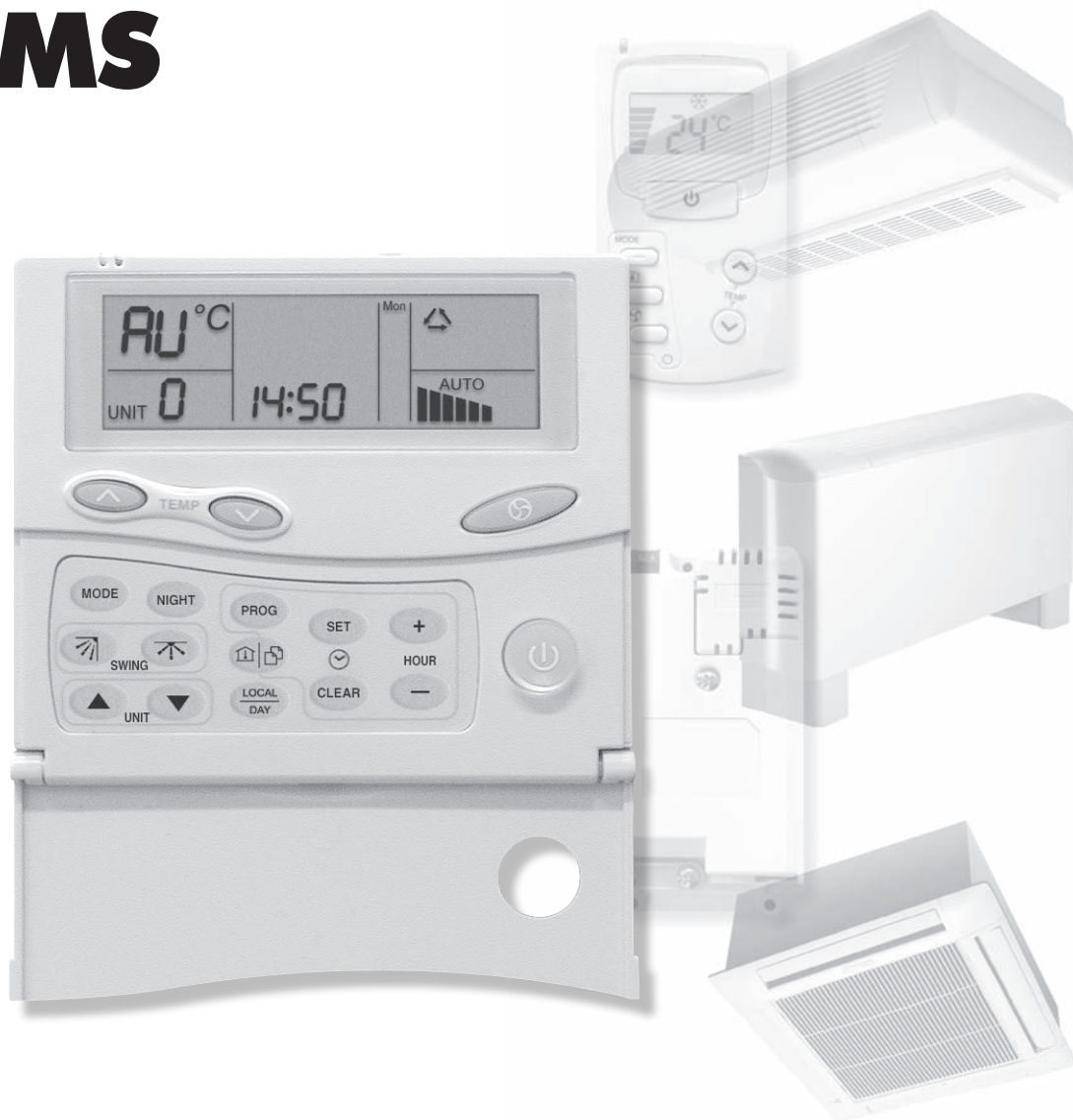


# μBMS



English

Français

Deutsch

Italiano

Español

**Communicating electronic regulation control unit**

**Centrale de supervision pour régulation électronique communicante**

**Überwachungszentrale für elektronische Kommunikationsregelung**

**Centrale di supervisione per regolazione elettronica comunicante**

**Central de supervisión para regulación electrónica comunicante**

**UM MBMS-N.1ALL/11.05**

Part number / Code / Teil Nummer / Codice / Código : **Q3NNST880**

Supersedes / Annule et remplace / Annulliert und ersetzt / Annula e sostituisce / Anula y sustituye :

**None / Aucun / Kein / Nessuno / Ningún**





# 1 - Generalities

We have designed our new  $\mu$ BMS mini control unit to manage system operation and temperature control of both individual and medium size heating, ventilation and air conditioning installations.

Being easy to use, it provides effective management of from 1 to 15 different temperature zones.

With the  $\mu$ BMS mini control unit, and by way of easy to understand programming procedures, the user can alter the set temperatures for heating and cooling modes and select ventilation fan speeds in each of the controlled zones.

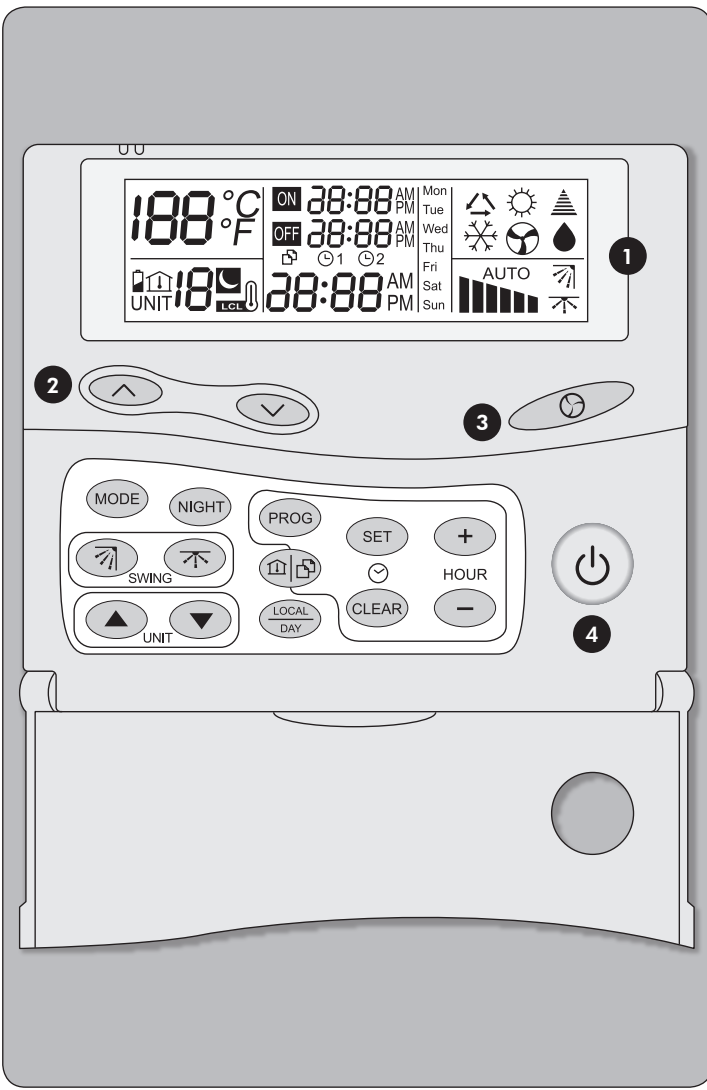
With the aid of a simple RS 485 communication Bus (shielded 2 twisted pair cable liaisons) the  $\mu$ BMS mini control unit provides individual control, in each zone, of the following functions :

- ✓ Control and programming of ON / OFF, standby, time and day of the week, operating modes, ventilation (fan) speed (LS, MS, HS, Auto) and set temperature points.

This programming enables time slots to be selected :

- Either individually (for each zone) over 2 time slots.
- Or globally (for all zones) over 2 time slots.
- ✓ Comfort (occupied) / economy (unoccupied) function.
- ✓ Anti-freeze protection function in Heating mode.
- ✓ Ventilation flaps operation control function.


# 2 - Description

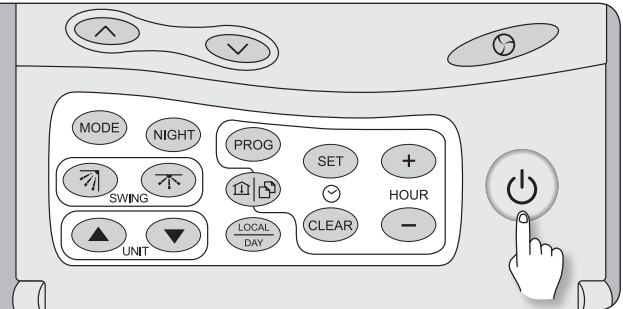


<b>1</b>	Display screen.
<b>2</b>	Keys for raising and lowering the set temperature point.
<b>3</b>	Ventilation (fan) mode selection :
	Low Speed in forced operation.
	Medium Speed in forced operation.
	High speed in forced operation.
<b>AUTO</b>	Automatic speed selection.
<b>4</b>	ON - Standby key.
<b>SET</b>	Accessing the time and day setting mode.
<b>+</b>	Advancing the time setting.
<b>-</b>	Retarding the time setting.
<b>CLEAR</b>	Clearing memory of programmed time settings in programming mode.
<b>LOCAL DAY</b>	Day of the week selection key or sending "I feel" local temperature setting.
<b>PROG</b>	Programming mode key.
	"Copy" key, enabling zone parameters to be duplicated for other zones.
<b>MODE</b>	Operating mode selection.
<b>NIGHT</b>	Unoccupied key for Night time slow operation.
	Current zone setting: previous zone.
	Current zone setting: next zone.
	Air sweeping : Incremental or horizontal.
	Air sweeping : vertical.


## 3 - Basic functions




### 3.1 - Switching on the $\mu$ BMS

Press the  key to switch on the  $\mu$ BMS mini control unit.  
The set temperature point should appear on the display.

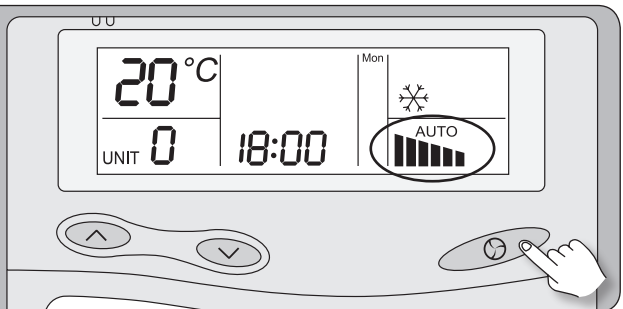


### 3.2 - Ventilation (fan) speed selection


Press the  key to select the fan speed.  
Each press on the key will make the following symbols appear for selection :






-  Low speed
-  Medium speed
-  High speed

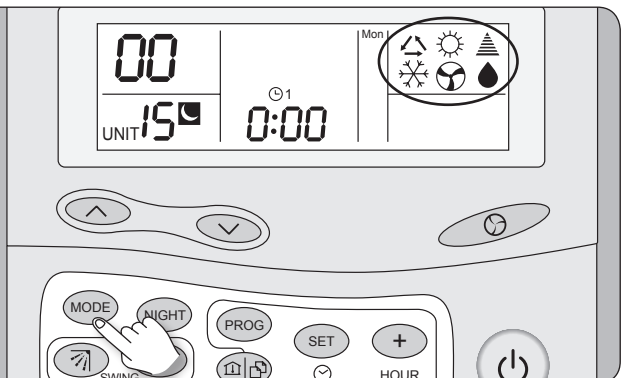
**AUTO** : Automatic speed selection.





### 3.3 - Operating mode selection

Press the  to select the desired operating mode. Each press on the key will make the following modes and symbols appear on the display :

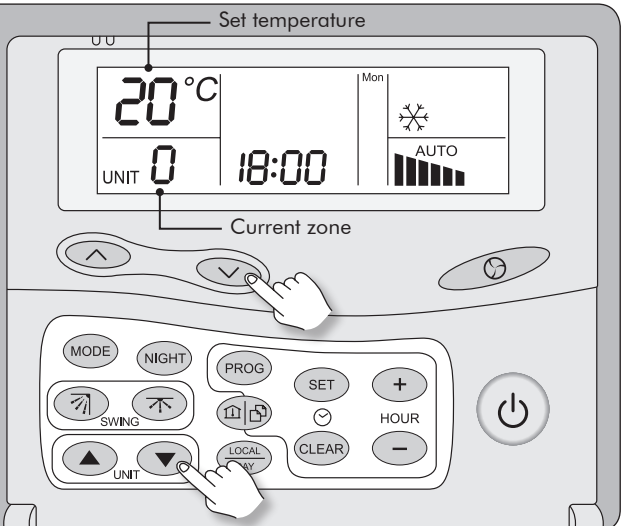
- ✓ Cooling mode 
- ✓ Heating mode 
- ✓ Automatic mode 
- ✓ Ventilation only mode 
- ✓ Dehumidification mode  (not used)



### 3.4 - Setting the temperature

For an installation with several different zones, use the **UNIT**  and  keys to select the zone concerned.


Press the  and  keys to increase and decrease the setting to the desired level temperature.

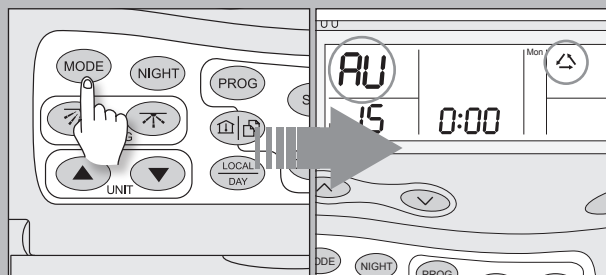


## 3 - Basic functions (continued)




### 3.5 - Setting the desired temperature in AU mode (automatic Heating/Cooling mode changeover with 2 set temperature points)

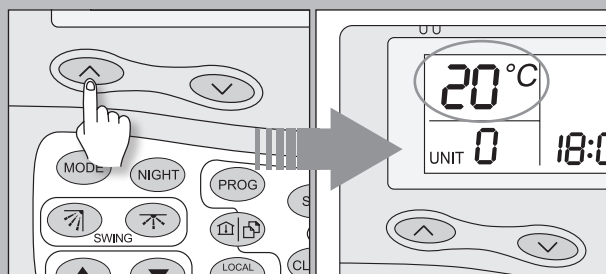
1 For this procedure, the **AU** mode must have been enabled when the  $\mu$ BMS mini control unit was initialised during commissioning.

2 Press the **MODE** key several times until the  symbol appears on the display. By so doing, AU appears in the upper left hand temperature display.






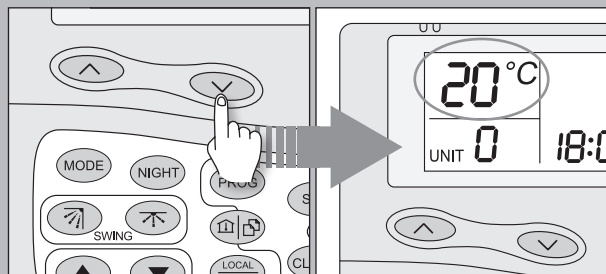
3 To select the HEAT set temperature :

- ✓ Press the  key. The **AU** message is replaced by the word HEAT - Heating mode set temperature. Press the  and  keys to increase and decrease the setting to the desired temperature level.
- ✓ Wait a few seconds. The  $\mu$ BMS mini control unit returns automatically to **AU**.



4 To select the COOL set temperature point :

- ✓ Press the  key. The **AU** message is replaced by the word COOL - Cooling mode set temperature. Press the  and  keys to increase and decrease the setting to the desired level temperature.
- ✓ Wait a few seconds. The  $\mu$ BMS mini control unit returns automatically to **AU**.



## 4 - Quick procedure for setting the time and day

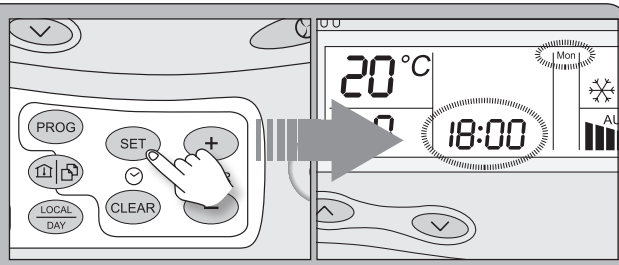
Follow the procedure below if your control panel is already installed and wired on site and you just want to set the time, day and basic parameters :

### 4.1 - To access time and day settings

Press the **SET** key until the time and day values start flashing.

You now have access to the time and day setting functions.

Follow the procedures described in 4.2 and 4.3 below.

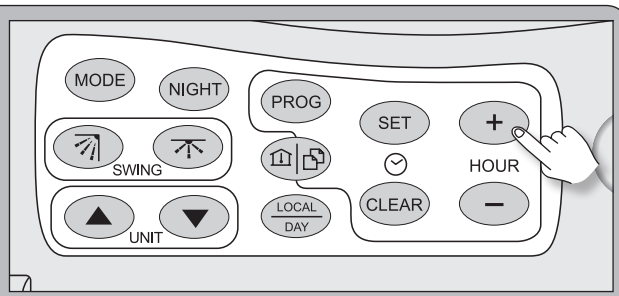


### 4.2 - Setting the time

To set the time, press the **+** or **-** keys marked **HOUR** to advance or retard the time.

**Tip :** If you keep pressing on the **+** or **-** key the scrolling speed will increase to make time setting quicker.

Time is set on a 24 hours cycle, as opposed to a 12 hour cycle. e.g. for setting the time at 1 p.m., set the clock at 13:00.



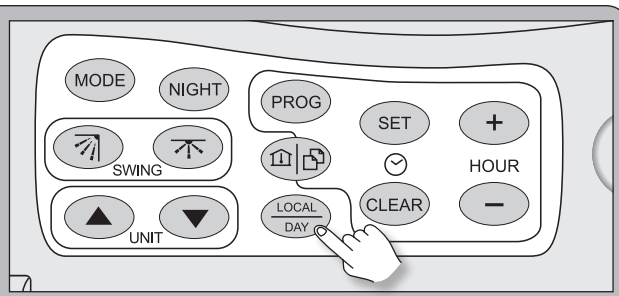
If the day is already set, press the **SET** key again for a few seconds to validate your setting, or wait for 20 seconds without touching the keyboard. Otherwise, continue the procedure.

### 4.3 - Setting the day

To set the day, press the **LOCAL DAY** key to display the corresponding day symbol.

The days of the week are indicated by the first three letters of the day, displayed in English as follows :

**Mon** : Monday    **Fri** : Friday  
**Tue** : Tuesday    **Sat** : Saturday  
**Wed** : Wednesday    **Sun** : Sunday  
**Thu** : Thursday

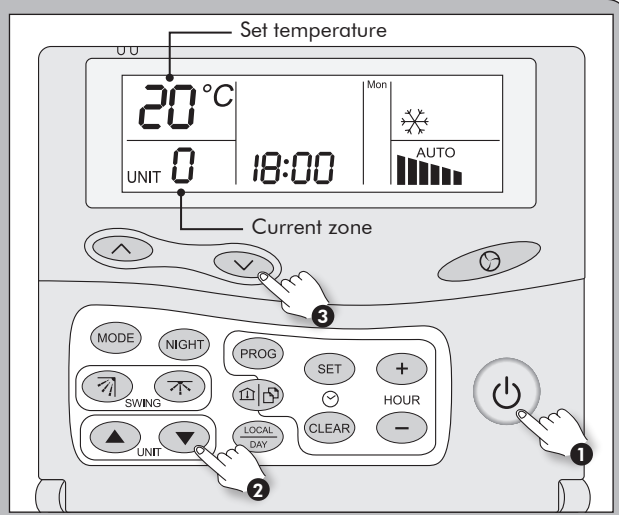


### 4.4 - Setting the desired temperature or set temperature point

- 1 Turn the  $\mu$ BMS mini control unit ON, by pressing the **ON** key.
- 2 In the case of an installation with several zones, select the zone concerned by pressing the **▲** and **▼** keys marked **UNIT**.
- 3 Press the **▲** and **▼** keys to set the desired temperature in the displayed zone.

#### **IMPORTANT**


**IF YOU WISH TO SELECT THE SAME SET TEMPERATURE POINT FOR ALL UNITS (IN ALL ZONES), YOU ONLY HAVE TO SELECT THE SET TEMPERATURE POINT FOR ZONE 0.**



## 5 - Commissioning (setting $\mu$ BMS mini control unit parameters)



### Access to the various $\mu$ BMS parameters :

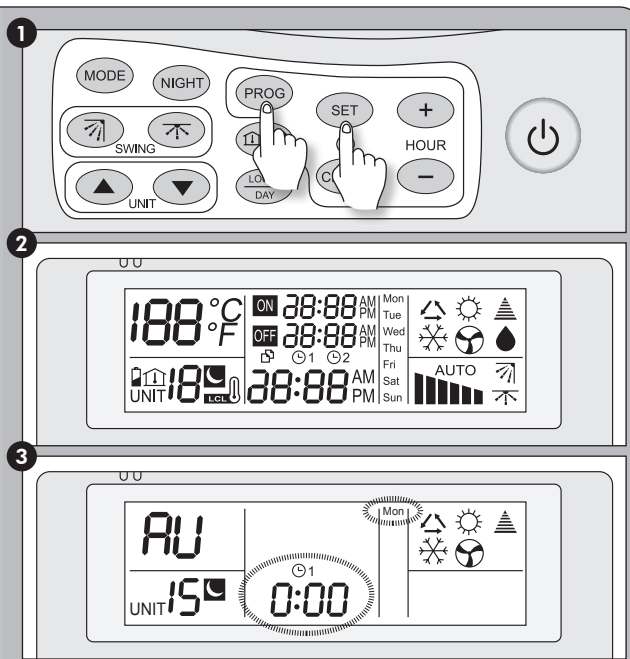
The operations for setting parameters and values as detailed below are only possible when the  $\mu$ BMS mini control unit is switched OFF by pressing the ON/OFF  key (no temperature shown on the LCD display).

### 5.1 - How to access the $\mu$ BMS parameter setting mode ?

- 1 Press both the **PROG** and **SET** keys simultaneously for 3 seconds,
- 2 Stop pressing the **PROG** and **SET** keys as soon as all the symbols appear on the screen,
- 3 You can see this type of display (time and day are flashing).

#### Now you have access to the following parameter settings :

- ✓ Time on a 24-hour basis,
- ✓ Day of the week,
- ✓ Access to timer mode,
- ✓ Activate / deactivate occupied/unoccupied function,
- ✓ Activate / deactivate air sweeping function,
- ✓ Activate / deactivate audible warnings function,
- ✓ Number of zones controlled by the system,
- ✓ Activate the AU or 00 mode,
- ✓ Accessible mode(s).



**Important :** You can access the various settings above at any time by following the same steps : Press both the **PROG** and **SET** keys simultaneously for longer than 3 seconds. When all the symbols appear on the LCD display, release both keys. This will not result in auto-initialisation, but you will have access again to all the settings.

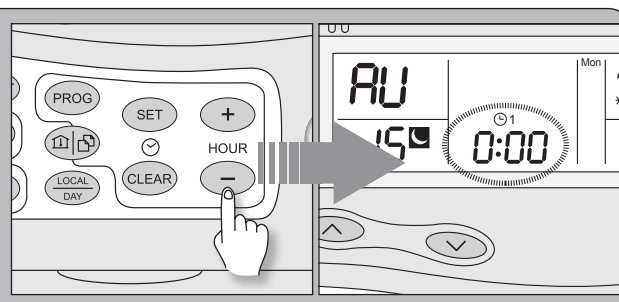
**Comment :** The time will flash continuously during the parameter setting procedure. At the end of the procedure, it will stop flashing if no key is pressed during a 20 seconds period.

### 5.2 - Setting the time

To set the time, press the **+** or **-** keys marked **HOUR** to advance or retard the time.

**Tip :** If you keep pressing on the **+** or **-** key the scrolling speed will increase to make time setting quicker.

Time is set on a 24-hour cycle, as opposed to a 12-hour cycle. e.g. for setting the time at 1 p.m., set the clock at 13:00.

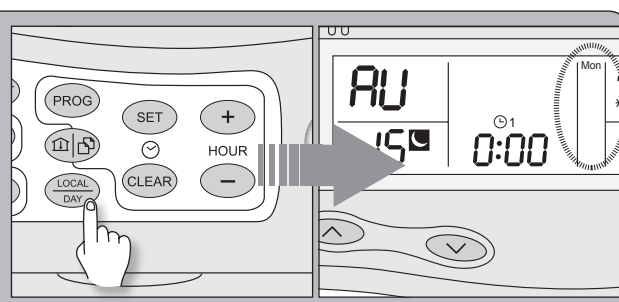


### 5.3 - Setting the day

To set the day of the week, press the **LOCAL DAY** key to display the corresponding day symbol.

The days of the week are indicated by the first three letters of the day, displayed in English as follows :

**Mon** : Monday      **Fri** : Friday  
**Tue** : Tuesday     **Sat** : Saturday  
**Wed** : Wednesday   **Sun** : Sunday  
**Thu** : Thursday





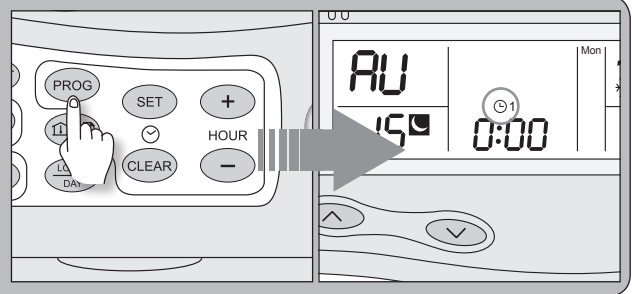
## 5 - Commissioning (setting the $\mu$ BMS mini control unit parameters) – (cont'd)

### 5.4 - Activate /deactivate the timer programming function

You can activate or deactivate the timer programming function by pressing the **PROG** key.

Press once to make the  $\odot 1$  timer symbol appear, and press again to make it disappear.

When the  $\odot 1$  timer symbol is displayed, the user has access to the function for settings the occupied / unoccupied times for the premises and conversely, when it is not displayed the user does not have access to the function.



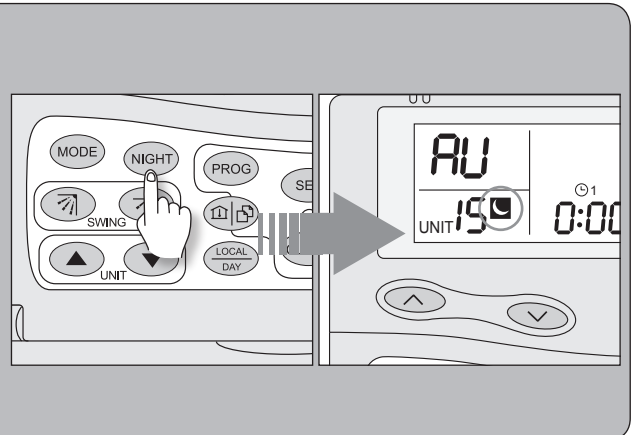
### 5.5 - Activate / deactivate the unoccupied function

You can activate or deactivate the unoccupied function by pressing the **NIGHT** key.

When the  $\blacksquare$  symbol is displayed, you have access to the unoccupied function and conversely, when it is not displayed the user will not have access to the function once the parameter setting procedure has been completed.

When it is activated by a pressing the **NIGHT** key once, this function will act to change the system over to unoccupied mode, i.e. the set temperatures will be 14 °C in Heating mode and 30 °C in Cooling mode.

Moreover, the system will not activate the ventilation (fan) function until the set temperature point has been attained.

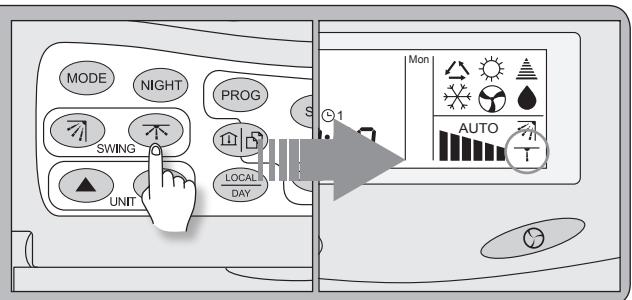


### 5.6 - Activate / deactivate the air sweeping function

If this function is activated, the user will be able to control powered air sweeping.

In the parameter-setting mode, you can authorise user access to this function by making the  $\updownarrow$  symbol appear via the **SWING** key.

**Warning :** For fan coil units, you should deactivate this function as such units are not equipped with air sweeping motors. In contrast, on certain direct expansion units, you **MUST** activate this function.

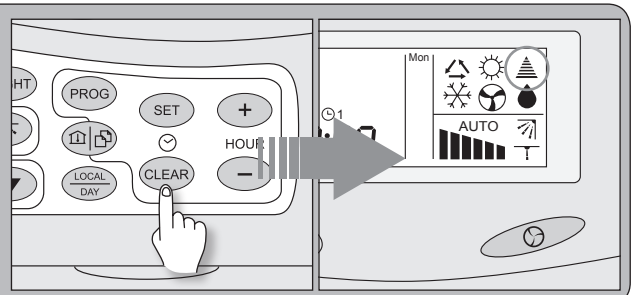


### 5.7 - Activate / deactivate the audible warning function

If this function is activated, the user will hear a «beep» each time one of the  $\mu$ BMS mini control unit keys is pressed.

In parameter setting mode, you can activate or deactivate the audible warning function by pressing the **CLEAR** key.

The audible warning function is activated if the  $\triangle$  symbol is displayed. Conversely, if the  $\triangle$  symbol is not displayed then the audible warning function will not be activated when you exit the parameter-setting mode.



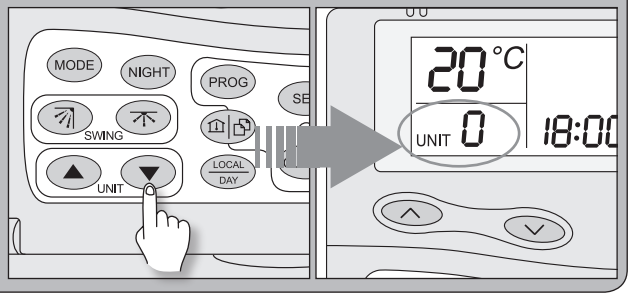


# 5 - Commissioning (setting the $\mu$ BMS mini control unit parameters) – (cont'd)

## 5.8 - Setting the regulation zone number

This function is directly dependent on the installation and its architecture.  
 In fact, you must determine the number of different zones in your system, i.e. locations with different occupied and unoccupied patterns (e.g. office blocks and storage areas) as well as locations with different set temperature points (computer room or offices).

The number of regulation zones managed by the  $\mu$ BMS mini control unit is defined by using the  $\blacktriangle$  and  $\blacktriangledown$  keys marked **UNIT** to increase or decrease the number of your installation's regulation zones accordingly.



## 5.9 - Activating the AU or 00 mode

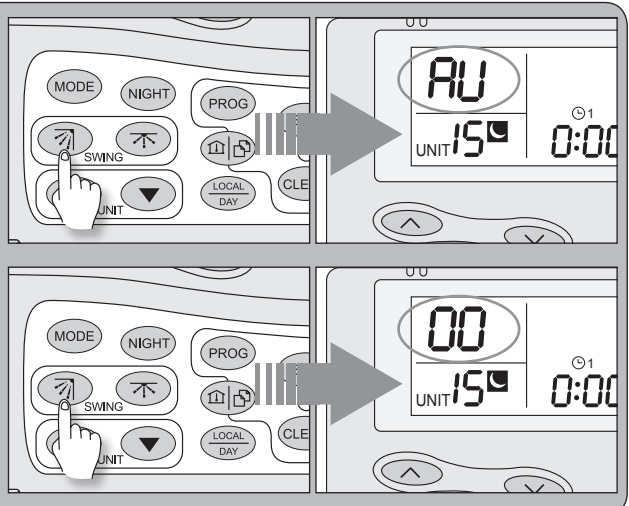
Press the **SWING** key  $\curvearrowright$  once, **AU** appears on the display.  
 Press the **SWING** key  $\curvearrowright$  again, **00** appears on the display.

**AU** = 2 set temperature points (dead zone of 2 °C minimum) : 1 SUMMER and 1 WINTER.

This function follows the following logic : "Cooling set temperature point = Heating set temperature point + 2 °C".

e.g. If you set the COOL set temperature point at 23 °C, the HEAT set temperature point will be 21 °C maximum.

**00** = 1 single SUMMER / WINTER set temperature point.



## 5.10 - Accessible operating modes

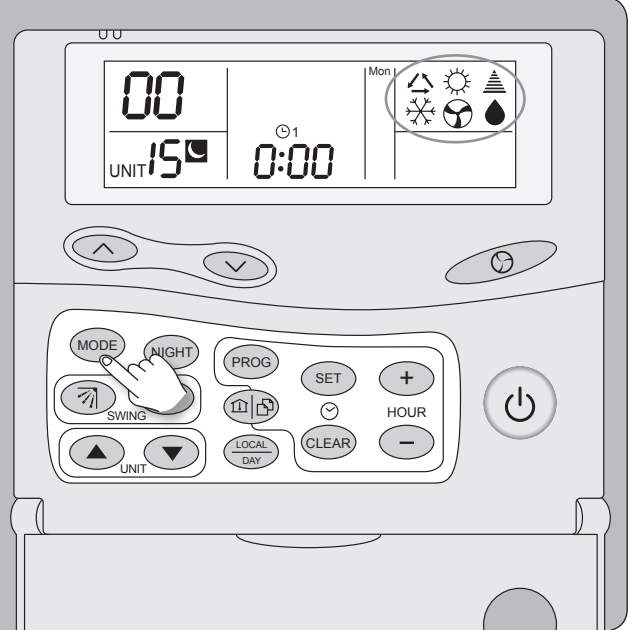
Press the **MODE** key repeatedly to scroll through the accessible operating modes for units connected to the  $\mu$ BMS mini control unit and to set their parameters.

The operating modes are as follows :



- ✓ Cooling mode
- ✓ Heating mode
- ✓ Automatic mode
- ✓ Ventilation (FAN) only mode
- ✓ Dehumidification mode (not used)

The modes that can be set, depending on the applications, are as follows :

- ✓ All accessible modes (for direct expansion units),
- ✓ All accessible modes, except the dehumidification mode (for fan coil units),
- ✓ Only Cooling and ventilation (FAN) modes are accessible,
- ✓ Only Heating and ventilation (FAN) modes are accessible.



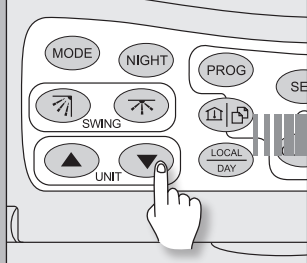
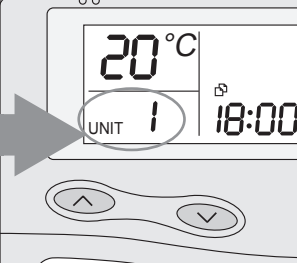


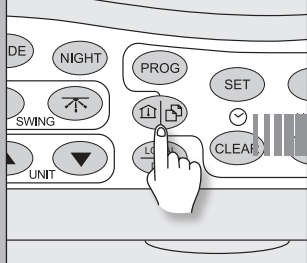
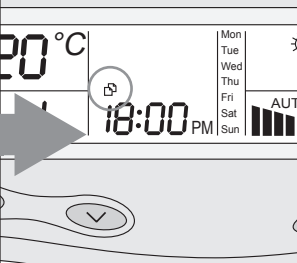


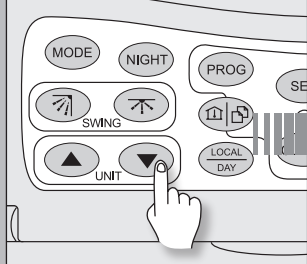
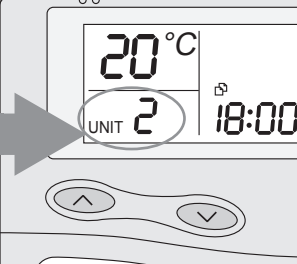



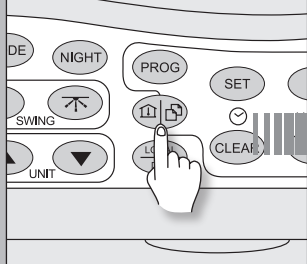
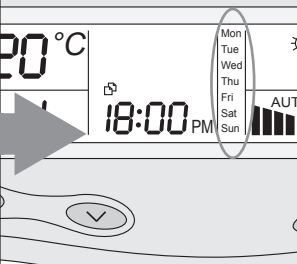
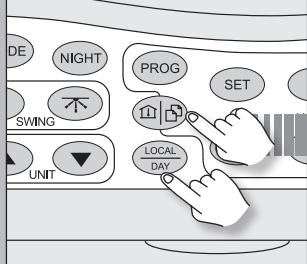
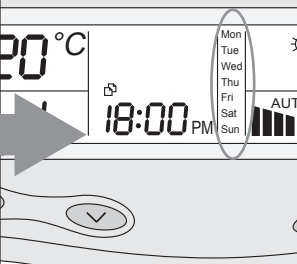


## 6 - Using the Copy / Paste function for setting zone parameters

When you wish to use the same programming profile for several different regulation zones, it is possible to use the Copy and Paste function, indicated by the  symbol on the screen and by the  key.

Once one zone has been programmed from Monday to Sunday, you can copy and then paste these settings into any other regulation zone created by the  $\mu$ BMS mini control unit parameter settings.

**Example :** Copy Zone 1 to Zone 2.

<p><b>1</b> Select ZONE 1 by pressing the <b>UNIT</b>  and  keys,</p>	 
<p><b>2</b> Press the Copy / Paste  key, the  sign appears on the display,</p>	 
<p><b>3</b> Select ZONE 2 by pressing the <b>UNIT</b>  and  keys,</p>	 
<p><b>4</b> There are two ways of pasting the settings from ZONE 1 into ZONE 2 :</p> <ul style="list-style-type: none"> <li>✓ You wish to paste the ZONE 1 settings into ZONE 2, and this for every day of the week : Press the  key (the days scroll on the display).</li> <li>✓ You wish to paste the ZONE 1 settings into ZONE 2, and this for just one day of the week: Press the <b>DAY</b>  key to select the day in question and press the Copy / paste  key.</li> </ul>	   



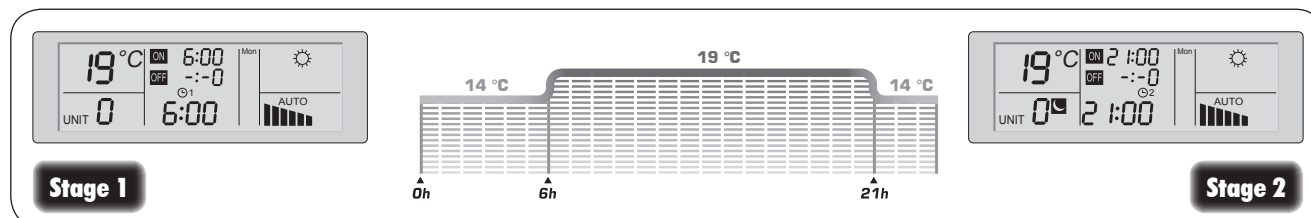
To confirm the parameter settings, do NOT touch any of the keys for 30 seconds (return to initial display).

## 7 - Programming examples

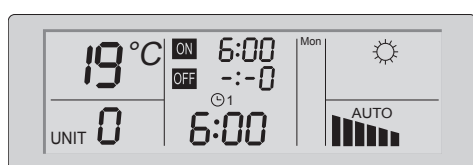


The temperature is not displayed if the remote control is switched OFF.

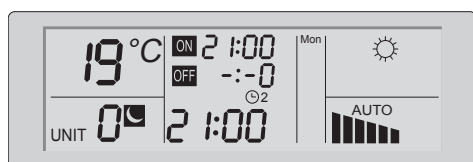
### 7.1 - Global control programming (Zone 0)



In this programming example, all the fan coil units will operate in HEAT and AUTO ventilation modes, with a set temperature point of 19° C from 6h00 (Stage 1) until 21h00 (Stage 2).



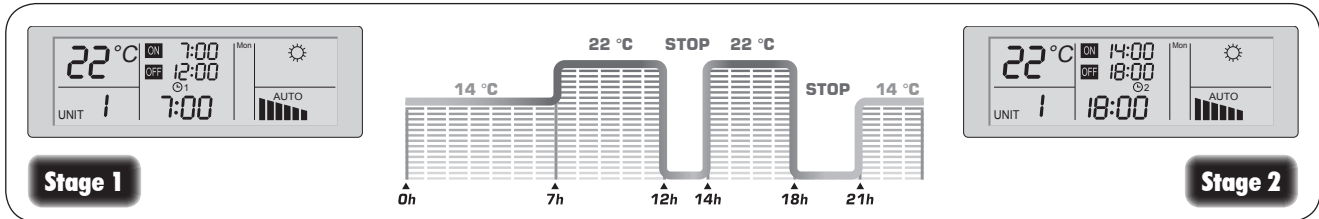
STAGE 1	
1	Press the <b>PROG</b> (PROG) key for 5 seconds,
2	Select Zone 1 by pressing the <b>UNIT</b> (▲) and (▼) keys,
3	<ul style="list-style-type: none"> <li>- Press the (MODE) key to define the <math>\mu</math>BMS mini control unit start up mode. In this example, HEAT ☀.</li> <li>- Use the (▲) and (▼) keys to adjust the set temperature point to 19° C,</li> <li>- Press the (FAN) key a number of times to set the ventilation (FAN) speed to AUTO,</li> </ul>
4	Use the <b>HOUR</b> (+) and (-) keys to set the start time : (6:00),
5	Use the <b>DAY</b> (LOCAL DAY) key to select the day for which you wish to set the parameters : In our example Monday. "Mon" appears on the display.
6	Press the <b>SET</b> (SET) key twice to move on to the next time slot. The ☉2 symbol will appear on the display.



STAGE 2	
1	Press the <b>NIGHT</b> (NIGHT) key to select inoccupied mode. The ☾ symbol appears on the display,
2	Use the <b>HOUR</b> (+) and (-) keys to set the start time : (21:00),
3	Press the <b>SET</b> (SET) key twice to confirm the programme settings.

## 7 - Programming examples (continued)

### 7.2 - Personalised programming (Zone 1)



In this programming example, all the fan coil units in Zone 1 will operate in HEAT and AUTO ventilation modes, with a set temperature point of 22 °C from 7h00 to 12h00 (Stage 1) and from 14h00 to 18h00 (Stage 2).



#### STAGE 1



If the time slots are no longer displayed and a "beep" has sounded after you have exited the programming mode, press the **PROG** (PROG) key again for 5 seconds. Otherwise, proceed as follows :

- 1 Select Zone 1 by pressing the **UNIT** (▲) and (▼) keys,
- 2 - Press the **MODE** key to define the  $\mu$ BMS mini control unit start up mode. In this example, HEAT ☀,  
- Use the (▲) and (▼) keys to adjust the set temperature point to 22 °C,  
- Press the (⊙) key a number of times to set the ventilation (FAN) speed to AUTO,
- 3 Use the **HOUR** (+) and (-) keys to set the first time slot start time : (7:00),
- 4 Use the **DAY** (LOCAL DAY) key to select the day for which you wish to set the parameters : In our example Monday. "Mon" appears on the display,
- 5 Press the **SET** (SET) key once to confirm the settings,
- 6 Use the **HOUR** (+) and (-) keys to set the first time slot end time : (12:00),
- 7 Press the **SET** (SET) key once to confirm the settings and to move on to the second time slot.

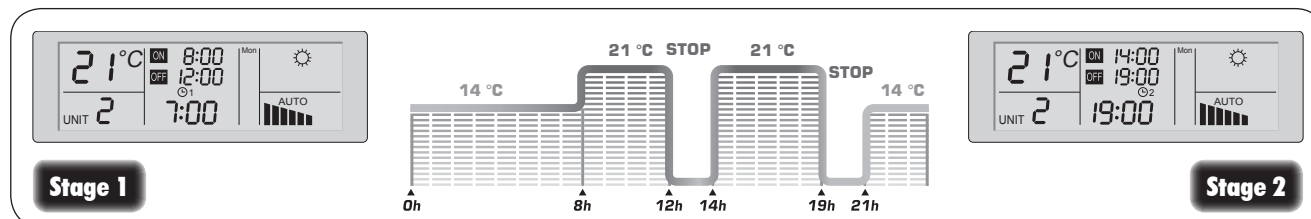


#### STAGE 2

- 1 Use the **HOUR** (+) and (-) keys to set the second time slot start time : (14:00),
- 2 Press the **SET** (SET) key once to confirm the settings,
- 3 Use the **HOUR** (+) and (-) keys to set the second time slot end time : (18:00),
- 4 Press the **SET** (SET) key once to confirm the settings.

## 7 - Programming examples (continued)

### 7.3 - Personalised programming (Zone 2...up to Zone 15)



In this programming example, all the fan coil units in Zone 2 will operate in HEAT and AUTO ventilation modes, with a set temperature point of 21 °C from 8h00 to 12h00 (Stage 1) and from 14h00 to 19h00 (Stage 2).



#### STAGE 1



If the time slots are no longer displayed and a "beep" has sounded after you have exited the programming mode, press the **PROG** (PROG) key again for 5 seconds. Otherwise, proceed as follows :

- 1 Select Zone 1 by pressing the **UNIT** (▲) and (▼) keys,
- 2 - Press the (MODE) key to define the  $\mu$ BMS mini control unit start up mode. In this example, HEAT ☀,  
- Use the (▲) and (▼) keys to adjust the set temperature point to 21 °C,  
- Press the (FAN) key a number of times to set the ventilation (FAN) speed to AUTO,
- 3 Use the **HOUR** (+) and (-) keys to set the first time slot start time : (8:00),
- 4 Use the **DAY** (LOCAL DAY) key to select the day for which you wish to set the parameters : In our example Monday. "Mon" appears on the display,
- 5 Press the **SET** (SET) key once to confirm the settings,
- 6 Use the **HOUR** (+) and (-) keys to set the first time slot end time : (12:00),
- 7 Press the **SET** (SET) key once to confirm the settings and to move on to the second time slot.



#### STAGE 2

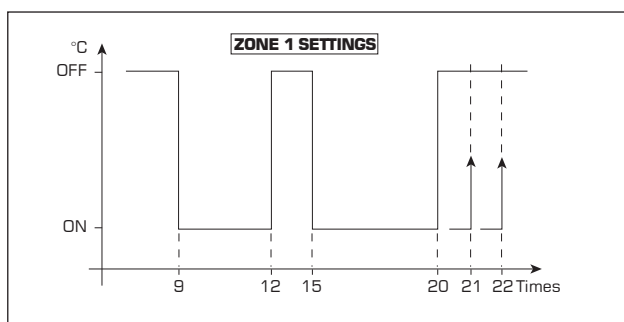
- 1 Use the **HOUR** (+) and (-) keys to set the second time slot start time : (14:00),
- 2 Press the **SET** (SET) key once to confirm the settings,
- 3 Use the **HOUR** (+) and (-) keys to set the second time slot end time : (19:00),
- 4 Press the **SET** (SET) key once to confirm the settings.

## 8 - Programming to achieve energy savings

### Example : In business premises with the following opening hours :

Morning : 9h to 12h - Afternoon : 15h to 20h.

In summer, you wish to maintain the following set temperatures :



It is quite possible to set two time slots with two different set temperatures.

You should proceed as follows to obtain the above system operating conditions :

Press the **PROG** key for 5 seconds to access the timer setting sequences.

Then you have access to the following settings :

Select ZONE 1 by pressing the **UNIT** **▲** and **▼** keys.

STAGE 1 : **⊖**1 ON : 9h00    STAGE 2 : OFF : 12h00

STAGE 3 : **⊕**2 ON : 15h00    STAGE 4 : OFF : 20h00

Select ZONE 0 by pressing the **UNIT** **▲** and **▼** keys.

STAGE 5 : **⊖**1 ON : --:--    OFF : 21h00

STAGE 6 : **⊕**2 ON : --:--    OFF : 22h00

Press the **HOUR** **+** and **-** keys until the desired time is obtained.

Press the **SET** key to validate each Stage. You will then move on to the next Stage.

For Stages 1 and 3, corresponding to a time cycle start point, you will have to set the corresponding set temperature for each mode (Cooling and Heating, or Automatic). To do this, please refer to Paragraph 4.4 for setting the desired set temperature point. You can also set programmed start times for unoccupied mode operation.

In fact, if somebody needs to stay on after the normal business closing time (i.e. staying from 20 h to 21 h), they can use the local remote control to set their preferred set temperature.

If only one OFF sequence has been programmed (e.g. a global sequence), the last set temperature entered in the system will be the temperature maintained for the rest of the night. To avoid this happening, you can enter several sequences for moving into OFF mode, at different times, as illustrated in the above example.

These settings must be set for each Zone and Day in accordance with the desired time slots.

## 9 - General comments

### Backlighting

The liquid crystal display back lighting illuminates when the control unit passes into Configuration / Initialisation mode and when any key is pressed.



The back lighting switches off if no key is pressed within 20 seconds.

### Error messages

In the event of an anomaly, the liquid crystal display will be momentarily erased and the word CLR will appear instead of the time, with an error code number in the place of the temperature.

This message will remain displayed for 2 seconds before disappearing. If error codes of this nature are displayed, we advise you against continuing to use the unit.




### Battery


- In the event of 12 V power supply failure, the BATTERY icon  appears and the POWER luminous diode flashes to indicate that the control unit is running on battery power.
- The battery icon  flashes in the event of declining low battery voltage (or if it is below about 2.2 V), and if there is no 12 V supply.
- The batteries are rechargeable and therefore do not normally require replacing. However, if they do require replacing, use only NiMH 1.2 V rechargeable batteries.
- At the end of their useful life, the batteries should be recovered by an approved waste disposal company, or your supplier.
- In the event of a power failure, the batteries can power the  $\mu$ BMs mini control unit for about 12 hours. Even when the batteries have run out, the programmed settings remain stored in the unit's memory, and only the time and day settings are lost. The batteries take less than 24 hours to be fully recharged.

### Reinitialising the software

Simultaneously press the , ,  and  keys to reinitialise the unit.

### Locking the keypad

The keypad can be locked (with the exception of the software REINITIALISATION keys) by simultaneously pressing the **UNIT**  and  keys. Then a series of audible warning sounds are emitted and the IR  triangle is permanently displayed.

Just repeat this operation to unlock the keypad. Then, a different series of audible warning sounds is emitted and the IR  triangle returns to its normal operating status.

### Changing the fan operating mode

Repeatedly press the FAN  key or maintain pressure on the key.

4 modes are available :

 Low speed,

 Medium speed,

 High speed,


**AUTO** : Automatic speed selection.

In **DRY** mode, (dehumidification), the fan will always run in **Low** speed mode and it will not be possible to select any other mode.

### Zone in service

When a zone is in service, the following information can be displayed :

- ✓ Time,
- ✓ Zone number,
- ✓ Ambient temperature or set temperature point,
- ✓ Fan status,
- ✓ Mode and, depending on the configuration, «I Feel» status, night time slow running (unoccupied mode) status and ventilation flap status.

The IR  Signal may light up to indicate a message.

### Tripping in / out of the main control channel function (ZONE 0)

When the main control channel function (Zone 0) is tripped in or out, by direct control or by running a switching / cut-out programme, the word "SET" appears instead of the time, and messages are sent sequentially to all zones (depending on the configuration), indicating the sender zone.

Once this operation is completed, the time and Zone (0) appear again on the display. During this time (around 1 second per zone), the unit is locked and does not react to user instructions. This sequential operation avoids excessive current draw due to simultaneous unit start-ups.

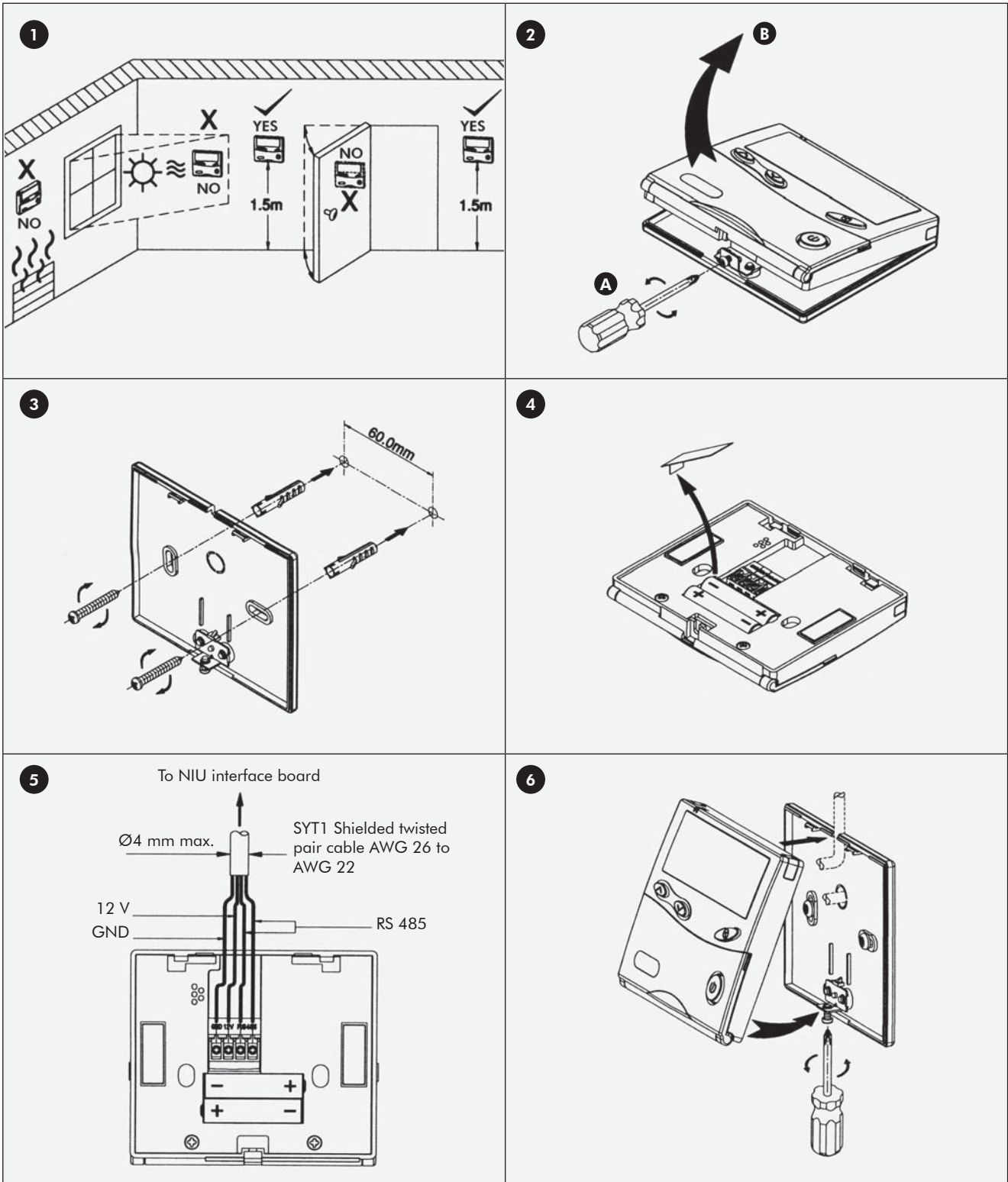


## 10 - $\mu$ BMS min control unit installation and wiring

It is necessary to choose the right location for  $\mu$ BMS min control unit in the room in which it is to be installed.

It should be installed at a height of 1.5 metres from the floor and it should be easily accessible.

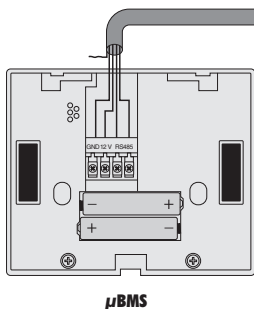
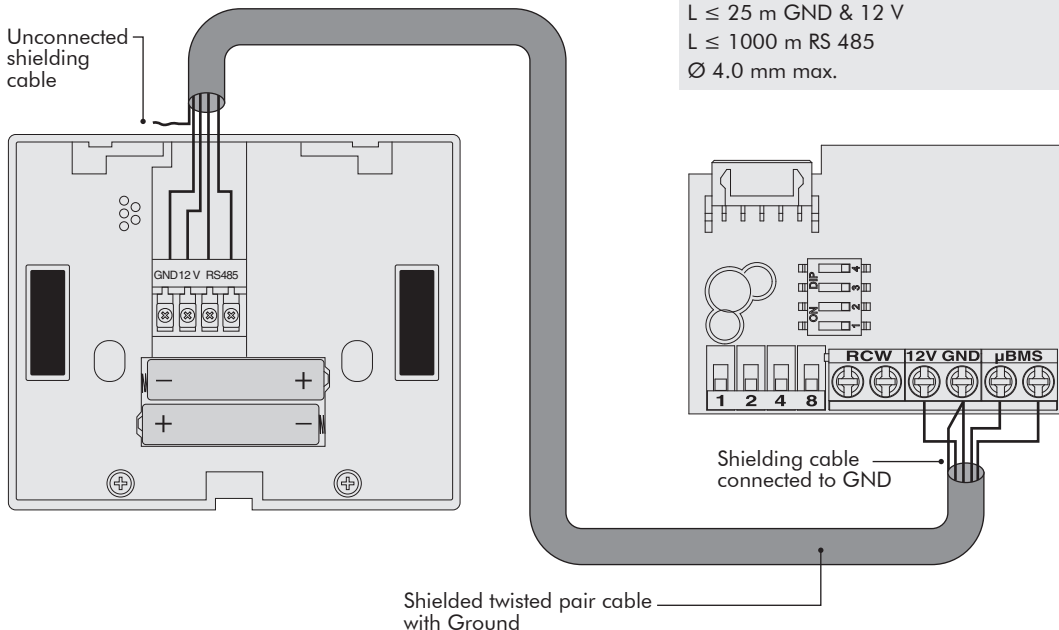
It is important to choose a location away from any direct or indirect heat source (chimney, direct sunlight, air conditioning outlet....) and away from any draughts (window, door...).



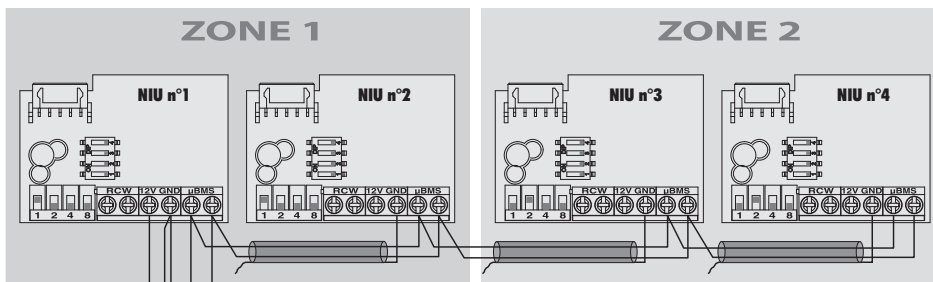
# 11 - Wiring the $\mu$ BMS mini control unit to the first NIU interface board

Connect the  $\mu$ BMS mini control unit GND terminal to the NIU interface board GND terminal. Carry out the same operation for the 12 V terminal. Finally, connect the  $\mu$ BMS mini control unit RS 485 terminals to the NIU interface board  $\mu$ BMS terminals (the RCW terminal is intended for a different purpose).

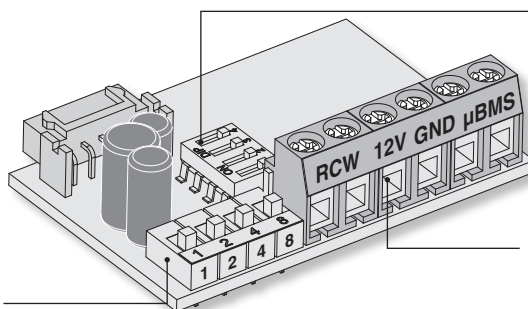
Shielded twisted pair cable with Ground : AWG 22 ~ 26  
 $\varnothing$  0.12 -  $\varnothing$  0.3 mm<sup>2</sup>  
 0,15 Ohm/m max.  
 L  $\leq$  25 m GND & 12 V  
 L  $\leq$  1000 m RS 485  
 $\varnothing$  4.0 mm max.



$\mu$ BMS



NIU INTERFACE BOARD DETAIL



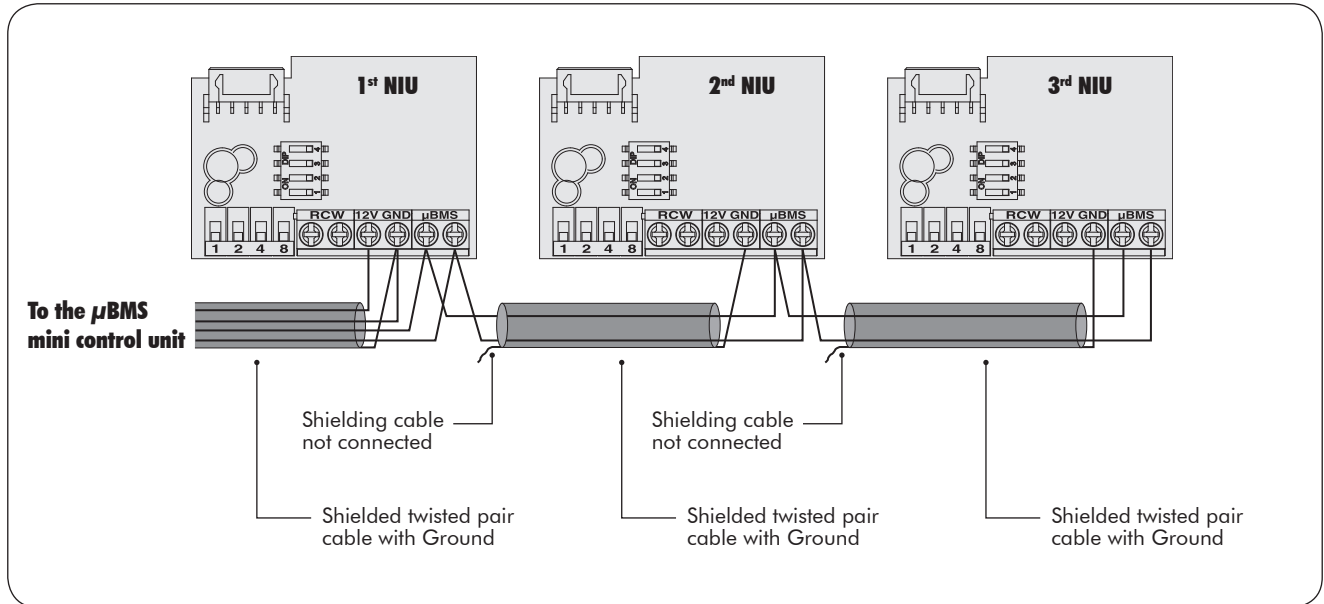
Configuration DIPs indicating whether the NIU interface board is the last board in the communication Bus.

Terminal block

Address DIPs for each fan coil unit

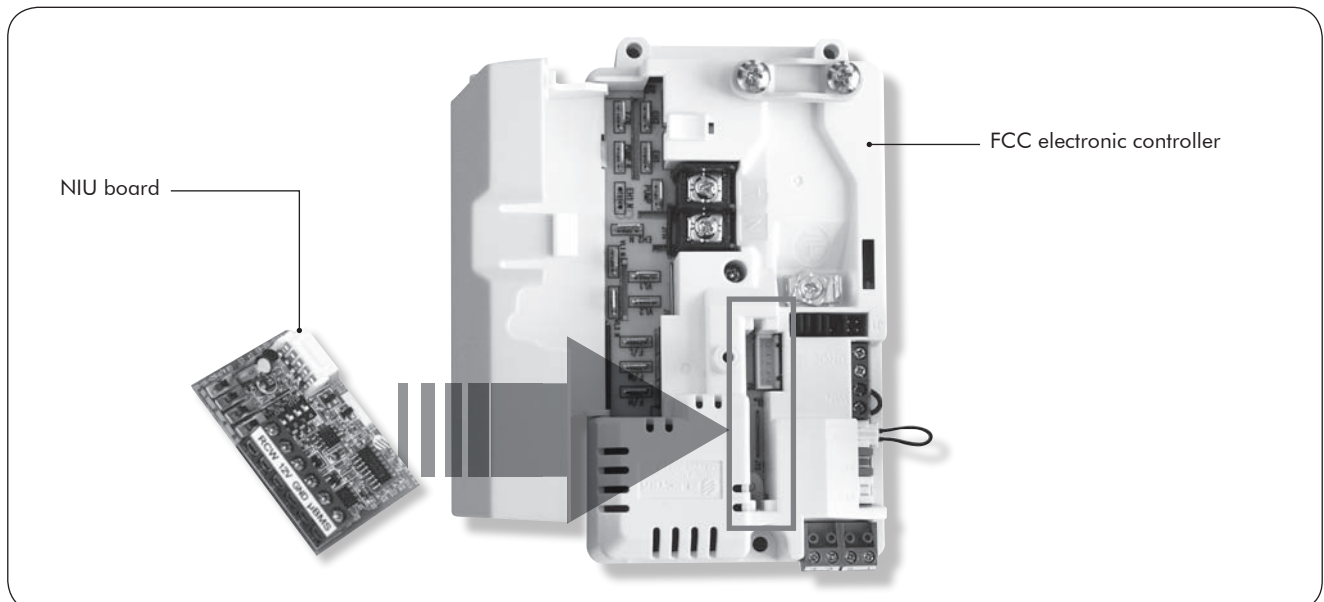
## 12 - Wiring the 1<sup>st</sup> NIU interface board to the 2<sup>nd</sup> NIU interface board

Connect the  $\mu$ BMS terminals of the first NIU interface board to the  $\mu$ BMS terminals of the second NIU interface board and connect the  $\mu$ BMS terminals of the second NIU interface board to the  $\mu$ BMS terminals of the third NIU interface board and so on until the last NIU interface board is connected. The RCW terminal is intended for a different purpose.



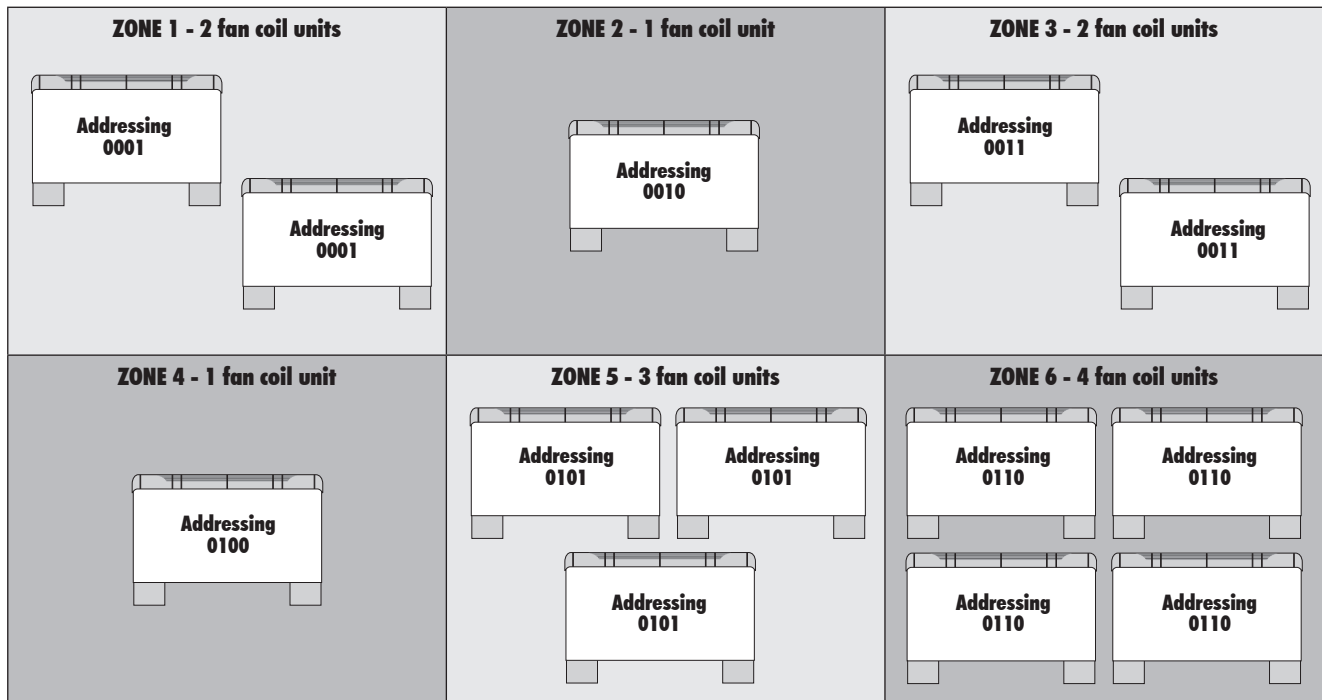
## 13 - Inserting the NIU interface board in the FCC controller

Proceed as illustrated below to insert each board :



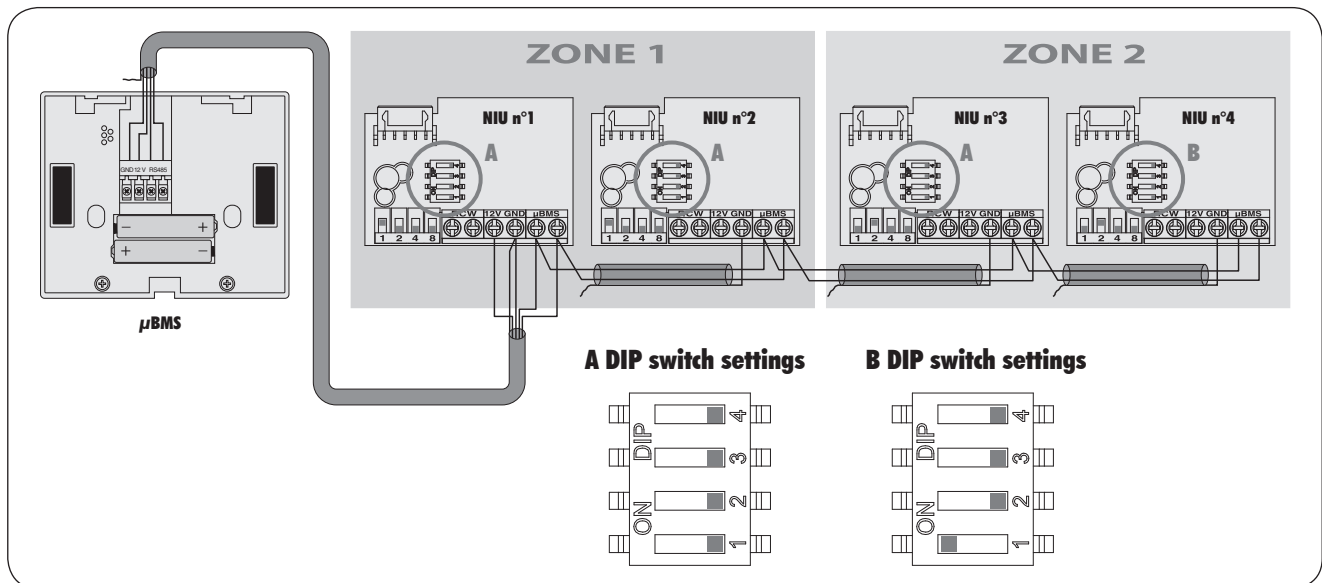
# 14 - NIU interface board configuration

Addressing performed in accordance with the following table implies that all the fan coil units situated in the same zone will receive the same settings.

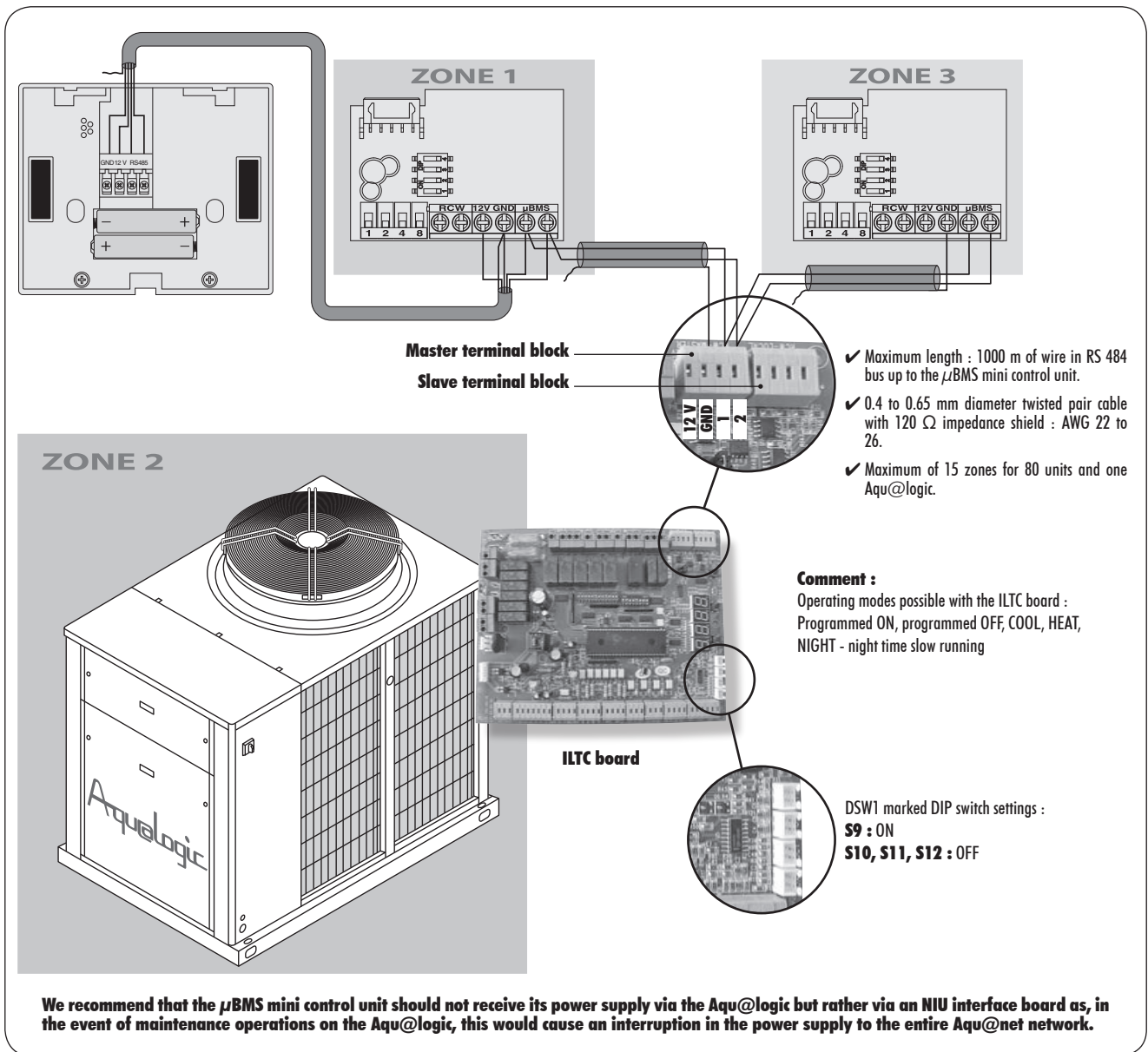


ADDRESSING DIP	ZONE 1	ZONE 2	ZONE 3	ZONE 4	ZONE 5	ZONE 6	ZONE 7	ZONE 8	ZONE 9	ZONE 10	ZONE 11	ZONE 12	ZONE 13	ZONE 14	ZONE 15
DIP 1	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON
DIP 2	OFF	ON	ON	OFF	OFF	ON	ON	OFF	OFF	ON	ON	OFF	OFF	ON	ON
DIP 4	OFF	OFF	OFF	ON	ON	ON	ON	OFF	OFF	OFF	OFF	ON	ON	ON	ON
DIP 8	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON	ON	ON	ON	ON	ON	ON	ON
BINARY CODE	0001	0010	0011	0100	0101	0110	0111	1000	1001	1010	1011	1100	1101	1110	1111

The communication Bus uses the data in both directions and therefore there is no need to create a loop. However, the last NIU interface board must be configured as illustrated in **B** below, as opposed to the other NIU interface boards that must be configured as shown in **A**.



# 15 - Connecting an Aqu@logic unit to the Aqu@Net system bus





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