



Operating instructions
CalTech Remote Control Unit
CalTech Timer Control Unit

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GENERAL INFORMATION

Dear CalTech customer,

We assume that the heater unit has been installed according to the Heater Installation manual and that you have read and are able to comply with the rules and regulations described in the manual. With these instructions we would like to provide you with an overview of using the Calaer Air heaters with the Caltech Remote Control Unit and the Caltech Timer Control Unit.

WARNING



Improper installation or repair of the air heater systems may cause leakage of poisonous carbon monoxide (CO) causing serious injury or death or cause fire.

To install the heater systems, you need to have necessary technical skills, the appropriate technical documentation, special tools and equipment to ensure that you can complete the installation work properly.

Do not insert foreign objects into the heater and/or moving parts of the heater

To repair the heater systems, you need to have completed a CalTech Heating Technologies AB training course and you need to have the appropriate technical documentation, special tools and equipment. Only genuine CalTech Heating Technologies AB parts may be used. See the heater system accessory catalogue.

Always follow the installation and repair instructions and pay attention to all warnings. CalTech Heating Technologies AB rejects any liability problems and damage caused by the system being installed or repaired by untrained personnel.

The Heater must be switched off when refuelling the tank and at locations where flammable vapours may accumulate.

The Caltech air heater must never be operated with other fuels than those specified on the label on the heater unit.

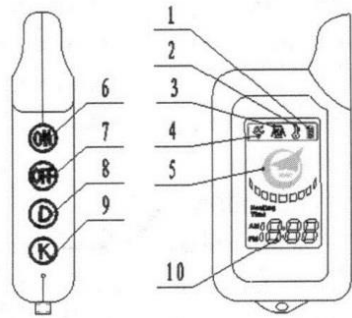
NOTE:

The heater system including electrical components, such as switches, fuses, relays, etc., must be installed in a way so that they are protected from the penetration of water (splash water, high-pressure water cleaners etc.)

CALTECH REMOTE CONTROL UNIT

The remote control, with accompanying main control unit, can be used to remotely start and stop the heater. Before starting the heater, please refer to the Heater Behavior and Configuration Table attached to this manual in order to know what to expect when running the heater with your configuration.

- 1) Battery sign
- 2) Lock sign
- 3) Heating sign
- 4) Transmit sign
- 5) Logo
- 6) ON button
- 7) OFF button
- 8) D button
- 9) K button
- 10) Time display



INSTALLATION OF REMOTE CONTROL UNIT TO HEATER

The control unit shall be mounted in a place where it is protected from moist or dust.

Do NOT perform any installation work with the cabling and contacting while the cable harness is connected to the battery. Make sure the cabling is not connected to the battery before starting any installation work.

The remote control unit comes with a receiver, antenna, remote and its own cable harness.

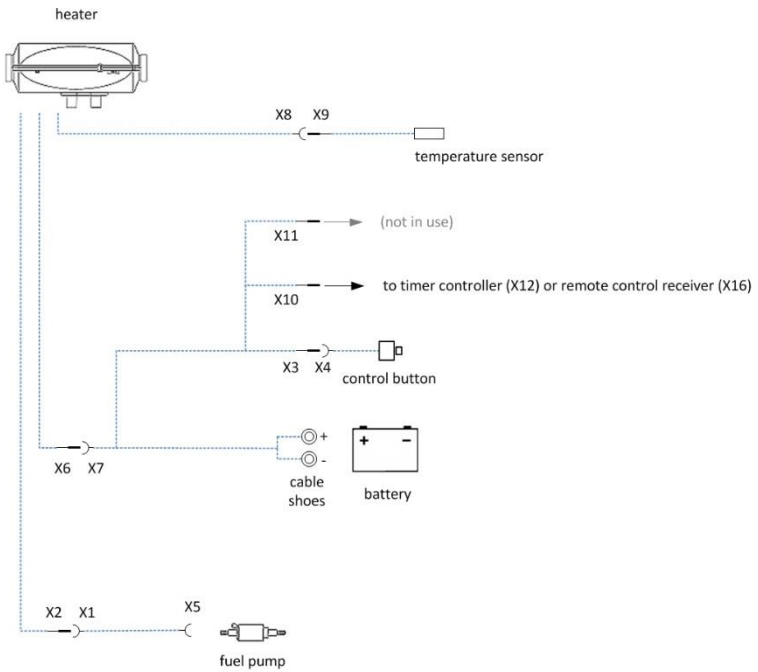
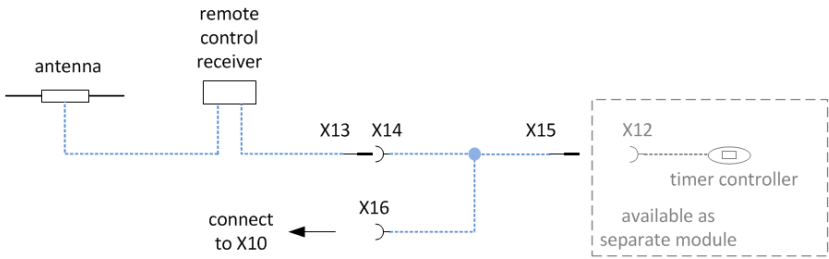
Connect the antenna to the receiver unit antenna connector and the cable harness to the small white connector in the receiver unit.

To connect the remote control wire harness to the heater wire harness please connect X16 to X10.

IF USED TOGETHER WITH A TIMER MODULE

To the remote control receiver there is also a possibility to connect the timer control module, which is the preferred way of connecting the two of them if wanting to use them together. To do so, connect the timer control module to X15.

WIRING DIAGRAM



ELECTRICAL CONNECTORS

Connector	Description	Picture	Connector	Description	Picture
X1,X8	AMP282080-1		X5	DJ7021A-3.5-20	
X2,X9	AMP282104-1		X13	AMP282106-1	
X6,X3	AMP282108-1		X14	AMP282088-1	
X7,X4	AMP282090-1		X11,X10,X15	AMP282105-1	
			X16,X12	AMP282087-1	

STARTING THE HEATER

Press the ON button on the remote control, which will send an ON signal to the receiver unit. The receiver unit will then start the heater and respond to the remote control.

Upon receiving the response, the remote control will show the heating sign and beep once.

STOPPING HEATER

Press the OFF button on the remote control, which will send an OFF signal to the receiver unit. The receiver unit will then, depending on your system configuration, stop the heater if possible and respond to the remote control. Upon receiving the response the remote control will hide the heating sign and beep twice.

STATUS CHECK OF HEATER

Press the D button for requesting a status update of the heater operation. The main control unit will respond and the remote control will, depending on the response, either show or hide the heating sign and beep once or twice depending on if the heater is on or off respectively.

NOTE:

Remember, depending on your heater configuration this status from the heater will only be reliable in certain cases. Refer to the Heater Behavior and Configuration Table for further information.

LOCKING THE REMOTE

Press the D and K button simultaneously for 2 seconds until the lock sign is shown on the display. While the remote is locked no button presses will be recorded.

To unlock press the D and K button again for 2 seconds.

NOTE:

The remote control will still receive signals from the main control unit even though it is locked. This can be useful for cases where the heater is started/stopped from a timer module connected through the remote control receiver unit. See the Heater Behavior and Configuration Table for further explanation of this remote feedback.

REMOTE PAIRING

In order to pair a remote control with a main control unit press the button on the remote control receiver unit's side until the light in the front of the unit turns on. Once the light has turned on release the button on the unit and press any button on the remote control you wish to pair. On successful pairing the light in the front of the unit will once again turn on.

Two remotes can be paired with the same remote control receiver at the same time.

RESET PAIRED REMOTES

In order to forget the paired remotes to a receiver unit press the button on the receiver unit's side and continue holding it pressed while the light in the front of the unit turns on and then turns off after 8 seconds. Once the light in the front turns off the receiver has forgotten the previously paired remotes.

SET THE TIME

Press and hold the K button while shortly after pressing and holding the D button. Keep both pressed until the currently set time starts flashing.

Use the ON button to increase and the OFF button to decrease the current blinking selection. Move to the next selection by pressing the D button.

Once finished setting the AM/PM press the D button twice to return back from the time setting display.

HEATER BEHAVIOR AND CONFIGURATON TABLE

<i>Rotary ON/OFF</i>	<i>Timer ON/OFF</i>	<i>Timer connected through remote receiver</i>	<i>Remote ON/OFF</i>	<i>Rotary light</i>	<i>Remote feedback</i>	<i>Heater ON/OFF</i>	<i>Heater mode</i>
ON	-	-	-	Light on	Not available	ON	Temperature Control
OFF	ON	Yes	See comment 1)	Light on	ON	ON	Full power
OFF	ON	No	-	Light on	Not available	ON	Full power
OFF	See comment 2)	Yes	ON	Light on	ON	ON	Full power
OFF	-	No	ON	Light on	ON	ON	Full power
OFF	OFF	-	OFF	Light off	Not available	OFF	-

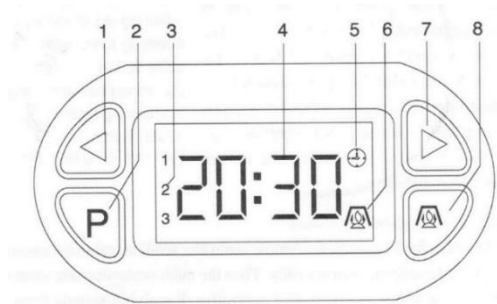
Comments:

- 1) Remote can be used to turn off the heater
- 2) Timer can be used to turn off heater if first turned ON then with time turned OFF again with timer

CALTECH TIMER CONTROL UNIT

The timer unit can be set up to start the heater at a preset time, reoccurring every 24 hours. It can also be used to start the heater manually if desired. Before starting the heater please refer to the Heater Behavior and Configuration Table attached to this manual in order to know what to expect when running the heater with your configuration.

- 1) Back button
- 2) Program button
- 3) Active timer
- 4) Current time
- 5) Clock sign
- 6) Heating sign
- 7) Forward button
- 8) Heater start/stop button

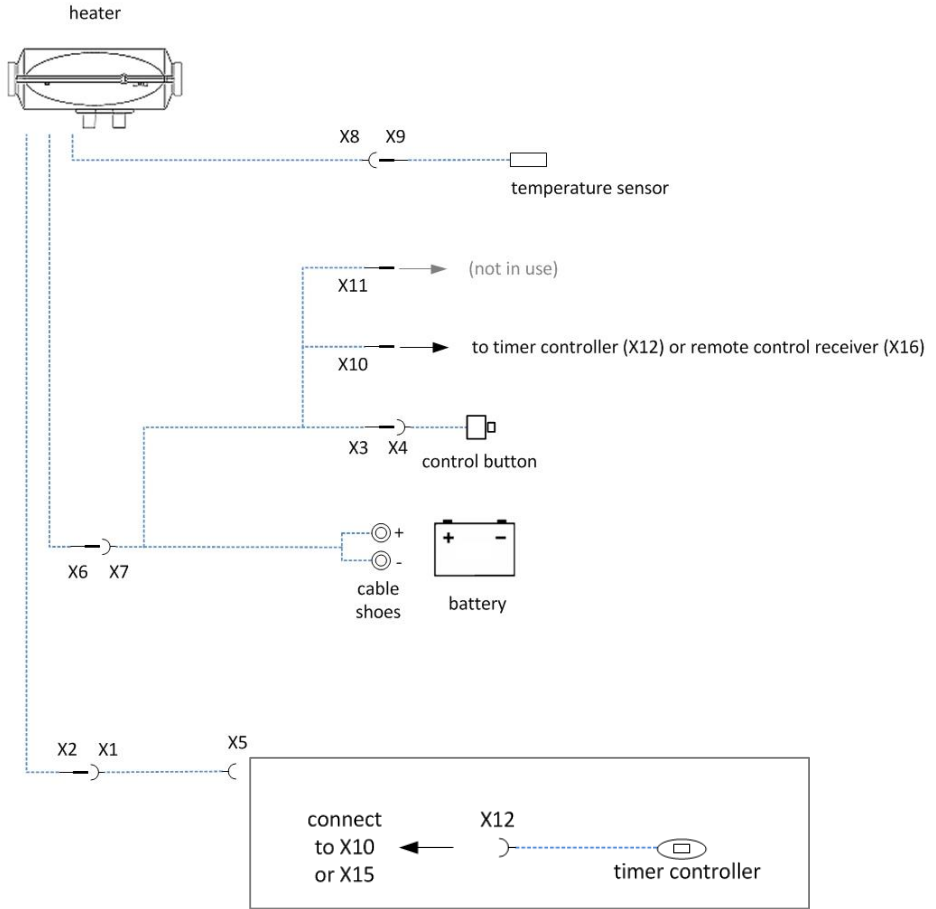


INSTALLATION OF REMOTE CONTROL UNIT TO HEATER

The timer control unit shall be mounted in a place where it is protected from moist or dust.

Do NOT work with the cabling and contacting while the cable harness is connected to the battery. Make sure the cabling is not connected to the battery before starting working.

WIRING DIAGRAM



CONNECTORS

Connector	Description	Picture
X1,X8	AMP282080-1	 A black plastic connector with a red base and a yellow strip on top.
X2,X9	AMP282104-1	 A black plastic connector with a cylindrical end.
X6,X3	AMP282108-1	 A black plastic connector with a rectangular shape and a notch.
X7,X4	AMP282090-1	 A black plastic connector with a red base and a yellow strip on top.
X5	DJ7021A-3.5-20	 A black plastic connector with a circular end and a handle.
X11,X10	AMP282105-1	 A black plastic connector with a cylindrical end and a handle.
X12	AMP282087-1	 A black plastic connector with a red base and a yellow strip on top.

FIRST TIME USING THE TIMER

When first applying power to the timer the display will light up and numbers will blink.

First thing to do is to set the current time for the clock. Use the back and forward buttons to adjust the current time and save it by pressing the program button or wait for the set time to blink 5 times. Once the current time has been set the display light will be turned off and the current time will be shown.

THE TIMER DISPLAY MODES

There are two states the timer control can be in, one standby and one active.

The standby state is characterized by a dimmed background light for the display. In this state the timer shows the current time and the currently set timer number to the left on the display.

The active state is characterized by a background light display. In this state you can change settings such as active timer, default heater on-time and the current time.

To navigate from standby into active state press the program button once.

SET A TIMER TO TURN ON THE HEATER

Once in active state press the program button and the first selected timer will begin to flash on the display. You can cycle through 3 different timers by pressing the program repeatedly, each timer number displaying in the left side of the display.

To set the timer use the left and right buttons and accept with the program button or wait until the time flashes on the display 5 times. The active timer number will be shown in the left side of the display.

An ON signal will be sent to the heater at the set time and keep it for the default time until sending an OFF signal, if not stopped manually prior to that.

REMOVE A SET TIMER

In order to remove any set timer cycle through all of them using the program button until you reach the standby state of the controller. Verify that the display doesn't show any active timers to the left when in standby state.

MANUALLY START THE HEATER

Press the heater start/stop button once and an ON signal will be sent to the heater and kept ON for the predefined time shown on the screen in minutes. The heater symbol in the down right corner will appear.

You can change the remaining time by using the left and right buttons while the ON signal is active.

MANUALLY STOP THE HEATER

When the ON signal is active press the heater start/stop button once to stop and send the OFF signal. The heater symbol in the down right corner will disappear.

MANUALLY START THE HEATER (WITHOUT THE PREDEFINED RUN-TIME)

Hold the right button and the heater start/stop button for 3 seconds. The timer will transmit the ON signal until the heater start/stop button is pressed again.

CHANGING THE CLOCK AGAIN

If you want to set the time once again press and hold the program button until the clock symbol is displayed and the time on the screen flashes. Use the back and forward buttons to set the time and save by pressing the program button or wait until the time flashes 5 times on the display.

SETTING THE DEFAULT ON-TIME FOR THE HEATER

Press and hold the back button for 3 seconds. The default on-time will be displayed. Modify this with the back and forward buttons and save by pressing the program button.

HEATER BEHAVIOR AND CONFIGURATON TABLE

<i>Rotary ON/OFF</i>	<i>Timer ON/OFF</i>	<i>Timer connected through remote receiver</i>	<i>Remote ON/OFF</i>	<i>Rotary light</i>	<i>Remote feedback</i>	<i>Heater ON/OFF</i>	<i>Heater mode</i>
ON	-	-	-	Light on	Not available	ON	Temperature Control
OFF	ON	Yes	See comment 1)	Light on	ON	ON	Full power
OFF	ON	No	-	Light on	Not available	ON	Full power
OFF	See comment 2)	Yes	ON	Light on	ON	ON	Full power
OFF	-	No	ON	Light on	ON	ON	Full power
OFF	OFF	-	OFF	Light off	Not available	OFF	-

Comments:

- 1) Remote can be used to turn off the heater
- 2) Timer can be used to turn off heater if first turned ON then with time turned OFF again with timer

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Information in this manual is subject to change without notice, updated on-line manual is available at www.caltechheating.se.

