

## USER'S MANUAL

DIAGNOSTIC TOOL FOR MULTI VARIABLE,  
MULTI SYSTEM AND HIGH POWER MULTI  
SYSTEM SERIES

SDT-MV



## User Notice

☆ Make sure that the power supply of the unit is correctly connected before using this debugger.

☆ Never plug or unplug the connecting wires when the debugging device and unit are power-on.

☆ Never use a power supply that is inconsistent with the rated voltage.

☆ Make sure that the power interface of debugger has been correctly connected. If the debugger has no display after energizing, please check the power interface of debugger.

☆ Make sure that the communication wire is connected to the correct interface, otherwise it will lead to communication malfunction.

☆ Please don't knock, throw, or frequently dismantle and assemble the debugger.

☆ Please don't operate the debugger with wet hands.

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Remarks:

1. There are two data wires for debugger, one is dual-end 4-core data wire 1, the other is data wire 2 with one end 3-core another end 4-core.

2. For the Multi System and Multi Variable unit, use the dual-end 4-core data wire 1 according to the silk screen of terminal in the sheet; in which COM2 refers to the terminal in the debugger, another refers to the terminal in the controller of Multi System and Multi Variable unit.

3. For the High Power Multi System unit, the dual-end 4-core data wire 1 is for the CN485-QD1 controller terminal; the data wire 2 with one end 3-core another end 4-core is for the CN485-QD controller terminal.

(2) It is portable and is easily operated.

## 1 Connection of Debugger

### 1.1 Power supply and communication interface

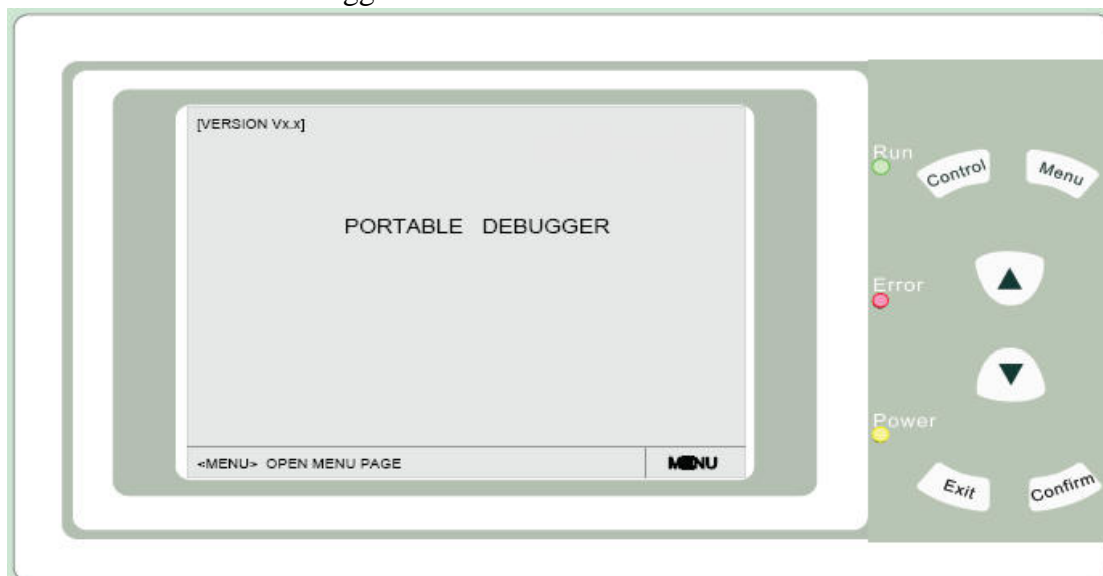
5V for power supply (Power supply is not included) ; use USB interface.

The debugger can support different units, the communication interfaces of different units are different. It will be differentiated by using COM1 and COM2 in debugger, in which COM1 is for High Power Multi System unit interface, COM2 is for Multi System and Multi Variable unit interface.

The portable debugger should be uniformly connected from the main board of outdoor unit.

## 2 Display and Buttons

### 2.1 Control Panel of Debugger



◆ “Power” indicator light (Power Yellow): when the display panel is energized, the indicator light is on.

◆ “Error” indicator light (Error Red): when the receiving data is incomplete, that is, the data of indoor unit cannot be detected, the indicator light will flicker.

◆ “Run” indicator light (Run Green): When receiving complete and correct communication data, the indicator light will flicker.

◆ “Control” Button: for controlling on and off of backlight source of liquid crystal screen.

◆ “Menu” Button: press this button in the first page to unfold “Menu Page”

◆ “Up” Button (▲): when selecting, press this button to move upward or left.

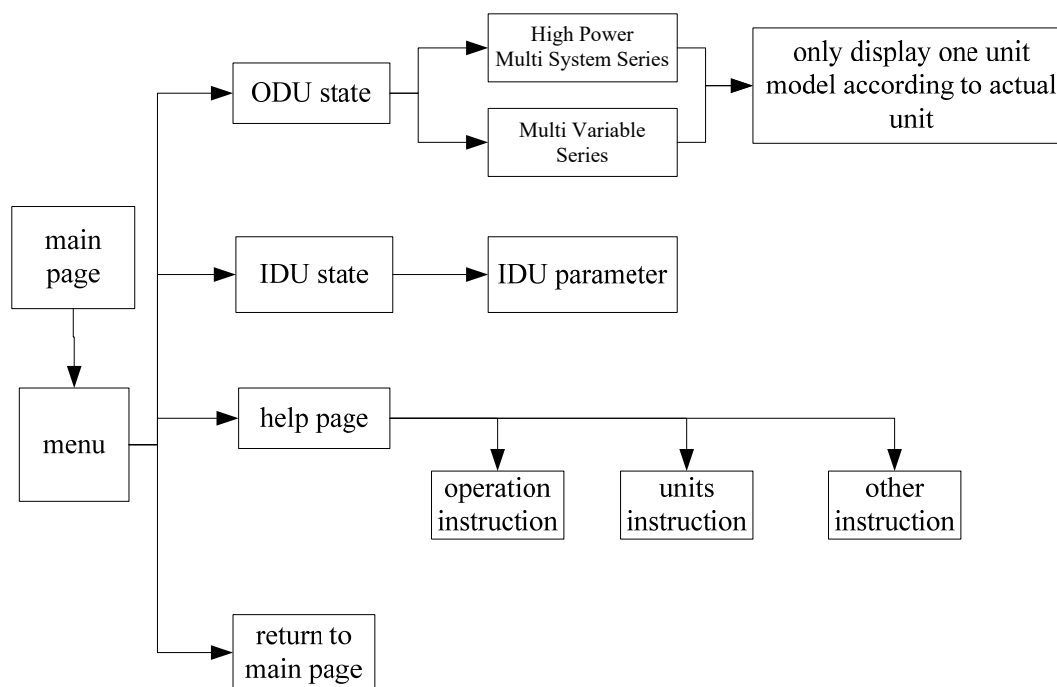
◆ “Down” Button (▼): when selecting, press this button to move downward or right.

◆ “Confirm” Button: when selecting, press this button to confirm selection.

◆ “Exit” Button: press this button to exit the current selection.

◆ “Status Bar”: show the function of major functional buttons. (As shown in the above photo)

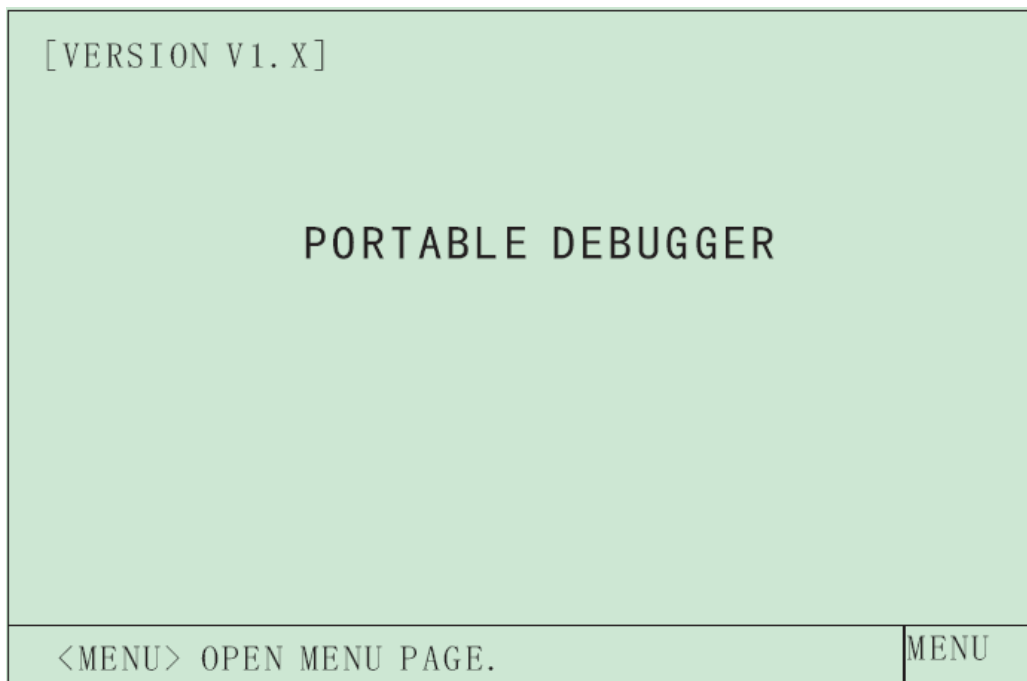
## 2.2 Structure of Menu



## 2.3 Page Operation Instruction

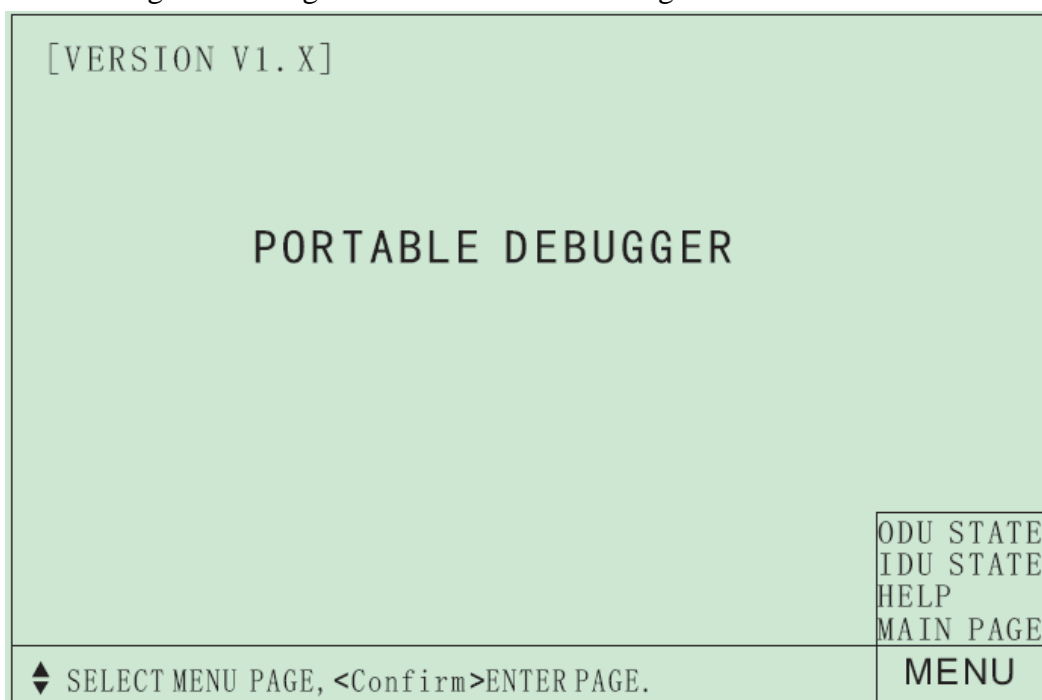
### 2.3.1 Main Page

When energize the display, the display will initialize, the liquid crystal interface of display will be shown as follows:



### 2.3.2 Menu Page


In the first page, press “Menu” button to call out menu page. It can select items for controlling or referring. As shown in the following:



Select the items through pressing “Up” and “Down” buttons, and then press “Confirm” button to enter into corresponding option. After calling out menu page, press “Menu” button or “Exit” button to exit the page.

### 2.3.3 ODU State Page


In menu page, select ODU STATE and confirm entering into ODU STATE page. The debugger will automatically identify information of outdoor unit, if it cannot identify, it will display "--".

[VERSION V1. X]		ODU STATE 	
ODU CAP	:12.0	OPER MODE	:OFF
COMP 1	:OFF	COMP 2	:--
OUTDOOR FAN1	:OFF	OUTDOOR FAN2	:OFF
DEFROST	:OFF	OIL RETURN	:OFF
EXV STEP 1	:0	EXV STEP 2	:0
MID PRESSURE	:--	HIGH PRESSURE	:0.31
BUS VOLTAGE	:0	LOW PRESSURE	:0.06
TEMP	:12	AC CURRENT	:0
TUBE TEMP	:5	SUCTION TEMP	:26
DISCHARGE T1	:26	DISCHARGE T2	:--
NEXT 1, 2, 3			
◆ SELECT ODU STATE PAGE.			MENU

Look over the information of different status by pressing "Up" and "Down" buttons. Press "Exit" button to return to main page.

### 2.3.4 IDU State Page

In menu page, select IDU STATE and confirm entering into IDU STATE page.

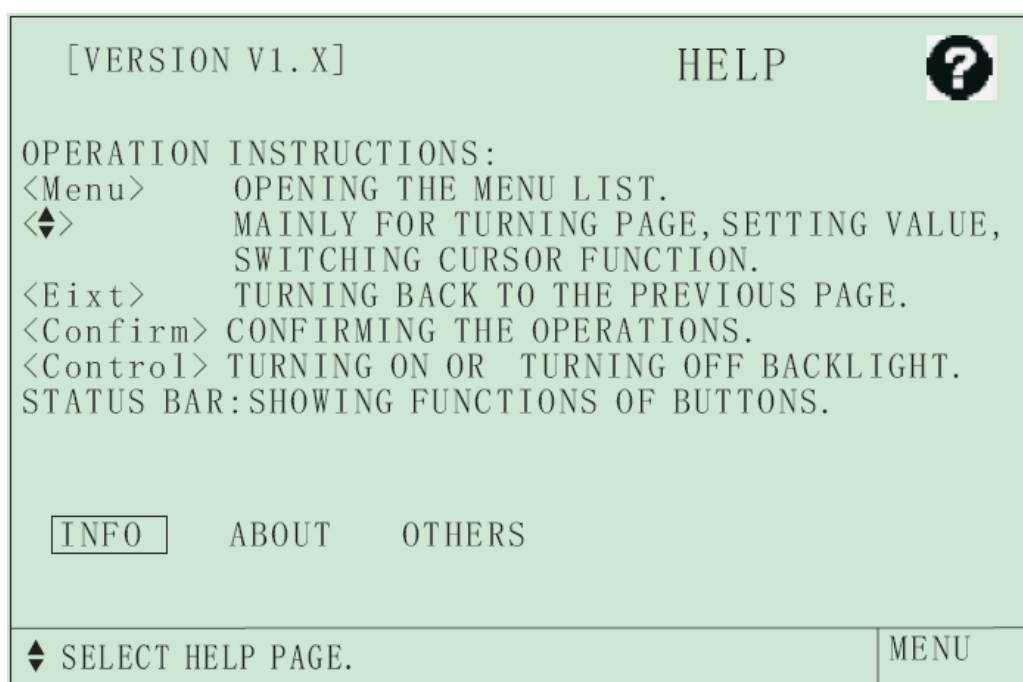
[VERSION V1. X]		IDU STATE 	
IDU ADDRESS 0101			
IDU BEING	:CONNECTED	TYPE	:DUCT
IDU CAP	:2.6	INDOOR FAN	:OFF
OPER MODE	:OFF	SET TEMP	:25
EXV STEP	:0	TUBE TEMP	:29
TEMP	:26	GAS VALVE	:28
LIQUID VALVE	:27	MODE CONFLICT	:NORMAL
ANTI-FROZEN	:NORMAL	GAS SENSOR	:NORMAL
FLOODING	:NORMAL	HUM SENSOR	:NORMAL
IDU ON-LINE	:ON-LINE	WATER SENSOR	:NORMAL
PILOT RUN	:NORMAL	HANDBOOK COMM	:NORMAL
NEXT □, 2, 3, 4, 5, 6, 7, 8, 9			
◆ SELECT IDU.			MENU

Look over the information of indoor unit by pressing “Up” and “Down” buttons. Display format of indoor unit address is: High Power Multi System unit is 0x0x, in which the first 0x refers to the address of junction box, the second 0x refers to the indoor unit address in the current junction box; Multi System and Multi Variable unit is 0x, which refers to the address of indoor unit.

### 2.3.5 Help Page

Help page provides three kinds of information: “Operation Instructions”, “Unit Introduction”, ”Other Instructions”.

In menu page, select “Help Page” and confirm entering into help page, as shown in the following:



Press “Up” and “Down” buttons to select items. Press “Exit” button to return to main page.

## 3 Matters needing attention and common problems

- (1) Make sure that the communication interface of debugger is connected from the interface of mainboard of outdoor unit.
- (2) The power supply USB wire, 4-core wire splice and 3-core wire splice of debugger must be dedicated wires, or the wires must be compatible.
- (3) If the debugger has no display after energizing, please immediately cut off power and check if the connection is correct.
- (4). In order to ensure normal communication data, debugging device should be power-on prior to the unit.



(5) “Error” light (Red) flickers.

A. It means the debugger has received data, but it cannot receive the data of indoor unit. Please check if the connection of communication wire between indoor unit and outdoor unit is correct.

B. It means the debugger has received data, but the data has been interfered, which cannot be identified by the unit. Please check if the connection of communication wire is correct.

(6) “Run” light (Green) and “Error” light (Red) do not flicker.

A. The debugger has not received data, or the debugger does not support this model. Please look over the supported unit model from specification.

B. The debugger has received data, but the data has been interfered that the debugger cannot identify. Please check if the connection of communication wire is correct.

C. The debugger has received data, but the data is false. Please check if the interface is correct. (COM1, COM2 interfaces must be connected to the corresponding units)

(7) When the debugger is normally operated, if the displayed parameter flickers, please check:

A. Whether the communication wire is correctly connected.

B. Whether the debugger is compatible with the unit.

C. Whether there is communication interference.

## 4 Appendix 1: Display sheet of outdoor unit parameter

### 4.1 High Power Multi System:

DISPLAYED STATUS AND PARAMETER	STATUS AND PARAMETER RANGE	REMARKS
Page 1		
ODU CAP	0.0~32.0	ODU CAPACITY CODE, Unit KW
OPER MODE	OFF/COOLING/DRY/BLOWING/HEATING/COOLING/HEATING/DEFROST/COOL TEST/HEAT TEST/REF RECOV/PILOT RUN	Operation Mode Off/Cooling/Dry/Fan/Heating/ Forced Cooling/ Forced Heating/ Forced Defrosting/ Cooling Capacity Test/ Heating Capacity Test/ Refrigerant Recovery Mode/ Pilot Run
COMP 1	OFF/0~100	Compressor 1 Operation Frequency, Unit Hz
COMP 2	OFF/0~100	Compressor 2 Operation Frequency, Unit Hz; No This Content
OUTDOOR FAN 1	OFF/LOW/MID/HIGH/ERR/0~1000	AC Fan Displays Notch, DC Fan Displays Fan Speed
OUTDOOR FAN 2	OFF/LOW/MID/HIGH/ERR/0~1000	AC Fan Displays Notch, DC Fan Displays Fan Speed
DEFROST	OFF/ON	
OIL RETURN	OFF/ON	
EXV STEP 1	0~500	Opening Of Outdoor Unit Electronic Expanding Valve 1
EXV STEP 2	0~500	Opening Of Outdoor Unit Electronic Expanding Valve 2
HIGH PRESSURE	0.00~9.99/ERR	Unit :Mpa
LOW PRESSURE	0.00~9.99/ERR	Unit: Mpa
MID PRESSURE	0.00~9.99/ERR	Unit: Mpa; No This Content
TEMP	-40~210/ERR	Ambient Temperature ,Unit: °C
DISCHARGE T1	-40~210/ERR	Discharge Temperature 1,Unit: °C
DISCHARGE T2	-40~210/ERR	Discharge Temperature 2,Unit °C, No This Content
SUCTION TEMP	-40~210/ERR	Suction Temperature, Unit: °C
TUBE TEMP	-40~210/ERR	Outlet Temperature Of Condenser ,Unit: °C
BUS VOLTAGE	0~1000	DC Bus Voltage ,Unit: V
AC CURRENT	0.0~100.0	Unit: A

Continued Sheet:

DISPLAYED STATUS AND PARAMETER	STATUS AND PARAMETER RANGE	REMARKS
Page 2		
HP IN HEAT	0~255	High pressure value in heating. Unit: °C. No This Content
DRIV COMM	NORMAL/ERR	Driv Communication
HP PROTECT	NORMAL/ERR	High Pressure Sensor Protect
LP PROTECT	NORMAL/ERR	Low Pressure Sensor Protect
FI SHORT	NORMAL/ERR	FL Shortage Protection.
POWER PROTECT	NORMAL/ERR	
OL PROTECT 1	NORMAL/ERR	Overload Protection 1
OL PROTECT 2	NORMAL/ERR	Overload Protection 2, No This Content
OVER CURRENT	NORMAL/ERR	AC Over Current Protection
OV PROTECT	NORMAL/LOW/HIGH	Over Voltage Protection
DISCHARGE	NORMAL/ERR	Discharge Protection
PHASE SHORT	NORMAL/ERR	Phase Shortage Protection
PFC PROTECT	NORMAL/ERR	
IPM PROTECT	NORMAL/ERR	
PFC TEMP	-40~210 ERR	PFC Temperature and Protection
IPM TEMP	-40~210 ERR	IPM Temperature and Protection
EEPROM	NORMAL/ERR	Eeprom Error
HP SWITCH 1	NORMAL/ERR	High Pressure Switch Protect 1
HP SWITCH 2	NORMAL/ERR	High Pressure Switch Protect 2, No This Content
SET FREQUENCY	0~255	
Page 3		
HEATING BELT 1	OFF/ON	
HEATING BELT 2	OFF/ON	
OIL RETURN VALVE	OFF/ON	
OIL BALANCING VALVE 1	OFF/ON	No This Content
OIL BALANCING VALVE 2	OFF/ON	No This Content
GULP VALVE 2	OFF/ON	No This Content
GULP VALVE 1	OFF/ON	No This Content
GAS BYPASS VALVE	OFF/ON	
PRESSURE RELIEF VALVE	OFF/ON	
4-WAY VALVE	OFF/ON	

### 4.2 Multi System and Multi Variable Series:

DISPLAYED STATUS AND PARAMETER	STATUS AND PARAMETER RANGE	REMARKS
Page 1		
ODU CAP	0.0~32.0	Odu Capacity Code, Unit Kw
OPER MODE	OFF/COOLING/DRY/FAN/HEATING/COOLING/HEATING/DEFROST/COOL TEST/HEAT TEST/REF RECOV/PILOT RUN	Operation Mode Off/Cooling/Dry/Fan/Heating/ Forced Cooling/ Forced Heating/ Forced Defrosting/ Cooling Capacity Test/ Heating Capacity Test/ Refrigerant Recovery Mode/ Pilot Run
COMP 1	OFF/0~100	Compressor 1 Operation Frequency, Unit Hz
COMP 2	OFF/0~100	Compressor 2 Operation Frequency, Unit Hz; No This Content
FAN 1	0~1000/ERR	AC Fan Displays Notch, DC Fan Displays Fan Speed; If There Is Error It Will Displays Error
FAN 2	0~1000/ERR	AC Fan Displays Notch, DC Fan Displays Fan Speed; If There Is Error It Will Displays Error
DEFROST	OFF/ON	
OIL RETURN	OFF/ON	
EXV STEP 1	0~500	Opening Of Outdoor Unit Electronic Expanding Valve 1; No This Content
EXV STEP 2	0~500	Opening Of Outdoor Unit Electronic Expanding Valve 2; No This Content
HIGH PRESSURE	0.00~9.99/ERR	Unit Mpa, No This Content
LOW PRESSURE	0.00~9.99/ERR	Unit Mpa, No This Content
MEDIUM PRESSURE	0.00~9.99/ERR	Unit Mpa, No This Content
TEMP	-40~210/ERR	Ambient Temperature ,Unit: °C
DISCHARGE T1	-40~210/ERR	Discharge Temperature 1,Unit: °C
DISCHARGE T2	-40~210/ERR	Discharge Temperature 1,Unit: °C, No This Content
SUCTION TEMP	-40~210/ERR	Suction Temperature, Unit: °C
TUBE TEMP	-40~210/ERR	Outlet Temperature Of Condenser ,Unit: °C
DC BUS VOLTAGE	0~1000	DC Bus Voltage ,Unit: V
AC CURRENT	0.0~100.0	Unit: A

Continued Sheet:

DISPLAYED STATUS AND PARAMETER	STATUS AND PARAMETER RANGE	REMARKES
Page 2		
HP IN HEAT	0~255	High pressure value in heating. Unit: °C
DRIV COMM	NORMAL/ERR	Driv Communication
HIGH PRESSURE	NORMAL/ERR	High Pressure Switch Protection
LOW PRESSURE	NORMAL/ERR	Low Pressure Switch Protection
FI SHORT	NORMAL/ERR	FL Shortage Protection
POWER PROTECT	NORMAL/ERR	
OL PROTECT 1	NORMAL/ERR	Overload Protection 1
OL PROTECT 2	NORMAL/ERR	Overload Protection 2, No This Content
OVER CURRENT	NORMAL/ERR	AC Over Current Protection
OV PROTECT	NORMAL/LOW/HIGH	Over Voltage Protection
DISCHARGE	NORMAL/ERR	Discharge Protection
PHASE SHORT	NORMAL/ERR	Phase Shortage
PFC PROTECT	NORMAL/ERR	
IPM PROTECT	NORMAL/ERR	
PFC TEMP	-40~210 ERR	PFC Temperature And Protection
IPM TEMP	-40~210 ERR	IPM Temperature And Protection
EEPROM	NORMAL/ERR	Eeprom Error
HP SWITCH 1	NORMAL/ERR	High Pressure Switch 1
HP SWITCH 2	NORMAL/ERR	High Pressure Switch 2
SET FREQUENCY	0~255	

## 5 Appendix 2: Display Sheet of Indoor Unit Parameter

DISPLAYED STATUS AND PARAMETER	STATUS AND PARAMETER RANGE	REMARKS
IDU CAP	0.0~32.0	IDU CAPACITY ,Unit: Kw
TYPE	WALL MOUNT/FLOOR STAND/ CEILING/DUCT/CASSETTE /CONSOLE	
INDOOR FAN	OFF/LOW/MID/HIGH/ULTRA-HIGH/ QUIET-LOW/QUIET-MID/QUIET-HIGH/BREEZE/ERR	
OPER MODE	OFF/COOLING/DRY/FAN/HEATING/ COOLING/HEATING/DEFROST/COOL TES/HEAT TES/ REF RECO/PILOT RU	Operation Mode Off/Cooling/Dry/Fan/Heating/ Forced Cooling/ Forced Heating/ Forced Defrosting/ Cooling Capacity Test/ Heating Capacity Test/ Refrigerant Recovery Mode/ Pilot Run
EXV STEP	0~500	Opening Of Indoor Unit Electronic Expanding Valve
SET TEMP	16~30	Unit: °C
TEMP	-40~210/ERR	Ambient Temperature ,Unit: °C
TUBE TEMP	-40~210/ERR	Medium Temperature Of Evaporator, Unit: °C
LIQUID VALVE	-40~210/ERR	Liquid Valve Temperature ,Unit: °C
GAS VALVE	-40~210/ERR	Gas Valve Temperature ,Unit: °C
IDU BEING	CONNECTED/NULL	Sign Of Being
IDU ON-LINE	ON-LINE/OFF-LINE	Sign Of Off-Line
ANTI-FROZEN	NORMAL/ERR	Anti-Frozen Protection
FLOODING	NORMAL/ERR	Flooding Protection
PILOT RUN	NORMAL/ERR	
MODE CONFLICT	NORMAL/ERR	
GAS SENSOR	NORMAL/ERR	
WATER SENSOR	NORMAL/ERR	
HUM SENSOR	NORMAL/ERR	Humidity Sensor
HANDBOOK COMM	NORMAL/ERR	Hand Controller Communication



# NOTE CONCERNING PROTECTION OF ENVIRONMENT

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This product must not be disposed of via normal household waste after its service life, but must be taken to a collection station for the recycling of electrical and electronic devices. The symbol on the product, the operating instructions or the packaging indicate such disposal procedures. The materials are recyclable in accordance with their respective symbols. By means of re-use, material recycling or any other form of recycling old appliances you are making an important contribution to the protection of our environment. Please ask your local council where your nearest disposal station is located.

In case of quality problem or other please contact your local supplier or authorized service center.

**Emergency number: 112**

## PRODUCER

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