# CDU Guide Software



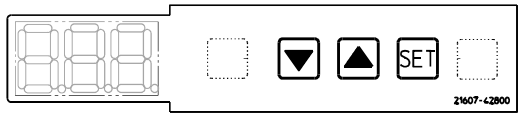
February 2023



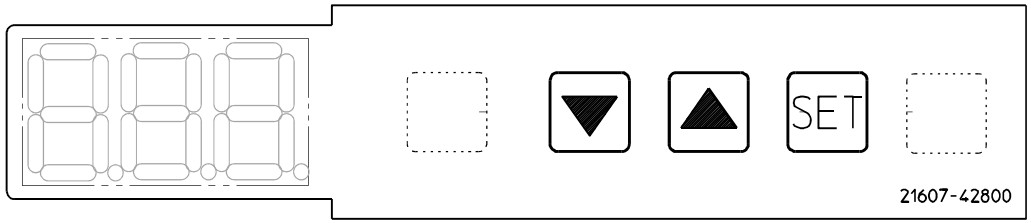
100% CO2 Condensing Units

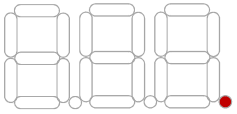
ECO-FRIENDLY REVOLUTION

# 1/ Operating display




## 1/ Display



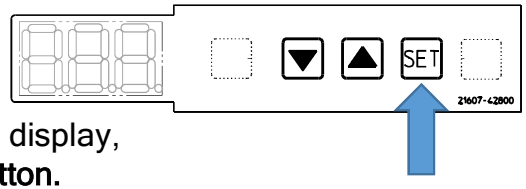

| Name | Function |
|---|---|
| SET button | Scroll through configured values |
| ▲ button | Edit settings (increase) |
| ▼ button | Edit settings (reduce) |
|  | Displays the normal low-pressure value. Displays the setting value in setting value adjustment mode, and displays each data point in RAM display mode. |
|  | Flashes when sending or receiving communication data between the master unit and the slave unit (period after the first right-hand digit). |

## 2/ Initializing display

When the condensing unit is turned ON, the display starts showing the following information up to the normal low pressure value :

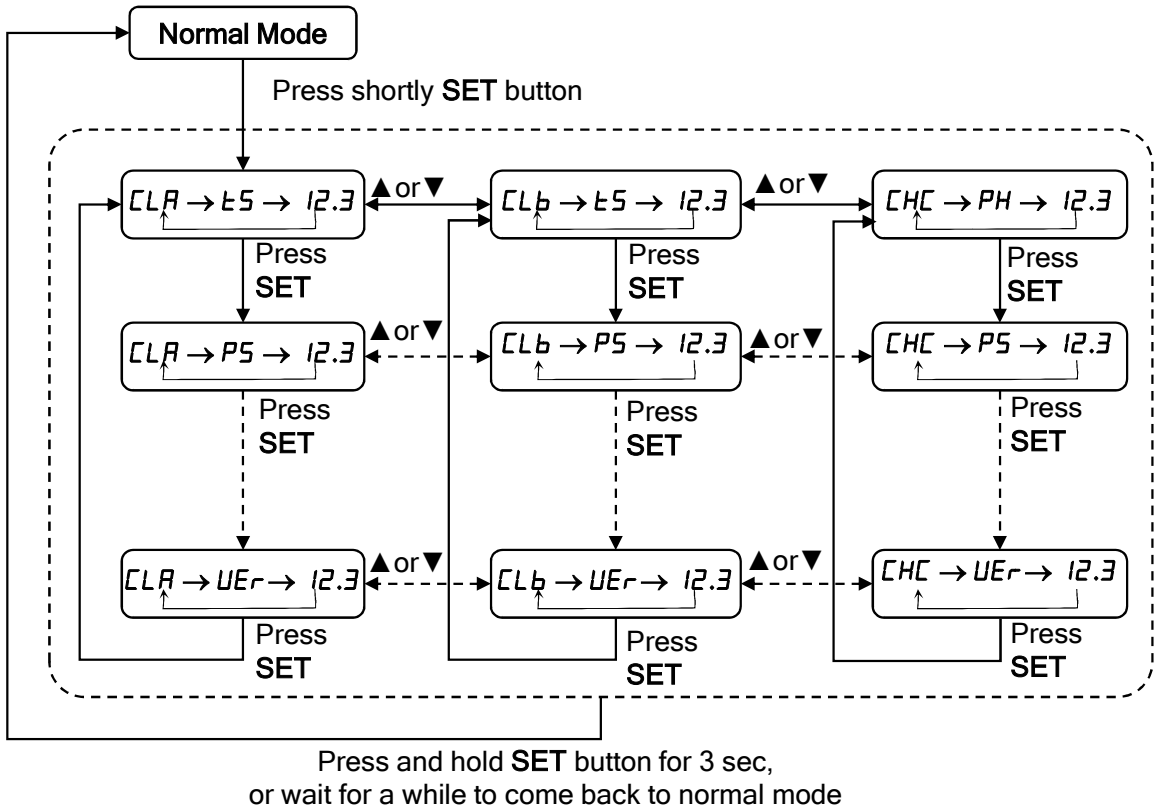
- [888] ← Display LED test
- [Co2] ← C02 general indication
- [U*.*] ← Software version : 8B6M V4.3 ➔ U4.3
  8B7MRT5 V0.3 ➔ U0.3
  8B8MRT5 V1,0 ➔ U 1.0 (Last)
- [*HP] ← Model 6HP or 4HP or 2HP : 6HP = CDU-L R06A2*
  4HP = CDU-M R04A1*
  2HP = CDU-S R02A1*
- [ Ct] ← Operating mode : Ct = **MT** CLA & **MT** CLB
  Ft = **LT** CLA & **LT** CLB
  FC = **LT** CLA & **MT** CLB
- [ -5] ← Evaporating temperature CLA
- [ -5] ← Evaporating temperature CLB
  (if 6HP selected)
- [I nI ] ← Indication that the condensing unit made the initialization
- [**.*] ← Low pressure current value CLA (normal condition)

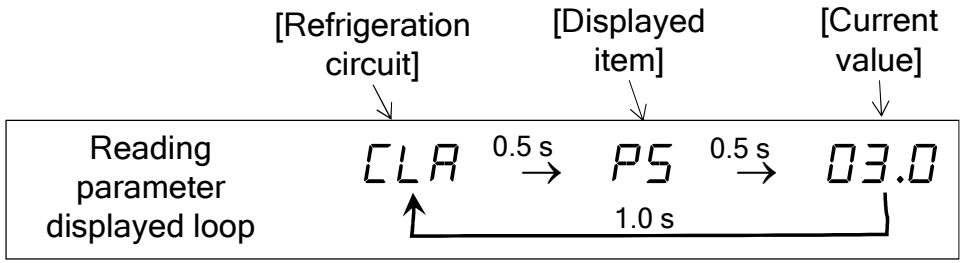
# 2/ Reading parameters




1- From Normal mode display,
**Press shortly SET button.**

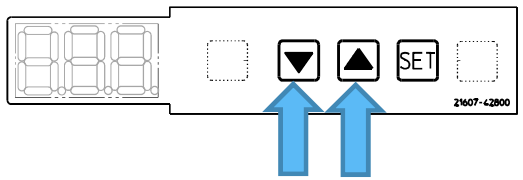
2- Choose with ▲or ▼ button the Refrigerant Circuit [CLA, CLB or CHC]
3- Press shortly **SET** button to read the parameters of the following table. Scroll through Refrigerant Circuit with ▲or ▼ button.
4- Exit : Press and hold **SET** for 3 seconds to exit reading and come back to Normal mode (or press any key for 1 minute)




| N° | Cooling loop | Code | Content | Unit |
|---|---|---|---|---|
| 1 | A / B | tS | Suction Temperature sensor input | °C |
| | C | PH | Subcooler temperature calculation, difference between inlet and outlet (tI - tu) | K |
| 2 | A / B / C | PS | Suction pressure (LP) | MPaG |
| 3 | A / B / C | Pd | Discharge pressure (HP) | MPaG |
| 4 | A / B / C | td | Discharge temperature sensor input | °C |
| 5 | A / B / C | tI | Subcooler inlet temperature sensor input | °C |
| 6 | A / B / C | tu | Subcooler outlet temperature sensor input | °C |
| 7 | A / B / C | tr | Electronic expansion valve position | Pulse |
| 8 | A / B / C | CI | Inverter compressor motor operating frequency | Hz |
| 9 | A / B / C | toL | Electronic enclosure temperature sensor input | °C |
| 10 | A / B / C | tAr | Ambient air temperature sensor input | °C |
| 11 | A / B / C | FF1 | Gas cooler fan rotation speed (lower side) | rpm |
| 12 | A / B / C | FF2 | Gas cooler fan rotation speed (upper side) | rpm |
| 13 | A / B / C | Fu1 | Gas cooler fan control voltage (lower side) | V |
| 14 | A / B / C | Fu2 | Gas cooler fan control voltage (upper side) | V |
| 15 | A / B / C | PSo | Target suction pressure | MPaG |
| 16 | A / B / C | Pdo | Target discharge pressure | MPaG |
| 17 | A / B / C | Co | Inverter compressor motor target frequency | Hz |
| 18 | A / B / C | SCu | Software release (since SCU 8B8 MRT5 V1,0) | - |
| 19 | A / B / C | UEr | Software release (since SCU 8B8 MRT5 V1,0) | - |

# 3/ Setting the device type *(Service only)*




1- From Normal mode display,
**Press and hold ▼and ▲buttons for 10 seconds.**

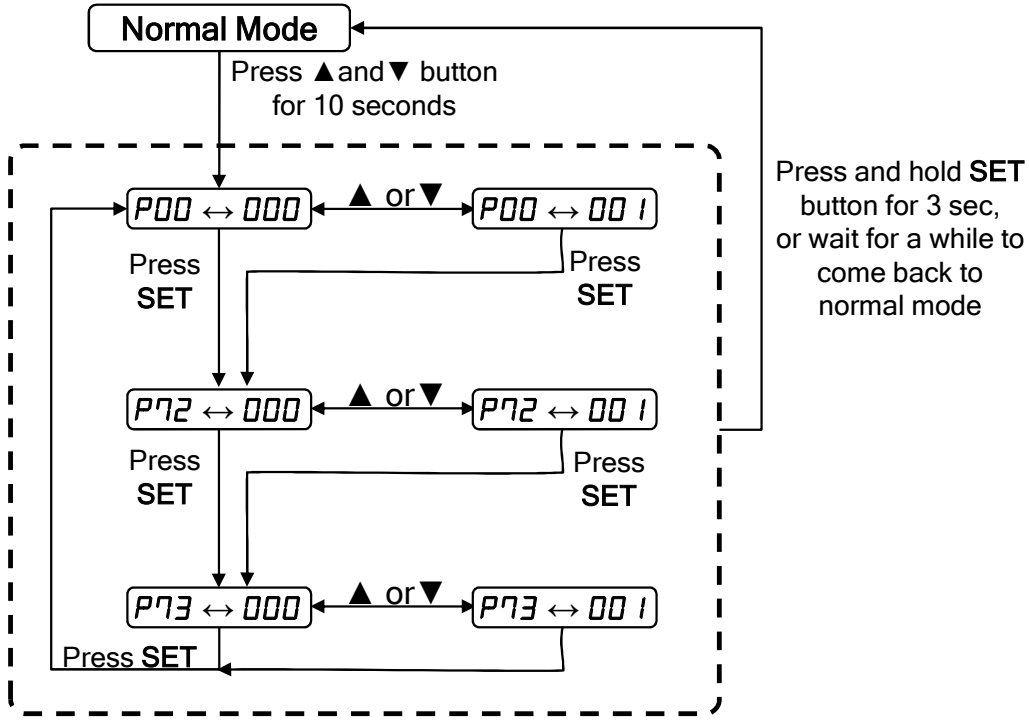
2- The display shows “P00” and “000” alternately every 0.5 seconds (parameter and its value).
3- Press shortly ▲ or▼ button to set the desired value.
4- Press “**SET**” button from “P00” to enter the “P72” setting.
5- The display shows “P72” and “000” alternately every 0.5 seconds.
6- Press shortly ▲ or▼ button to set the desired value.
7- Press “**SET**” button from “P72” to enter the “P73” setting.
8- The display shows “P73” and “000” alternately every 0.5 seconds.
9- Press shortly ▲ or▼ button to set the desired value.
10- Exit : Press and hold **SET** for 3 seconds to exit and come back to Normal mode (or press any key for 1 minute)

| P00 | Unit Type | Model |
|---|---|---|
| 000 | 6HP | CDU-L R06xxx |
| 001 | 2HP | CDU-S R02xxx |
| 002 | 4HP | CDU-M R04xxx |

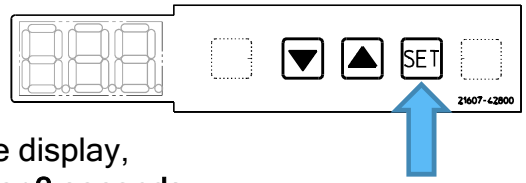
| P72 | INV Protocol | |
|---|---|---|
| 000 | PCB Inverter 230V / power supply 230V 3ph or 230V 1ph | *Error E42 if wrong setting* |
| 001 | PCB Inverter 400V / power supply 400V 3ph | |

| P73 | Pressure Switch | |
|---|---|---|
| 000 | No pressure switch *(factory setting all models CDU)* | *Error E02 if wrong setting* |
| 001 | Pressure switch | |

**-Important, new unit equipped with this software:**
**these parameters set by default from factory, go directly to section §4.**
**-Procedure to follow in case of PCB controller change, to set parameters accordingly to the actual type of unit.**
*Some error code may appear if model type not corresponding to the actual unit*



# 4/ Setting the operating mode




1- from Normal mode display,
**Press "SET" button for 3 seconds.**

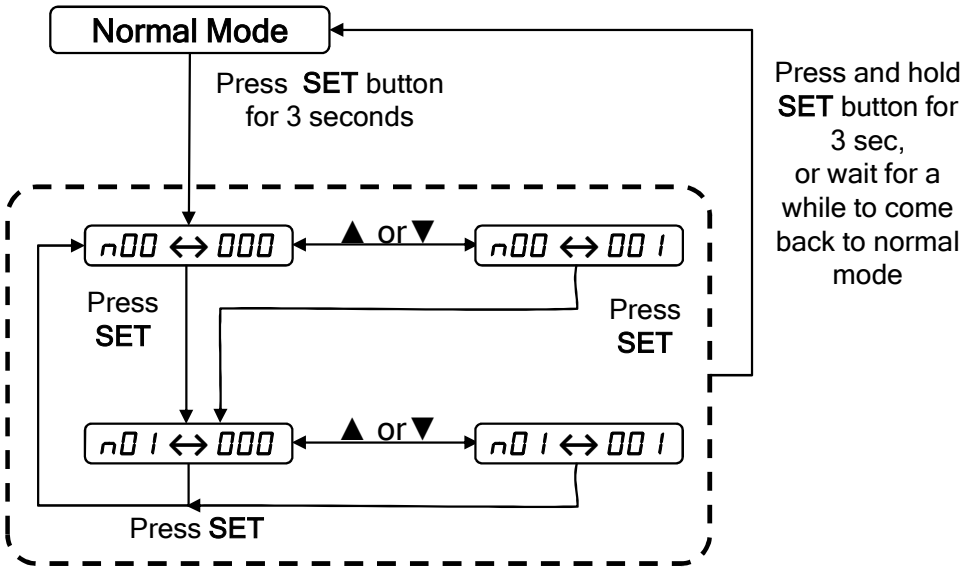
2- The display shows "n00" and "000" alternately every 0.5 seconds (the parameter and its value).
3- Press shortly ▲or▼ button to set the desired value.
4- Press "**SET**" button from "n00" to enter the "n01" setting
5- The display shows "n01" and "000" alternately every 0.5 seconds.
6- Press shortly ▲or▼ button to set the desired value.
7- Exit : Press and hold **SET** for 3 seconds to exit and come back to Normal mode (or press any key for 1 minute)

| n00 Code | Choice only for model | Operating mode | | Evaporating temperature of | | What display shows when power ON CDU |
|---|---|---|---|---|---|---|
| | | | | CLA | CLB | |
| 000 | CDU-S / CDU-M / CDU-L | MT A - MT B | Cooling | -5°C | -5°C | Ct |
| 001 | CDU-M / CDU-L | LT A - LT B | Freezing | -30°C | -30°C | Ft |
| 002 | CDU-L | LT A - MT B | Cooling & Freezing | -30°C | -5°C | FC |

| n01 Code | High stage control | |
|---|---|---|
| 000 | Compressor speed | Set in case of application "MT A - MT B" or "LTA - MT B" |
| 001 | Low pressure | Set in special case of application "LT A - LT B" |

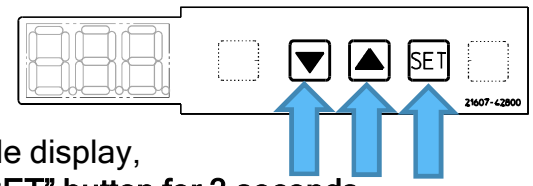
***MT A** = Medium Temperature refrigerant circuit A* ***LT A** = Low Temperature refrigerant circuit A*
***MT B** = Medium Temperature refrigerant circuit B* ***LT B** = Low Temperature refrigerant circuit B*

**Important : the type od device must be selected before setting the operating mode** (Check previous §3, in case of PCB controller replacement)




**Important : - Switch OFF/ON power supply after setting .**
**- Check new setting when the condensing unit initializes**
**- Changing operating mode will erase prior settings to default setting**

# 5.1/ Settings menu :
## setting process



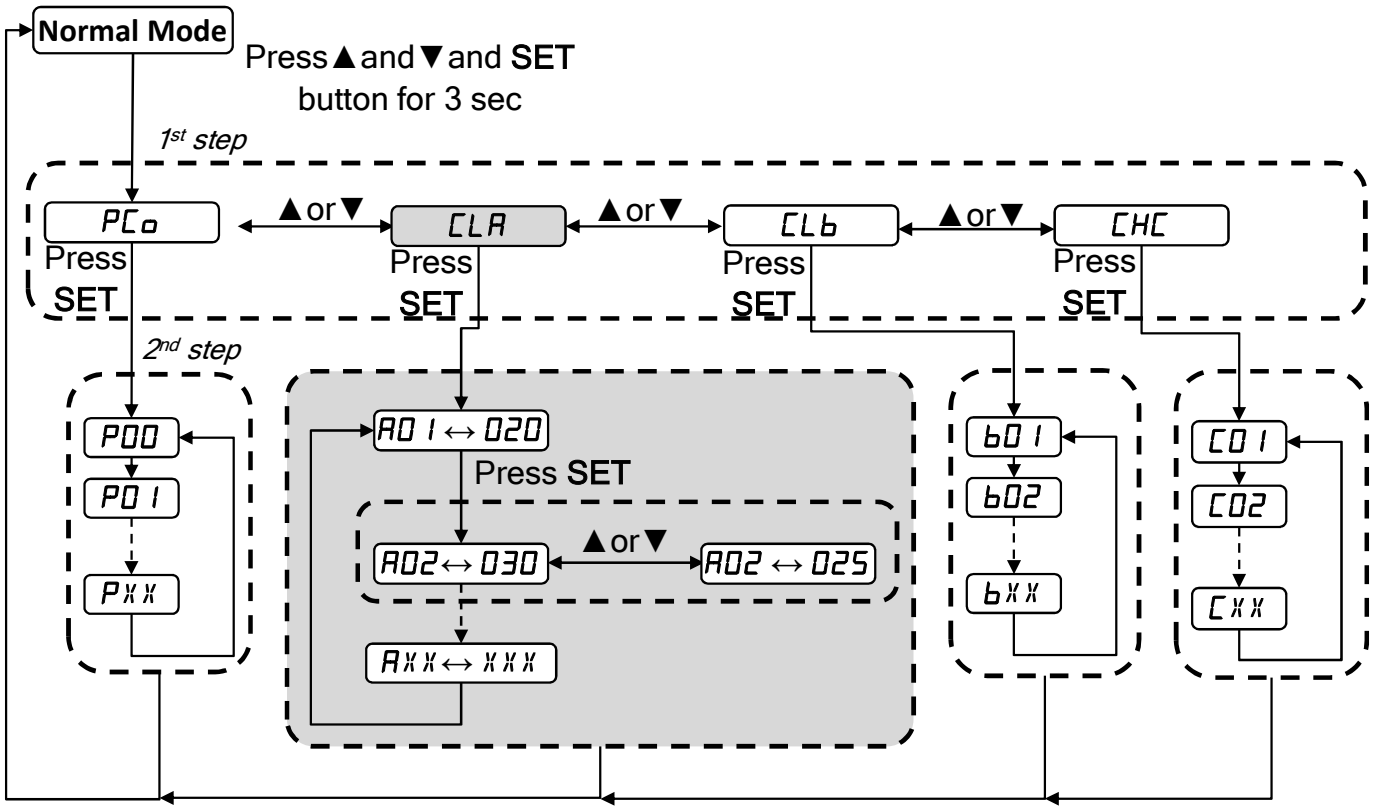

1- From Normal mode display,
**Press ▲and▼and"SET" button for 3 seconds,**
to enter in parameter setting menu.

**1st step (example of modification with A02):**
*Choose a list of parameter to modify :*
*PCo : list of parameters common to the 3 loops, Pxx parameters*
*CLA : list of parameters Loop A, Axx parameters*
*CLb : list of parameters Loop B, Bxx parameters*
*CHC : list of parameters Loop C, Cxx parameters*
2- The display shows "PCo" first,
3- Press shortly ▲ or ▼ button to select the submenu to modify
4- Press shortly "**SET**" button to enter in the desired submenu

**2nd step (example of modification with A02):**
5- The display shows the 1st parameter of the list "A01" and "02.0", alternately every 0,5 seconds (the parameter and its value).
6- One or more short press on "**SET**" to go down on the parameter to be modified.
7- Press shortly ▲or▼ button to set the desired value.
8- If there are other parameters to modify in this list : one or more short press on "**SET**" to go down to the parameter to be modified. If not, go to the next point.
9- Exit : Press and hold **SET** for 3 seconds to exit and come back to Normal mode (or press any key for 1 minute)

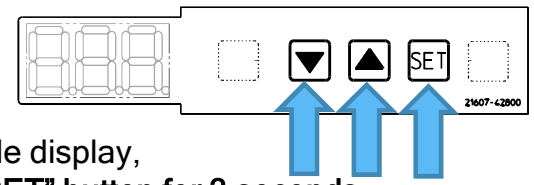
**Important: browsing in the settings menu gives access to a large number of settings.**
**Please modify only the parameters indicated in this guide and as required.**

**Important: Setting of type of device and operating mode must be made before changing the parameters.**
Setting of type of device and operating mode, see previous section § 3 & 4.




Press and hold **SET** button for 3 sec,
or wait for a while to come back to normal mode

# 5.2/ Settings menu :
## browsing in the menu

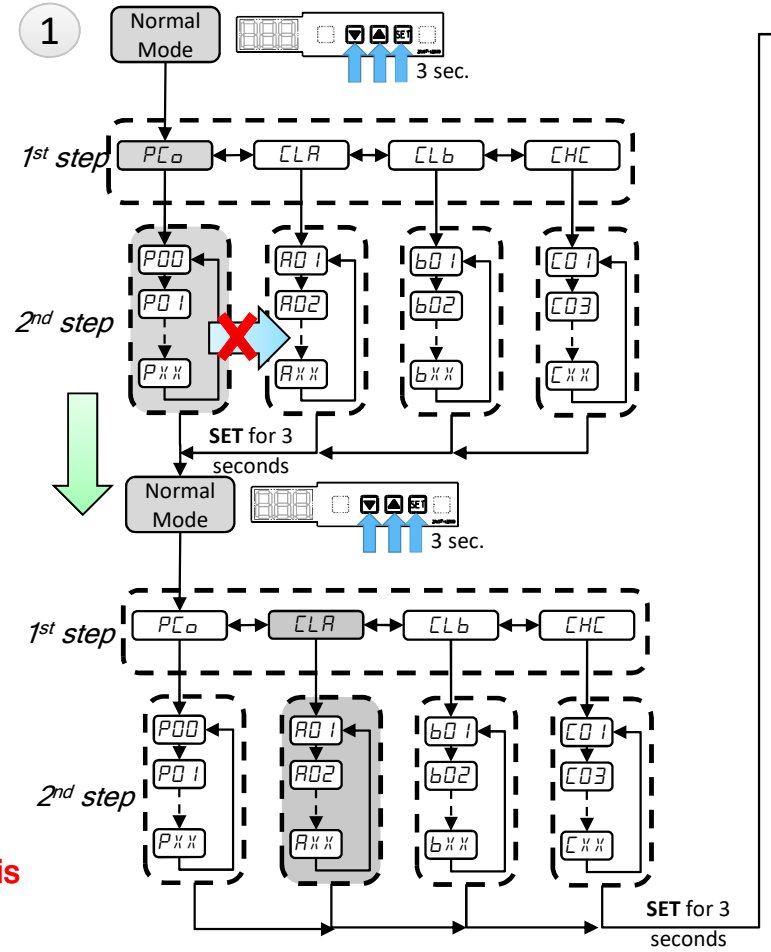


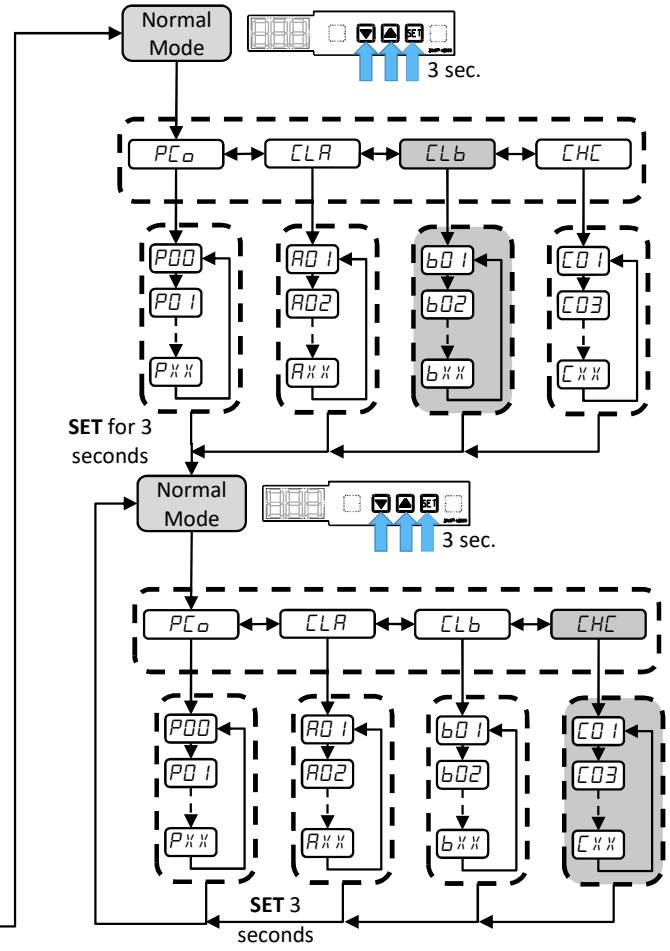

1- From Normal mode display,
**Press ▲and▼and"SET" button for 3 seconds,**
to enter in parameter setting menu.

**Important: Setting of type of device and operating mode must be made before changing the parameters.**
Setting of type of device and operating mode, see previous section § 3 & 4.

**Note**: You must exit the current submenu and repeat the 1st step to change the menu to be modified,

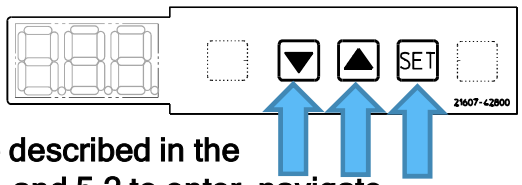
for example to change a Pxx parameter and then an Axx parameter, or bxx, or Cxx.




**Important: browsing in the settings menu gives access to a large number of settings.**
**Please modify only the parameters indicated in this guide and as required.**

# 5.3/ Settings menu :
## Low Pressure setting




**Follow the procedure described in the previous section §5.1 and 5.2 to enter, navigate and change a value in the settings menu**

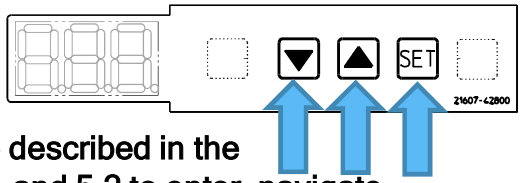
**Important: Setting of type of device and operating mode must be made before changing the parameters.**
Setting of type of device and operating mode, see previous section § 3 & 4.

When the operating mode is chosen, all parameters follow the MT or LT setting.
It is then possible to adjust the settings of the low pressure target for each loop.

Parameters to set when Low Pressure target is modified

| | | | MT mode selected | | | | | LT mode selected | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | T0 +5°C | T0 0°C | **T0 -5°C factory setting** | T0 -10°C | T0 -15°C | T0 -20°C | T0 -25°C | **T0 -30°C factory setting** | T0 -35°C |
| **CDU-M & CDU-L** | **A01 / B01** | MIN Low Pressure (Low Pressure Cut) | 2,0 | 2,0 | **2,0** | *1,8* | *1,6* | *1,3* | *1,1* | **0,9** | 0,9 |
| **CDU-M & CDU-L** | **A02 / B02** | **Target Low Pressure** | *3,8* | *3,4* | **3,0** | *2,5* | *2,2* | *1,9* | *1,6* | **1,3** | *1,1* |
| **CDU-M & CDU-L** | **A14 / B14** | MAX Ambient Temperature for calculation HP target | 38 | 38 | **38** | *33* | *26* | *19* | 12 | **12** | 12 |

| | | | MT mode selected | | | |
|---|---|---|---|---|---|---|
| | | | T0 +5°C | T0 0°C | **T0 -5°C factory setting** | T0 -10°C |
| **CDU-S** | **A01** | MIN Low Pressure (Low Pressure Cut) | 2,0 | 2,0 | **2,0** | *1,8* |
| **CDU-S** | **A02** | **Target Low Pressure** | *3,8* | *3,4* | **3,0** | *2,5* |
| **CDU-S** | **A14** | MAX Ambient Temperature for calculation HP target | 38 | 38 | **38** | *33* |




Follow the procedure described in the previous section §5.1 and 5.2 to enter, navigate and change a value in the settings menu

# 5.4/ Settings menu :

## Parameter settings Model CDU-M R04A1x

**Important: Setting of type of device and operating mode must be made before changing the parameters.**

Setting of type of device and operating mode, see previous section § 3 & 4.

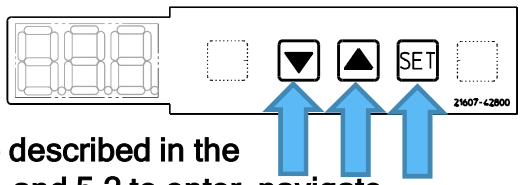
**Important: Changing the operating mode (n00) will erase prior modification in the list back to default setting.**

### 1/ Parameters of the Loop C whereas the unit is CDU-M (R04A1x) in Medium Temperature application (only)

| | | | | | | | Default setting | Possible setting |
|---|---|---|---|---|---|---|---|---|
| C04 | Compr. control | Compressor OFF Ambient Temperature | -30 | 25 | 1 | °C | 12 | 15 |
| C05 | Compr. control | Compressor ON Ambient Temperature | -30 | 25 | 1 | °C | 15 | 18 |
| C27 | Compr. Control | MIN CLA/CLB Comp speed for CHC -ON | 30 | 90 | 1 | rps | 40 | 70 |
| C28 | Compr. Control | CHC-ON delay after Fan Start | 0 | 90 | 1 | min | 2 | 10 |

The possible setting will allow the loop C to start with higher temperature outside.
moreover, the start of the compressor C will be delayed after the start of the compressor A

# 5.5/ Settings menu :
## Communication *(Modbus)*

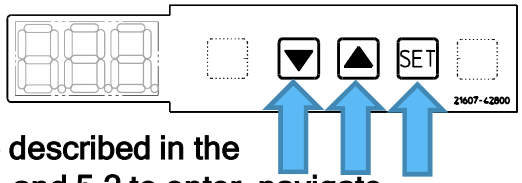



**Follow the procedure described in the previous section §5.1 and 5.2 to enter, navigate and change a value in the settings menu**

**Important: Setting of type of device and operating mode must be made before changing the parameters.**
Setting of type of device and operating mode, see previous section § 3 & 4.
**Important: Changing the operating mode (n00) will erase prior modification in the list back to default setting.**

To use Modbus communication it is necessary to set parameters on CDU according to the following table.
(if necessary ask for the full Modbus specification).

| Menu & parameter | | Description | setting | Note |
|---|---|---|---|---|
| **Menu PCo** | **P69** | Communication device | **0: SANDEN protocol (Factory Setting)**<br>1: Modbus standard | Communication mode of the device |
| | **P70** | Communication baud rate | 0: 4800bps<br>**1: 9600bps (Factory Setting)**<br>2: 19200bps | |
| | **P71** | Connecting host device Parity stop bit | 0: E2 = Even parity, 2 stop bit<br>**1: E1 = Even parity, 1 stop bit (Factory Setting)**<br>2: O1 = Odd parity, 1 stop bit<br>3: O2 = Odd parity, 2 stop bit | |
| | **P82** | LP target writing | **0: Disable (Factory setting)**<br>1: Enable | Writing LP target from supervision<br>***(available since release SCU 8B8 MRT5 V0.5)*** |
| **Menu CLA** | **A03** | Communication ID CLA | 1 to 99<br>**(1 : Factory setting for CDU-L)**<br>**(5 : Factory setting for CDU-M)**<br>**(4 : Factory setting for CDU-S)** | Address loop A |
| **Menu CLB** | **B03** | Communication ID CLB | 1 to 99<br>**(2 : Factory setting for CDU-L)** | Address loop B |
| **Menu CHC** | **C03** | Communication ID CHC | 1 to 99<br>**(3 : Factory setting for CDU-L)**<br>**(6 : Factory setting for CDU-M)** | Address loop C |




Follow the procedure described in the previous section §5.1 and 5.2 to enter, navigate and change a value in the settings menu

# 5.6/ Settings menu :
## Alarm setting

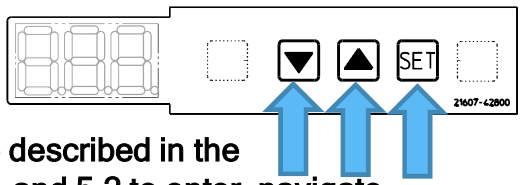
**Important: Setting of type of device and operating mode must be made before changing the parameters.**
Setting of type of device and operating mode, see previous section § 3 & 4.
**Important: Changing the operating mode (n00) will erase prior modification in the list back to default setting.**

Since release SCU 8B8 MTR5 V0.5, it is possible to set following alarms :

| Menu & parameters | | Description | Setting | Note |
|---|---|---|---|---|
| **Menu PCo** | **P81** | Low Pressure alarm | 0: Disable<br>**1: Enable (Factory Setting)** | Low pressure cut-off warning on display and modbus (E41)<br>**Available since release *SCU 8B8 MRT5 V0.5*** |
| | **P83** | Alarm output 230V | 0: Disable<br>**1: Enable (Factory Setting)** | Configuration of the alarm output 230V for the following alarms :<br>E01 (High temperature discharge)<br>E02 (High pressure cut-off)<br>**Available since release *SCU 8B8 MRT5 V0.5*** |

# 5.7/ Settings menu :

## Compressor minimum speed & Suction sensor *(Service only)*




**Follow the procedure described in the previous section §5.1 and 5.2 to enter, navigate and change a value in the settings menu**

**Parameters to set depending on model type**
-Select menu PCo (Parameters common to all loops)
-Select the parameters to modify below.

**Important: Setting of type of device and operating mode must be made before changing the parameters.**
Setting of type of device and operating mode, see previous section § 3 & 4.
**Important: Changing the operating mode (n00) will erase prior modification in the list back to default setting.**

**-Important, new unit equipped with this software:**
**these parameters set by default from factory, go directly to next section.**
**-Procedure to follow in case of PCB controller change, to set parameters accordingly to the actual type of unit.**

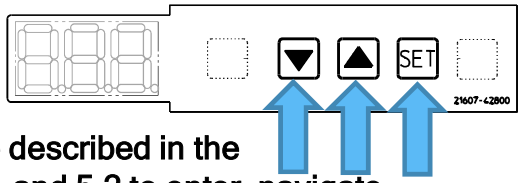
**Compressor minimum speed**

| P26 | Type of device | |
|---|---|---|
| 30 | Default value | CDU-S R02A1**D** / 230V 1ph<br>CDU-M R04A1**C** / 400V 3ph<br>CDU-M R04A1**D** / 230V 1ph<br>CDU-L R06A2**C** / 400V 3ph |
| 35 | Value to set if ➔ | CDU-S R02A1**A** / 230V 3ph<br>CDU-S R02A1**B** / 230V 1ph<br>CDU-M R04A1**A** / 230V 3ph<br>CDU-M R04A1**B** / 230V 1ph<br>CDU-L R06A2**A** / 230V 3ph<br>CDU-L R06A2**B** / 400V 3ph |

**Activation of the suction temperature sensor**

| P76 | Type of device | |
|---|---|---|
| 1 | Default value | CDU-S R02A1**D** / 230V 1ph<br>CDU-M R04A1**C** / 400V 3ph<br>CDU-M R04A1**D** / 230V 1ph<br>CDU-L R06A2**B** / 400V 3ph<br>CDU-L R06A2**C** / 400V 3ph |
| 0 | Value to set if ➔<br>Absence of suction temperature sensor / error E038 if not set | CDU-S R02A1**A** / 230V 3ph<br>CDU-S R02A1**B** / 230V 1ph<br>CDU-M R04A1**A** / 230V 3ph<br>CDU-M R04A1**B** / 230V 1ph<br>CDU-L R06A2**A** / 230V 3ph |

# 5.8/ Settings menu :
## Parameter list




**Follow the procedure described in the previous section §5.1 and 5.2 to enter, navigate and change a value in the settings menu**

**Important: Setting of type of device and operating mode must be made before changing the parameters.**

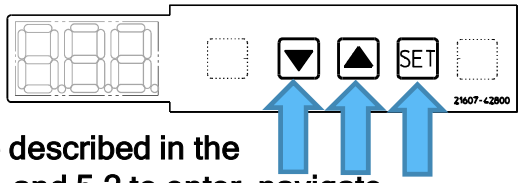
Setting of type of device and operating mode, see previous section § 3 & 4.

**Important: Changing the operating mode (n00) will erase prior modification in the list back to default setting.**

Non exhaustive parameter list, with default settings SCU 8B8 MRT V1.01

List summarizing parameters that could be modified in the field

| N° | Control related parameter of | Item | min | max | resolution | unit | (S) 2HP MT/-5 | (L) 6HP MTMT/ -5-5 | (L) 6HP LTLT/ -30-30 | (L) 6HP LTMT/ -30-5 | (M) 4HP MT/-5 | (M) 4HP LT/-30 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| n00 | Configuration CDU | Operation mode<br>MT-MT : 0, LT-LT : 1, LT-MT : 2 | | | | | 0 | 0 | 1 | 2 | 0 | 1 |
| n01 | Configuration CDU | CHC compressor control mode<br>High stage Speed control : 0, Low pressure control : 1 | - | - | - | - | 0 | 0 | 0 | 0 | 0 | 0 |
| N° | Control related parameter of | Item | min | max | resolution | unit | (S) 2HP MT/-5 | (L) 6HP MTMT/ -5-5 | (L) 6HP LTLT/ -30-30 | (L) 6HP LTMT/ -30-5 | (M) 4HP MT/-5 | (M) 4HP LT/-30 |
| P00 | Configuration CDU | Unit Type<br>0:CDU-L, 1:CDU-S, 2:CDU-M 3:- | 0 | 3 | 1 | | 1 | 0 | 0 | 0 | 2 | 2 |
| P26 | Compr. control | MIN Compressor Speed | 30 | 90 | 1 | rps | 30 | 30 | 30 | 30 | 30 | 30 |
| P49 | Gas cooler fan speed control | Lower Fan MAX Speed | 0 | 255 | 10 | ×10rpm | 80 | 80 | 80 | 80 | 80 | 80 |
| P57 | Gas cooler fan speed control | Upper Fan MAX Speed | 0 | 255 | 10 | ×10rpm | 0 | 80 | 80 | 80 | 80 | 80 |
| P69 | Communication | Master controller device | 0 | 1 | 1 | | 0 | 0 | 0 | 0 | 0 | 0 |
| P70 | Communication | Communication baud rate | 1 | 2 | 1 | | 1 | 1 | 1 | 1 | 1 | 1 |
| P71 | Communication | Communication Parity & Stop Bit | 0 | 3 | 1 | | 1 | 1 | 1 | 1 | 1 | 1 |
| P72 | Configuration CDU | Inverter communication protocol (230V or 400V) | 0 | 1 | 1 | | 0 | 0 | 0 | 0 | 0 | 0 |
| P73 | Configuration CDU | Pressure switch ON/OFF | 0 | 1 | 1 | | 0 | 0 | 0 | 0 | 0 | 0 |
| P76 | Configuration CDU | Suction temperature thermistor Yes/No | 0 | 1 | 0 | | 1 | 1 | 1 | 1 | 1 | 1 |
| P81 | setting alarm | Low pressure cut Alarm | 0 | 1 | | enable | 1 | 1 | 1 | 1 | 1 | 1 |
| P82 | communication | Low pressure Target writing | 0 | 1 | | disable | 0 | 0 | 0 | 0 | 0 | 0 |
| P83 | setting alarm | Alarm output for E01, E02 | 0 | 1 | | enable | 1 | 1 | 1 | 1 | 1 | 1 |



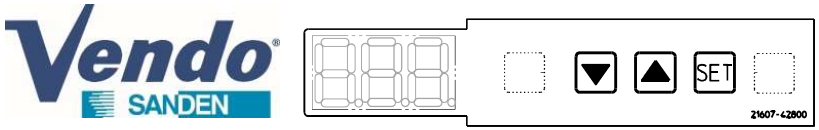

# 5.9/ Settings menu :
## Parameter list

**Follow the procedure described in the previous section §5.1 and 5.2 to enter, navigate and change a value in the settings menu**

**Important: Setting of type of device and operating mode must be made before changing the parameters.**
Setting of type of device and operating mode, see previous section § 3 & 4.
**Important: Changing the operating mode (n00) will erase prior modification in the list back to default setting.**

Non exhaustive parameter list, with default settings SCU 8B8 MRT V1.01
List summarizing parameters that could be modified in the field

| N° | Control related parameter of | Item | min | max | resolution | unit | (S) 2HP MT/-5 | (L) 6HP MTMT/ -5-5 | (L) 6HP LTLT/ -30-30 | (L) 6HP LTMT/ -30-5 | (M) 4HP MT/-5 | (M) 4HP LT/-30 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A01 | setting alarm | MIN Low Pressure (Low Pressure Cut) | 0 | 9,8 | 0,1 | MPaG | 2,0 | 2,0 | 0,9 | 0,9 | 2,0 | 0,9 |
| A02 | Configuration CDU | Target Low Pressure | 0 | 9,8 | 0,1 | MPaG | 3,0 | 3,0 | 1,3 | 1,3 | 3,0 | 1,3 |
| A03 | Communication | communication ID | 1 | 99 | 1 | | 4 | 1 | 1 | 1 | 5 | 5 |
| A14 | High pressure control | MAX T_amb for HP Calculation | -30 | 40 | 1 | °C | 38 | 38 | 12 | 12 | 38 | 12 |
| N° | Control related parameter of | Item | min | max | resolution | unit | (S) 2HP MT/-5 | (L) 6HP MTMT/ -5-5 | (L) 6HP LTLT/ -30-30 | (L) 6HP LTMT/ -30-5 | (M) 4HP MT/-5 | (M) 4HP LT/-30 |
| B01 | setting alarm | MIN Low Pressure (Low Pressure Cut) | 0 | 9,8 | 0,1 | MPaG | 2,0 | 2,0 | 0,9 | 2,0 | 2,0 | 0,9 |
| B02 | Configuration CDU | Target Low Pressure | 0 | 9,8 | 0,1 | MPaG | 3,0 | 3,0 | 1,3 | 3,0 | 3,0 | 1,3 |
| B03 | Communication | communication ID | 1 | 99 | 1 | | 2 | 2 | 2 | 2 | 2 | 2 |
| B14 | High pressure control | MAX T_amb for HP Calculation | -30 | 40 | 1 | °C | 38 | 38 | 12 | 38 | 38 | 12 |
| N° | Control related parameter of | Item | min | max | resolution | unit | (S) 2HP MT/-5 | (L) 6HP MTMT/ -5-5 | (L) 6HP LTLT/ -30-30 | (L) 6HP LTMT/ -30-5 | (M) 4HP MT/-5 | (M) 4HP LT/-30 |
| C01 | setting alarm | MIN Low Pressure (Low Pressure Cut) | 0 | 9,8 | 0,1 | MPaG | 2,0 | 2,0 | 1,5 | 1,5 | 2,0 | 1,5 |
| C03 | Communication | communication ID | 1 | 99 | 1 | | 3 | 3 | 3 | 3 | 6 | 6 |
| C04 | Compr. control | Compressor OFF Ambient Temperature | -30 | 25 | 1 | °C | 12 | 12 | 6 | 6 | 12 | 6 |
| C05 | Compr. control | Compressor ON Ambient Temperature | -30 | 25 | 1 | °C | 15 | 15 | 8 | 8 | 15 | 8 |
| C27 | Compr. Control | MIN CLA/CLB Comp speed for CHC -ON | 30 | 90 | 1 | rps | 40 | 40 | 30 | 30 | 40 | 30 |
| C28 | Compr. Control | CHC-ON delay after Fan Start | 0 | 90 | 1 | min | 2 | 2 | 2 | 2 | 2 | 2 |
| C52 | EEV PID | MIN EEV Position | 0 | 990 | 10 | | 80 | 200 | 200 | 200 | 200 | 200 |

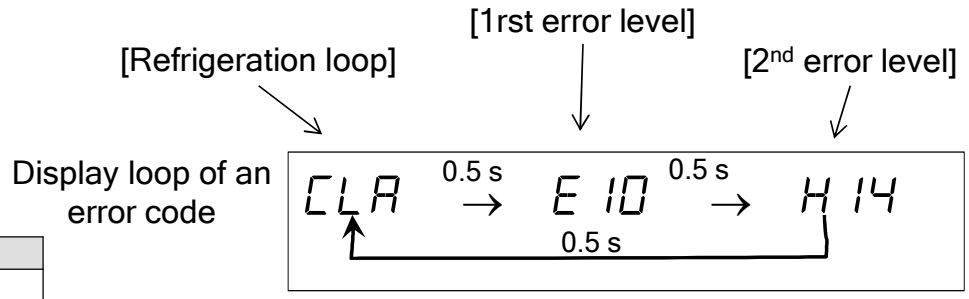



# 6.1/ Alarm list

| Name | Code |
|---|---|
| Microcomputer error | EEE |
| EEPROM error | Err |
| Discharge temperature temperature overheat | E01 |
| Overpressure | E02 |
| E10 family : Inverter-compressor-power supply | E 10 |
| Fan speed error (upper) | E 16 |
| Fan speed error (lower) | E 17 |
| High pressure sensor | E20 |
| Low pressure sensor | E21 |
| Ambient temperature sensor | E23 |
| Discharge temperature sensor | E24 |
| Plate Heat Exchanger inlet temperature sensor | E26 |
| Plate Heat Exchanger outlet temperature sensor | E27 |
| PCB box temperature sensor *(Sensor absent of CDU)* | E33 |
| Suction temperature sensor | E38 |
| Communication | E40 |
| Low pressure alarm * | E41 |
| Inverter PCB Communication | E42 |
| Expansion Valve calculation error | E50 |
| Expansion valve integration time error | E51 |
| Inverter calculation error | E70 |
| Inverter integration time error | E71 |

| Error code | Error content |
|---|---|
| E 10-H04 | Inverter overcurent error |
| E 10-H08 | Inverter overcurent error |
| E 10-H0A | Inverter overcurent error |
| E 10-H20 | Inverter overcurent error |
| E 10-H 10 | Inverter overload error |
| E 10-H46 | Converter overcurent error |
| E 10-H48 | Converter overcurent error |
| E 10-H0C | Heat sink high level temperature error |
| E 10-H 14 | Inverter low input voltage error |
| E 10-H4C | Converter overcurent error |
| E 10-H 18 | Inverter high input voltage error |
| E 10-H28 | Inverter voltage drop detection |
| E 10-H30 | Inverter voltage drop detection |
| E 10-H 1C | Inverter controller communication error |
| E 10-H2C | Control PCB power supply error |
| E 10-H38 | Inverter phase shift error |
| E 10-H40 | Heat sink thermistor error |
| E 10-H50 | Compressor operation error |
| E 10-H52 | Compressor operation error |
| E 10-H54 | Compressor operation error |
| E 10-H44 | Converter overcurent error |
| E 10-H24 | Inverter voltage drop detection |
| E 10-H56 | Compressor operation error |
| E 10-H80 | Compressor type error |

* Alarm available since release SCU 8B8 MRT5 V0.5



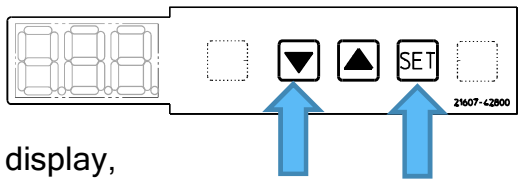

**When occuring, an alarm is displayed as the above loop description**

**For more details regarding the alarm and the maintenance : REFER TO THE MAINTENANCE GUIDE**

Depending on the alarm code :
- The alarm output 230V can be activated
- The alarm is displayed through the modbus

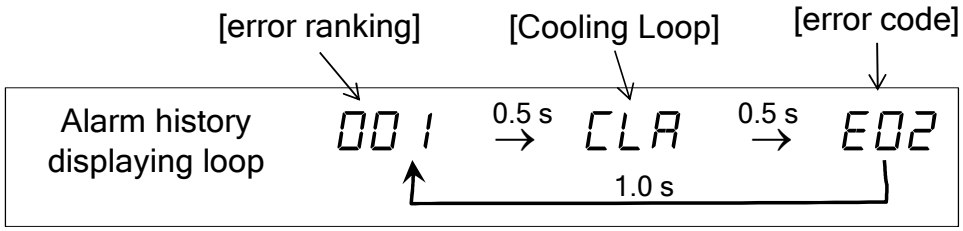
Since release SCU 8B8 MRT5 V0.51, the error code is registered in the alarm history (check following slide)

# 6.2/ Alarm history




1- From Normal mode display,
**Press and hold ▼and SET for 3 seconds,**
to enter in the menu Alarm history

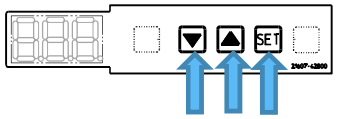
**1st step : browsing in the menu Alarm history**
2- Display shows "001" first , the last error appeared,



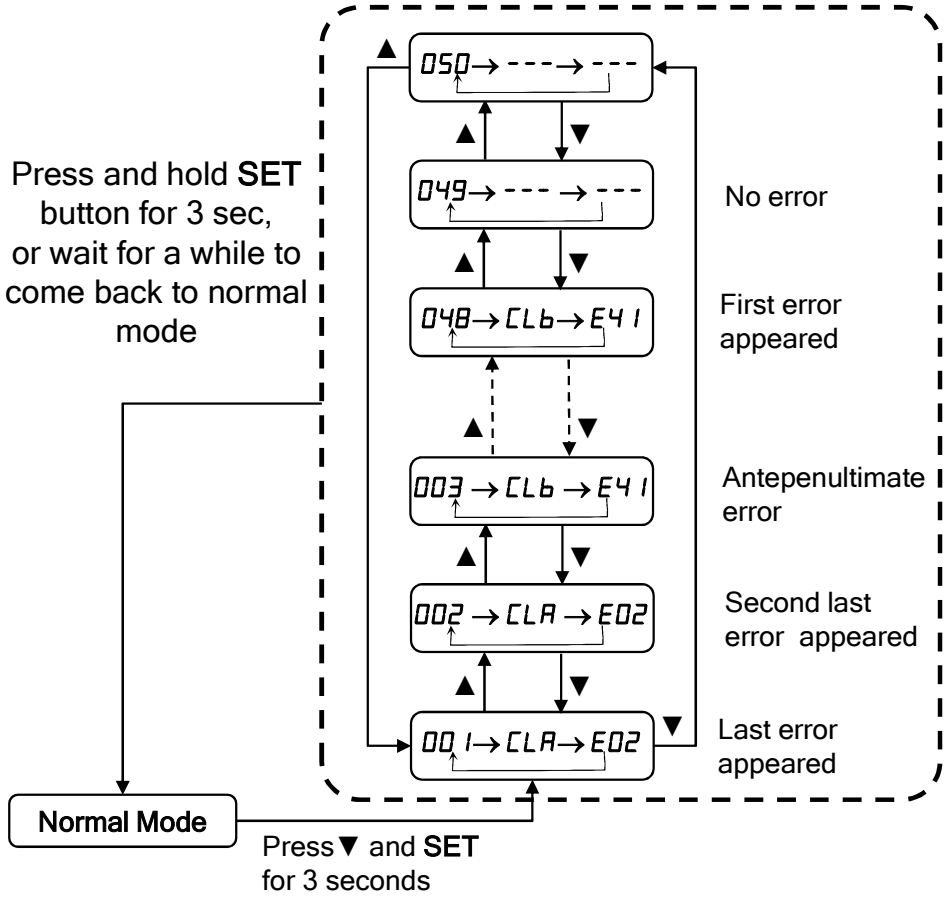

Note : E10 family errors are followed in addition by the indication H**

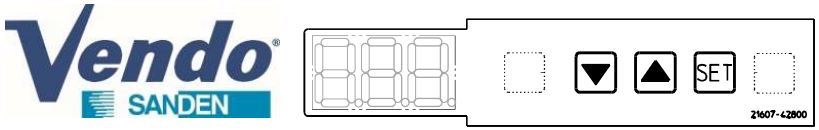
3- Press briefly on ▲ to display ''002', the second last error appeared then again on ▲ to display the previous ones
4- or press briefly on ▼ to display the 50th oldest defect recorded. If ''050'' corresponds to ''---", it means that there were less than 50 defects. Then Press briefly on ▼ to go back to the first defect that appeared.
*The history keeps in memory the last 50 defects. If there were more than 50 errors, the oldest ones are erased beyond 50.*

**2nd step: clear the Alarm history**
5- Once entered in the error history, delete its contents by pressing ▲and▼ and **SET** simultaneously for 3 seconds




**Important : Error history is kept during CDU power failure**
**Function error history available since release SCU 8B8 MRT5 V0.51**



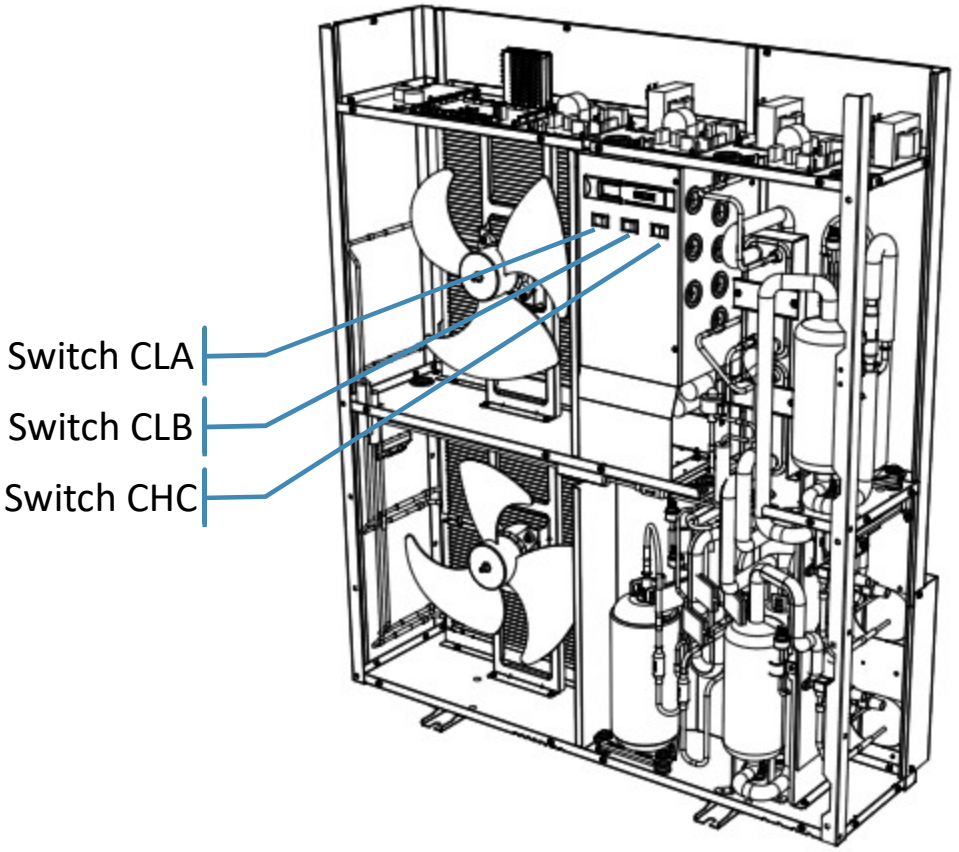


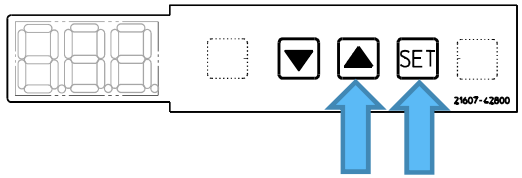

# 7/ Start of the condensing unit

Once the condensing unit is powered, switch ON all front switches to allow compressor starting. Each switch correspond to a cooling loop.

Note: The starting of the compressors is only effective if there is a cold demand on the CLA and CLB terminals (see technical guide of the model concerned)

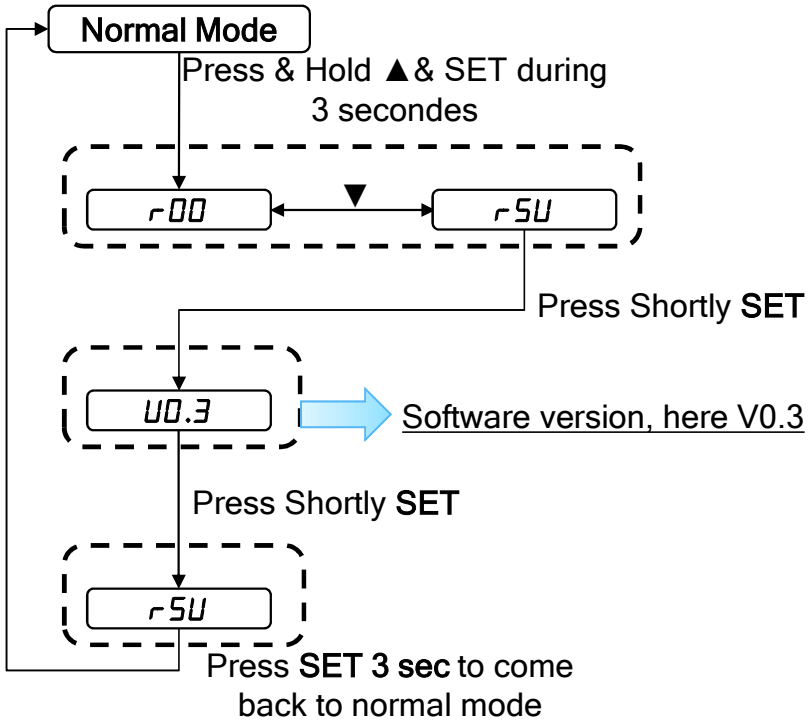
Note :
CDU-M do not have Switch CLB
CDU-S do not have Switch CLB and CHC






# 8.1/ Software release checking

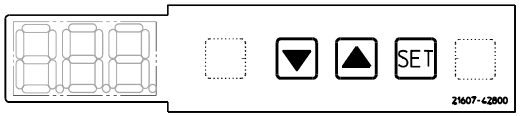
**Press and hold ▲ & SET buttons for 3 seconds when normal mode is displayed.**
- The display shows “r00”
- Press shortly ▼ to display ”rSU”
- Press “SET” from ”rSU” to display the Software version.
- The display shows the Software version ( Example : U0.3….)
- Press and hold “SET” button for 3 seconds to finish, after that the indication change to normal mode.




**Other possibility to check the software release :**

-From the initialization phase of the condensing unit, just after switch ON the power supply.
*Check 1st slide : 1/ operating display*

-From the last release of the software SCU 8B8 MRT5 V1.01, the software name is accessible through the reading parameters.
*Check 1st slide 1/ operating display,* SCU 8B8 VER 1.01



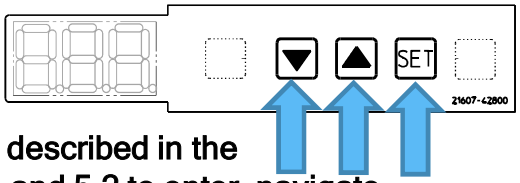

# 8.2/ Software release checking

| Software SCU | | Release * | date release ** | ref PCB controller (for information) | Description |
|---|---|---|---|---|---|
| **OLD GENERATION** | **8B2 to 8B5** | C0.0 to C0.2 | 2016 to 2018 | one reference per model | **OLD GENERATION CDU SOFTWARE (refer to old software guide for operating instruction)**<br>-One soft per model of CDU<br>-Low Temperature mode not managed (=> Move Cooling to freezing appliance by changing over 10 parameters) |
| **NEW GENERATION** | **8B6** | U4.3 | March 19 | 20725-14350 | **NEW GENERATION multilogic software :**<br>-Can replace the previous one<br>-Manage Cooling (MT) or Freezing (LT) with 1 parameter selection<br>-Compatible with all CDU models with parameter selection<br>-Management of the fan by the compressor speed and the outside temperature<br>-Low pressure cut inhibited at compressor start |
| | **8B7** | U0.3 | June 20 | 4590170H10 | -Can replace the previous one<br>-Automatic recognition Panasonic compressor<br>-Discharge temperature control optimization<br>-Improvement Fan motor error detection |
| | **8B8** | U0.5 **(V0.51)** | May 22 | 4590336H10 | -Can replace the previous one<br>-Low pressure cut alarm display (E41)<br>-High pressure alarm (E01) & Discharge Temperature (E02) available on alarm output 230V (configurable)<br>-Correction Low pressure target writing from Modbus (Configurable)<br>-Error history menu |
| | | U1.0 **(V1.01)** | July 22 | 4590336H11 | -Can replace the previous one<br>-Loop C EEV minimum opening set at 200pls (C52)<br>-Software release visible through the reading parameters |

*Check the software release during initialisation of the product after power supply ,
Or by checking with the display, follow the instruction described in the previous slide ,
Or by the reading parameters (accessible by this way only from the last softare release 8B8 V1.01)

** the date of the software release may differ from the date of production of the condensing unit

# 8.3/ Parameter correction




**Follow the procedure described in the previous section §5.1 and 5.2 to enter, navigate and change a value in the settings menu**

**Important: Setting of type of device and operating mode must be made before changing the parameters.**
Setting of type of device and operating mode, see previous section § 3 & 4.

### 1/ Fan max speed settings

With the software SCU 8B6 V4.3 & SCU 8B7 V0.3, the parameters P49 & P57 were set at 90 (corresponding to 900RPM, the maximum rotation speed target for the fans.
In the old software generation and the very last version of software, these parameters are set at 80 (800RPM target max).

| N° | Control related parameter of | Item | min | max | resolution | unit | (S) 2HP MT/-5 | (L) 6HP MTMT/ -5-5 | (L) 6HP LTLT/ -30-30 | (L) 6HP LTMT/ -30-5 | (M) 4HP MT/-5 | (M) 4HP LT/-30 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P49 | Gas cooler fan speed control | Lower Fan MAX Speed | 0 | 255 | 10 | ×10rpm | 90 | 90 | 90 | 90 | 90 | 90 |
| P57 | Gas cooler fan speed control | Upper Fan MAX Speed | 0 | 255 | 10 | ×10rpm | 0 | 90 | 90 | 90 | 90 | 90 |

**SCU 8B6 V4.3 & SCU 8B7 V0.3**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P49 | Gas cooler fan speed control | Lower Fan MAX Speed | 0 | 255 | 10 | ×10rpm | 80 | 80 | 80 | 80 | 80 | 80 |
| P57 | Gas cooler fan speed control | Upper Fan MAX Speed | 0 | 255 | 10 | ×10rpm | 0 | 80 | 80 | 80 | 80 | 80 |

**When possible during service, reduce the parameters P49 & P57 from 90 to 80**

### 2/ Minimum opening expansion valve of the loop C

With the last software SCU 8B8 MRT5 V1.01, the minimum opening of the EEV loop C is 200pls (parameter C52 = 200).
With all previous software, this minimum opening is lower.
In case of often error CHC E01 (high discharge temperature on the loop C), the parameter C52 can be set at 200.

| N° | Control related parameter of | Item | min | max | resolution | unit | (S) 2HP MT/-5 | (L) 6HP MTMT/ -5-5 | (L) 6HP LTLT/ -30-30 | (L) 6HP LTMT/ -30-5 | (M) 4HP MT/-5 | (M) 4HP LT/-30 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C52 | EEV PID | MIN EEV Position | 0 | 990 | 10 | | 40 | 40 | 150 | 150 | 40 | 150 |
| C52 | EEV PID | MIN EEV Position | 0 | 990 | 10 | | 80 | 80 | 120 | 120 | 80 | 200 |
| C52 | EEV PID | MIN EEV Position | 0 | 990 | 10 | | 80 | 80 | 120 | 120 | 80 | 80 |
| C52 | EEV PID | MIN EEV Position | 0 | 990 | 10 | | 80 | 80 | 120 | 120 | 80 | 80 |

➔ Old software generation
➔SCU 8B6 V4.3
➔SCU 8B7 V0.3
➔SCU 8B8 V0.51

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C52 | EEV PID | MIN EEV Position | 0 | 990 | 10 | | 80 | 200 | 200 | 200 | 200 | 200 |

➔SCU 8B8 V1.01