FCP Non-Programmable and Programmable Fan Coil or PTAC Thermostat Largo User Guide

FCP-NA-701-L, FCP-PA-701-L

Contents

Introduction

The FCP- NA- 701 and FCP-PA-701 are non-connected Fan Coil Unit (FCU) and Package Terminal Air Conditioning (PTAC) Thermostats. The FCP-NA-701 is non-programmable and the FCP-PA-701 is programmable up to seven days. The FCP thermostats are compatible with 2-pipe and 4-pipe FCU, conventional PTAC, and heat pump PTAC with or without auxiliary heat.

The FCP thermostats feature an LCD display with white LED backlight.

North American emissions compliance

United States

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Canada

This Class (B) digital apparatus meets all the requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la Classe (B) respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Product overview

Figure 1: FCP thermostats UI

Table 1: FCP thermostat UI
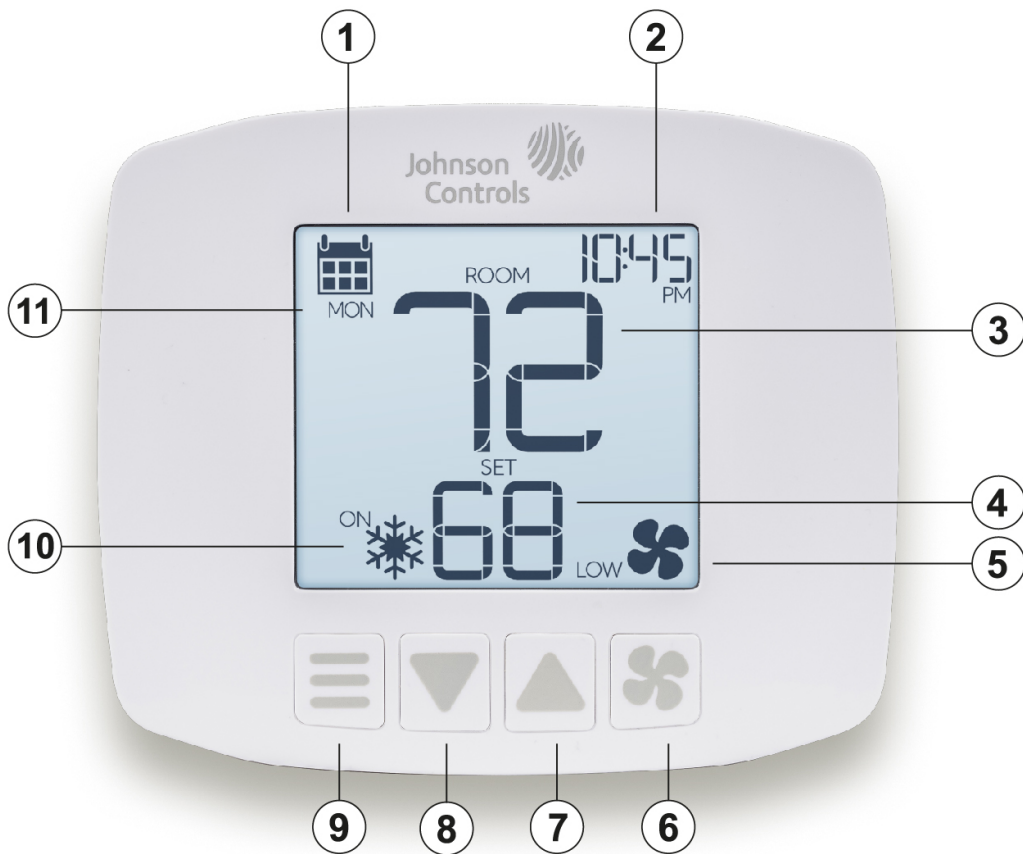
Number	Description
1	Schedule
2	Time
3	Room temperature
4	Temperature setpoint
5	Fan speed
6	Fan
7	Up
8	Down
9	Mode
10	Cool or heat status
11	Day

Battery backup (FCP-PA-701 only)

The FCP-PA-701 thermostat includes a lithium coin cell battery to provide battery backup. The minimum back up time is 48 hours. To activate battery backup, remove the insulation tape under the coin cell battery. Open the front cover to find the coin cell battery.

Pre-set configuration profiles

You can configure the thermostat in less than 30 seconds with the pre-set configuration profiles. The thermostat screen shows the preset configuration menu on the first power up or after a factory reset. Press **Up** or **Down** to select the preferred profile, then press **Mode** to confirm your selection. The following table lists the pre-set configuration profiles.

Table 2: Pre-set configuration profiles

Profile #	Remote sensor	Pipe sensor	System type	2-pipe FCU with aux heat	Available modes: 1: heat only 2: cool only 3: heat and cool with Auto 4: heat and cool without Auto	HP valve type	Remote sensor location: 0: in room 1: in duct	Pipe state - calendar	Pipe state: 0: heat 1: cool	Number of fan speeds
1	No	No	2-pipe FCU	No	4	-	0	Off	1	3
2	No	No	2-pipe FCU	No	4	-	0	Off	0	3
3	No	Yes	2-pipe FCU	No	4	-	0	Off	-	3
4	No	Yes	2-pipe FCU	Yes	3	-	0	Off	-	3
5	No	No	2-pipe FCU	Yes	3	-	0	Off	1	3
6 (Default)	No	No	4-pipe FCU	No	4	-	0	Off	-	3
7	Yes	No	2-pipe FCU	No	4	-	1	Off	1	3
8	Yes	No	2-pipe FCU	No	4	-	1	Off	0	3
9	Yes	Yes	2-pipe FCU	No	4	-	1	Off	-	3
10	Yes	Yes	2-pipe FCU	Yes	3	-	1	Off	-	3
11	Yes	No	2-pipe FCU	Yes	3	-	1	Off	1	3
12	Yes	No	4-pipe FCU	No	4	-	1	Off	-	3
13 - 17	Reserved									
18	No	No	HP	-	3	O	-	-	-	2
19	No	No	HP	-	3	B	-	-	-	2
20	No	No	H-C	-	3	-	-	-	-	2

Button combinations

The following table describes the button combinations that you can use to access menus or functions. The table also indicates the modes in which these button combinations are applicable.

Table 3: Button combinations

Menu or function	Applicable in mode	Button combination
Advance setting menu	OFF mode	Mode + Fan for 5 seconds
Access programming menu	OFF mode, when programming is enabled in advanced settings	Mode + Up for 5 seconds
Pipe state (Heat/Cool) selection	OFF mode and system type = 2-pipe FC	Fan + Up for 5 seconds
Ex-Factory Reset	OFF mode	Mode + Fan + Up for 5 seconds
Toggle keypad lock or unlock	HEAT and COOL mode	Mode + Up + Down for 10 seconds
Toggle EMER HEAT	HEAT mode	Mode + Down for 5 seconds
Enable or disable unoccupied mode manually	HEAT and COOL mode	Mode for 5 seconds

Advanced settings

You can edit user preference settings (UP), system configuration settings (SS), and installer configuration settings (IS) through the advanced settings menu. To access the advanced settings menu, press **Mode** to set the thermostat to OFF mode, then press and hold **Mode** and **Fan** for 5 seconds. The following tables list the adjustible settings.

User preference settings

Table 4: UP settings

Menu item	Description	Setting options	Default
01	Temperature scale	F: Fahrenheit C: Celsius	F
02	User temperature calibration	Temperature with calibration value. Offset: +/- 5.4°F (+/-3.0°C)	0.0°F (0.0°C)
03	Remote sensor temperature calibration	Temperature with calibration value. Offset: +/- 5.4°F (+/-3.0°C)	0.0°F (0.0°C)
04	Pipe sensor temperature calibration	Temperature with calibration value. Offset: +/- 5.4°F (+/-3.0°C)	0.0°F (0.0°C)
05	Backlight on duration	10 seconds 30 seconds Always ON	10 seconds
06	Backlight brightness level	20, 40, 60, 80, 100	80

Table 4: UP settings

Menu item	Description	Setting options	Default
07	Display content	0: Ambient temperature + set temperature 1: Set temperature only 2: Ambient temperature only	0
08	Clock format (available only on FCP-PA-701)	12: 12 hour 24: 24 hour	12
09	Auto Daylight Savings (available only on FCP-PA-701)	ON: Auto DST on OFF: Auto DST off	ON
10	Programming mode (available only on FCP-PA-701)	ON: Programmable OFF: Manual	OFF
11	Periods per day (available only on FCP-PA-701)	1, 2, 3, 4, 5, 6	2
12	Use default temperatures after mode change	ON: Uses default temperatures OFF: Use last temperature for each mode	OFF
13	Default heat mode set temperature	60°F (15.5°C) - Max Heat Set Temp	70°F (21°C)
14	Default cool mode set temperature	Min Cool Set Temp - 80°F (27°C)	74°F (23.5°C)

System configuration settings

Table 5: SS settings

Menu item	Description	Setting options	Default
21	System type	2FCU: 2-pipe fan coil unit 4FCU: 4-pipe fan coil unit HP: Heat pump H-C: Conventional (electric furnace)	4FCU
22	2-pipe FCU with aux heat available (available only if system type = 2FCU)	Yes No	No
23	Available modes	**2FCU without aux heat:** 04: Heat and cool without auto	04
		2FCU with aux heat: 03: Heat and cool with auto 04: Heat and cool without auto	03
		4FCU, HP, or H-C: 01: Heat only 02: Cool only 03: Heat and cool with auto 04 : Heat and cool without auto	03
24	HP valve type (unavailable if system type = HP)	B: B Valve O: O Valve	B
25	Remote sensor location	0: In room 1: In duct	0
26	Remote sensor type	0: Type II 1: Type III	0
27	Pipe sensor type	0: Type II 1: Type III	0
28	Pipe state – calendar	ON OFF	OFF

Table 5: SS settings

Menu item	Description	Setting options	Default
29	Heat to cool day (unavailable if pipe state – calendar = OFF)	1-Mar to 31-May	15-Apr
30	Cool to heat day (unavailable if pipe state – calendar = OFF)	1-Sep to 30-Nov	15-Oct
31	Pipe state (unavailable if system type ≠ 2FCU or if pipe sensor = true or if pipe state – calendar = ON)	0: Heat 1: Cool	0
32	Heat to cool threshold (unavailable if system type ≠ 2FCU or if pipe sensor = false)	50°F - 72°F (10°C - 22°C)	60°F (16°C)
33	Cool to heat threshold (unavailable if system type ≠ 2FC or if pipe sensor = false)	55°F - 90°F (13°C - 32°C)	80°F (27°C)
34	Purge frequency (unavailable if system type ≠ 2FC or if pipe sensor = false)	0: Never 1: 2 hours 2: 24 hours	With pipe sensor: 1 Without pipe sensor: 0

Installer configuration settings

Table 6: IS settings

Menu item	Description	Setting options	Default
41	Maximum heat set temperature	60°F – 90°F (15.5°C - 32°C) Increments of 5°F	85°F (29°C)
42	Minimum heat set temperature	45°F – 75°F (7°C - 24°C) Increments of 5°F	45°F (7°C)
43	Maximum cool set temperature	70°F – 95°F (21°C - 35°C) Increments of 5°F	90°F (32°C)
44	Minimum cool set temperature	F: 60°F – 80°F (15.5 - 27°C) Increments of 5°F	60°F (16°C)
45	Auto deadband	2.0°F (1.11°C) 3.0°F (1.67°C) 4.0°F (2.22°C) 5.0°F (2.78°C)	4.0°F (2.22°C)

Table 6: IS settings

Menu item	Description	Setting options	Default
46	Swing	±0.25°F (±0.14°C) ±0.50°F (±0.28°C) ±1.00°F (±0.56°C) ±2.25°F (±1.25°C)	0.50°F (0.28°C)
47	Stage auxiliary offset	OFF -3.0°F (-1.7°C) -4.0°F (-2.2°C) -5.0°F (-2.8°C) -6.0°F (-3.3°C) -7.0°F (-3.9°C) -8.0°F (-4.4°C)	HP: -4.0°F (-2.2°C) All other system types: OFF
48	Minimum off time	NO: Minimum off time is not applied YES: Minimum off time of 5 minutes is applied	NO
49	Minimum on time duration	0 minute to 5 minutes	4 minutes
50	Frost protect	40°F – 44°F (4°C - 6°C), OFF	44°F (6°C)
51	Overheat protect	91°F – 99°F (33°C – 37°C) OFF	91°F (33°C)
52	Number of fan speeds (3-speed fan unavailable if system type ≠ PTAC HP or PTAC CON)	1: Low 2: Low and high 3: Low, med, and high	2FCU or 4FCU: 3 PTAC HP or PTAC CON: 2
53	Smart auto fan	ON OFF	ON
54	Fan mode reset	OFF 2 hours 4 hours 24 hours	OFF
55	2-pipe FCU with auxiliary heat fan speed (available only if system type = 2FCU)	0: Auto fan 1: High fan	1

Table 6: IS settings

Menu item	Description	Setting options	Default
56	Fan delay	0 seconds to 10 seconds	0 seconds
57	Unoccupied dry contact polarity	NO: Normally open NC: Normally closed	NO
58	Unoccupied action	1: Set point change 2: OFF mode	1
59	Unoccupied heat set point (unavailable if AvMode = cool only or if setpoint action = OFF)	60°F (16°C) - Max heat set temperature	60°F (16°C)
60	Unoccupied cool set point (unavailable if AvMode = heat only or if setpoint action = OFF)	Min cool set temp – 80°F (27°C)	80°F (27°C)
61	Time delay from occupied to unoccupied mode	2: 2 minutes 30: 30 minutes	2
62	Override timer from unoccupied to occupied mode by button press	OFF: No override allowed 1-24: 1-24 hour	OFF

Ex-factory reset

You can reset the thermostat through the Ex-Factory Reset function. To reset the thermostat, complete the following steps:

1. Press **Mode** to set the thermostat to OFF mode.
2. Press and hold **Mode** and **Fan** for 5 seconds to access the advanced settings menu.
3. Press **Up** to navigate to 99, then press **Mode** to enter the menu.

   Alternatively, you can access the Ex-Factory Reset menu directly when the thermostat is in OFF mode. To do this press and hold **Mode**, **Fan**, and **Up** for 5 seconds.
4. Press **Up** or **Down** to change the menu option to **Yes**.
5. Press **Mode** to confirm and reset the thermostat.

Result Your thermostat resets to the factory settings. An ex-factory reset deletes all stored data on the thermostat including temperature preferences, schedules, and any other adjusted settings.

Frost and overheat protection

The frost and overheat protections is set to ON by default. You can set the frost protection temperature and overheat protection temperature in the installer configuration settings. Frost Protection calls for heat whenever the temperature is below the frost protection limit. The thermostat switches to OFF mode when the temperature reaches 2°F above the frost protection temperature.

Overheat Protection calls for cool whenever the temperature is above the overheat protection limit. The thermostat switches to OFF mode when the temperature returns 2°F below the overheat protection temperature.

Key lock

You can lock the thermostat with the key lock function. Users cannot adjust settings when the key lock is active. To activate key lock, complete the following step:

- Press and hold the **Mode**, **Up**, and **Down** buttons for 10 seconds to lock the thermostat. Follow the same step to deactivate the key lock.

Remote sensor location

If the thermostat detects a remote temperature sensor you can set the remote sensor location to in room or in duct. If the remote sensor location is in room the fan turns off when you do not switch on the fan and the temperature control algorithm does not call for fan. If the remote sensor location is in duct, the lowest available fan speed is low. This means that the fan runs on low speed even when you do not switch on the fan and the temperature control algorithm does not call for fan.

Pipe sensor (2-pipe FCU only)

The pipe sensor is available for 2-pipe FCU systems only. The pipe state can either be hot or cold and can be set by the pipe sensor temperature, pipe state calendar, or manually.

Pipe sensor temperature

When a pipe sensor is installed, a comparison of the pipe sensor temperature with the heat to cool threshold and cool to heat threshold temperatures determines the pipe state. If the pipe sensor temperature is higher than the cool to heat threshold then the pipe state is hot. If the sensor temperature is lower than the heat to cool threshold then the pipe state is cold. You can configure the heat to cool threshold and cool to heat threshold in the system configuration settings menu.

The pipe sensor temperature is measured every 5 minutes when either one of the following conditions is met:

- The Y terminal is turned on for 5 minutes during normal call for heating or cooling
- Purge sequence

Purge sequence

During a purge sequence, the thermostat turns on the Y terminal for 6 minutes, but does not turn on the G terminal. The purge sequence is available only if the system type is 2-pipe FCU and when the pipe sensor is installed, and runs under the following conditions:

- On the first power-up
- After you enter and exit the advanced settings menu
- In a regular timing interval

When the purge sequence runs, an hourglass icon shows on the thermostat display for 6 minutes until the purge sequence is complete. During the purge sequence, you cannot change the thermostat operation such as change the control mode and set temperature. However, you can enter the advanced settings menu.

You can configure the purge frequency in the system configuration settings menu.

Calendar based switching (FCP-PA only)

Calendar based switching is available only on the FCP-PA model and if a pipe sensor is not installed. With calendar based switching you can set a date on which the pipe state switches from hot to cold

and from cold to hot. You can set the heat to cool day on a date between 1 March and 31 May. You can set the cool to heat day on a date between 1 September and 30 November. You can configure the heat to cool day and cool to heat day in the system configuration settings menu.

Setting the pipe state manually

If you did not install a pipe sensor and calendar based switching is not available, you can configure the pipe state manually.

1. Press **Mode** to set the thermostat to OFF mode.
2. Press and hold **Mode** and **Fan** for 5 seconds to access the advanced settings menu.
3. Press **Up** to navigate to SS, then press **Mode** to enter the menu.

    Alternatively, you can access the pipe state menu directly when the thermostat is in OFF mode. To do this press and hold **Fan** and **Up** for 5 seconds.
4. Press **Mode** to navigate to 31.
5. Use the **Up** and **Down** buttons to set the pipe state value and press **Mode** to confirm the change.

Auto deadband

The Auto deadband is the threshold above and below the set temperature to determine the auto change-over line, and to start the control model to switch from heat mode to cool mode or from cool mode to heat mode. Auto deadband is available only if the control mode is heat and cool with auto. The default Auto deadband value is 4.0°F (2.22°C). You can configure the Auto deadband value to 2.0°F (1.11°C), 3.0°F (1.67°C), 4.0°F (2.22°C), or 5.0°F (2.78°C) in the installer configuration settings menu.

Auto changeover mode

In auto changeover mode, the control algorithm checks the ambient temperature with the heat and cool temperature for every control cycle.

*   If the ambient temperature is higher than the changeover line for cool mode, it switches the control mode to COOL.
*   If the ambient temperature is lower than the changeover line for heat mode, it switches the control mode to HEAT.
*   If the ambient temperature is in between:

    - Cool set temperature – Auto deadband and Heat set temperature + Auto deadband, the thermostat switches the control mode to OFF, given that Cool set temperature - Heat set temperature is larger than two times the Auto deadband, where Auto deadband is settable option
    - Otherwise the thermostat keeps the previous control mode for temperature control algorithm

The minimum switching duration after autochange of the control mode is 20 minutes.

Minimum off time

After load of the heating or cooling system is switched off then load does not turn on again until 5 minutes elapsed. If thermostat tries to turn on heat or cool during the minimum off time period, the wait icon flashes. The minimum off time is disabled by default. You can enable the feature in the installer configuration settings menu.

Minimum on time

The minimum on time applies to any heat or cool mode. After load of the heating or cooling system is switched on it does not turn off until the minimum on time period elapsed. A change of set temperature or control mode resets the minimum on time counter. You can set the minimum on time from 0 minutes to 5 minutes in the installer configuration settings menu. The default minimum on time is 4 minutes.

Emergency heat (heat pump PTAC only)

When enabled, the emergency heat engages only if the ambient temperature is lower than the set temperature. When the thermostat is in heat or cool mode, press **Mode** for 5 seconds to enable emergency heat. Follow the same step to disable emergency heat.

Setup and adjustments

Available modes

The FCP thermostat supports the following control modes:

Table 7: FCP available modes

System type		Control mode			
	2-pipe FCU with aux heat	Heat only	Cool only	Heat and cool without auto	Heat and cool with auto
2-pipe FCU	No	✓	✓	✓	–
2-pipe FCU	Yes	✓	–	✓	✓
4-pipe FCU		✓	✓	✓	✓
PTAC conventional		✓	✓	✓	✓
PTAC heat pump		✓	✓	✓	✓

2-pipe FCU with auxiliary heat

If 2-pipe FCU with auxiliary heat is disabled, then the pipe state determines the available control modes.

- If the pipe state is cold, then the OFF and COOL modes are available.
- If the pipe state is hot, then the OFF and HEAT modes are available

If 2-pipe FCU with auxiliary heat is enabled, then the pipe state determines the available control modes and switching logic.

- If the pipe state is cold, then the OFF, COOL, HEAT, and AUTO modes are available. Call for heat is fulfilled with the W terminal.
- If the pipe state is hot, then the OFF and HEAT modes are available. Call for heat is fulfilled with the Y terminal.

Setting the control mode

To set the control mode, complete the following steps:

1. Press **Mode** to access the control mode menu.
2. Press **Mode** again to select the required mode.
3. Do not press any button for 2 seconds to confirm the selection.

Run mode

Depending on the set temperature, the thermostat runs in one of the following modes:

- **Hold**, the thermostat runs in hold mode if you do not enable the schedule.
- **Schedule**, the thermostat runs in schedule mode if you enable the schedule. Schedule mode is available on the FCP-PA models only.
- **Unoccupied**, the thermostats runs in setpoint change or off mode, depending on the unoccupied action that you set.

Fan mode

Depending on your configuration, the following fan speeds are available:

- 1 speed: low
- 2 speed: low and high. This is the default for conventional PTAC and heat pump PTAC.
- 3 speed: low, medium, and high. This is the default for 2-pipe FCU and 4-pipe FCU. Not available for conventional PTAC and heat pump PTAC.

When a fan speed is set to on, the fan runs continuously at the selected fan speed. If you change the control mode to OFF, the fan speed resets to Auto.

Smart auto fan

About this task: If smart auto fan is ON, then the fan terminal switches automatically to low, medium, or high, depending on the difference between the air temperature and set temperature. The following list indicates at which speed the fan runs when low, medium, and high speeds are available:

- If the absolute difference between the air temperature and set temperature is equal or greater than 4°F: high
- If the absolute difference between the air temperature and set temperature is equal or greater than 2°F, but less than 4°F: medium
- If the absolute difference between the air temperature and set temperature is less than 2°F: low

The following list indicates at which speed the fan runs when low and high speeds are available:

- If the absolute difference between the air temperature and set temperature is equal or greater than 4°F: high
- If the absolute difference between the air temperature and set temperature is less than 4°F: low

If smart auto fan is OFF, the auto fan terminal used with heating or cooling is always set to low.
To set the smart auto fan, complete the following steps:

1. Press **Mode** to set the thermostat to OFF mode.
2. Press and hold **Mode** and **Fan** for 5 seconds to access the advanced settings menu.
3. Press **Up** to navigate to IS, then press **Mode** to enter the menu.
4. Press **Mode** to navigate to 53.
5. Use the **Up** and **Down** buttons to set smart auto fan to On or Off and press **Mode** to confirm the change.

Fan mode reset

The fan mode reset function resets the fan mode to Auto after the fan mode reset time elapsed. You can set the fan mode reset time to 2 hours, 4 hours, and 24 hours. By default, the fan mode reset time is set to Off. To set the fan mode reset time, complete the following steps:

1. Press **Mode** to set the thermostat to OFF mode.
2. Press and hold **Mode** and **Fan** for 5 seconds to access the advanced settings menu.
3. Press **Up** to navigate to IS, then press **Mode** to enter the menu.
4. Press **Mode** to navigate to 54.
5. Use the **Up** and **Down** buttons to set the fan mode reset time and press **Mode** to confirm the change.

Fan delay

Fan delay is a time delay for the fan terminal to turn off after the heating or cooling terminal turned off. The fan delay is available when the fan mode is Auto. You can set a delay between 0 seconds and 10 seconds. To set the fan delay, complete the following steps:

1. Press **Mode** to set the thermostat to OFF mode.
2. Press and hold **Mode** and **Fan** for 5 seconds to access the advanced settings menu.
3. Press **Up** to navigate to IS, then press **Mode** to enter the menu.
4. Press **Mode** to navigate to 56.
5. Use the **Up** and **Down** buttons to set the fan delay time and press **Mode** to confirm the change.

Programmable mode (FCP-PA only)

The programmable mode is available on the FCP-PA model only. With the programmable mode you can set a heat and cool schedule for up to seven consecutive days and each day can consist of up to six periods. You can change the start times of each period by increments of 15 minutes. You can also set the time and date in the programmabe mode.

Enabling the programmable mode

To enable the programmable mode, complete the following steps:

1. Press **Mode** to set the thermostat to OFF mode.
2. Press and hold **Mode** and **Fan** for 5 seconds to access the advanced settings menu.
3. Press **Up** to navigate to UP, then press **Mode** to enter the menu.
4. Press **Mode** to navigate to 10.
5. Use the **Up** and **Down** buttons to set the programmable mode to ON and press **Mode** to confirm the change.

Accessing the programmable mode menu

To access the programmable mode, complete the following steps:

1. Press **Mode** to set the thermostat to OFF mode.
2. Press and hold **Mode** and **Up** for 5 seconds.

Setting the time of day and date

About this task: You must manually set the time and date and the thermostat automatically sets the day once you set the date. The clock is set by default in a 12 hour format. You can adjust the clock to a 24 hour format. If the time is not set, the clock flashes. The date displays in year, month, day format.
The following list shows the default values of the time and date.

- Time: 12:00 PM
- Date: 2019, 01, 01

To set the time and date, complete the following steps:

1. With the thermostat in OFF mode, press and hold **Mode** and **Up** for 5 seconds to enter the programmable mode menu.
2. Select the clock and press Mode.
3. Press **Mode** to scroll through the menu and press **Up** or **Down** to change the options.
4. After each change, press **Mode** to confirm the change.

Setting a schedule

To set a schedule, complete the following steps:

1. With the thermostat in OFF mode, press and hold **Mode** and **Up** for 5 seconds to enter the programmable mode menu.
2. Press **Up** or **Down** to navigate to the heat icon, then press **Mode** to access the menu.
3. Press **Up** or **Down** to select the day of the week you want to schedule, then press **Mode** to confirm the selection.
4. Press **Mode** to navigate to the following setting and press **Up** or **Down** to set the required period and temperature. Repeat this step until you set all the schedule settings.
5. Press **Mode** to save the settings and return to Set Schedule menu.
6. Press **Up** or **Down** to navigate to the cool icon and press **Mode** to access the menu.
7. Repeat Step 3 and Step 4 until you set all the schedule settings.

Default schedule

The default schedule functions as the starting point when you program your personal schedule. The following table shows the default schedule.

Table 8: Default schedule

	6	5	4	3	2	1
1	6:00 A.M. Heat: 70°F Cool: 74°F	6:00 A.M. Heat: 70°F Cool: 74°F	6:00 A.M. Heat: 70°F Cool: 74°F	6:00 A.M. Heat: 70°F Cool: 74°F	8:00 A.M. Heat: 70°F Cool: 74°F	10:00 A.M. Heat: 70°F Cool: 74°F
2	8:00 A.M. Heat: 62°F Cool: 82°F	8:00 A.M. Heat: 62°F Cool: 82°F	8:00 A.M. Heat: 62°F Cool: 82°F	12:00 P.M. Heat: 70°F Cool: 74°F	6:00 P.M. Heat: 62°F Cool: 75°F	
3	12:00 P.M. Heat: 70°F Cool: 74°F	12:00 P.M. Heat: 70°F Cool: 74°F	6:00 P.M. Heat: 70°F Cool: 74°F	10:00 P.M. Heat: 62°F Cool: 75°F		
4	2:00 P.M. Heat: 62°F Cool: 82°F	6:00 P.M. Heat: 70°F Cool: 74°F	10:00 P.M. Heat: 62°F Cool: 75°F			
5	6:00 P.M. Heat: 70°F Cool: 74°F	10:00 P.M. Heat: 62°F Cool: 75°F				
6	10:00 P.M. Heat: 62°F Cool: 75°F					

Auto daylight savings

About this task: Auto daylight savings is turned on by default and only applies when the thermostat is in programmable mode. When auto daylight savings is on the clock automatically changes on the following days:

- The second Sunday in March, from 02:00 to 03:00
- The first Sunday in November, from 02:00 to 01:00

To turn off the auto daylight savings, complete the following steps:

1. Press **Mode** to set the thermostat to OFF mode.
2. Press and hold **Mode** and **Fan** for 5 seconds to access the advanced settings menu.
3. Press **Up** to navigate to UP, then press **Mode** to enter the menu.
4. Press **Mode** to navigate to 09.
5. Use the **Up** and **Down** buttons to change the auto daylight savings to OFF, then press **Mode** to confirm the change.

Unoccupied mode

The dry-contact input can trigger the unoccupied mode. You can also configure the polarity of the dry contact to normally open or normally closed in the IS menu.

Alternatively, you can manually enable or disable the unoccupied mode. Press and hold **Mode** for 5 seconds to manually enable or disable the unoccupied mode.

You can set the unoccupied action to setpoint change or off mode. When you select setpoint change, the thermostat uses the unoccupied setpoints when the unoccupied mode is triggered. When you select off mode, the thermostat switches to off mode when the unoccupied mode is triggered.

Use the Time delay from occupied to unoccupied mode feature to set a delay for the change of mode. The thermostat waits the specified amount of time before it triggers the unoccupied action. You can manually override the unoccupied mode to occupied mode. Set the Override timer from unoccupied to occupied mode by button press to 1-24 to enable override. You can override the unoccupied mode in time periods from one up to 24 hours.

Setting the temperatures

About this task: You can set the heat and cool temperatures when the thermostat is in Hold mode or Schedule mode. Schedule mode is available on the FCP-PA model only.

- To change the temperature set point, press **Up** or **Down**.

Result If the thermostat is in Hold mode, the thermostat runs on the set temperature until you change the set point. If the thermostat is in Schedule mode, the thermostat runs on the override temperature until the next scheduled period.

Temperature swing

About this task: The temperature swing is the threshold above and below the set temperature at which the heating or cooling cuts-in or cuts-out. The default swing value is ±0.50°F. You can set the swing value to ±0.25°F, ±0.50°F, ±1.00°F, or ±2.25°F. A smaller swing value means the thermostat responds faster to temperature changes, and a more frequent switching of heating or cooling output. A larger swing value can help with short cycling. For example, if the system heats up and cools down fast, then you can use a greater swing value to reduce the frequency of switching cycles.
To change the temperature swing value, complete the following steps:

1. Press **Mode** to set the thermostat to OFF mode.
2. Press and hold **Mode** and **Fan** for 5 seconds to access the advanced settings menu.
3. Press **Up** to navigate to IS, then press **Mode** to enter the menu.
4. Press **Mode** to navigate to 46.
5. Use the **Up** and **Down** buttons to change the swing value and press **Mode** to confirm the change.

Display settings

You can adjust the following display settings:

- Temperature scale
- Displayed temperature calibration
- Backlight
- Displayed temperature

Setting the temperature scale

You can display the temperature in Fahrenheit or Celsius. The default scale is Fahrenheit. To change the temperature scale, complete the following steps:

1. Press **Mode** to set the thermostat to OFF mode.
2. Press and hold **Mode** and **Fan** for 5 seconds to access the advanced settings menu.
3. Press **Up** to navigate to UP, then press **Mode** to enter the menu.
4. Press **Mode** to navigate to 01.

5. Use the **Up** and **Down** buttons to change the temperature scale and press **Mode** to confirm the change.

Onboard temperature calibration

You can adjust the value of the displayed ambient temperature. To adjust the value, complete the following steps:

1. Press **Mode** to set the thermostat to OFF mode.
2. Press and hold **Mode** and **Fan** for 5 seconds to access the advanced settings menu.
3. Press **Up** to navigate to UP, then press **Mode** to enter the menu.
4. Press **Mode** to navigate to 02.
5. Use the **Up** and **Down** buttons to change the current temperature.
6. Press **Mode** to confirm the change.

Result The thermostat calculates the difference between the current measured temperature and the user set current temperature to determine the calibration offset. Calibration changes the temperature as part of measurement and scaling. The thermostat uses the calibrated temperature for temperature control.
The default calibration offset value is 0

Remote sensor temperature calibration

If you installed a remote sensor, you can adjust the value of the displayed remote sensor temperature. To adjust the value, complete the following steps:

1. Press **Mode** to set the thermostat to OFF mode.
2. Press and hold **Mode** and **Fan** for 5 seconds to access the advanced settings menu.
3. Press **Up** to navigate to UP, then press **Mode** to enter the menu.
4. Press **Mode** to navigate to 03.
5. Use the **Up** and **Down** buttons to change the current temperature.
6. Press **Mode** to confirm the change.

Result The thermostat calculates the difference between the current measured temperature and the user set current temperature to determine the calibration offset. Calibration changes the temperature as part of measurement and scaling. The thermostat uses the calibrated temperature for temperature control.
The default calibration offset value is 0.

ⓘ **Note:** The remote sensor calibration menu option is visible only when the remote sensor temperature reading is ready.

Pipe sensor temperature calibration

If you installed a pipe sensor, you can adjust the value of the displayed pipe sensor temperature. To adjust the value, complete the following steps:

1. Press **Mode** to set the thermostat to OFF mode.
2. Press and hold **Mode** and **Fan** for 5 seconds to access the advanced settings menu.
3. Press **Up** to navigate to UP, then press **Mode** to enter the menu.
4. Press **Mode** to navigate to 04.
5. Use the **Up** and **Down** buttons to change the current temperature.

6. Press **Mode** to confirm the change.

Result The thermostat calculates the difference between the current measured temperature and the user set current temperature to determine the calibration offset. Calibration changes the temperature as part of measurement and scaling. The thermostat uses the calibrated temperature as true reference to determine the pipe water temperature and the pipe state.
The default calibration offset value is 0.

ⓘ **Note:** The pipe sensor calibration menu option is visible only when the pipe sensor temperature reading is ready.

Adjusting the backlight

About this task: You can adjust the length of time that the backlight stays on and the brightness of the backlight.
To adjust the length of time that the backlight stays on, complete the following steps:

1. Press **Mode** to set the thermostat to OFF mode.
2. Press and hold **Mode** and **Fan** for 5 seconds to access the advanced settings menu.
3. Press **Up** to navigate to UP, then press **Mode** to enter the menu.
4. Press **Mode** to navigate to 05.
5. Use the **Up** and **Down** buttons to change the backlight on duration, then press **Mode** to confirm the change.

To adjust the backlight brightness, complete the following steps:

1. Press **Mode** to set the thermostat to OFF mode.
2. Press and hold **Mode** and **Fan** for 5 seconds to access the advanced settings menu.
3. Press **Up** to navigate to UP, then press **Mode** to enter the menu.
4. Press **Mode** to navigate to 06.
5. Use the **Up** and **Down** buttons to change the backlight brightness level, then press **Mode** to confirm the change.

Setting the displayed temperature

You can choose to display the ambient temperature, set temperature, or both. To set the displayed temperature, complete the following steps:

1. Press **Mode** to set the thermostat to OFF mode.
2. Press and hold **Mode** and **Fan** for 5 seconds to access the advanced settings menu.
3. Press **Up** to navigate to UP, then press **Mode** to enter the menu.
4. Press **Mode** to navigate to 07.
5. Use the **Up** and **Down** buttons to change the displayed temperature.

   - Select 0 to display the ambient temperature and the set temperature.
   - Select 1 to display the set temperature.
   - Select 2 to display the ambient temperature.

6. Press **Mode** to confirm the change.

Sensor detection and fault detection

The FCP thermostat detects the remote temperature sensor and pipe temperature sensor during the thermostat power-up and run-time. The pre-configuration profile defines whether the remote and pipe sensors are required in the system or not.

If the remote temperature sensor is installed, then the remote temperature sensor reading is used instead of the internal temperature sensor.

If the on-board sensor stops to function correctly, the sensor error flashes on the display. All heating and cooling outputs go to off until the sensor value is back in normal working range.

If the remote sensor stops to function correctly or is removed, the remote sensor error flashes on the display. All heating and cooling outputs go to off until the sensor value is back in working range. The thermostat does not switch back to use the on-board sensor automatically. Check and reinstall the remote sensor correctly in order to resume the thermostat to operate.

If the pipe sensor stops to function correctly or is removed, the pipe sensor error flashes on the display. All heating and cooling outputs go to off until the sensor value is back in working range. This applies to the 2-pipe FCU system only.

You can recover the remote sensor and pipe sensor from error state under the following operations:

- Power cycle the thermostat
- After you enter and exit the installer setting menu

Troubleshooting

The following tables are placeholders and examples of troubleshooting information that could potentially be included.

Table 9: Fault list

Error code	Description	Solutions
ER:01	ERROR_AIR_SENSOR_OPEN	• Check if the built-in temperature sensor is disconnected from the thermostat circuit board or damaged. • Contact technical support.
ER:02	ERROR_AIR_SENSOR_SHORT	• Check if the built-in temperature sensor is short circuited or damaged. • Contact technical support.
ER:03	ERROR_AIR_SENSOR_HI	Built-in temperature sensor detected a too high temperature. • Check if the thermostat wiring is connected correctly to the FCU or PTAC. • Contact technical support.
ER:04	ERROR_AIR_SENSOR_LO	Built-in temperature sensor detected a too low temperature. • Check if the thermostat wiring is connected correctly to the FCU or PTAC. • Contact technical support.

Table 9: Fault list

Error code	Description	Solutions
ER:05	ERROR_REMOTE_SENSOR_OPEN	• Verify if the remote temperature sensor is disconnected from the thermostat terminals RS and SC. If yes, re-wire the remote sensor correctly and then power cycle the thermostat. • Verify if the remote sensor is malfunctioned or damaged. • Contact technical support.
ER:06	ERROR_REMOTE_SENSOR_SHORT	• Verify the remote temperature sensor wiring and check if thermostat terminals RS and SC are shorted. If yes, re-wire the remote sensor correctly and then power cycle the thermostat. • Verify if the remote sensor is malfunctioned or damaged. • Contact technical support.
ER:07	ERROR_REMOTE_SENSOR_HI	Remote sensor detected a too high temperature. • Check if the thermostat wiring is connected correctly to the FCU or PTAC. • Verify if the remote sensor is installed correctly in the room or duct. • Contact technical support.
ER:08	ERROR_REMOTE_SENSOR_LO	Remote sensor detected a too low temperature. • Check if the thermostat wiring is connected correctly to the FCU or PTAC. • Verify if the remote sensor is installed correctly in the room or duct. • Contact technical support.
ER:09	ERROR_PIPE_SENSOR_OPEN	• Check if the pipe temperature sensor wiring is disconnected from thermostat terminals PS and SC. If yes, re-wire the pipe sensor correctly and then power cycle the thermostat. • Verify if the pipe sensor is malfunctioned or damaged. • Contact technical support.
ER:10	ERROR_PIPE_SENSOR_SHORT	• Verify the pipe temperature sensor wiring and check if thermostat terminals PS and SC are shorted. If yes, re-wire the pipe sensor correctly and then power cycle the thermostat. • Verify if the pipe sensor is malfunctioned or damaged. • Contact technical support.
ER:11	ERROR_PIPE_SENSOR_HI	Pipe sensor detected a too high temperature. • Verify if the pipe sensor is installed correctly in the pipe. • Contact technical support.
ER:12	ERROR_PIPE_SENSOR_LO	Pipe sensor detected a too low temperature. • Verify if the pipe sensor is installed correctly in the pipe. • Contact technical support.

Technical specifications

Table 10: FCP non-programmable and programmable FCU or PTAC Thermostats technical specifications

Specification		Description
Models		Non-programmable: FCP-NA-701-L
		Programmable: FCP-PA-701-L
Power requirements		20 VAC to 30 VAC, 60 Hz, max. 3 A (3 VA at 24 V nominal)
Output rating	Valve and fan outputs	1 A maximum per each relay channel
		(Max. relays ON combination: 3 relays), 20 VAC to 30 VAC
Analog inputs	Remote sensor	10K ohm at 77°F (25°C) NTC sensor
	Pipe sensor	10K ohm at 77°F (25°C) NTC sensor
	Set back	NC/NO dry contact switch
Local temperature sensor type		NTC temperature sensor, accurate to ±1°F (±0.6°C) at 77°F (25°C)
Remote temperature sensor type		NTC temperature sensor, accurate to ±2°F (±1.2°C) at 70°F (21°C)
Wire size		16 AWG (100 ft [30.5 m] maximum) to 24 AWG (36 ft [11 m] maximum)
Temperature adjustment range	Heat mode	45°F to 90°F (7°C to 32°C)
	Cool mode	60°F to 95°F (15°C to 35°C)
Accuracy	Local temperature sensor	±1°F (±0.6°C)
	Remote temperature sensor	±2°F (±1.2°C) at 70°F (21°C)
	Remote pipe sensor	±5°F (±3.0°C)
Deadband		2°F to 5°F (1°C to 3°C)
Ambient conditions	Operating	14°F to 122°F (-10°C to 50°C); 5% RH to 90% RH, noncondensing
	Storage	-4°F to 140°F (-20°C to 60°C); 5% RH to 90% RH, noncondensing
Disconnection means		Type 1B
Pollution degree		2
Rated impulse voltage		330 V
Automatic Action		100,000 cycles
Ratings for supply and loading		20 VAC to 30 VAC

Table 10: FCP non-programmable and programmable FCU or PTAC Thermostats technical specifications

Specification	Description
Dimensions H x W x D	3.27 in. x 3.94 in. x 0.98 in. (83 mm x 100 mm x 25 mm)
Shipping weight	Product with packing and accessories: 10.1 oz (285 g) Thermostat only: 4.9 oz (138 g) Trim plate: 1.2 oz (33 g)
Compliance Intertek 5013346	ETL/cETL Listed, Mexico NOM CONFORMS TO UL STD. 60730-1 & 60730-2-9 CERTIFIED TO CSA STD. E60730-1 & E60730-2-9

The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the local Johnson Controls office. Johnson Controls shall not be liable for damages resulting from misapplication or misuse of its products.

Product warranty

This product is covered by a limited warranty, details of which can be found at www.johnsoncontrols.com/buildingswarranty.

Patents

Patents: https://jcipat.com

Contact information

Contact your local branch office: www.johnsoncontrols.com/locations

Contact Johnson Controls: www.johnsoncontrols.com/contact-us