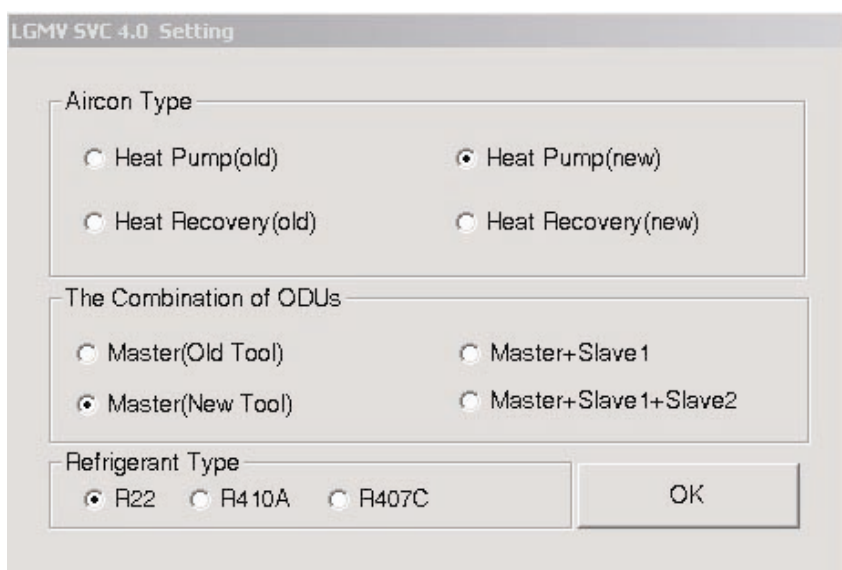
Select 'Port Settings' in 'Communication Port' window and click 'Advanced' button.



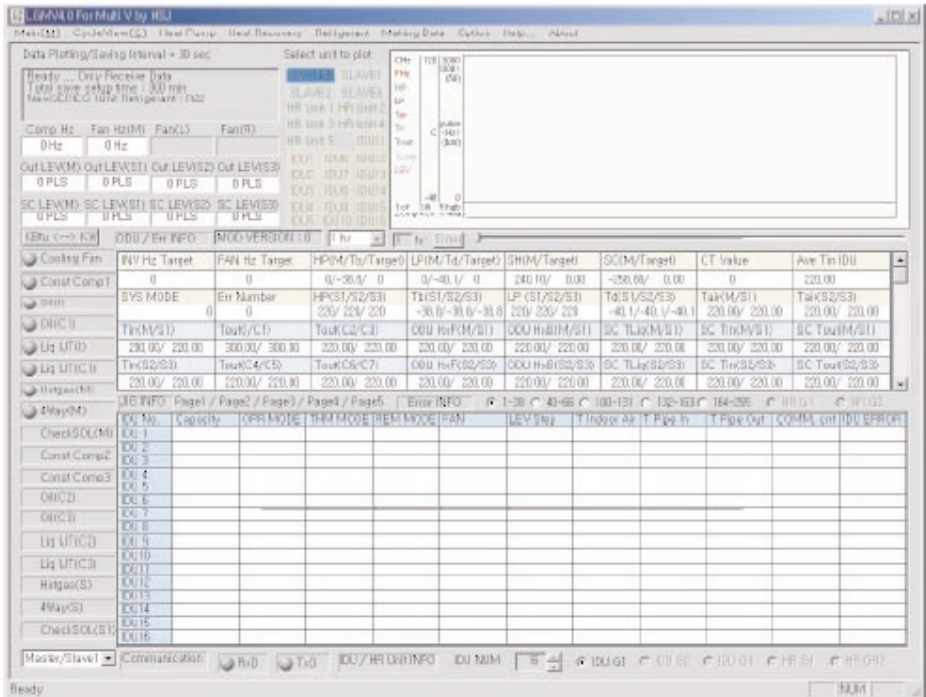
Check 'COM1' port then click 'OK' Button

4. Setting the Initial Dialog Box

- (1) The initial dialog box appears every time by clicking the short cut button of LGMV on the desktop.



- (2) Select 'Air conditioner type', 'The combination of outdoor unit', 'Refrigerant type' then click 'OK' button



< LGMV Main monitoring >

(3) Explanation about the initial dialog box

■ 'Air conditioner Type'

- ✓ Heat Pump(OLD) : Air conditioner using the conventional jig protocol
 - 1 Outdoor unit combination (Old Tool, New Tool, SPACE)
 - 2 Outdoor units combination (No Communication signal type)
- ✓ Heat Pump(NEW) : Air conditioner using the integrated jig protocol
 - 1 Outdoor Unit Combination (New Tool, SPACE), 3 Outdoor units combination
- ✓ Heat Recovery(OLD) : Heat Recovery type Air conditioner using the convention jig protocol
- ✓ Heat Recovery(NEW) : Heat Recovery type Air conditioner using the integrated jig protocol

■ 'The combination of ODUs'

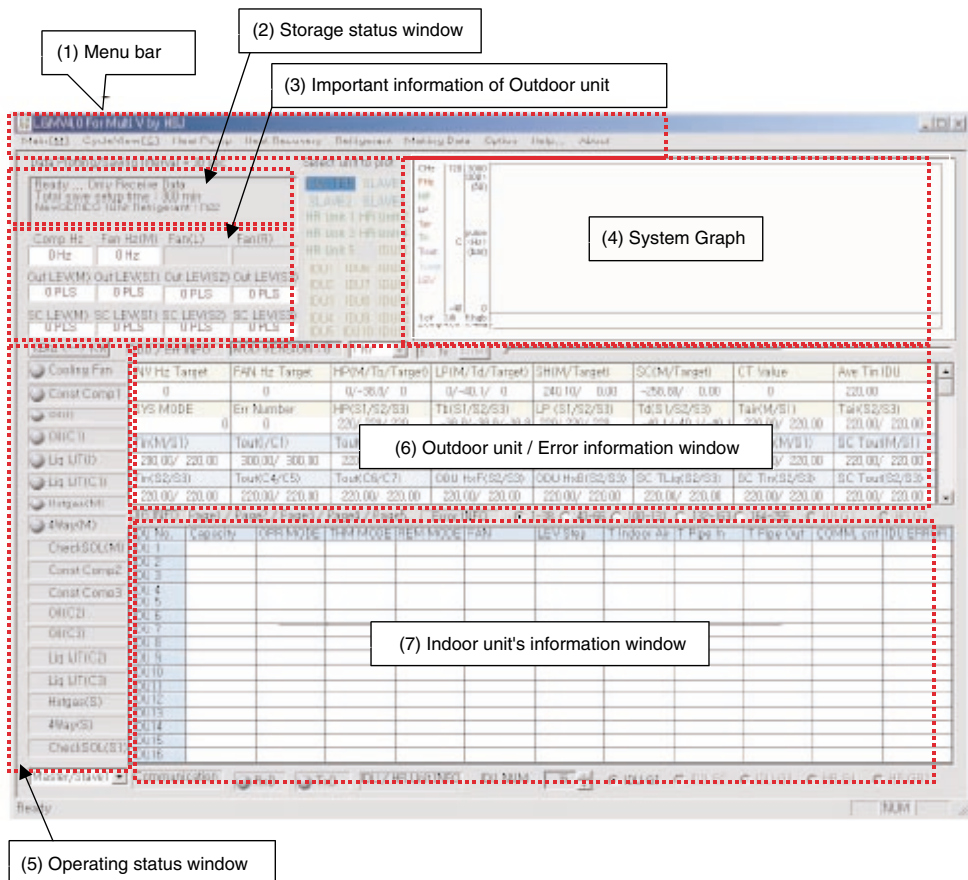
- ✓ Select according to the combination of the Outdoor units(Master,Slave)
- ✓ SPACE model is separately handled

■ 'Refrigerant Type'

- ✓ Pressure reference table depends on the refrigerant type(R22, R410,R407C)

5. Explanation about Integrated LGMV 4.0 display screen

- You can see the abbreviation list, meaning of error number from help in the menu bar.



* NOTE : LGMV_TOTAL4.0 will be operated correctly when the PC COM port is set COM1
If below Error Message Pop-up the window then check the followings.

- 1) The serial cable is connected properly or not
- 2) Check the PC COM port is set to COM1 or not



(1) MENU BAR

You can change the items set at the initial dialog box to the other items at the menu bar.
You can set it again.

■ Heat Pump

✓ It is same as selecting the Air conditioner type at the initial dialog box and outdoor combination .

■ Heat Recovery

✓ It is same as selecting the Air conditioner type at the initial dialog box and outdoor combination .

■ Refrigerant

✓ You can select the refrigerant type(R22, R410,R407C) again.

■ Making Data

The screenshot shows the 'Making Data' menu in the LGMV4.0 software. The interface includes a menu bar with options like 'Main[M]', 'CycleView[C]', 'Heat Pump', 'Heat Recovery', 'Refrigerant', 'Making Data', 'Option', 'Help...', and 'About'. Below the menu bar, there are several data tables and a graph area.

Data Plotting/Saving Interval = 30 sec

Select unit to plot: MASTER SLAVE1, SLAVE2, SLAVE3, HR Unit 1, HR Unit 2, HR Unit 3, HR Unit 4, HR Unit 5, IDU11, IDU1, IDU6, IDU12, IDU2, IDU7, IDU13, IDU3, IDU8, IDU14, IDU4, IDU9, IDU15, IDU5, IDU10, IDU16.

Comp Hz: 0 Hz
Fan Hz(M): 0 Hz
Fan(L):
Fan(R):

Out LEV(M): 0 PLS
Out LEV(S1): 0 PLS
Out LEV(S2): 0 PLS
Out LEV(S3): 0 PLS

SC LEV(M): 0 PLS
SC LEV(S1): 0 PLS
SC LEV(S2): 0 PLS
SC LEV(S3): 0 PLS

KBtu (->) KW | **ODU / Err INFO** | **MOD VERSION : 0** | **1 hr** | **6 hr** | **Enter**

INHV Hz	Target	FAN Hz	Target	HP(M/Tb/Target)	LP(M/Td/Target)	SH(M/Target)	SC(M/Target)	CT Value	Ave Tin	IDU
0	0	0	0	0/-38.8/ 0	0/-40.1/ 0	240.10/ 0.00	-258.80/ 0.00	0	220.00	

SYS MODE	Err Number	HP(S1/S2/S3)	Tb(S1/S2/S3)	LP (S1/S2/S3)	Td(S1/S2/S3)	Tair(M/S1)	Tair(S2/S3)
0	0	220/ 220/ 220	-38.8/-38.8/-38.8	220/ 220/ 220	-40.1/-40.1/-40.1	220.00/ 220.00	220.00/ 220.00

Tin(M/S1)	Tout(I/C1)	Tout(C2/C3)	ODU HxF(M/S1)	ODU HxB(M/S1)	SC TLiq(M/S1)	SC Tin(M/S1)	SC Tout(M/S1)
220.00/ 220.00	300.00/ 300.00	220.00/ 220.00	220.00/ 220.00	220.00/ 220.00	220.00/ 220.00	220.00/ 220.00	220.00/ 220.00

Tin(S2/S3)	Tout(C4/C5)	Tout(C6/C7)	ODU HxF(S2/S3)	ODU HxB(S2/S3)	SC TLiq(S2/S3)	SC Tin(S2/S3)	SC Tout(S2/S3)
220.00/ 220.00	220.00/ 220.00	220.00/ 220.00	220.00/ 220.00	220.00/ 220.00	220.00/ 220.00	220.00/ 220.00	220.00/ 220.00

JIG INFO Page1 / Page2 / Page3 / Page4 / Page5 | **Error INFO** | 1-38 | 40-66 | 100-131 | 132-163 | 164-255 | HR G1 | HR G2

IDU No.	Capacity	OPR MODE	THM MODE	REM MODE	FAN	LEV Step	T Indoor Air	T Pipe In	T Pipe Out	COMM. cnt	IDU ERROR
IDU 1											
IDU 2											
IDU 3											
IDU 4											
IDU 5											
IDU 6											
IDU 7											
IDU 8											
IDU 9											
IDU10											
IDU11											
IDU12											
IDU13											
IDU14											
IDU15											
IDU16											

Master/Slave1 | Communication | RxD | TxD | IDU / HR Unit INFO | IDU NUM | 16 | IDU G1 | IDU G2 | IDU G3 | HR G1 | HR G2

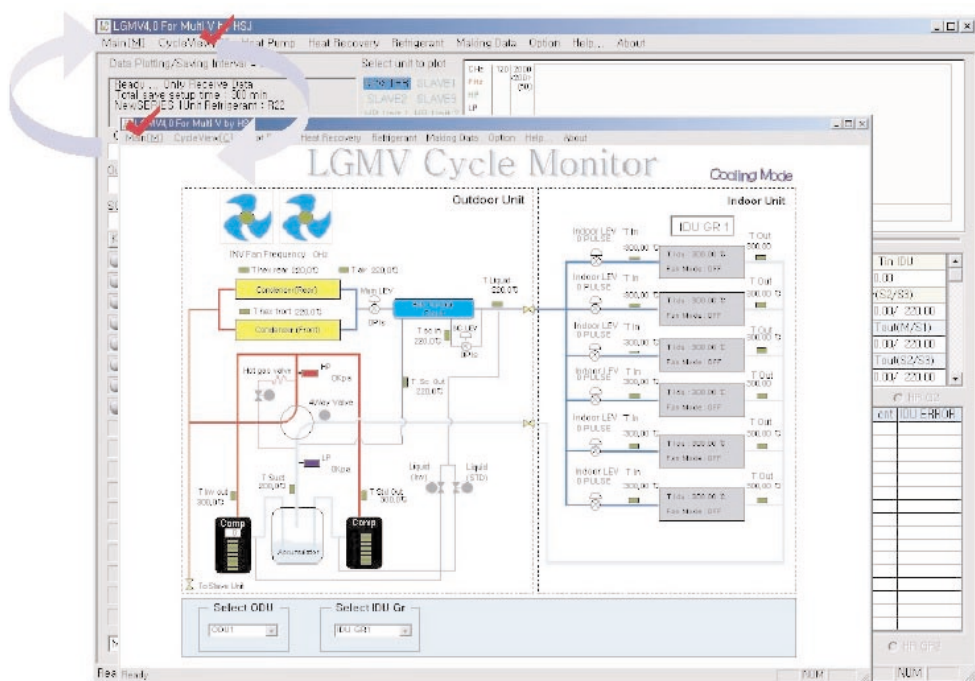
Ready | NUM

- ✓ Before selecting 'Start', you can input 'Saving Time', and 'Number of IDU' at saving option in menu bar. The data will be saved only for the 'Saving Time'.
- ✓ Saving interval is 30 seconds and changing this interval is not available.
- ✓ If you select 'Start', you can see 'Save as' window.
You can input file name, and click 'Save' Button, then data saving will be started.
- ✓ If you want to stop to save data, please select 'Stop' in the menu bar.

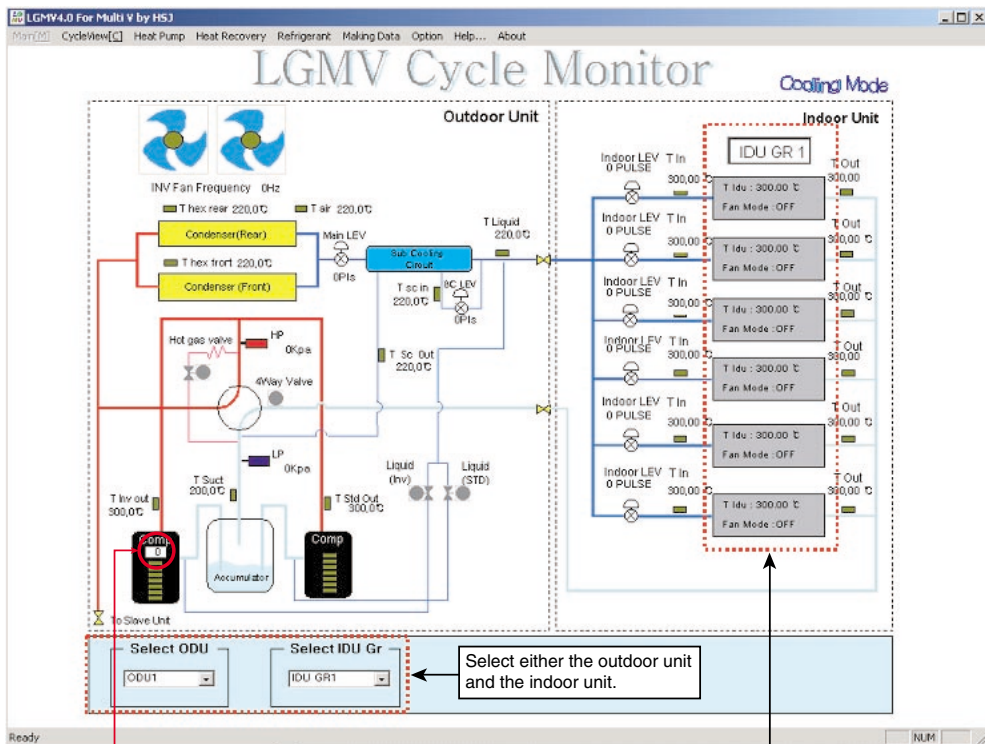
The 'Input Data Save Time' dialog box has two input fields: 'Saving Time(Min)' with the value 300 and 'Number of IDU' with the value 16. There are 'Cancel' and 'OK' buttons at the bottom.

■ Cycle View Mode

- ✓ It displays cycle diagram on the basis of current MultiV data



- ✓ Pipe layout color of cycle changes with accordance to characteristics of each cycle when converting to the cooling/heating
- ✓ Possible to select indoor/outdoor unit using 'Select Odu' and 'Select Idu Gr' from the lower part.

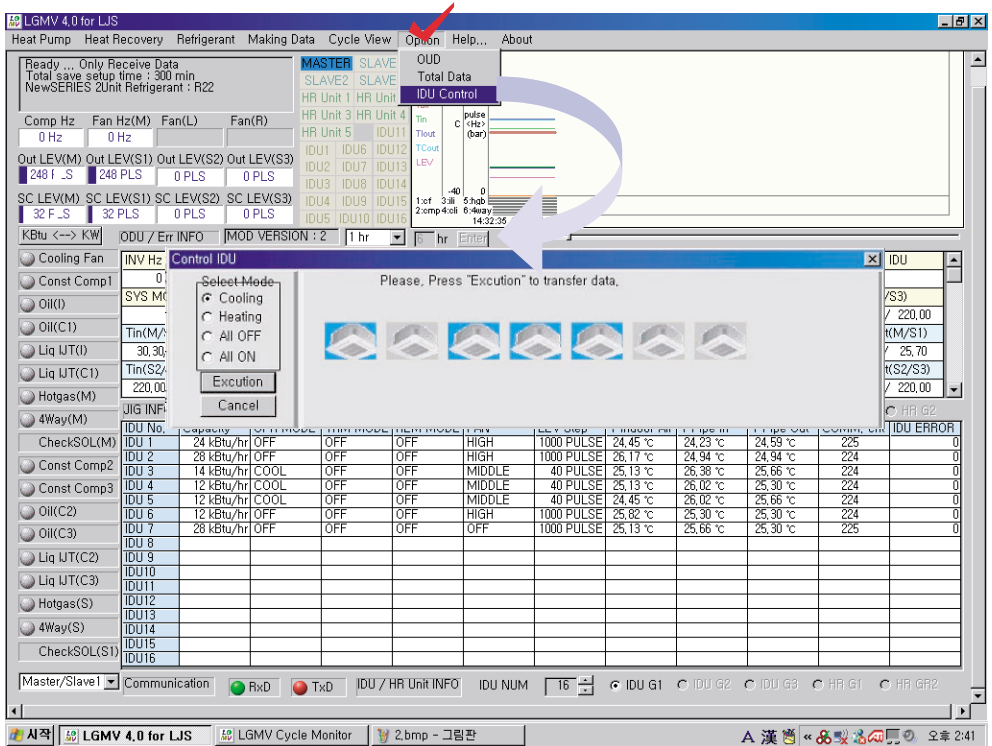


Numerical value disappears when changing Odu to Sub (inv → onst)

<Indoor Unit>
 - Indicates red color while in heating and sky-blue color while in cooling mode.
 - Indicates the room temperature and fan condition of indoor unit.

■ Indoor unit Control Mode

✓ Select IDU CONTROL from OPTION in the menu bar.



- Indicates the current condition of the current indoor unit (cooling/heating and on/off)
- On/Off status changes as you press each buttons.
- Transmits the current changed details to indoor unit if only you press the 'Execution' button
- Select the operation mode and indoor unit after control panel is ready.
- If you want to change the operation mode, choose the opposite mode after confirming that control panel is ready.

■ LGMV indoor unit ON/OFF Function



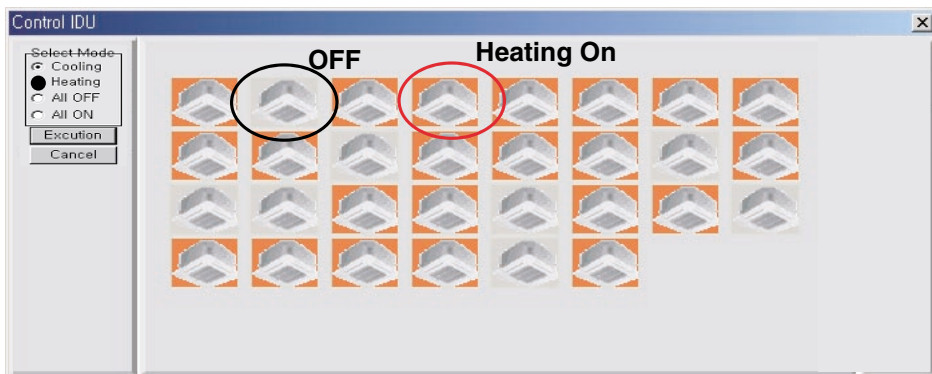
- 8 indoor units connected to the current outdoor unit are all off



- 8 indoor units connected to the current outdoor unit are operating in heating mode



- 8 indoor units connected to the current outdoor unit are partially operating in cooling mode (5 indoor unit are on)



- 30 indoor units connected to the current outdoor unit are partially operating in heating mode (22 indoor unit are on)

■ Help

✓ When you select the Help, you can select 3 functions

(1) Abbreviation : It displays the list of abbreviations used in LGMV main display window

The screenshot shows the LGMV 4.0 For Multi-V software interface. The 'HELP' menu is open, and the 'Abbreviation' option is selected. A red arrow points to the 'HELP' menu, and a blue arrow points from the 'Abbreviation' option to the 'HELP' dialog box.

HELP

Ave : Average
 c : Constant Compressor
 Cf : cooling fan
 CHz : Frequency of Inverter Compressor
 cli : Liquid bypass valve in Const. Comp.
 Cnt : Constant
 Comm : Communication
 Comm.cnt : Communication counter
 COMP / cmp / Co : Compressor
 CR Heater : Crank Heater
 CT : Current
 Ctrl : Control Unit
 Err : Error
 ex : execute
 FS : Fan State
 H : High
 Hetero : Heterogeneous
 hgb : Hot Gas Valve
 HP : High Pressure
 HR : Heat Recovery
 Hx / Hex : Heat exchanger
 HxF / HxB : Heat exchanger Front/ Back
 I / Inv : Inverter Compressor
 ili : Liquid bypass valve in Inverter Comp.
 INFO : Information

IPM : Intelligent Power Module
 L : Low
 LEV : Linear Expansion Valve
 lfn : Left Fan
 Liq IJT : Liquid Injection Valve
 LP : Low Pressure
 M : Master
 ODU : Outdoor Unit
 OPR / opr : Operation
 PLS : Pulse
 REM Mode : Remocon Mode
 rfn : Right Fan
 Rx : Receive
 RxD : Receive Data
 SCH : Searching Pipe
 Sum Qj : summation capacity of indoor unit in operation

SW : Switch
 T : Temperature
 Tair : Air Temperature
 Tb : Thubble
 TCout : Outlet pipe Temperature of Const. Comp.
 Td : Tdew
 THM Mode : Comp On/Off Mode
 Tin : Inlet pipe Temperature
 Ttout : Outlet pipe Temperature of Inverter Comp.
 Tout : Outlet pipe Temperature
 Tpipe : Pipe Temperature
 TxD : Transfer Data

OK

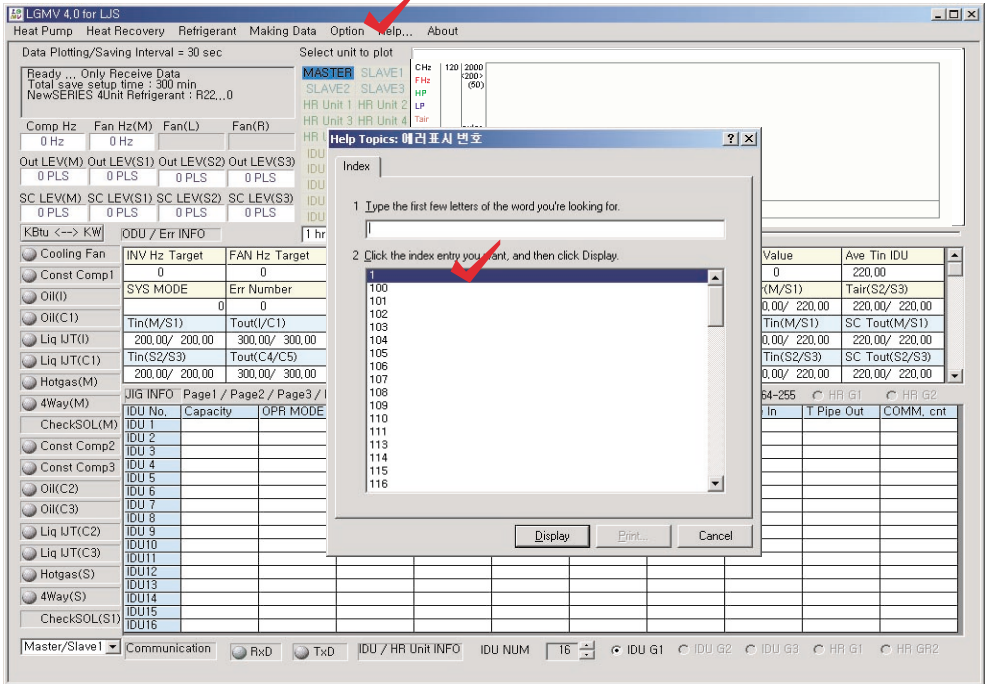
(2) Error Number : It displays the table of error number and what they mean

The screenshot shows the LGMV 4.0 For Multi-V software interface. A red arrow points to the 'Help...' menu item in the top navigation bar. A blue arrow points to the 'Error Number' column in the background table. An 'Error Group 1 (1 - 66)' dialog box is open, displaying a list of error codes and their descriptions.

Error Number	Description
0	No error
1	Indoor Sensor(air) open/short
2	Indoor Sensor(l/Pipe) open/short
3	R/C Communication Error
4	Drain pump Badness
5	Communication Error(IDU <-> ODU)
6	Indoor Sensor(D/Pipe) open/short
7	Wrong Driving
8	IDU LEV Badness
9	EEPROM
10	IN/FAN LOCK(Bad
11	Flicker-Alarm error
21	Dc peak
22	Max ct(CT 2) : Max Current Error
23	DC link voltage(low)
24	High Voltage/Heat-Controller SW
25	LOW / OVER
26	DC Comp position err
28	DC link voltage(high)
31	CT err
32	Inverter Tout error(high)
33	Const Tout error(high)
34	HP sensor error(high)
35	LP sensor error(low)
36	Refricetant Leak
37	4way(reverse valve) Badness
38	Outdoor LEV Badness
40	Inverter CT sensor open/short
41	Inver. Tout sensor open/short
42	LP sen. or open/short
43	HP sensor open/short
44	T outdoor sensor open/short
45	Outdoor Pipe[top] sensor open/short
46	Tin sensor open/short
47	Cont Tin sensor open/short
48	Outdoor Pipe[bottom] sensor open/short
49	Outdoor V sensor open/short
51	Over Capacity error(Total Number of ODU)
52	Comm error(inverter board->main board)
53	Comm error(IDU -> ODU)
54	RST [reverse statue]
55	Comm error(Main<-CCU)
56	Comm error(Main->CCU)
57	Comm error(Main board->Inverter board)
58	Product unproper combination
60	EEPROM Check sum error
61	Outdoor pipe T error(high)
62	Heatsink error(high)
63	Outdoor Pipe T error(low)
64	Power Failure
65	Heatsink Th Error(open/short)
66	MisWiring/MisPiping

(3) Alternativeness (Troubleshooting) : When an error occurs, if you select 'Alternativeness,' a window for error solution is displayed.

You can select the error number to see the error details and its troubleshoot methods.



에러표시 번호

File Edit Bookmark Options Help

Contents Index Back Print

ERROR #32, #100, #102

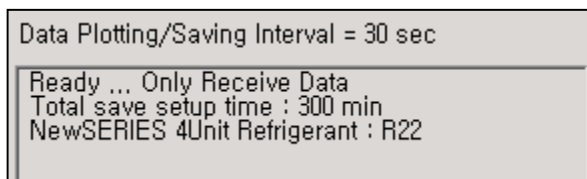
Error Number	Error Item	Meaning	Cause of Key Error
32	Compressor discharge temperature	Compressor off by excessive rise of compressor discharge temperature	<ul style="list-style-type: none"> Compressor discharge pipe temperature sensor loss and damage Poor refrigerant Failure of LEV Failure of liquid injection valve Check the hot gas bypass valve leaks

Troubleshooting Method

- Is discharge temperature actually high?
- Is the LEV of indoor/outdoor unit normal?
- Does the liquid injection valve normally operate?
- Does the hot gas bypass valve normally operate?
- Check refrigerant filling status.

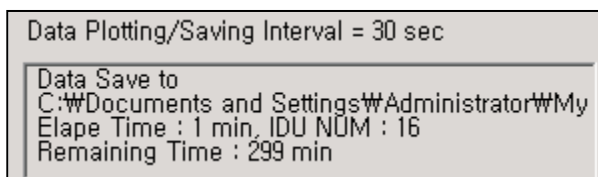
(2) Storage status window

- It displays the air conditioner type, the protocol type, and the number of the units for the outdoor units selected at the initial dialog box of the menu bar.



Information at the normal condition

- When you save the data, it displays the total storage time, the number of the indoor units, the file saving location and the file name.



Information at storing

(3) Important information about Outdoor unit window

- In order to recognize the important information about the outdoor unit, it displays compressor & fan Hz information, outdoor unit LEV information and over-cooling LEV information.

M : Master, S1 : Slave1, S2 : Slave2, S3 : Slave3,

LEV : Linear Expansion Valve, L : Left, R : Right

PLS : Pulse

Comp Hz	Fan Hz(M)	Fan(L)	Fan(R)
0 Hz	0 Hz		
Out LEV(M)	Out LEV(S1)	Out LEV(S2)	Out LEV(S3)
0 PLS	0 PLS	0 PLS	0 PLS
SC LEV(M)	SC LEV(S1)	SC LEV(S2)	SC LEV(S3)
0 PLS	0 PLS	0 PLS	0 PLS

(4) System Graph window

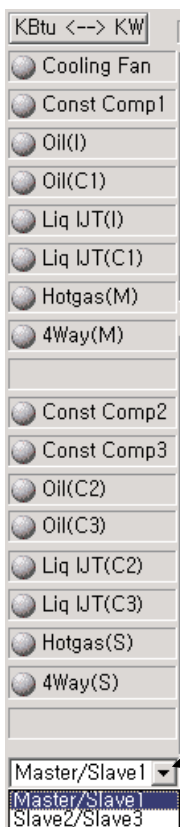
- You can select the unit if you want to see its data in graph.
- You can select display time in the graph.



Graph displayed when selecting Indoor unit

(5) Operating status window

- You can see the operating status and the control status of outdoor unit. You can see the operating status for Slave2/Slave3 by using the selection bar.



Operating information displayed

Selection bar

(6) Outdoor unit/Error information window

- * Note : 200/220/300 data displayed for Outdoor unit information are meaningless.

INV Hz Target	FAN Hz Target	Hp(M/Tb)	LP(M/Td)	SH(M)	SC(M)	CT Value	Ave Tin IDU	
0	0	0/-38.8	0/-40.1	240.10	-258.80	0	220.00	
SYS MODE	Err Number	HP(S1/S2/S3)	Tb(S1/S2/S3)	LP (S1/S2/S3)	Td(S1/S2/S3)	Tair(M/S1)	Tair(S2/S3)	
0	0	0/ 220/ 220	-38.8/-38.8/-38.8	0/ 220/ 220	-40.1/-40.1/-40.1	220.00/ 220.00	220.00/ 220.00	
Tin(M/S1)	Tout(I/C1)	Tout(C2/C3)	ODU HxF(M/S1)	ODU HxB(M/S1)	SC TLiq(M/S1)	SC Tin(M/S1)	SC Tout(M/S1)	
200.00/ 200.00	300.00/ 300.00	300.00/ 300.00	220.00/ 220.00	220.00/ 220.00	220.00/ 220.00	220.00/ 220.00	220.00/ 220.00	
Tin(S2/S3)	Tout(C4/C5)	Tout(C6/C7)	ODU HxF(S2/S3)	ODU HxB(S2/S3)	SC TLiq(S2/S3)	SC Tin(S2/S3)	SC Tout(S2/S3)	
220.00/ 220.00	300.00/ 300.00	220.00/ 220.00	220.00/ 220.00	220.00/ 220.00	220.00/ 220.00	220.00/ 220.00	220.00/ 220.00	

INV Hz Target	FAN Hz Target	Hp(M/Tb)	LP(M/Td)	SH(M)	SC(M)	CT Value	Ave Tin IDU	
0	0	0/-38.8	0/-40.1	240.10	-258.80	0	220.00	
SYS MODE	Err Number	HP(S1/S2/S3)	Tb(S1/S2/S3)	LP (S1/S2/S3)	Td(S1/S2/S3)	Tair(M/S1)	Tair(S2/S3)	
0	0	0/ 220/ 220	-38.8/-38.8/-38.8	0/ 220/ 220	-40.1/-40.1/-40.1	220.00/ 220.00	220.00/ 220.00	
Tin(M/S1)	Tout(I/C1)	Tout(C2/C3)	ODU HxF(M/S1)	ODU HxB(M/S1)	SC TLiq(M/S1)	SC Tin(M/S1)	SC Tout(M/S1)	
200.00/ 200.00	300.00/ 300.00	300.00/ 300.00	220.00/ 220.00	220.00/ 220.00	220.00/ 220.00	220.00/ 220.00	220.00/ 220.00	
Tin(S2/S3)	Tout(C4/C5)	Tout(C6/C7)	ODU HxF(S2/S3)	ODU HxB(S2/S3)	SC TLiq(S2/S3)	SC Tin(S2/S3)	SC Tout(S2/S3)	
220.00/ 220.00	300.00/ 300.00	220.00/ 220.00	220.00/ 220.00	220.00/ 220.00	220.00/ 220.00	220.00/ 220.00	220.00/ 220.00	

UIG INFO Page1 / Page2 / Page3 / Page4 / Page5 **Error INFO** 1-38 40-66 100-131 132-163 164-255 HR.G1 HR.G2



You can get the simple error information when an error occurs by using the right scroll bar.

(7) Indoor unit/Distributor information window

- Connectable Indoor unit capacities depend on Outdoor unit composition.(Max. 40 indoor unit)

IDU No.	Capacity	OPR MODE	THM MODE	REM MODE	FAN	LEV Step	T Indoor Air	T Pipe In	T Pipe Out	COMM. cnt	IDU ERROR
IDU 1											
IDU 2											
IDU 3											
IDU 4											
IDU 5											
IDU 6											
IDU 7											
IDU 8											
IDU 9											
IDU10											
IDU11											
IDU12											
IDU13											
IDU14											
IDU15											
IDU16											

Communication
 RxD
 TxD
IDU / HR Unit INFO
IDU NUM
4
◂ IDU G1
◂ IDU G2
◂ IDU G3
◂ HR G1
◂ HR GR2

Automatically activated by the connected number of indoor units

activated when it is the Heat recovery type

Selection button	Displayed information
Indoor unit group1	Indoor unit 1~16
Indoor unit group2	Indoor unit 17~ Indoor unit 32
Indoor unit group3	Indoor unit 33~ Indoor unit 40
Distributor group 1	Distributor 1~5
Distributor group 2	Distributor 6~10

