TH146-P-2H1C

Installation Guide

Programmable 2H1C Controller

Removable Connector *

Removable Connector *

TH146-P User Console

CT280-2H1C Control Module

AC144-03 Outdoor Temperature Sensor

* To remove a connector from the control module, pry with a screwdriver.
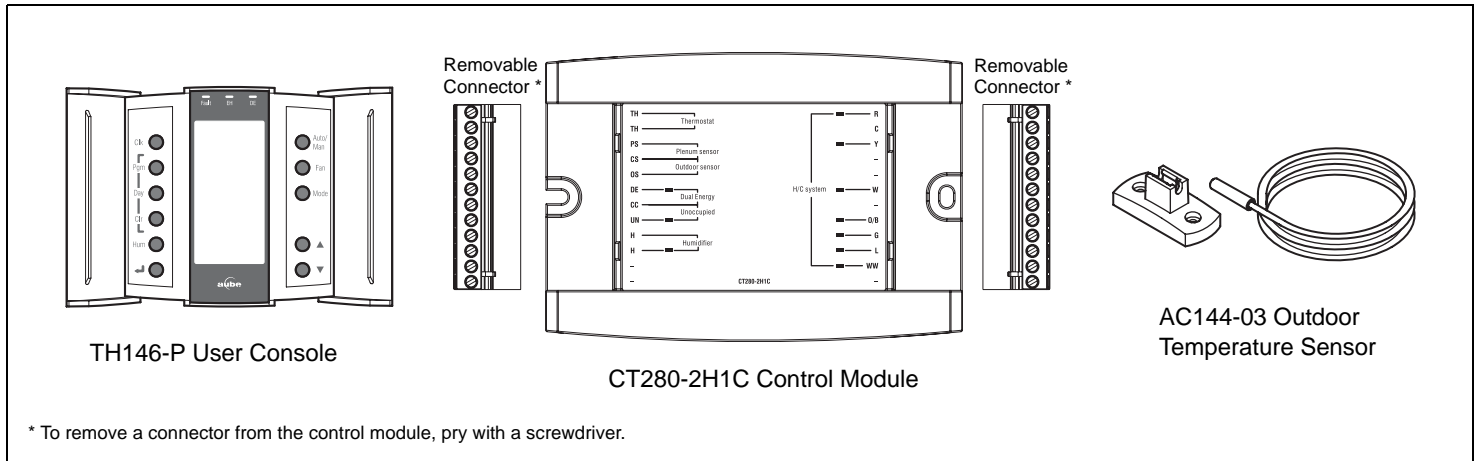
1. Introduction

1.1 Applications

The TH146-P-2H1C programmable controller can be used with any of the following heating/cooling systems:

▸ **Heat pump - 1H1C, 2H1C**
▸ **HVAC - 1H, 1C, 1H1C**

The following devices can be connected to the controller:

▸ air recirculation fan
▸ humidifier
▸ dual-register meter (dual energy)
▸ remote control device (for the unoccupied mode)

1.2 Supplied Parts

• CT280-2H1C control module
• TH146-P console with two wall anchors and mounting screws
• AC144-03 outdoor temperature sensor (3 m or 10 ft) with mounting clip (see section 2.6)

1.3 Accessories

• RC845 relay (see section 2.4)
• AC146-410 plenum temperature sensor (see section 2.7)
• CT241 telephone controller (see section 2.9)
• AC130-12 wall plate

2. Installation

2.1 Control Module (CT280-2H1C)

Configure the control module according to your type of heating/cooling system using DIP switches on the back of the module.
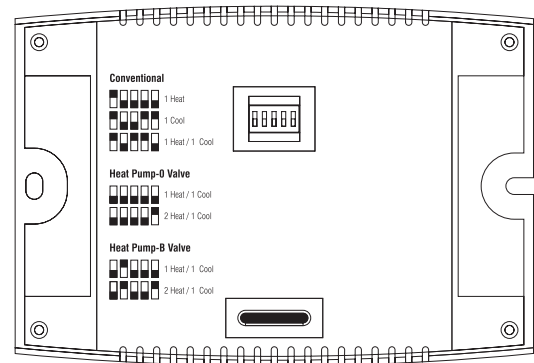
Install the control module near the heating/cooling system, away from any heat source.

2.2 User Console (TH146-P)

Install the console in a central location. Avoid locations with air drafts (e.g., top of staircase or air outlet) or stagnant air (behind a door). Do not install the console on a wall hiding air ducts nor expose it to direct sunlight.

NOTE: *If this controller replaces an old thermostat, any two of the wires that were connected to the thermostat can be used to connect the user console to the control module. The maximum wiring length is 30 m (100 ft).*

❶ Choose a location about 1.5 m (5 ft) above the floor on an inside wall.

❷ Loosen the captive screw under the console.

❸ Detach the console from its base by pulling the bottom section.

❹ Secure the base using the wall anchors and screws.

❺ Connect the console to controller terminals TH and TH (no polarity).

2.3   Heating/Cooling System

The terminals used to connect the heating/cooling system depend on the type of system. See the appropriate wiring table on page 4.

2.4   RC845 Relay

If you have an add-on installation, you might need an RC845 relay to connect the furnace (auxiliary heating) and its fan to the controller. Install the relay near the control module and connect the wires as follows:

- relay terminals W, G and C to controller terminals W, G and C.
- relay terminals T and T to the appropriate furnace terminals: T and T (oil); TH and TH (gas); R and W (electric).

NOTE: Refer to the relay's installation instructions for more details.

2.5   Humidifier

Connect the humidifier in series with the power supply between controller terminals H and H (dry contact).

2.6   Outdoor Sensor (AC144-03)

The outdoor sensor is required for the following:
- outdoor temperature display
- balance points (heat pumps only, see section 4.2)
- defrost point (heat pumps only, see section 4.3)
- automatic humidity control (see section 7.2)

When installing the sensor, observe the following guidelines:
- Avoid locations where the sensor can be covered with snow or exposed to direct sunlight.
- Avoid air outlets and concealed chimneys or stove pipes.

Install the sensor using its mounting clip and connect it to controller terminals OS and CS (no polarity).

NOTE: The maximum wiring length is 30 m (100 ft).

2.7   Plenum Sensor (AC146-410)

The plenum sensor is required for the following:
- low temperature limit inside the plenum (HVAC only)
- high temperature limit inside the plenum (HVAC only)
- fan limit if gas heating is used (HVAC only)
- high pressure protection during defrost cycle (This protection is generally needed for add-on installations only. It is not needed if the heat pump is not connected to the controller terminal WW.)

Install the sensor on the side of the plenum and position it such that its aperture faces the air flow.

Connect the sensor to controller terminals PS and CS (no polarity). For more information, refer to the instructions provided with the sensor.

NOTE: The maximum wiring length is 30 m (100 ft).
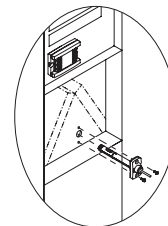
2.8   Dual-energy Input

NOTE: The dual-energy input can be used only with a heat pump equipped with auxiliary heat.

The dual-energy input can be connected to the dual-register meter equipped with a normally open (NO) dry contact. Connect the controller terminals DE and CC to the meter terminals (yellow and red wires).

The contact closes when the outdoor temperature drops below the temperature setting on the meter. When the contact is closed, the heat pump is disabled and only the auxiliary heat can be used.

2.9   Unoccupied Mode Input

To use the unoccupied mode, the controller requires a remote control device such as Aube's CT241 telephone controller equipped with a normally open (NO) dry contact placed between terminals UN and CC of the controller. The unoccupied mode is activated when the contact closes. (See section 6.4.)

3. Configuration

3.1   Configuration Switches

To access the configuration switches, loosen the captive screw under the console and separate the console from its base by pulling the bottom section.

3.1.1   Access Mode (SW1-1)

INST: Installer mode. Gives access to all configuration parameters.

NOTE: In installer mode, the short-cycle protection is disabled and the interstage delay is reduced to 1 minute.

USER: User mode. Gives access to configuration parameters 1 to 4 only.

3.1.2   Keypad Lock (SW1-2)

I: The keypad is locked. Settings cannot be changed.

O: The keypad is unlocked.

3.2   Software Configuration

❶ Place the console in Installer mode (INST) using the SW1-1 switch on the back of the console.

❷ Press the **Mode** button for 3 seconds to access the configuration menu (see page 8). The first menu item (parameter) is displayed.

❸ To view another menu item, briefly press the **Mode** button.

❹ To modify a parameter, press either ▲▼ button.

❺ To exit the configuration menu, press ↵.

❻ Return the console to User mode (USER).

4. Principles of Operation

4.1 Automatic Heating/Cooling Changeover

With automatic heating/cooling mode changeover, there's no need to adjust the controller at every change of season or weather condition. The controller switches automatically between heating mode and cooling mode to maintain the desired temperature.

Manual Mode

When the controller is in manual mode, the heating/cooling mode changeover occurs as follows:

- The controller switches to cooling mode when the indoor temperature is higher than the setpoint by more than 1.5°C (2.5°F) for 15 minutes.
- The controller switches the heating mode when the indoor temperature is lower than the setpoint by more than 1.5°C (2.5°F) for 15 minutes.

Automatic Mode

When the controller is in automatic mode, it follows the programmed schedule. Two temperature settings (heating setpoint and cooling setpoint) are programmed for each period of the schedule. The heating/cooling mode changeover occurs as follows:

- When the controller is in heating mode, the indoor temperature is maintained at the heating setpoint. However, if the temperature rises and remains above the cooling setpoint for 15 minutes, the controller will switch to cooling mode.
- When the controller is in cooling mode, the indoor temperature is maintained at the cooling setpoint. However, if the temperature drops and remains below the heating setpoint for 15 minutes, the controller will switch to heating mode.

4.2 Balance Points (heat pumps only)

Balance Points are used to disable the heat pump or the auxiliary heating when the outdoor temperature is below or above a set temperature.

- When the outdoor temperature is below the Balance Point Low (bP L), the heat pump is disabled and only auxiliary heating can be used (see page 8, item 5).
- When the outdoor temperature is above the Balance Point High (bP H), the auxiliary heat is disabled and only the heat pump can be used (see page 8, item 6).

NOTE: Balance Points cannot be used if the AC144-03 outdoor temperature sensor is not connected to the controller.

4.3 Heating During Defrost (heat pumps only)

The auxiliary heat is activated during defrost except under the following conditions:

- When the outdoor temperature is above the defrost point (see page 8, item 7). *Note: This condition will not apply if the AC144-03 outdoor sensor is not connected to the controller.*
- When the plenum temperature is above 40°C (104°F). The auxiliary heat is re-activated when the plenum temperature drops below 32°C (90°F). *Note: This condition will not apply if the AC146-410 plenum sensor is not connected to the controller.*

NOTE: The auxiliary heat's short-cycle protection is disabled during defrost.

4.4 Types of Heat Pump Installations

The controller can be configured for either of the following types of heat pump installations (see page 8, item 8).

- **Add-on Installation**: This type of installation is performed when adding a heat pump to an existing furnace. When the heat pump is installed, the furnace becomes the auxiliary heat source. In this type of installation, the indoor coils are usually installed downstream of the auxiliary heat source. When the controller is configured for an add-on installation, the heat pump is disabled during auxiliary heating to prevent overpressure.
- **New Installation**: In this type of installation, as there is not already a furnace, the auxiliary heat source is installed at the same time as the heat pump. In this type of installation, the indoor coils are located upstream of the auxiliary heat. When the controller is configured for a new installation, the heat pump and the auxiliary heat can operate simultaneously.

4.5 Interstage Delay

Interstage Delay is the time allocated for the temperature to return to an acceptable value when it deviates too far from the setpoint. If this time has elapsed, the next heating or cooling stage is activated. The heating or cooling stage will be deactivated when the temperature returns to an acceptable value. The Interstage Delay is fixed at 4 minutes if the controller is configured for an HVAC system and is user-adjustable if it is configured for a heat pump (see page 8, item 9).

4.6 Low and High Temperature Limits

Low Temperature Limit (LLMT) and High Temperature Limit (HLMT) are used to keep the plenum from becoming too cold or too hot. During cooling, if the plenum temperature is lower than LLMT, a cooling stage is deactivated starting with the one that was last activated. If, after a while, the temperature is still too low, another cooling stage is deactivated and so on. Likewise, during heating, if the plenum temperature is higher than HLMT, a heating stage is deactivated starting with the one that was last activated. If, after a while, the temperature is still too high, another heating stage is deactivated and so on. (see page 8, items 10 and 11.)

WARNING: LLMT and HLMT can be used in parallel with an UL353-approved device but they do not replace such device.
NOTE: LLMT and HLMT cannot be used if the plenum temperature sensor is not connected to the controller.

4.7 Smart Fan

When Smart Fan is enabled (see page 8, item 15), the fan operates as follows:

- During periods 2 and 4 of automatic mode and during the unoccupied mode (i.e., when you are away from home or sleeping), the fan operates only when heating or cooling is activated.
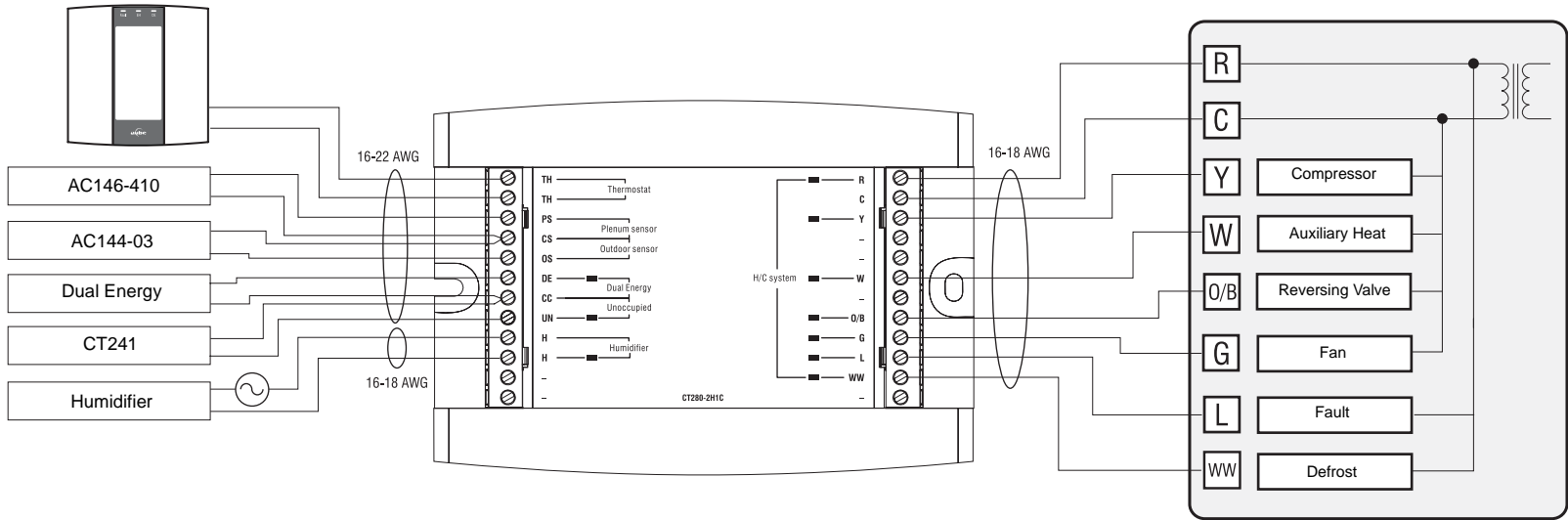- The fan operates continuously the rest of the time.

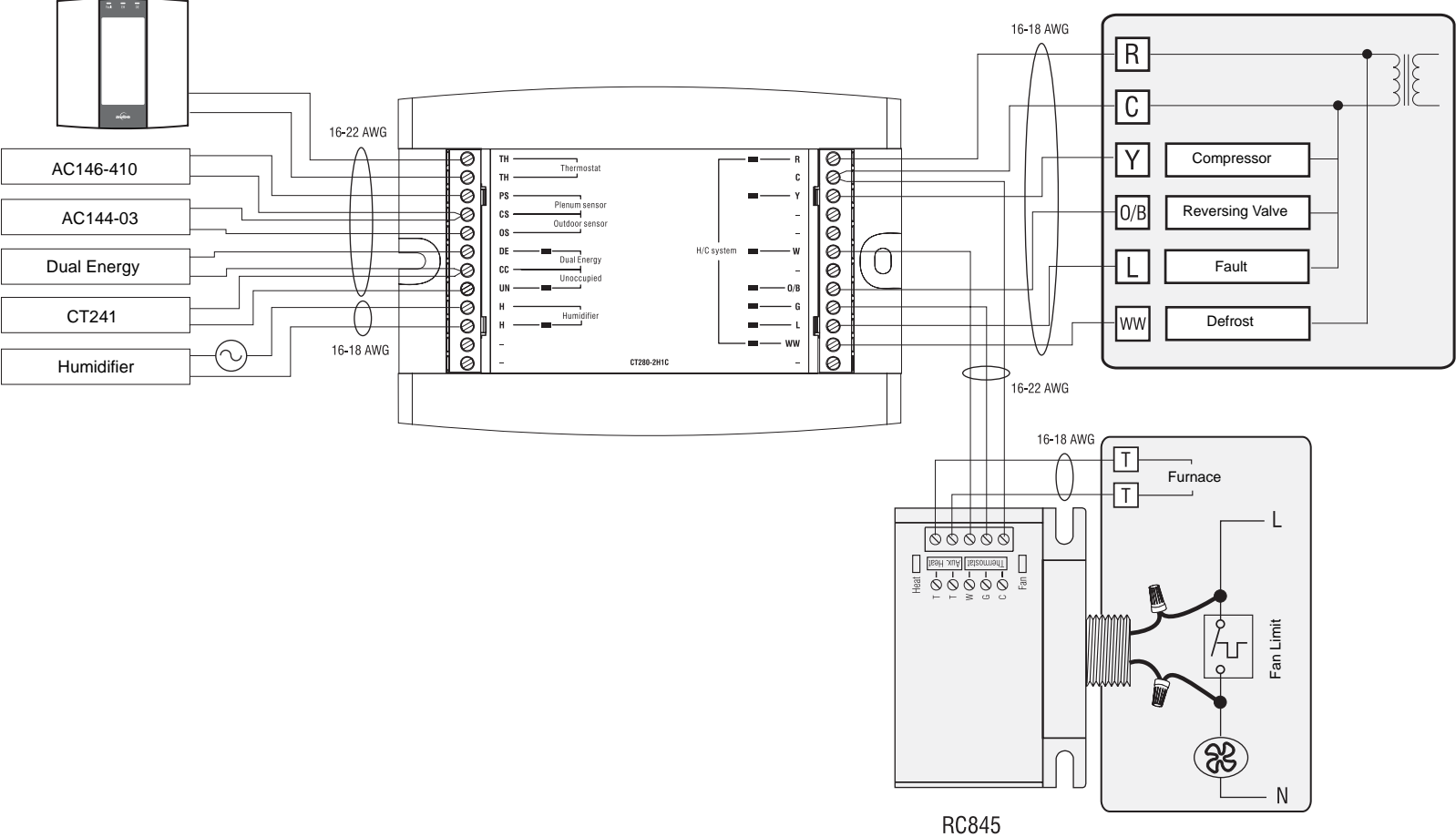*NOTE: For Smart Fan to work, set the fan to On (see section 5.3).*

Wiring Tables

Heat Pump			
Terminal	Device	1H1C	2H1C
TH	Console	Connect the console between the TH terminals (no polarity)	
TH			
PS	Plenum sensor	Connect the plenum sensor between the PS and CS terminals (no polarity)	
CS	Common S	Common terminal for the plenum sensor and the outdoor sensor	
OS	Outdoor sensor	Connect the outdoor sensor between the CS and OS terminals (no polarity)	
DE	Dual Energy	Connect the dual-register meter between the DE and CC terminals (no polarity)	
CC	Common C	Common terminal for the dual-energy meter and the unoccupied mode input	
UN	Unoccupied mode input	Connect a dry contact between the UN and CC terminals (no polarity)	
H	Humidifier (24 Vac / 1 A)	Connect the humidifier between the H terminals (dry contact)	
H			
R	Power (24 Vac)	√	√
C		√	√
Y	Compressor (24 Vac / 1 A)	√	√
W	Auxiliary heat (24 Vac / 1 A)		√
O/B	Reversing valve (24 Vac / 1 A)	√	√
G	Fan (24 Vac / 1A)	√	√
L	Fault (24 Vac / 5 mA)	√	√
WW	Defrost (24 Vac / 5 mA)	√	√

HVAC				
Terminal	Device	1H	1C	1H1C
TH	Console	Connect the console sensor between the TH terminals (no polarity)		
TH				
PS	Plenum sensor	Connect the plenum sensor between the PS and CS terminals (no polarity)		
CS	Common S	Common terminal for both plenum sensor and outdoor sensor		
OS	Outdoor sensor	Connect the outdoor sensor between the OS and CS terminals (no polarity)		
DE	Not used			
CC	Common C	Common terminal for the unoccupied mode input		
UN	Unoccupied mode input	Connect a dry contact between UN and R terminals (no polarity)		
H	Humidifier (24 Vac / 1 A)	Connect the humidifier between the H terminals (dry contact)		
H				
R	Power (24 Vac)	√	√	√
C		√	√	√
Y	Cooling unit (24 Vac / 1 A)		√	√
W	Heating unit (24 Vac / 1 A)	√		√
O/B	Not used			
G	Fan (24 Vac / 1 A)	√	√	√
L	Not used			
WW	Not used			

Wiring Diagram: 2H1C Heat Pump — New Installation

aube technologies

AC146-410

AC144-03

Dual Energy

CT241

Humidifier

16-22 AWG

16-18 AWG

TH	Thermostat
TH	
PS	Plenum sensor
CS	
OS	Outdoor sensor
DE	Dual Energy
CC	
UN	Unoccupied
H	Humidifier
H	
—	

CT280-2H1C

R	
C	
Y	
W	H/C system
O/B	
G	
L	
WW	

16-18 AWG

R	
C	
Y	Compressor
W	Auxiliary Heat
O/B	Reversing Valve
G	Fan
L	Fault
WW	Defrost

Wiring Diagram: 2H1C Heat Pump — Add-on Installation

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16-18 AWG

R

C

16-22 AWG

TH
TH — Thermostat
PS
CS — Plenum sensor
OS — Outdoor sensor
DE — Dual Energy
CC — Unoccupied
UN
H
H — Humidifier

16-18 AWG

AC146-410

AC144-03

Dual Energy

CT241

Humidifier

H/C system

R
C
Y
—
W
—
O/B
G
L
WW

CT280-2H1C

R

C

Y — Compressor

O/B — Reversing Valve

L — Fault

WW — Defrost

16-22 AWG

16-18 AWG

T
T — Furnace

Heat | Aux. Heat | Thermostat | Fan
T   T   W   G   C

RC845

L

Fan Limit

N

Wiring Diagram: 1H1C HVAC

aube technologies

AC146-410

AC144-03

CT241

Humidifier

16-22 AWG

16-18 AWG

16-18 AWG

TH	Thermostat	
TH		
PS	Plenum sensor	
CS	Outdoor sensor	
OS		
DE	Dual Energy	
CC	Unoccupied	
UN		
H	Humidifier	
H		
–		
–		

CT280-2H1C

R
C
Y
–
W
–
O/B
G
L
WW
–

H/C system

R
C
Y
W
G

Cooling Unit

Heating Unit

Fan
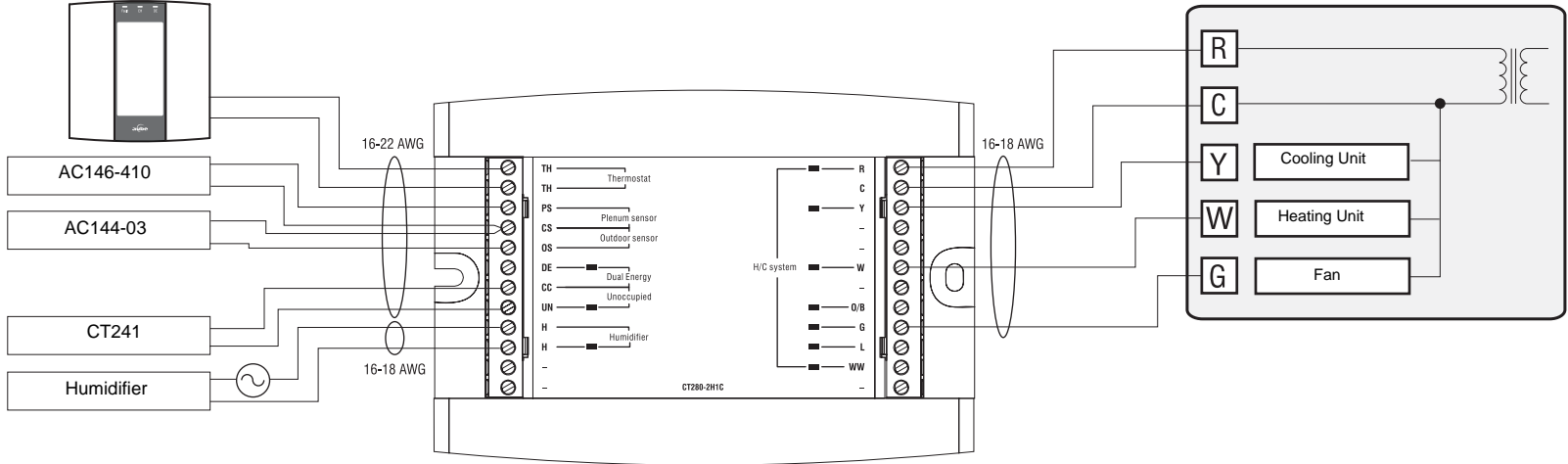
Configuration Menu

Item	HP	HVAC	Parameters	Display	Options	Default	Description
1	√	√	Time format	Hr	12 Hr / 24 Hr	24 Hr	Select the time display format.
2	√	√	Early Start	ES	On / OF	OF	• On: Heating or cooling starts in advance (as determined by the controller) so that the desired temperature is attained at the set times. • OF (Off): Heating or cooling starts at the set times. ***NOTE**: Early Start applies for periods 1 and 3 (P1 and P3) only. When this feature is enabled, heating or cooling will start in advance of the set time for P1 and P3 but will start at the set time for P2 and P4.*
3	√	√	Automatic daylight savings adjustment	dLS	OF / 1 / 2	OF	• OF (Off): The function is deactivated. • 1 : The controller switches to daylight savings time on the first Sunday of April and to normal time on the last Sunday of October. • 2 : The controller switches to daylight savings time on the second Sunday of March and to normal time on the first Sunday of November.
4	√	√	Temperature format	dISP	°C / °F	°C	Select the temperature display format.
5	√		Balance point low	bP L	-30 to 10°C (-22 to 50°F)	-10°C (14°F)	Set the bP L limit (see section 4.2). ***NOTE**: Lower bP L below its minimum (- -) if you do not wish to use this function.*
6	√		Balance point high	bP H	-5 to 30°C (23 to 86°F)	5°C (41°F)	Set the bP H limit (see section 4.2). ***NOTE**: Raise bP H above its maximum (- -) if you do not wish to use this function.*
7	√		Defrost point	dEFr	-10 to 15°C (14 to 59°F)	10°C (50°F)	Set the defrost point temperature (see section 4.3). ***NOTE**: Raise the defrost point above its maximum (- -) if you do not wish to use this function.*
8	√		Installation type	INST	Ad / nr	Ad	Set according to the type of heat pump installation (see section 4.4). • Ad (add-on): Use this setting when the indoor coils are located downstream of the auxiliary heat source. This is generally the case for add-on installations. • nr (normal): Select this setting when the indoor coils are located upstream of the auxiliary heat source. This is generally the case for new installations.
9	√		Auxiliary interstage delay	A IST	5 to 90 min.	30 min.	Set the interstage delay for the auxiliary stage (see section 4.5).
10		√	Low temperature limit	LLMT	-10 to 20°C (14 to 68°F)	5°C (41°F)	Set the low temperature limit of the plenum (see section 4.6). ***NOTE**: This function is not used if you lower LLMT below its minimum (- -) or if the plenum sensor is not connected to the controller.*
11		√	High temperature limit	HLMT	30 to 90°C (86 to 194°F)	70°C (158°F)	Set the high temperature limit of the plenum (see section 4.6). ***NOTE**: This function is not used if you raise HLMT above its maximum (--) or if the plenum temperature sensor is not connected to the controller.*
12	√	√	Cycles per hour	CPH	2 to 6	4	Select the number of heating/cooling cycles per hour. For optimal heating control, use the setting that matches your system as follows: 3=20 min (hot water, 90%+ high-efficiency furnace), 4=15 min (gas or oil), 5=12 min (gas or oil), 6=10 min (electric).
13		√	Heat type	HEAT	GA / EL	EL	This setting determines the fan operation in automatic mode when the system is in heating mode. • EL (electric heating): The fan starts and stops at the same time as heating. • GA (gas or oil heating): The fan starts when the temperature inside the plenum rises above the Fan Limit (see item 14) and stops when the temperature drops 12°C below the Fan Limit. ***Note**: The fan will not start if the plenum temperature sensor is not connected to the controller.*
14		√	Fan limit	FLMT	38 to 90°C (100 to 194°F)	80°C (176°F)	This parameter is available only when gas heating is selected (see item 13). ***WARNING**: FLMT can be used in parallel with an UL353-approved device but they do not replace such device.* ***NOTE**: The fan will not start if you raise FLMT above its maximum (--).*
15	√	√	Smart Fan	SFAN	On / OF	OF	On: Smart Fan is On (see section 4.7). OF: Smart Fan is Off.
16	√	√	Temperature setback	unoc	0 to 9°C (0 to 16°F)	0°C (0°F)	Set the amount of temperature setback when the controller is placed in Unoccupied mode (see section 6.4).
17	√	√	Humidifier operating mode	HUM	Co / HE / Fn	Fn	• Co (conventional): The humidifier will operate if the humidity is too low. If the fan is not already On, it will turn On at the same time as the humidifier. • HE (heat): The humidifier can operate only when heating is activated. • Fn (fan): The humidifier can operate as long as the fan is running, whether heating is activated or not. **NOTE**: The humidifier is disabled when cooling is activated.

Note: Only items 1 to 4 are available when the controller is placed in user mode (SW1-1 switch).

Indicator LEDs
FAULT: System fault
EH: Emergency heat mode
DE: Dual energy

Backlight

The screen is lit for 12 seconds when any button is pressed. However, the screen remains lit while you are configuring the controller.
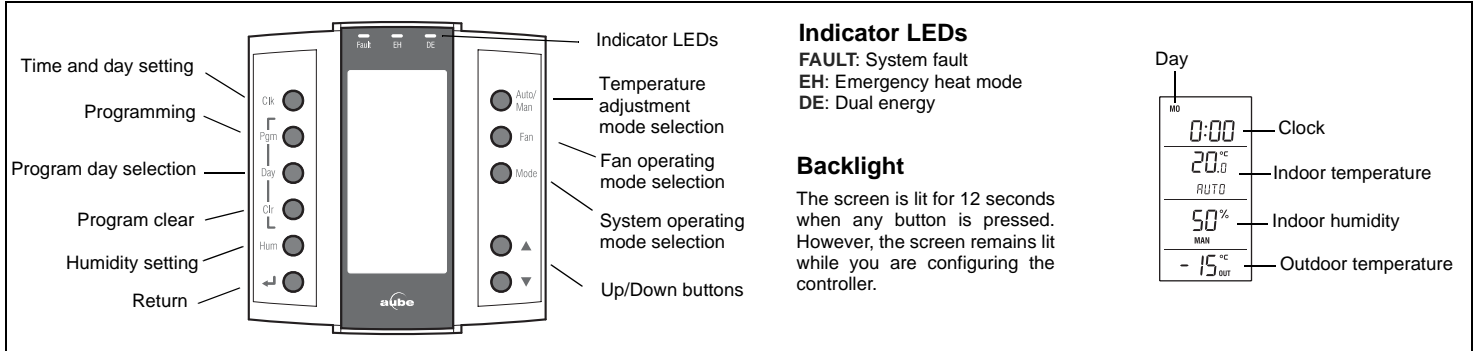
5. General Setting

5.1 Clock and Day Setting

❶ Press **Clk**. The hour display flashes.

❷ Set the hour using ▲▼ .

❸ Press **Clk**. The minute display flashes.

❹ Set the minutes using ▲▼ .

❺ Press **Clk**. The day display flashes.

❻ Set the day using ▲▼ .

❼ Press ↵ to return to the normal display.

5.2 Date Setting

❶ Press **Clk** for 3 seconds to display the year.

❷ Set the year using ▲▼ .

❸ Press **Clk** to display the month.

❹ Set the month using ▲▼ .

❺ Press **Clk** to display the date.

❻ Set the date using ▲▼ .

❼ Press ↵ to return to the normal display.

5.3 Fan Operating Mode

Press the **Fan** button to select the fan operating mode.

• In automatic mode, the fan runs only when heating or cooling is activated. ***NOTE**: For gas-operated HVAC systems, there might be a delay before the fan starts or stops when heating is activated or deactivated.*

• In continuous mode, the fan runs continuously and the ❄ symbol is displayed. ***NOTE**: if Smart Fan is enabled, when the controller is in periods 2 and 4 of automatic mode and in unoccupied mode, the fan will run only when heating or cooling is activated. The fan will run continuously the rest of the time*

6. Temperature Setting

6.1 Display
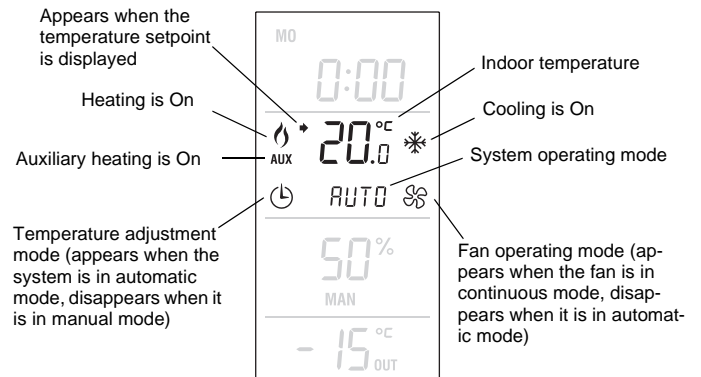
The controller normally displays the measured indoor temperature. To view the setpoint, press one of the ▲▼ buttons. The setpoint and the ➜ symbol will be displayed for the next 5 seconds.

6.2 System Operating Mode

Press **Mode** to place the system in one of the following modes:

HEAT	The system is in heating mode.
COOL	The system is in cooling mode.
AUTO	The system is in automatic changeover mode. (The system switches between heating mode and cooling mode to maintain the desired temperature.)
OFF	The system is off.
EHEAT	The system is in emergency heat mode. Only auxiliary heating is used when there is a call for heat. (This mode applies only when the controller is connected to a heat pump equipped with auxiliary heating).

6.3 Temperature Adjustment

6.3.1 Manual Adjustment

Use this mode to set the temperature manually. To place the controller in this mode, press **Auto/Man** so that ⊕ disappears from the screen. Set the temperature using the ▲▼ buttons.

NOTE: *If the controller is in automatic heat/cool changeover (see section 6.2), the setpoint is automatically reduced or raised by 1°C (1.8°F) when the controller switches to heating mode or to cooling mode respectively. For example, if the setpoint is 24°C (75°F) in heating mode, it will become 25°C (77°F) in cooling mode and will return to 24°C (75°F) when the controller switches back to heating mode.*

6.3.2 Automatic Adjustment

Use this mode if you want the controller to adjust the temperature according to the programmed schedule. To place the controller in this mode, press **Auto/Man** so that ⊕ appears on the screen.

Pre-programmed Schedule

The following schedule has been programmed at the factory. Two temperature settings are programmed for each period of the schedule: a heating setpoint and a cooling setpoint.

Pre-programmed Schedule			MO	TU	WE	TH	FR	SA	SU
P1	Heating	21°C (70°F)				6:00 a.m.			
	Cooling	25.5°C (78°F)							
P2	Heating	16.5°C (62°F)			8:00 a.m.			--	
	Cooling	29.5°C (85°F)							
P3	Heating	21°C (70°F)			6:00 p.m.			--	
	Cooling	25.5°C (78°F)							
P4	Heating	16.5°C (62°F)				10:00 p.m.			
	Cooling	28°C (82°F)							

Modifying the Schedule

You can program up to 4 periods per day. To program a period, you need to set the start time, the heating setpoint and the cooling setpoint. The program can be different for each day of the week.

- Press **Pgm** to enter the programming mode. The settings for Monday, Period 1 (*P1*) appear.

- To select a day to program, press **Day** until the day is displayed. Press for 3 seconds to select all 7 days.

  NOTE: *If you select all 7 days, the settings of the displayed period will be copied to all 7 days. For example, if you select all 7 days while period 1 is displayed, they will all now have the same settings for period 1. If you display period 2 while all 7 days are selected, they will all now have the same settings for period 2.*

- To set the start time of a period, press **Pgm** until the period number (*P1* to *P4*) is displayed and the time display flashes. Then press the ▲▼ buttons. The time changes in increments of 15 minutes.

  NOTE: *To skip a period, display the period and press **Clr**. For example, in the pre-programmed schedule, periods 2 and 3 have been skipped for Saturday and Sunday.*

- To set the temperatures for a period, press **Pgm** until the period number (*P1* to *P4*) is displayed and the temperature display flashes. If necessary, press **Mode** to display the heating setpoint or the cooling setpoint. Press the ▲▼ buttons to set the temperature.

NOTE: *The cooling setpoint is always higher than the heating setpoint by a minimum of 1°C (1.8°F). For example, if the cooling set-*

point is 22°C (72°F) and you set the heating setpoint to 23°C (73°F), the cooling setpoint will automatically become 24°C (75°F). However, if you raise the heating setpoint to 21°C (70°F), the cooling setpoint will remain at 22°C (72°F). The same principle applies when you set the cooling temperature.

- Press ↵ to exit.

The following diagram shows how to navigate the programming menu.
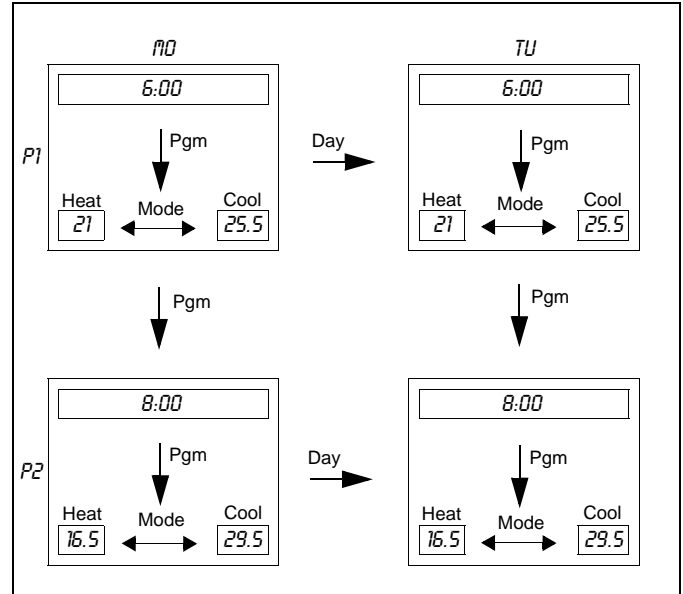
Temporary Bypass

When you modify the temperature setpoint while the controller is in automatic mode, the new temperature is used for the next 2 hours. The ⊕ icon flashes during the bypass. After the bypass, the temperature set for the current period is used.

6.4 Unoccupied Mode

You can place the controller in the unoccupied mode using a remote control device such as Aube's CT241 telephone controller. In this mode, the temperature is lowered in heating mode or raised in cooling mode (see page 8, item 16). The message **UNOC** appears during the unoccupied mode.
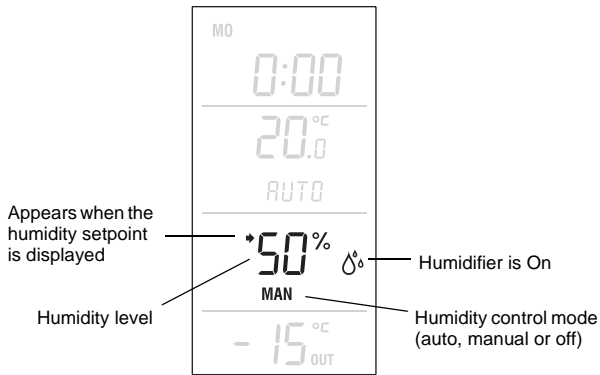
NOTE: *Automatic changeover is disabled during the unoccupied mode.*

Temporary Bypass

In the unoccupied mode, only the ▲▼ buttons work. When you adjust the temperature during this mode, the new temperature will be used for the next 2 hours, after which the controller will return to the previous setpoint. The message **UNOC** flashes during the bypass.

7. Humidity Setting

7.1 Display

Appears when the humidity setpoint is displayed

Humidity level

Humidifier is On

Humidity control mode (auto, manual or off)

7.2 Humidity Adjustment

Manual Adjustment

The humidity level is set by the user (5 to 60%).

❶ Press the **Hum** button until **MAN** appears on the screen.

❷ Press one of the ▲▼ buttons to adjust the humidity level.

❸ Press the ↵ button.

Automatic Adjustment

The humidity level is set by the controller based on the outdoor temperature to prevent ice formation or condensation on the windows while providing enough humidity for your comfort. However, the user can apply an offset (-9 to 9%). For example, the user can enter a negative offset if there is ice formation or condensation on the windows.

❶ Press the **Hum** button until **AUTO** appears on the screen. The humidity level set by the controller is also displayed.

❷ Press one of the ▲▼ buttons to enter or change the offset.

❸ Press the ↵ button.

Off

To turn off the humidity control:

❶ Press the **Hum** button until **OFF** appears on the screen.

❷ Press the ↵ button to save and exit the programming.

8. Technical Specifications

CT280-2H1C CONTROL MODULE

Power supply: 24 VAC

Current consumption: 150 mA

Maximum load per output: 1 A @ 24 VAC

Short cycle protection: 2 minutes

Control cycles: 2 to 6 per hour

Operating temperature: 0°C to 50°C (32°F to 122°F)

Storage temperature: -20°C to 50°C (-4°F to 122°F)

Humidity conditions: 0 to 95%, non-condensing

Dimensions: 95 x 137 x 30 (3.8 x 5.4 x 1.2 in.)

TH146-P USER CONSOLE

Temperature setpoint range

Heating mode: 5°C to 30°C (40°F to 86°F)

Cooling mode: 15°C to 40°C (59°F to 104°F)

Humidity setpoint range: 5 to 60%

Indoor temperature display range: 0°C to 70°C (32°F to 158°F)

Outdoor temp. display range: -50°C to 70°C (-58°F to 158°F)

Temperature display resolution: 0.5°C (1°F)

Program protection: non-volatile memory

Operating temperature: 0°C to 50°C (32°F to 122°F)

Storage temperature: -20°C to 50°C (-4°F to 122°F)

Humidity conditions: 0 to 95%, non-condensing

Dimensions: 79 x 79 x 24 mm (3.1 x 3.1 x 1 in.)

9. Warranty

Aube warrants this product, excluding battery, to be free from defects in the workmanship or materials, under normal use and service, for a period of three (3) years from the date of purchase by the consumer. If at any time during the warranty period the product is determined to be defective or malfunctions, Aube shall repair or replace it (at Aube's option).

If the product is defective,

(i) return it, with a bill of sale or other dated proof of purchase, to the place from which you purchased it, or

(ii) contact Aube. Aube will make the determination whether the product should be returned, or whether a replacement product can be sent to you.

This warranty does not cover removal or reinstallation costs. This warranty shall not apply if it is shown by Aube that the defect or malfunction was caused by damage which occurred while the product was in the possession of a consumer. Aube's sole responsibility shall be to repair or replace the product within the terms stated above. AUBE SHALL NOT BE LIABLE FOR ANY LOSS OR DAMAGE OF ANY KIND, INCLUDING ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING, DIRECTLY OR INDIRECTLY, FROM ANY BREACH OF ANY WARRANTY, EXPRESS OR IMPLIED, OR ANY OTHER FAILURE OF THIS PRODUCT. Some provinces and states do not allow the exclusion or limitation of incidental or consequential damages, so this limitation may not apply to you.

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This warranty gives you specific legal rights, and you may have other rights which vary by province or state.

10. Support

If you have any questions about the product installation or operation, or concerning the warranty, contact us at the address shown below.

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www.aubetech.com

As an ENERGY STAR® partner, Aube Technologies has determined that this product meets the ENERGY STAR guidelines for energy efficiency.