HOKKAIDO

The 2nd-Generation Centralized Controller for Indoor Units: DTC-IHXR

Installation & Operation Manual

■Please keep this specifications Manual properly.

■Read this specifications Manual carefully before using the equipment.

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PRESENTATION & PRECAUTIONS

■ Acknowledgments

Thank you for your confidence in HOKKAIDO DTC-IHXR 2nd-Generation Centralized Controller for Indoor Units.

■ Use of this Specification Manual

This Specification Manual describes the installation of Centralized Controller and the conditions of operating it. For convenience of future reference, please keep this Manual properly after the device's installation and testing.

■ Available functions on DTC-IHXR device

The functions which DTC-IHXR device is able to carry out also depend on the available functions on PBC of Units which belong to the systems to be controlled.

In fact, on the Indoor Units which do not have a "NIM" Module (*"Network Interface Module"*) on their Control PCB, it is required the installation of the interface board NIM-GRH (accessory to be purchased on site).

Each Centralized Controller DTC-IHXR is able to control and monitor up to max. 64 Indoor Units, separately or simultaneously.

Therefore, through DTC-IHXR it is possible the following:

- To give the commands of ON / OFF to the Indoor Units.
- To set the operation mode (Cooling / Heating / Fan only / Off) of the Indoor Units.
- To adjust temperature value on Indoor Units.
- To change fan speed (Low / Medium / High / Automatic) on Indoor Units.
- To activate/deactivate the automatic swinging function "SWING" on the Indoor Units which are provided with motorized flaps for air outlet.
- To set TIMER function for automatic start (TIME ON) and automatic stop (TIME OFF) of Indoor Units.
- To lock/unlock the remote controllers and the operation mode of Indoor Units.

• To display temperature on Indoor Unit's installation site and temperature on Indoor Unit's heat exchanger.

• To display Error Codes referred to eventual malfunctions or to the intervention of protective functions on the Indoor Units connected to the Centralized Controller's signal network.

■ **Appearance and functions of** DTC-IHXR device

• The DTC-IHXR Centralized Controller is equipped with a wide LCD display with a blue colour backlit.

• The push-button panel is protected by a cover with simplified opening for access to buttons.

• By "ON/OFF" button on DTC-IHXR, it is possible to start up (ON) all Indoor Units controlled by the device. It is also possible to stop (OFF) all connected Indoor Units.

• Moreover, on DTC-IHXR there is also a Red LED (status LED), that indicates the state of connected Indoor Units and the state of communication on DTC-IHXR signal network.

■ **For further information and/or eventual explanations**

In case of doubt or whatever need referred to the operation of DTC-IHXR Centralized Controller, please contact the Dealer who provided the device and/or the air-conditioning systems.

1. INSTALLATION

■ Packing box list

Check whether the assemblies are complete:

1. Centralized Controller DTC-IHXR.

2. Fastening cross groove pan head self-tapping screws (6 pcs).

3. Fastening plastic expansion plugs (6 pcs).

4. 120Ω ohmic resistances (wired at both ends, to be installed at the ending of signal lines “X, Y” (connection between the Indoor Units, and between Indoor Units and DTC-IHXR).

5. This Installation & Operation Manual.

■ Installation assemblies, not included in the packaging (to be purchased on site)

Before starting the installation, please purchase the following assemblies and material on site:

1. 3-core shielded cables, of necessary length and appropriate size according to the length required by installation, for the connection of DTC-IHXR to the Indoor Units (signal lines “X, Y, E”) to be controlled. The recommended min. size is of 1.0 mm^2.

2. In case of several DTC-IHXR Centralized Controllers and/or of a PC provided with a BMS-UHXRV Software package (original Software, and specific for *“Building Management System”*) and corresponding Hardware (RS-485 ↔ RS-232 Converter): 3-core shielded cables, of necessary length and appropriate size (the recommended min. size is of 1.0 mm^2) according to the length required by installation, for the connection of DTC-IHXR devices each other (signal lines “F1, F2, E”) and for the connection between the first DTC-IHXR and RS-485 ↔ RS-232 Converter.

3. 3-core electric cable (phase “L”, neutral “N” and Ground wire) for supplying power to DTC-IHXR, of min. size of 1.5mm^2.

4. Embedded electric box or electric box at sight, according to the quantity required by installation and provided with screw joints, watertightness.

5. Plastic hard pipes for electric wires, whose total length is able to satisfy installation requirements.

6. Nylon clamps for electric wires, whose quantity is able to satisfy installation requirements.

■ Basic conditions of installing the Centralized Controller

Please observe the following basic conditions to carry out a professional installation of DTC-IHXR:

1. Power supply of DTC-IHXR Centralized Controller. Connect the 1-Phase 220V~50Hz power supply to the “L” and “N” sides of the screw terminal blocks on the back of DTC-IHXR.

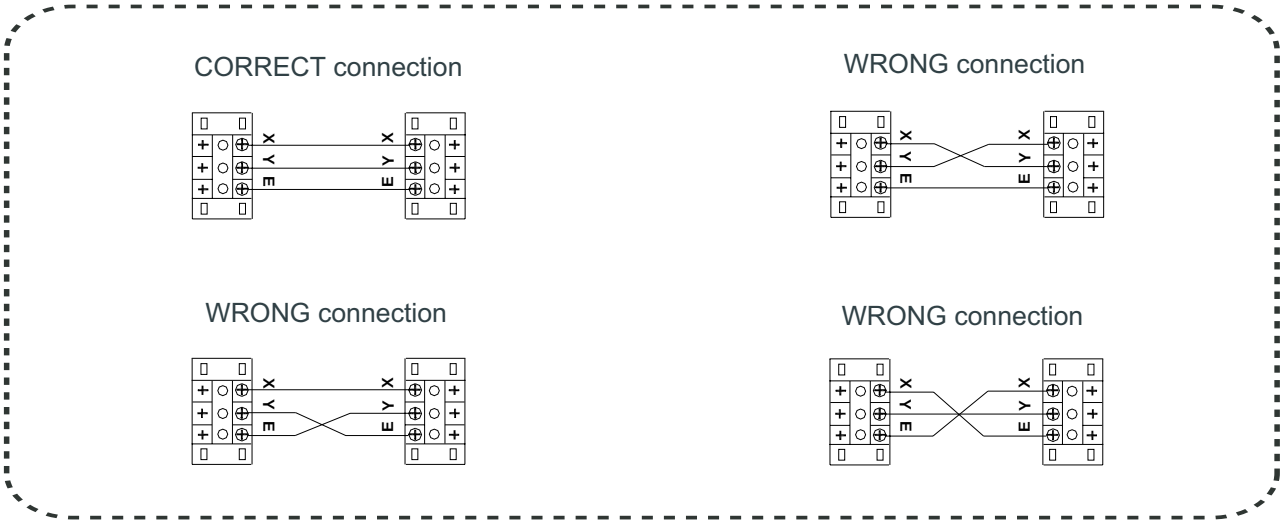
2. Do not lay the power cables of DTC-IHXR and of Indoor Units into the same plastic hard wire pipe, used for the signal cables (“X, Y, E”) (“F1, F2, E”). Insert the power cables and the signal cables in two different hard wire pipes and keep a distance of at least 0.5 metres between the pipes.

3. The main signal cable of the Centralized Controller shall not exceed 1200m.

4. No intermediate joint is allowed for the shielded cable. If joints are inevitable, crimp them with the terminal.

5. After the Centralized Controller is connected to the signal cables, it is no more possible to inspect insulation between each wire of signal cables.

6. Wiring mode for connection between the Centralized Controller and the “NIM” Module (”Network Interface Module”) of Indoor Units to be controlled. On this point, Installers are reminded that the signal lines “X, Y, E” are polarized, therefore they should correspond properly at both sides. Do not cross-connect cables (see the Figure below). The same principles apply to “F1, F2, E” signal lines between the DTC-IHXR Centralized Controllers and between the DTC-IHXR and the RS-485↔RS-232 Converter - supplied with the BMS-UHXRV Software Package - for control and monitoring by PC.



■ Installation procedure

1. Procedure for installing the DTC-IHXR Centralized Controller inside the embedded electric box.

• The size of the signal wires to be connected to DTC-IHXR depends on the length of the signal lines. The recommended min. size is of 1.0 mm^2.

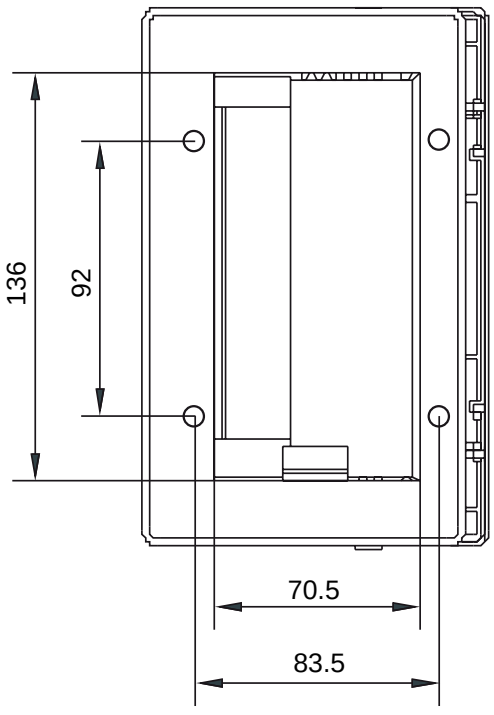
• Lay the Centralized Controller's cables inside a plastic hard wire pipe, of appropriate dimension. Never lay in the same pipe the signal cables and the power cables.

• Remove the frontal panel of DTC-IHXR by inserting the point of a flathead screwdriver in the hollows on the upper part of the device. Slightly rotate to separate the frontal panel from the back cover of DTC-IHXR (see the Figure below).

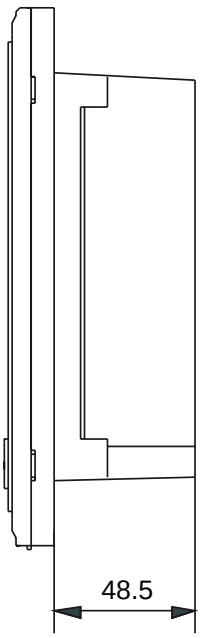
For the details about the dimensions of the device, the removal of the frontal panel and the connections to the terminal blocks, please refer to the following Figures.

Dimensions for installation

Unit: mm



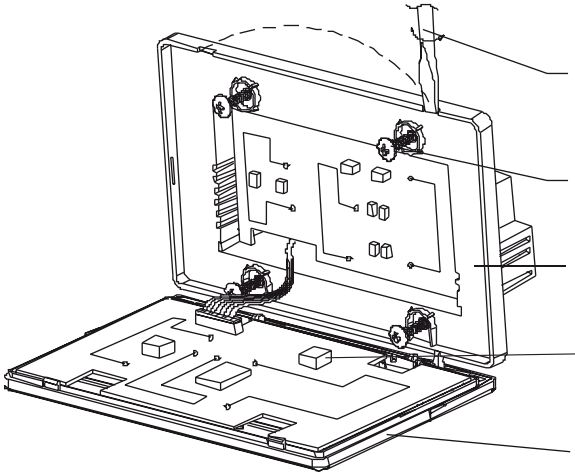
Back View



Top view

Note: The Figure on the left shows the position of the 4 fixing holes, on the back cover of DTC-IHXR.

Removal of the frontal panel and assignation of a network address to DTC-IHXR

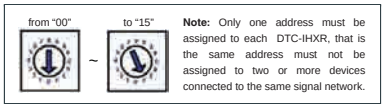


Insert the point of a flathead screwdriver inside each hollow shown in the Figure, then slightly rotate the screwdriver till separating the frontal panel from the back cover of the Centralized Controller.

Screws for fixing the device: (GB845/ST3.8x25-C-H(S)

Back cover

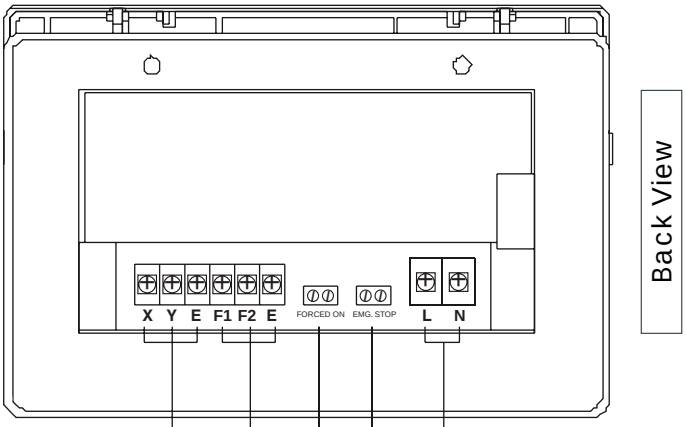
• Rotary selector for addressing the DTC-IHXR



Note: Only one address must be assigned to each DTC-IHXR, that is the same address must not be assigned to two or more devices connected to the same signal network.

Frontal panel

Detail of the terminal blocks and the contacts for the connection of DTC-IHXR



Power supply of DTC-IHXR (220~240V, 1Ph, 50 Hz).

Contact for Emergency Stop ("EMG. STOP") of the Indoor Units.

Contact for Forced Start ("FORCED ON") of the Indoor Units.

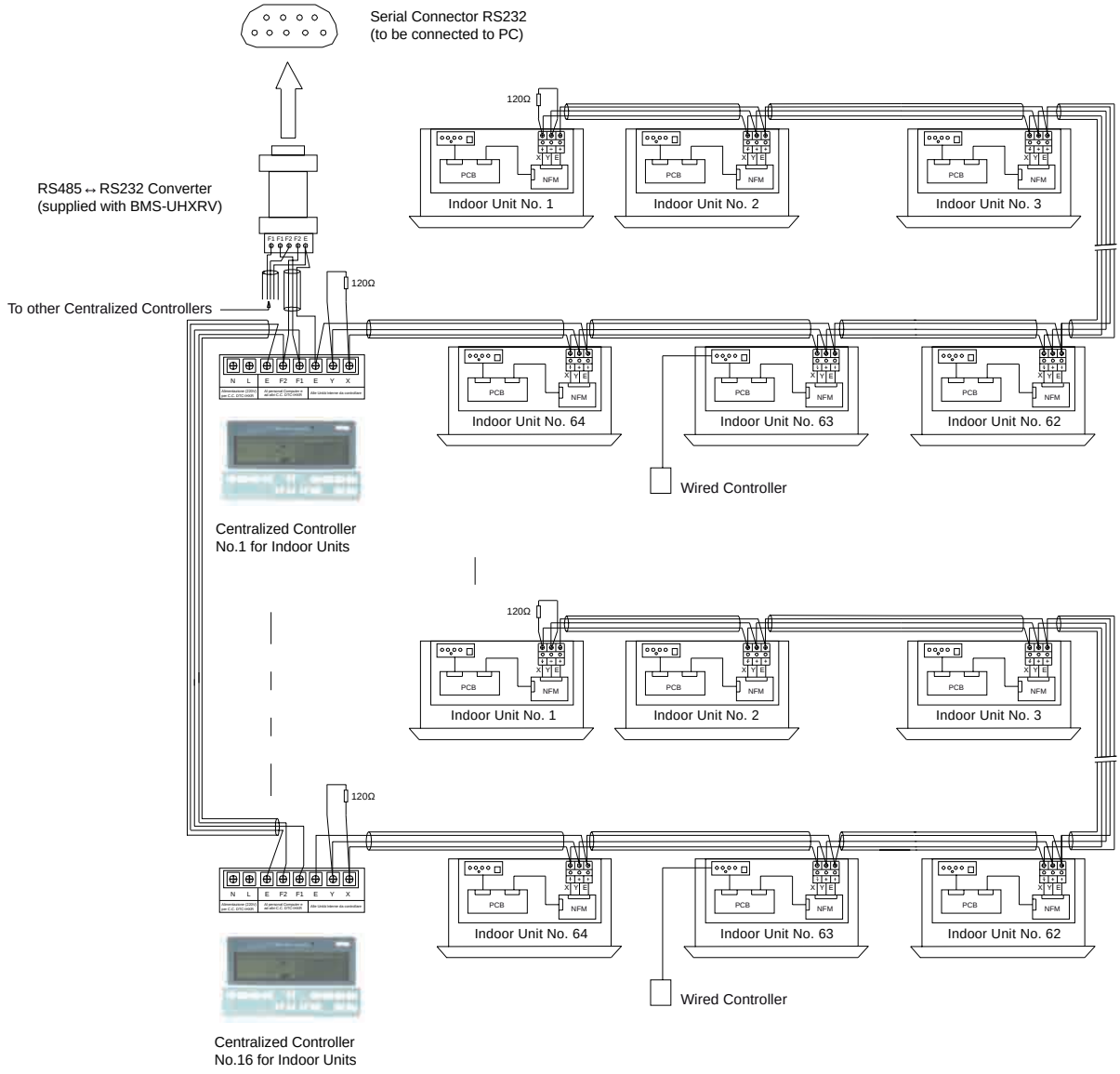
Communication Lines with Personal Computer (F1, F2, E):
to the RS-485↔RS-232 Converter, supplied with BMS-UHXRV.

Communication Lines with the Indoor Units (contacts "X, Y, E")
provided with the*"Network Interface Module"* ("NIM").

■ Wiring procedure

If the Indoor Unit does not have the terminal block “X, Y, E” for the connection to the Control System, this means that its PCB does not have the “NIM” (in the Figure below: “NFM”) that is the *“Network Interface Module”.* In this case, it is necessary to purchase this interface separately, as optional accessory (NIM-GRH).

Wiring between the Indoor Units and the Centralized Controllers



Notes:

1. The signal lines: “X, Y, E” (between the Indoor Units, and between the Indoor Units and the Centralized Controller for Indoor Units), “F1, F2, E” (between the PC for *“Building Management System”*, and the Centralized Controllers for Indoor/Outdoor Units), require the use of shielded cables with min. size of 1.0mm^2. Both sides of these wires should correspond properly. During installation, do not cross-connect cables. The max. allowed length for each signal line is of 1200m.
2. Each Personal Computer, through the BMS-UHXRV software-hardware package, can manage up to max. 16 Centralized Controllers for Indoor Units. Each Centralized Controller can control up to max. 64 Indoor Units.
3. The parallel installation of 120Ω resistances at each end of signal lines (see the diagram above) is no more strictly required, as in the meantime the anti-interference capacity of the control software inside Units (in the EEPROM) has been improved.

Note

In the wiring diagram at the previous page there is the RS-485↔RS-232 Converter. However, this component and its wiring are required only in case the Control System is connected to a PC where the BMS-UHXRV Software Package has been installed. A PC can manage up to max. 16 DTC-IHXR; each DTC-IHXR can control and monitor up to max. 64 Indoor Units. Therefore, the max. number of Indoor Units which can be managed by this Control System is: 16 x 64 = 1024 Indoor Units. Each DTC-IHXR on the signal network differs from the others in its address: this address can be assigned to DTC-IHXR in the interval 00~15 and must be different from the addresses assigned to the other DTC-IHXR Centralized Controllers: the same network address cannot be assigned to 2 or several DTC-IHXR Centralized Controllers.

■ Safety Precautions

Read carefully the Safety Precautions before installing the DTC-IHXR Centralized Controller.

Stated below are important safety issues that must be obeyed.

Safety Precautions are differentiated by the following marks, according to the possible consequences which may result in case the instructions are not observed.

Warning	Means improper handling may lead to personal injury or property loss.
Note	Means improper handling may lead to personal death or severe injury.

Upon completion of the installation, check the correct operation of the DTC-IHXR Centralized Controller by carrying out the Trial Run of the device. Always deliver the User's Manual to the User, and recommend him to keep it with care for future reference.

Warning

Please entrust the Distributor or the Authorized Technical Service to install the equipment. Installation by unauthorized persons may lead to imperfect installation which may result in electric shock or fire.

To carry out correct installation of DTC-IHXR Centralized Controller, carefully observe this Manual. Improper installation may lead to electric shock or fire.

In case DTC-IHXR device is removed and then reinstalled, it is necessary to observe the same instructions shown in this Manual for first installation. Improper reinstallation may lead to electric shock or fire.

Do not uninstall DTC-IHXR device without the User's permission. Before removing the equipment, it is necessary to configure again the Units and the other equipments of the Control System, otherwise the Units may run abnormally, the wiring may get overheated and lead to fire.

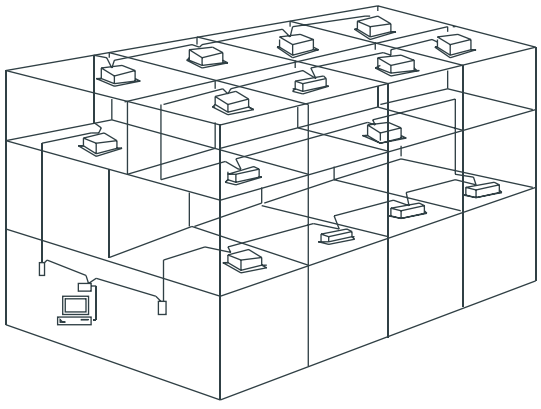
Note

Do not install the equipment in a place where leakage of flammable gas may occur. Once flammable gases are leaked and left around the Centralized Controller, fire may occur.

The power cables' size of of DTC-IHXR must be adapted to the electric specifications. The recommended min. size for power cables is of 1.5 mm^2. The use of cables which are not in conformity with electric specifications, may lead to electric shock, cables' overheating and fire.

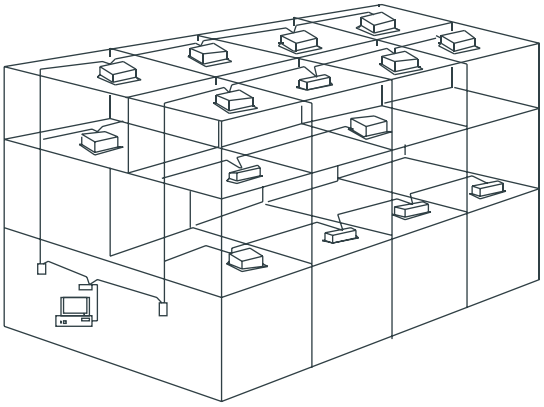
■ **Examples of** DTC-IHXR wiring in the Control System

1. DTC-IHXR's wiring diagrams in a signal network of a building with several floors.



Example 1

Wiring diagram which assures a good transmission along the signal network.

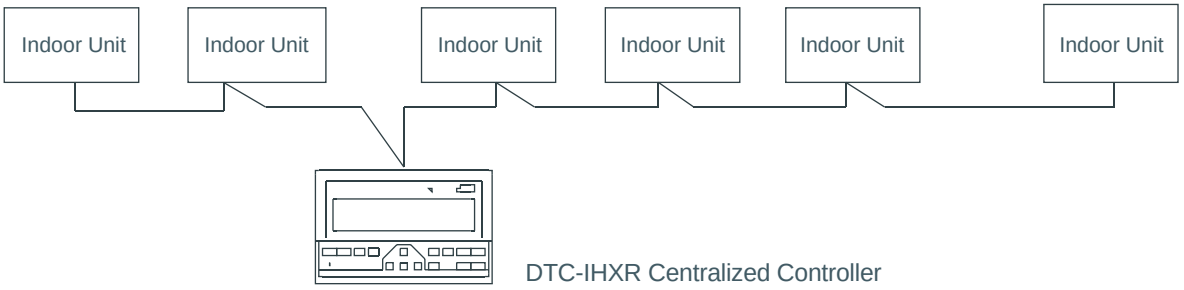


Example 2

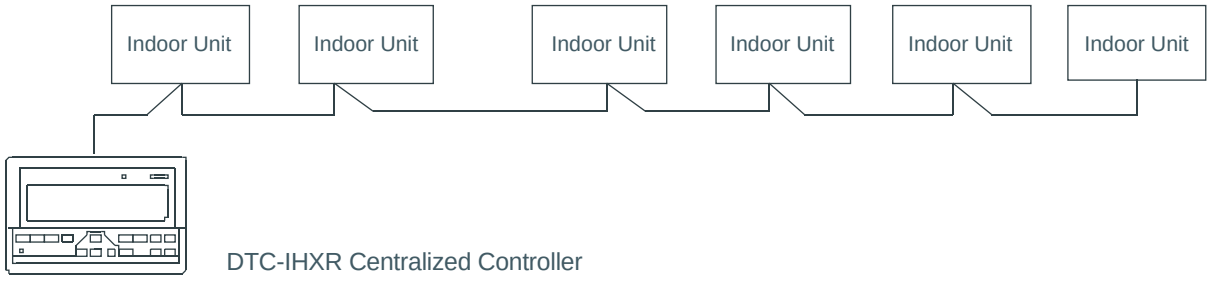
Wiring diagram which obstructs a good transmission along the signal network.

2. Position of DTC-IHXR along the signal lines, as regards the Indoor Units to be controlled and monitored. Both wiring diagrams below are correct. The max. number of Indoor Units which can be controlled and monitored by each DTC-IHXR is 64.

Example 1



Example 2



2. USE OF THE EQUIPMENT

■ Operative conditions for the use of DTC-IHXR device

It is recommended to use the DTC-IHXR equipment only if there are the following requirements for its correct operation:

1. Power supply specifications of the device. Input voltage: 1-Phase, 198 ~ 242V AC.

Input power supply frequency: 50/60Hz.

2. Operating environment temperature for a correct operation of the device: -15°C ~ 43°C.

RH conditions in the installation site: 40% ~ 90%.

■ **Organization of the information contained in this Manual**

In the following pages, the following matters will be treated in depth:

(1) Composition & Structure of Network Control System for air-conditioning installations.

(2) Keywords & General Function Description.

(3) Detailed description of electric control functions of Centralized Controller.

(4) Corresponding rules for Electromagnetic Compatibility (EMC) & Safety.

(1) Composition & Structure of Network Control System for air-conditioning installations.

1. The DTC-IHXR device allows to carry out the Centralized Control of the operation and Monitoring of Indoor Units (query about some operating parameters, regular operating status, malfunctions, etc.), provided that DTC-IHXR and the Indoor Units are connected each other in a signal network.

2. The DTC-IHXR Centralized Controller can be connected to a PC (which must be equipped by a special Software), and by the PC it may interface with a Gateway (Lonworks® or BACnet®), thus belonging to a "BMS" System (*"Building Management System"*): therefore, the DTC-IHXR device carries out the Centralized Control and the Monitoring of the air conditioners.

In this way, the air conditioners can be remote controlled, by reaching the PC and consequently the Control System even outside the building, through a WAN (*"Wide Area Network",* therefore also by connecting to the PC by Internet), thus exceeding the limits set by the signal lines' max. length.

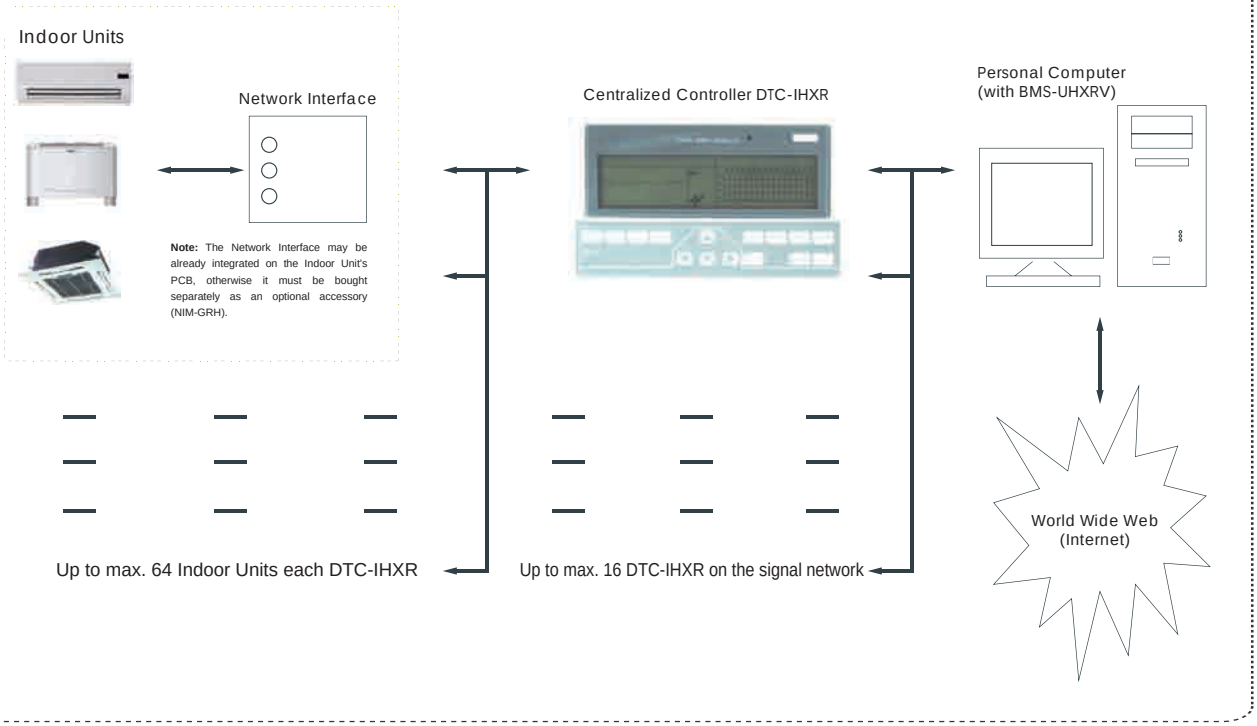
3. The interactive mode between the "Master" device ↔ "Slave" device - which occurs when there is a hierarchy between hardware components - also applies to the communication between the DTC-IHXR Centralized Controller and the Indoor Units, and between the PC and the DTC-IHXR.

In particular, inside the LAN (*"Local Area Network"*) made up of the DTC-IHXR and of the Indoor Units, the DTC-IHXR device is the Primary Equipment ("Master"), while the Indoor Units represent the Secondary Equipment ("Slave"). In the same way, inside the LAN (*"Local Area Network"*) made up of the PC and of the DTC-IHXR Centralized Controller, the PC is the Primary Equipment ("Master"), while the DTC-IHXR device is the Secondary Equipment ("Slave").

The Figure in the following page is a simplified representation of the Control System previously described.

If one or several Indoor Units do not have a "X, Y, E" terminal block for the connection to the Control System, that is if the PCB does not have a "NIM" Module (*"Network Interface Module"*), it will be necessary to purchase separately this network interface, which is available as optional accessory (NIM-GRH).

Overall view of Control System



(2) Keywords & general function description.

2.1 What happens when DTC-IHXR is ON or after pressing "RESET" button.

When DTC-IHXR is powered on, or after "RESET" button is pressed, the LCD display will show all indications that can be displayed in whole display; at the end of this interval, all the indications disappear; after 1 second, it appears the screen of search of all Indoor Units "in-service" - that is the Indoor Units which result powered on and connected to the signal network - and that are therefore recognized by DTC-IHXR (necessary condition: the Indoor Units are expressly and correctly addressed as regards to DTC-IHXR); at the end of the Indoor Units' search, the display shows "SET" screen for the setting of the Indoor Unit ("SINGLE" default option) which has the lower address number (this Indoor Unit is proposed as default) among the numbers assigned according to the control by the Centralized Controller.

2.2 Address setting method of DTC-IHXR, in case of several devices on the same signal network.

In the presence of a PC equipped with a special Software (and eventually interfaced by a Gateway Lonworks® or BACnet® to control networks of another kind), on the same signal network there can be up to 16 DTC-IHXR equipments. In the structure for the centralized control of the Indoor Units, each DTC-IHXR is usually dedicated to the Indoor Units that are installed in a given area of the building. An address is assigned to each DTC-IHXR - in the range 00 ~ 15 - to distinguish it from the other DTC-IHXR equipments; the address setting is carried out by the special rotary selector on the PCB of DTC-IHXR.

2.3 Red LED (status LED) on DTC-IHXR.

If the push-button panel is used for setting the Indoor Units' operation, the LED will light up when setting procedure is completed - that is when setting is confirmed and sent to the Indoor Units - by the pressing of "OK" button. As soon as setting procedure is completed, status Red LED goes out. If at least one of the Indoor Units "in-service" (see above) shows a malfunction, or if DTC-IHXR does not operate correctly, the Red LED flashes 2 times per second.

If at least one of the Indoor Units "in-service" is operating - included TIMER ON or TIMER OFF - the status Red LED will light up. Otherwise, the status Red LED will be OFF.

2.4 Lock of Indoor Units' remote controllers and of DTC-IHXR's buttons.

2.4.1 If the Centralized Controller is connected to a PC provided with the specific Software, it is possible to send from the PC to DTC-IHXR the impulse for locking the remote controllers of all the Indoor Units controlled by DTC-IHXR equipment; therefore, the start and stop by remote controller will not be possible, as well as the operating settings of Indoor Units cannot be modified.

In the same way, it is possible to send from PC to DTC-IHXR the impulse for unlocking the remote controllers of all the Indoor Units controlled by DTC-IHXR equipment, if remote controllers were previously locked: therefore, the possibility to start and stop the Indoor Units by remote controller will be restored, as well as the possibility to modify the Indoor Units' operating settings.

Failing the connection to a PC, if DTC-IHXR is in "SET" mode - that is after pressing "SET" button - press "LOCK" button to lock/unlock the remote controllers of all Indoor Units ("ALL") controlled by DTC-IHXR equipment, or the remote controller of the Indoor Unit ("SINGLE") currently selected.

The status of lock/unlock of the Indoor Units' remote controllers is kept in memory also in case of a blackout of DTC-IHXR.

There is no priority between lock/unlock of remote controllers by PC, and the same operation carried out directly by DTC-IHXR.

2.4.2 In whatever mode, for locking/unlocking the buttons of DTC-IHXR equipment, press at the same time "QUERY" button and "LOCK" button on DTC-IHXR.

2.5 Lock of operation mode of the Indoor Units controlled by DTC-IHXR.

2.5.1 If the Centralized Controller is connected to a PC provided by the specific Software, it is possible to send by the PC to DTC-IHXR the impulse to lock/unlock in "COOLING" mode or in "HEATING" mode the operating mode of all the Indoor Units controlled by DTC-IHXR equipment.

Failing the connection to a PC, if DTC-IHXR is in "SET" mode - that is after pressing "SET" button - press "LOCK" button together with ▲ button to lock/unlock in Cooling mode or in Heating mode the operating mode of all the Indoor Units controlled by DTC-IHXR equipment.

The state of lock/unlock of the operating mode of the Indoor Units is kept in memory also in case of a blackout of di DTC-IHXR.

There is no priority between the lock/unlock of the operating mode carried out by PC and the same operation carried out directly by DTC-IHXR.

On the Indoor Units whose operating mode has been unlocked, it is possible to set again an operating mode which is not in conflict with the mode of the Indoor Units that are connected to the same Outdoor Unit. On this point, it is reminded that Cooling mode is compatible with Fan mode, however both modes are not compatible with Heating mode.

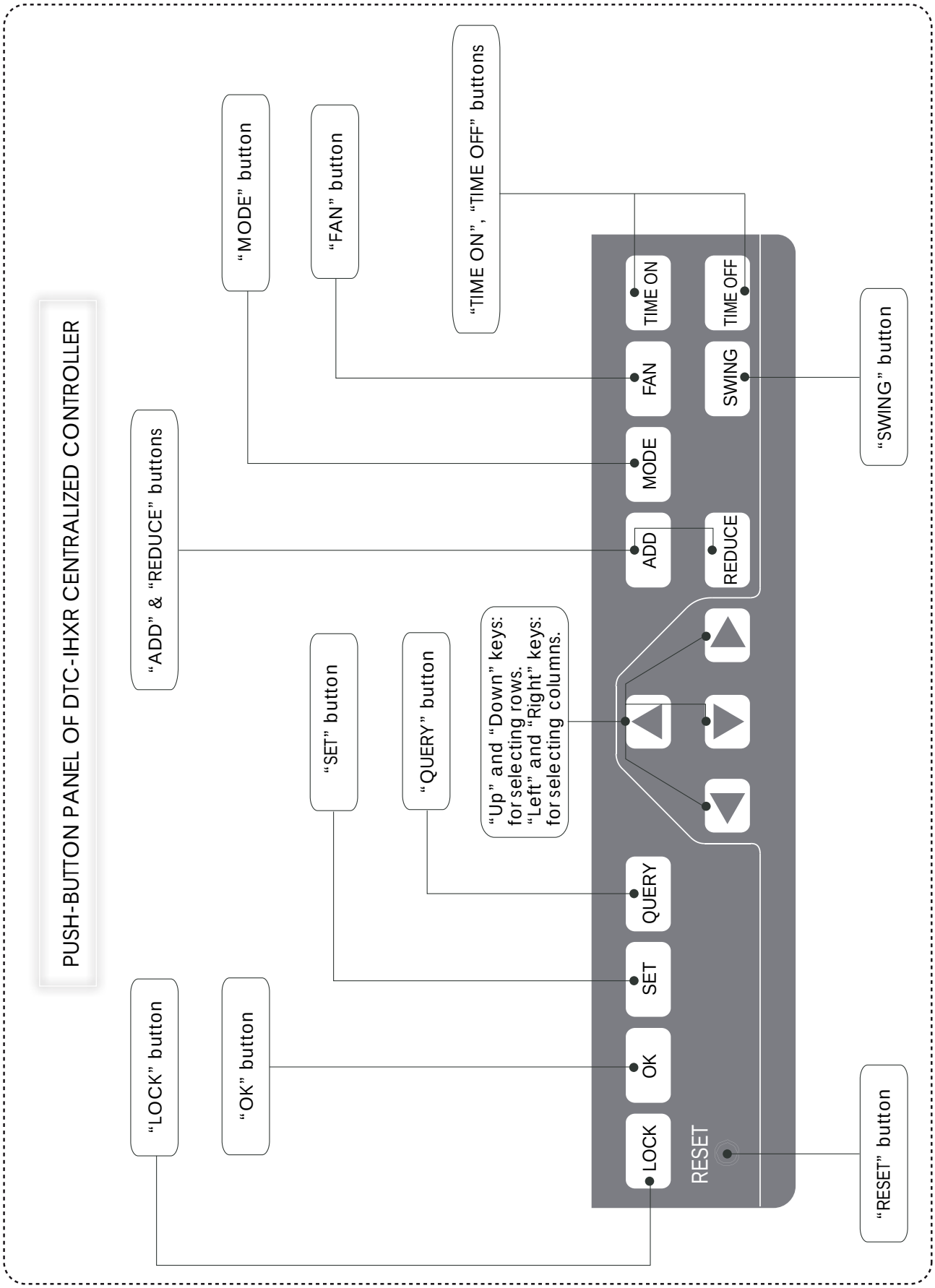
2.6 Emergency Stop & Forced Start of the Indoor Units controlled by DTC-IHXR.

2.6.1 If the “EMG. STOP” (Emergency Stop) contact on the back of DTC-IHXR is closed, all the Indoor Units that are connected to the signal network which the equipment belongs to, are forcedly stopped. The functions of start/stop of the Indoor Units by PC, Centralized Controller or other control modules on the signal network will be inhibited. The condition of forced stop persists till the “EMG. STOP” contact keeps closed.

2.6.2 If “FORCED ON” (Forced Start) contact on the back of DTC-IHXR is closed, all the Indoor Units that are connected to the signal network which the equipment belongs to, are forcedly started. The default operating mode for the Indoor Unit is the “COOLING” mode. The functions of start/stop of the Indoor Units by PC, Centralized Controller or other control modules (see the description of the indicators, dedicated to these modules, on DTC-IHXR’s display) on the signal network will be inhibited, however the remote controllers of the Indoor Units are active. This condition persists till “FORCED ON” contact keeps closed.

(3) Detailed specification of components and functions of the device.

3.1 Outline of DTC-IHXR's buttons.



☞ "QUERY" button

If you press "QUERY" button, you enter "QUERY" mode about the operating state of the controlled Indoor Units.

As default setting, the information are displayed about the Indoor Unit "in-service", which has the lower address among those assigned according to the control by the Centralized Controller.

By "ADD" & "REDUCE" buttons on the device, it is possible to change the parameter page of the Indoor Unit to be queried.

Through the Upward, Downward, Leftward and Rightward buttons () of DTC-IHXR, you can change along the rows and/or the columns inside the 64-boxes grille on the display. Each box of the grille corresponds to a given Indoor Unit controlled by DTC-IHXR. In this way, it is possible to select the Indoor Unit you would like to display the operating parameters.

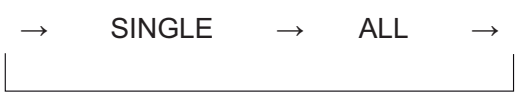
☞ "SET" button

If the device is not already in "SET" mode, by pressing "SET" button you can enter the setting mode of the Indoor Units.

By default, "SET" screen proposes to set only the Indoor Unit "in-service" ("SINGLE" option), which has the lower address among those assigned according to the control by the Centralized Controller.

If you press "SET" button again, "ALL" option is selected, that allows to carry out simultaneously the setting of all Indoor Units controlled by DTC-IHXR.

Press "SET" button repeatedly to shift between "SINGLE" setting and "ALL" setting, as it follows:



☞ "MODE" button

In "SET" mode, each time "MODE" button is pressed, the operation mode of the selected Indoor Unit changes as it follows:

→ COOLING → HEATING → FAN → OFF →

In other display mode, press "SET" button to enter the setting mode.

By default, "SET" screen proposes to set only the Indoor Unit "in-service" (default "SINGLE" option), which has the lower address among those assigned according to the control by the Centralized Controller. Press "SET" button again to shift between "SINGLE" setting and "ALL" setting, as shown in the previous page.

After setting the operation mode, press "OK" button to confirm the setting.

☞ "FAN" button

In "SET" mode, each time you press "FAN" button, fan speed of the selected Indoor Unit changes as it follows:

→ AUTOMATIC → LOW → MEDIUM → HIGH →

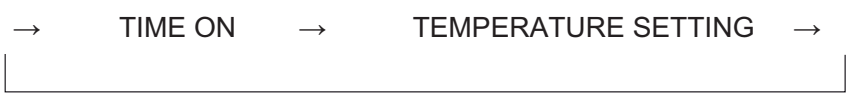
In other display mode, press "SET" button to enter the setting mode.

By default, "SET" screen proposes to set only the Indoor Unit "in-service" (default "SINGLE" option), which has the lower address among those assigned according to the control by the Centralized Controller. Press "SET" button again to shift between "SINGLE" setting and "ALL" setting, as shown in the previous page.

After setting fan speed, press "OK" button to confirm the setting.

☞ "TIME ON" button

In "SET" mode, press "TIMER ON" button to shift between the following options:



In other display mode, press "SET" button to enter the setting mode.

By default, "SET" screen proposes to set only the Indoor Unit "in-service" (default "SINGLE" option), which has the lower address among those assigned according to the control by the Centralized Controller. Press "SET" button again to shift between "SINGLE" setting and "ALL" setting, as already shown in the previous pages.

Press "ADD" or "REDUCE" buttons to set time interval for automatic start of Indoor Unit (TIME ON) or set your desired temperature value.

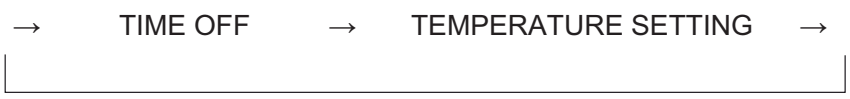
As far as TIMER setting is concerned, if time interval is "0.5"h to "10"h, at each press of "ADD" or "REDUCE" button, time changes by ±0.5 h; if time interval is "10"h to "24"h, at each press of "ADD" or "REDUCE" button, time changes by ±1 h.

As far as temperature setting is concerned, at each press of "ADD" or "REDUCE" button, temperature value changes by ±1°C.

After setting temperature value or time interval for the Indoor Unit's automatic start (TIME ON), press "OK" button to confirm the setting.

☞ "TIME OFF" button

In "SET" mode, press "TIME OFF" button to shift between the following options:



In other display mode, press "SET" button to enter the setting mode.

By default, “SET” screen proposes to set only the Indoor Unit “in-service” (default “SINGLE” option), which has the lower address among those assigned by the Centralized Controller. Press “SET” button again to shift between “SINGLE” setting and “ALL” setting, as already shown in the previous pages.

Press “ADD” or “REDUCE” buttons to set your desired temperature value or to set time interval for the automatic stop of the Indoor Unit (TIME OFF).

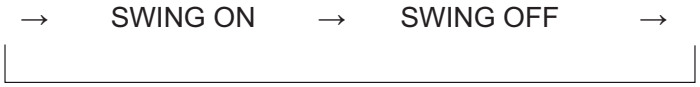
As far as TIMER is concerned, if time interval is “0.5”h to “10”h, at each press of “ADD” or “REDUCE” button, time changes by ±0.5h; if time interval is “10”h to “24”h, at each press of “ADD” or “REDUCE” button, time changes by ±1h.

As far as temperature setting is concerned, at each press of ADD” or “REDUCE” button, temperature value changes by ±1°C.

After setting temperature value or time interval for the Indoor Unit’s automatic stop (TIME OFF), press “OK” button to confirm the setting.

☞ “SWING” button

In “SET” mode, press “SWING” button to shift between the following options:



“SWING” function allows the automatic swinging of the air outlet motorized flaps - only on the Indoor Units which are equipped of motorized flaps - ; on the other Indoor Units, the activation/deactivation of “SWING” has no effect.

In other display mode, press “SET” button to enter the setting mode.

By default, “SET” screen proposes to set only the Indoor Unit “in-service” (default “SINGLE” option), which has the lower address among those assigned according to the control by the Centralized Controller. Press “SET” button again to shift between “SINGLE” setting and “ALL” setting, as already shown in the previous pages.

After setting “SWING” function, press “OK” button to confirm the setting.

☞ Leftward button (◀)

• In “QUERY” mode, each time the Leftward button is pressed, the Indoor Unit “in-service” is selected, which has the address number (among those assigned according to the control by the Centralized Controller) immediately preceding the number of the Indoor Unit currently selected.

If the device is not in “QUERY” mode, it is necessary to press “QUERY” mode to enter this mode. By default, the operating parameters for the Indoor Unit having the lower address among those assigned according to the control by the Centralized Controller, are displayed.

If the Indoor Unit currently selected is the first in address order, by pressing the Leftward button the last Indoor Unit in address order will be selected.

If the Leftward button is kept pressed, it will be possible to pass in descending order - one at a time - all the addresses of the Indoor Units “in-service”.

• In “SET” mode, if “SINGLE” option is selected, each time the Leftward button is pressed, the Indoor Unit “in-service” is selected, which has the address number (among those assigned according to the control by the Centralized Controller) immediately preceding the number of the Indoor Unit currently selected. If the Indoor Unit currently selected is the first in address order, by pressing the Leftward button the last Indoor Unit in address order will be selected.

If the Leftward button is kept pressed, it will be possible to pass in descending order - one at a time - all the addresses of the Indoor Units “in-service”.

In “SET” mode, if “ALL” option is selected, the pressing of the Leftward button has no effect.

☞ Rightward button (▶)

• In “QUERY” mode, each time the Rightward button is pressed, the Indoor Unit “in-service” is selected, which has the address number (among those assigned according to the control by the Centralized Controller) immediately following the number of the Indoor Unit currently selected.

If the device is not in “QUERY” mode, it will be necessary to press “QUERY” button to enter this mode.

By default, the operating parameters for the Indoor Unit having the lower address among those assigned according to the control by the Centralized Controller, are displayed.

If the Indoor Unit currently selected is the last in address order, by pressing the Rightward button the first Indoor Unit in address order will be selected.

If the Rightward button is kept pressed, it will be possible to pass in increasing order - one at a time - all the addresses of the Indoor Units “in-service”.

• In “SET” mode, if “SINGLE” option is selected, each time the Rightward button is pressed, the Indoor Unit “in-service” is selected, which has the address number (among those assigned according to the control by the Centralized Controller) immediately following the number of the Indoor Unit currently selected. If the Indoor Unit currently selected is the last in address order, by pressing Rightward button the first Indoor Unit in address order will be selected.

If the Rightward button is kept pressed, it will be possible to pass in increasing order - one at a time - all the addresses of the Indoor Units “in-service”.

In “SET” mode, if “ALL” option is selected, the pressing of the Rightward button has no effect.

☞ Downward button (▼)

• In “QUERY” mode, each time the Downward button is pressed, you shift by 1 row downwards in the 64-boxes grille which displays all the Indoor Units “in-service”.

Therefore, the Indoor Unit “in-service” will be selected in the 64-boxes grille, immediately below as regards to the Indoor Unit currently selected.

If the device is not in “QUERY” mode, it will be necessary to press “QUERY” button to enter this mode.

By default, the operating parameters for the Indoor Unit having the lower address number among those assigned according to the control by the Centralized Controller, are displayed.

If the Indoor Unit currently selected is on the last row of the 64-boxes grille, by pressing the Downward button, you shift to the 1st row of the 64-boxes grille.

If the Downward button is kept pressed, it will be possible to shift downwards - one at a time - the rows of the 64-boxes grille.

• In “SET” mode, if “SINGLE” option is selected, each time the Downward button is pressed, the Indoor Unit “in-service” will be selected in the 64-boxes grille, immediately below as regards to the Indoor Unit currently selected.

If the Indoor Unit currently selected is on the last row of the 64-boxes grille, by pressing the Downward button you shift to the 1st row of the 64-boxes grille.

If the Downward button is kept pressed, it will be possible to shift downwards - one at a time - the rows of the 64-boxes grille.

In “SET” mode, if “ALL” option is selected, the pressing of the Downward button will have no effect.

☞ Upward button (▲)

• In “QUERY” mode, each time Upward button is pressed, you move upwards in the 64-boxes grille which displays all the Indoor Units “in-service”.

Therefore, it will be selected the Indoor Unit “in-service”, in the 64-boxes grille immediately above as regards to the Indoor Unit currently selected.

If the device is not in “QUERY” mode, it will be necessary to press “QUERY” mode to enter this mode.

By default, the operating parameters for the Indoor Unit having the lower address among those assigned according to the control by the Centralized Controller, are displayed.

If the Indoor Unit currently selected is on the 1st row of the 64-boxes grille, press the Upward button to shift to the last row of the 64-boxes grille.

If the Upward button is kept pressed, it will be possible to shift - one at a time - the rows of the 64-boxes grille.

• In “SET” mode, if “SINGLE” option is selected, each time the Upward button is pressed, the Indoor Unit “in-service” is selected in the 64-boxes grille, immediately above as regards to the Indoor Unit currently selected.

If the Indoor Unit currently selected is on the 1st row of the 64-boxes grille, by pressing the Upward button you shift to the last row of the 64-boxes grille.

If the Upward button is kept pressed, it will be possible to shift upwards - one at a time - the rows of the 64-boxes grille.

In “SET” mode, if “ALL” option is selected, the pressing of the Upward button will have no effect.

☞ “ADD” button

• In “QUERY” mode, in whatever screen about the operating parameters for a given Indoor Unit, if you press “ADD” button you can shift to the following screen about the operating parameters for that Indoor Unit. When the operating parameters’ last screen is currently displayed, if you press “ADD” button you go back to the operating parameters‘ first screen.

• In “SET” mode, the function of “ADD” button depends on the setting.

When temperature setting option is active, if you press “ADD” button the temperature value increases by 1°C.

When TIMER option is active (TIME ON / TIME OFF), each time “ADD” button is pressed, the set time interval increases: from “0.5”h to “10”h, each time “ADD” button is pressed, set time interval increases by 0.5h; from “10”h to “24”h, each time “ADD” button is pressed, set time interval increases by 1 hour.

☞ “REDUCE” button

• In “QUERY” mode, in whatever screen about the operating parameters for a given Indoor Unit, if you press “REDUCE” button you can shift to the previous screen about the operating parameters of that Indoor Unit. When the operating parameters’ first screen is currently displayed, if you press “REDUCE” button you shift to the operating parameters‘ last screen.

• In “SET” mode, the function of “REDUCE” button depends on the setting.

When temperature setting option is active, if you press “REDUCE” button the temperature value decreases by 1°C.

When TIMER option is active (TIME ON / TIME OFF), each time “REDUCE” button is pressed, the set time interval decreases: from “0.5”h to “10”h, each time “REDUCE” button is pressed, set time interval decreases by 0.5h; from “10”h to “24”h, each time “REDUCE” button is pressed, set time interval decreases by 1 hour.

☞ "ON/OFF" button

• By pressing this button, it is possible to start/stop at the same time all the Indoor Units on the signal network which have been configured to be controlled by DTC-IHXR (so-called "in-service" Indoor Units). If all the Indoor Units "in-service" are OFF, if you simply press "ON/OFF" button on DTC-IHXR, they will be ON according to the default operating settings: Cooling mode, set temperature 24°C, High fan speed, automatic swinging ("SWING") of motorized flaps (on the Indoor Units which are equipped with motorized flaps).

In the same way, if one or more Indoor Units "in-service" are ON, if you simply press ON/OFF button on DTC-IHXR, they will be OFF. This stop command (OFF) is not sent to to all Indoor Units but only to the Indoor Units that are ON.

• However, in "SET" mode, after selecting each Indoor Unit OFF, it is possible to select in advance its operating settings: operation mode, set temperature value, fan speed, activation/deactivation of motorized flaps ("SWING", on the Units which are equipped with motorized flaps). If no operating setting is selected, default operating settings are active (see above).

The operating settings of each Indoor Unit must not be in conflict with the operating settings of other Indoor Units connected to the same Outdoor Unit. On this point, it is reminded that Cooling mode is compatible with Fan mode, but that both modes are not compatible with Heating mode. If there is a conflict between operating modes of Indoor Units which are connected to the same Outdoor Unit, the conflict is solved by applying only the compatible operating settings. In case the conflict cannot be solved, each Indoor Unit whose operating mode is in conflict with another mode, cannot be started: so it will be kept in standby.

Each Indoor Unit which is ON can be stopped (OFF) after being selected, by choosing OFF as operating mode for that Indoor Unit.

☞ "LOCK" button

• In "SET" mode, if you press "LOCK" button, the remote controllers of the Indoor Units currently selected are inhibited. Lock function does not require to be confirmed by "OK" button. If you press "LOCK" button again, Lock function will be cancelled.

If the "SINGLE" option is active (one Indoor Unit), the reception of the signals sent by remote controller of the Indoor Unit whose address is currently displayed, is inhibited. If the Indoor Unit's remote controller has already been previously inhibited, by pressing "LOCK" button the reception of the signals sent by remote controller to that Indoor Unit will be activated again.

If "ALL" option is active (all Indoor Units), the reception of the signals sent by the remote controllers of all Indoor Units "in-service" will be inhibited. If remote controllers of one or more Indoor Units have already been inhibited, by pressing "LOCK" button the reception of the signals sent by remote controllers to those Indoor Units will be activated again.

• If you press "LOCK" button and "QUERY" button at the same time, it will be possible to lock and then unlock the remaining buttons on DTC-IHXR. If the lock option of DTC-IHXR's buttons is active, pressing of any button other than "LOCK" & "QUERY" buttons is ineffective.

• When DTC-IHXR is in "SET" mode - that is after "SET" button has been pressed - the simultaneous pressing of "LOCK" button and Upward button (▲) allows to lock (and then unlock) in Cooling mode or in Heating mode the operating mode of all the Indoor Units controlled by DTC-IHXR equipment.

On the Indoor Units whose operating mode has been unlocked, it is possible to set again an operating mode that is not in conflict with the mode of the Indoor Units connected to the same Outdoor Unit. On this point, it is reminded that Cooling mode is compatible with Fan only mode, but that both modes are not compatible with Heating mode.

Note. For all operations of lock/unlock commanded by “LOCK” button, the corresponding indicator on DTC-IHXR’s display - which indicates the activation of the corresponding unlock function - will appear/disappear only after that the function will be applied to all the Indoor Units controlled by DTC-IHXR; if the number of those Indoor Units is remarkable, it will be necessary to wait a few seconds before this occurs.

☞ “OK” button

• In “SET” mode, if you press “OK” button, the operation settings are transmitted to the Indoor Units defined by the User (operation mode and other settings, that is: fan speed, automatic swinging - “SWING” function - of the air outlet motorized flaps, on the Indoor Units equipped with motorized flaps). Status indicator (Red LED) will light up to indicate that the settings’ transmission has succeeded. At the same time, in the right down area of the display, the indication “OPR. SUCCESS” - that is “successful operation” - will be displayed for 1 second.

Note. The indication (“OPR. SUCCESS”) appears each time a command from DTC-IHXR to the Indoor Units has been successful, and this occurs also for the different functions of lock/unlock (“LOCK” button, see the previous page) carried out by DTC-IHXR, despite these functions are immediately active without need of confirmation by “OK” button.

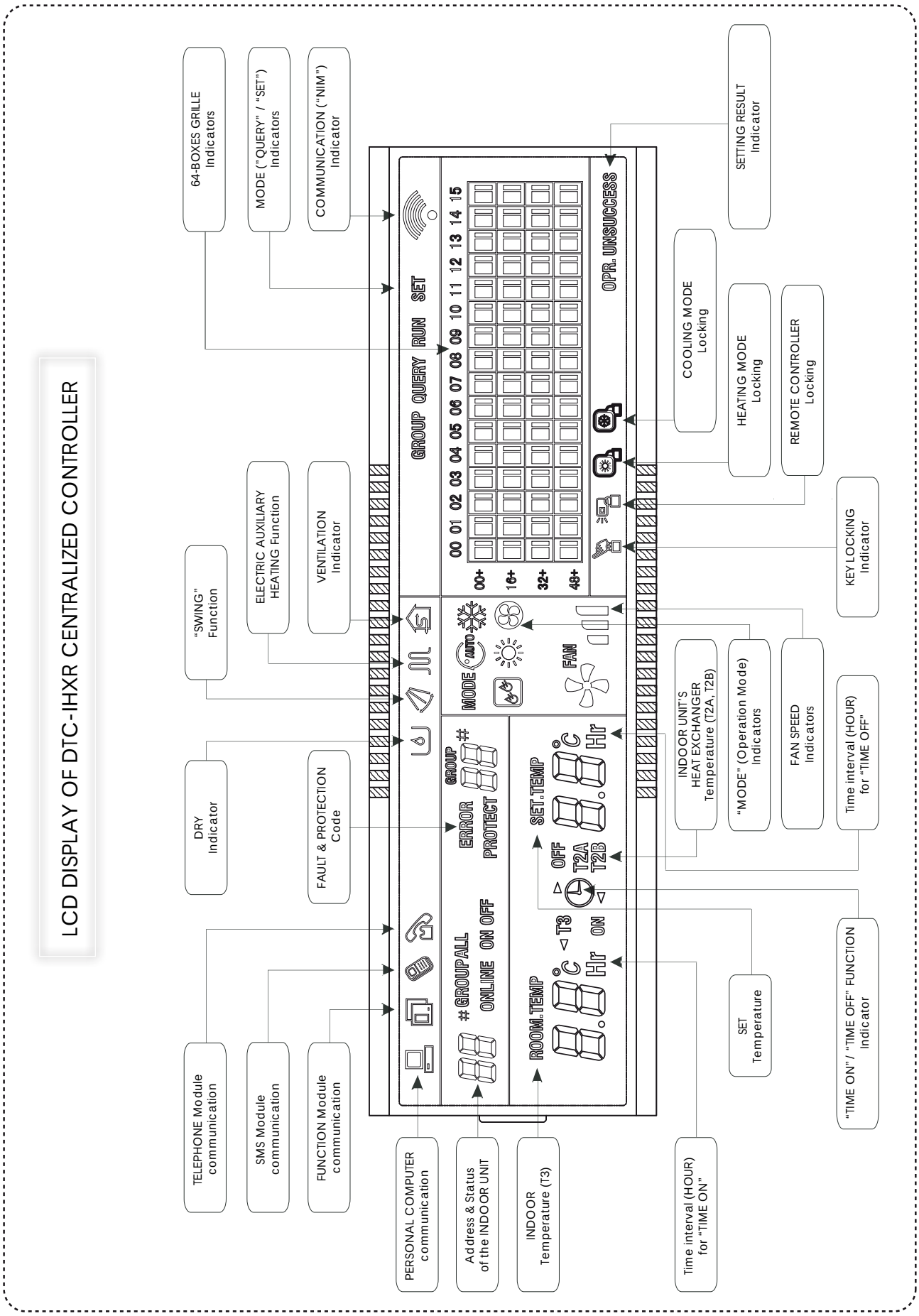
• If after selecting the operation mode and other settings (see above), these selections are not confirmed by “OK” button, they will have no effect on the Indoor Units‘ operation.

• Therefore, the operations of lock/unlock previously described - that is the operations carried out by “LOCK” button - are immediately active; so it is not necessary to press “OK” button.

☞ “RESET” button

In any mode or screen, if you press “RESET” button, DTC-IHXR equipment is reset (reset of the previously settings). The result of pressing “RESET” button is the same as when power is restored after a blackout (settings are reinitialized).

3.2 Outline of Indicators on DTC-IHXR's display.



1) Indicators displayed on all screens of the device

This indicator is displayed only when DTC-IHXR Centralized Controller is connected to a PC and/or to a Gateway.

This indicator is displayed only when DTC-IHXR Centralized Controller is connected to a "Functional Module for Communication.

This indicator is displayed only when DTC-IHXR Centralized Controller is connected to a "SMS Module" for remote Communication.

This indicator is displayed only when DTC-IHXR Centralized Controller is connected to a "Telephone Module" for remote Communication.

This indicator is displayed in a dynamic and cyclic way (gradual switching on of the indicator, followed by full switching off, and so on), to indicate that communication between DTC-IHXR Centralized Controller and "NIM" Modules (*"Network Interface Module"*) of Indoor Units takes place regularly.

This indicator is displayed when Remote Controllers' Locking function on the Indoor Units "in-service" is active. The indicator disappears from the display when this function is deactivated.

In "SET" mode and "SINGLE" option activated, the indicator is displayed only when the Remote Controllers' Locking function is active on the Indoor Unit.

In "SET" mode and "ALL" option activated, the indicator is displayed till the Remote Controller's Locking function is active on at least one of the Indoor Units "in-service".

This indicator is displayed when the Buttons' Locking function of DTC-IHXR device is active. The indicator disappears from the display when this function is deactivated.

This indicator is displayed when the Heating Mode Locking function is active for one or all Indoor Units controlled by DTC-IHXR Centralized Controller. The indicator disappears from the display when this function is deactivated.

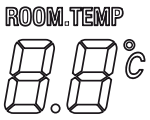
This indicator is displayed when the Cooling Mode Locking function for one or all Indoor Units controlled by DTC-IHXR Centralized Controller. The indicator disappears from the display when this function is deactivated.

OPR. SUCCESS This indication appears each time a command sent by DTC-IHXR to the Indoor Units has been received and carried out.

OPR. UNSUCCESS This indication appears when a command sent by DTC-IHXR to the Indoor Units was not carried out - even if it had been received.

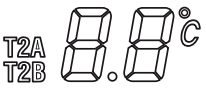
2) Informations about data (values) or status of the controlled Indoor Units

In “QUERY” mode, these information display the address number (“#”, in the interval “00” to “63”) as regards to DTC-IHXR Centralized Controller of the selected Indoor Unit and indicate the operating status of the Indoor Unit.



In “QUERY” mode, these information display room temperature value, measured in °C, detected in the room where the selected Indoor Unit is installed. The interval of the displayed temperatures is “00” to “99”. The indication “_99” is referred to a higher value as regards to the max. value which can be displayed.

The indication “- -” means that the detected temperature value is invalid for display.

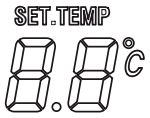


In “QUERY” mode, these information display, by choice, one of temperature values (T2A or T2B, measured in °C) detected on the heat exchanger of the selected Indoor Unit; T2A is referred to the temperature detected on Liquid side, while T2B is referred to the temperature detected on Gas side. The interval of the displayed temperatures is “00” to “99”. The indication “_99” is referred to a higher value as regards to 2the max. value which can be displayed.

The indication “- -” means that the detected temperature value is invalid for display.

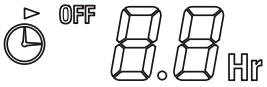
In “QUERY” mode, these information display the temperature value (T3, measured in °C) detected on the Oudoor Unit’s heat exchanger. The interval of the displayed temperatures is “00” to “99”. The indication “_99” is referred to a higher value as regards to the max. value which can be displayed.

The indication "- -" means that the detected temperature value is invalid for display.



In "QUERY" mode, these information display the set temperature valur for the selected Indoor Unit. The interval of temperatures that can be set is "17°C" to "30°C".

In "QUERY" mode, these information indicate that "TIME ON" function has been set for the Indoor Unit's automatic start after a set time interval.



In "QUERY" mode, these information indicate that "TIME OFF" function has been set for the Indoor Unit's automatic stop after a set time interval.

In both cases, the time interval is "0.5"h to "24"h, with different steps depending on the interval length. In particular, if time interval is "0.5"h to "10"h, setting time changes by steps of ±0.5h; if time interval is "10"h to "24"h, setting time changes by steps of ±1h.

In "QUERY" mode, these information display the Error Code or the Code referred to the intervention of a Protection Function for a given Indoor Unit. As far as the list of Error Codes and Protection Codes is concerned, please refer to the Tables further on.

3) Description and contents of the 64-box grille on DTC-IHXR's display.

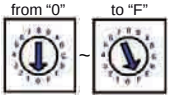
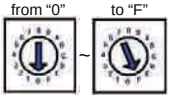
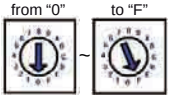
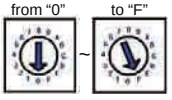
The 64-boxes grille (see the illustration in the following page) on DTC-IHXR's display, is formed of 64 boxes disposed on 4 rows (respectively: 00+, 16+, 32+, 48+); each row includes 16 columns (respectively: "00", "01", "02", "03", "04", "05", "06", "07", "08", "09", "10", "11", "12", "13", "14", "15"). So there is a total of 4 x 16 = 64 boxes.

Each box of the grille is identified by a column number and by a row number, and corresponds to a given address (exclusive, that is it must not be duplicated in the same signal network) assigned to a given Indoor Unit, expressly based on the Centralized Control by DTC-IHXR.

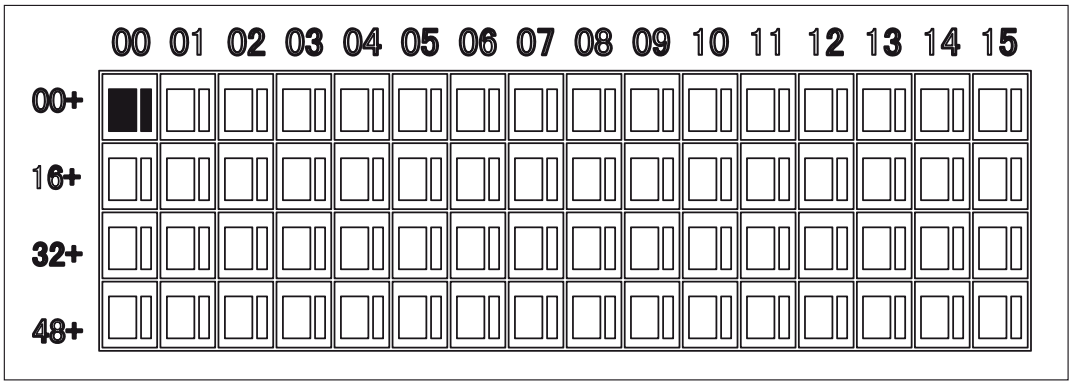
By way of example, for the Indoor Units of "Mini XRV" installations and "XRV Systems", the components that allow to assign the address to each Indoor Unit are the following:

• S1 battery, composed of 2 microswitches, where each of them can be set to "ON" or to "OFF", for a total of 4 possible combinations. The combination of the 2 microswitches bounds the ends of the addresses that can be assigned by the rotative selector S2 (see the following item and the Table below) with 16 positions.

• Rotative selector S2, with 16 positions, that can be set from "0" to "F", for assigning an address number to the Indoor Unit as regards to the Centralized Controller. It is used in combination with S1, battery composed by 2 microswitches (see the previous item), and allows to cover an address setting range from "00" to "63".

Selectors for assigning an address to the Indoor Unit as regards the Centralized Controller		Address range limits (S1)
S1 	**S2** 	**00 ~ 15**
S1 	**S2** 	**16 ~ 31**
S1 	**S2** 	**32 ~ 47**
S1 	**S2** 	**48 ~ 63**

64-boxes grille on DTC-IHXR's display.



Note. In the illustration above, all boxes, except the box identified by the coordinates "00, 00+", are represented OFF.

As you can observe, each box is composed of 2 different parts, of different dimensions: the left part, represented by a bigger rectangle, and the right part, represented by a smaller rectangle.

The status (ON, flashing, OFF) of each part of the box gives different information about the operating conditions of the Indoor Unit represented here.

• As far as the left part (bigger rectangle) of the box is concerned, the correspondence between the graphics status and the operating conditions of the Indoor Unit is the following:

a. THE RECTANGLE IS ON (▮) : the Indoor Unit is "in-service".

b. THE RECTANGLE FLASHES QUICKLY (▮ ↔ ▯) : the Indoor Unit is the Unit currently selected.

c. THE RECTANGLE IS OFF (▯) : the Indoor Unit is not "in-service".

• As far as the right part (smaller rectangle) of the box is concerned, the correspondence between the graphics status and the operating conditions of the Indoor Unit is the following:

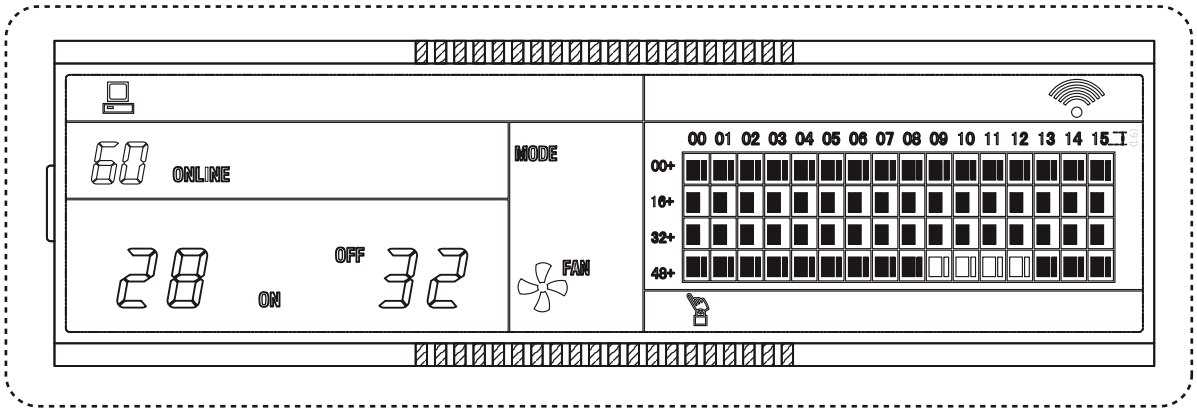
a. THE RECTANGLE IS ON (▮) : the Indoor Unit is ON.

b. THE RECTANGLE IS FLASHING QUICKLY (▮ ↔ ▯) : the Indoor Unit has a malfunction.

c. THE RECTANGLE IS OFF (▯) : the Indoor Unit is OFF.

4) Examples of screens displayed on DTC-IHXR.

- **Example of "STANDBY" screen**



As already observed, each box of the grille is identified by a pair of coordinates, that is by the column number and row number which the box belongs to. In the signal network of DTC-IHXR Centralized Controller, the address of each Indoor Unit is given by the sum of these coordinates. For example, for the Indoor Unit which appears in the box "09, 48+", the address assigned in the signal network is: 09 + 48 = 57.

"STANDBY" screen that is shown above gives the following information:

1. On the signal network of DTC-IHXR Centralized Controller, there are 60 Indoor Units "in-service": 28 Indoor Units are ON and 32 Indoor Units are OFF.

2. The big rectangles of the Indoor Units from "00, 16+" up to "15, 32+" are ON, while the little rectangles in the same boxes are OFF. This shows that the Indoor Units having the addresses "16" ~ "47" are "in-service"; however, they are OFF.

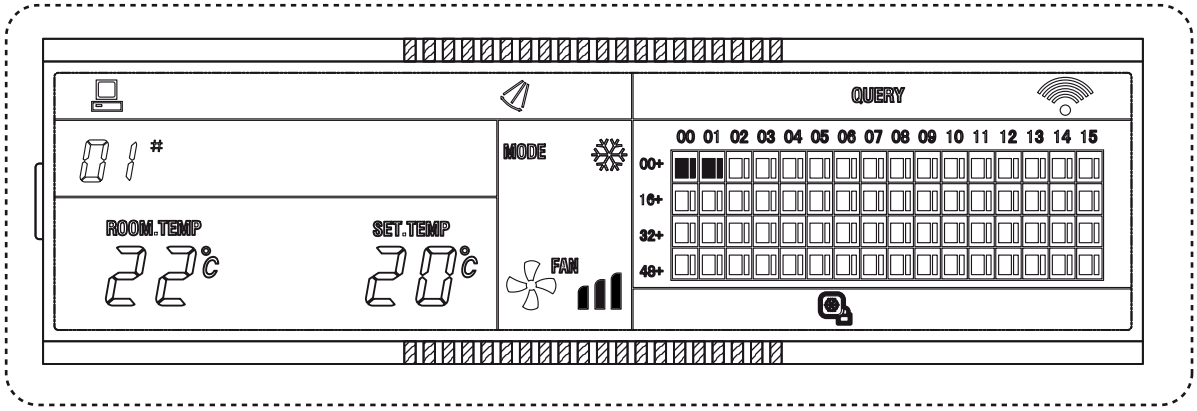
3. The big and the little rectangles in the boxes from "09, 48+" to "12, 48+" are both OFF. This shows that on the signal network of DTC-IHXR Centralized Controller, there are no Indoor Units having the addresses "57" ~ "60".

4. In all other boxes of the grille, both bog and little rectangles are ON. This shows that all other Indoor Units on the signal network of DTC-IHXR Centralized Controller are "in-service" and ON.

6. The Buttons Locking function of DTC-IHXR Centralized Controller is active, as the corresponding indicator is displayed in the screen, immediately below the 64-boxes grille.

7. There is a connection between DTC-IHXR Centralized Controller and a PC and/or a Gateway. This is shown by the indicator .

- **Example of screen in "QUERY" Mode**



As already observed, each box of the grille is identified by a pair of coordinates, that is by the column and by row number the box belongs to. In the signal network of DTC-IHXR Centralized Controller, the address of each Indoor Unit is given by the sum of these coordinates. For example, for the Indoor Unit which appears in the box "00, 00+", the address assigned in the signal network is: 00 + 00 = 00. The screen in "QUERY" Mode shown above gives the following information:

1. The query of the operating parameters of the Indoor Unit having "01" address as regards to DTC-IHXR Centralized Controller is carried out.

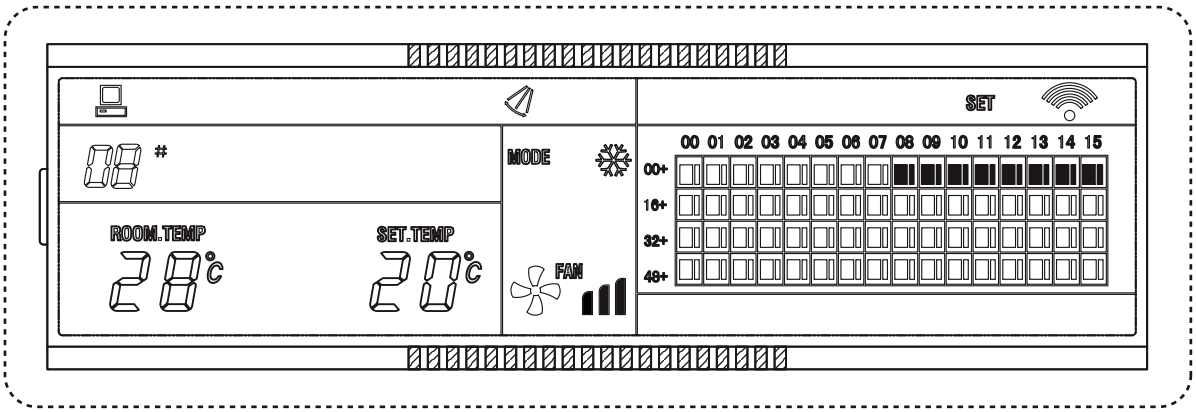
2. The settings/the operating parameters of the Indoor Unit having "01" address are the following: Cooling mode, High fan speed, room temperature 22°C, set temperature 20°C, automatic swinging of the air outlet motorized flaps (this is shown by the indicator).

3. The Cooling mode Locking function is active. This information is shown by the indicator .

4. In the display's 64-boxes grille, the big and little rectangles in the boxes "00, 00+" and "01, 00+" are both ON. This shows that the Indoor Units having the addresses "00" and "01" are both "in-service" and ON.

5. There is a connection betwdeen DTC-IHXR Centralized Controller and a PC and/or a Gateway. This is shown by the indicator .

- **Example of screen in "SET" Mode**



As already observed, each box of the grille is identified by a pair of coordinates, that is by the column number and row number which the box belongs to. In the signal network of DTC-IHXR, the address of each Indoor Unit is given by the sum of these coordinates. For example, for the Indoor Unit which appears in the box "08, 00+", the address assigned in the signal network is: 08 + 00 = 08. The screen in "SET" Mode shown above gives the following information:

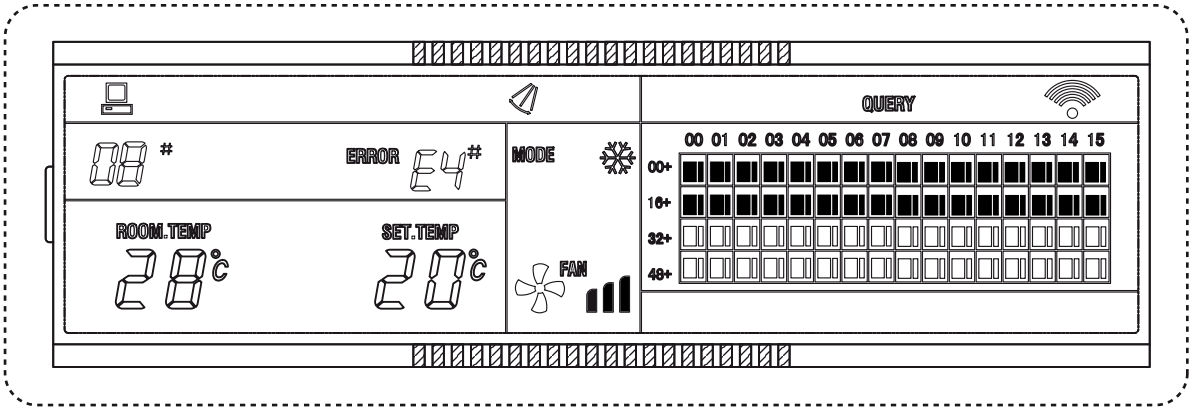
1. The query of the operating parameters of the Indoor Unit having the address "08" as regards to DTC-IHXR Centralized Controller is carried out.

2. The settings/the operating parameters of the Indoor Unit having the address "08" are the following: Cooling mode, High fan speed, room temperature 28°C, set temperature 20°C, automatic swinging "SWING" of the air outlet motorized flaps (this is shown by the indicator).

3. On displayed 64-boxes grille, the big and little rectangles in the boxes from "08, 00+" up to "15, 00+" are both ON. This shows that the Indoor Units having the addresses "08" and "15" are "in-service" and ON.

4. The connection between DTC-IHXR Centralized Controller and a PC and/or a Gateway is carried out. This is shown by the indicator .

• **Example of screen with "ERROR CODE" displa**y



As already observed, each box of the grille is identified by a pair of coordinates, that is by the column number and row number which the box belongs to. In the signal network of DTC-IHXR Centralized Controller, the address of each Indoor Unit is given by the sum of these coordinates. For example, for the Indoor Unit which appears in the box "08, 00+", the address assigned in the signal network is: 08 + 00 = 08. The screen in "SET" Mode shown above gives the following information:

1. The query of the operating parameters of the Indoor Unit having the address "08" as regards to DTC-IHXR Centralized Controller is carried out.

2. The Indoor Unit shows a malfunction and "E4" Error Code is displayed. Consequently, the little rectangle in the box "08, 00+", flashes quickly.

3. The settings/the operating parameters of the Indoor Unit having the address "08" are the following: Cooling mode, High fan speed, room temperature 28°C, set temperature 20°C, automatic swinging "SWING" for the air outlet motorized flaps (this is shown by the indicator).

4. On displayed 64-boxes grille, the big and little rectangles in the boxes from "00, 00+" up to "15, 16+" are both ON. This shows that the Indoor Units having the addresses "00" ~ "31" are "in-service" and ON.

5. There is a connection between DTC-IHXR Centralized Controller and a PC and/or a Gateway. This is shown by the indicator .

5) Tables of Error Codes and Protection Codes displayed on DTC-IHXR.

- **Table of ERROR CODE**S

Code	Malfunction Contents
EF	Other kinds of malfunction (besides the malfunctions below).
EE	Water level detection fault (Indoor Unit).
ED	Malfunction for the intervention of a protection function on the Outdoor Unit.
EC	Malfunction during refrigerant recovery operation in the circuit.
EB	Malfunction of Inverter Module (IPM).
EA	Over-current of compressor (4 times).
E9	Fault of communication between main PCB and PCB Display.
E8	Air speed detection out of control (Indoor Unit).
E7	Fault of data in the EEPROM.
E6	Fault in the data transmission along the signal lines.
E5	Malfunction of temperature sensor T3 (Outdoor Unit's heat exchanger), of temperature sensor T4 (outdoor air temperature) or of temperature sensor on compressor discharge pipe.
E4	Fault of temperature sensor T2B (Indoor Unit's heat exchanger, Gas side).
E3	Fault of temperature sensor T2A (Indoor Unit's heat exchanger, Liquid side).
E2	Fault of temperature sensor T1 (indoor temperature).
E1	Communication fault.
E0	Phase order error or phase loss.
07#	ND
06#	ND
05#	ND
04#	ND
03#	ND
02#	ND
01#	Fault of communication between DTC-IHXR Centralzed Controller and PC (or Gateway).
00#	• Fault of communication between DTC-IHXR Centralized Controller and Functional Module for Communication. • Fault of communication between DTC-IHXR Centralized Controller and "NIM" Modules (*"Network Interface Module"*) of Indoor Units. • Fault of communication between "NIM" Modules (*"Network Interface Module"*) of Indoor Units and main PCB of Indoor Units.

• Table of PROTECTION CODES

Code	Protection Function Contents
PF	Other kind of malfunctions (besides the malfunctions below).
PE	Reserved code.
PD	Reserved code.
PC	Reserved code.
PB	Reserved code.
PA	Reserved code.
P9	Reserved code.
P8	Over-current of compressor protection.
P7	Power supply over-voltage and under-voltage protection.
P6	Discharge low pressure protection.
P5	Discharge high pressure protection.
P4	Discharge pipe over-temperature protection.
P3	Compressor over-temperature protection.
P2	Over-temperature on Outdoor Unit's heat exchanger protection (in Cooling mode).
P1	Defrost protection on Indoor Unit's heat exchanger (in Cooling mode).
P0	Over-temperature on Indoor Unit's heat exchanger protection (in Heating mode).

(4) Regulations for Electromagnetic Compatibility and Safety.

1. This DTC-IHXR Centralized Controller respects the Regulations for Electromagnetic Compatibility (EMC), Low Voltage Directive (LVD), and conforms with CE Standards (see CE Declaration of Conformity, in the following page).

2. This DTC-IHXR Centralized Controller respects the Regulations on the Safety of Electric Equipments: GB4706.32-2004 and GB/T7725-2004.

CE DECLARATION OF CONFORMITY

We Termal Srl - 14, Via della Salute - 40132 Bologna - Italy

DECLARE UNDER OUR SOLE RESPONSIBILITY

that HOKKAIDO Product "DTC-IHXR Centralized Controller"

conforms to the following Directives:

- **Electromagnetic Compatibility Directive EMC 2004/108/EC.**
- **Low Voltage Directive LVD 2006/95/EC.**
- **Harmonized Rules: EN55014-1:2000+A1:2001+A2:2002**

  EN61000-3-2:2000, EN61000-3-3:1995+A1:2001

  EN55014-2:1997+A1:2001 (Category II)

  EN60335-2-40:2003+A11:2004

  EN50336:2003.

President
Giorgio Giatti

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