Installation Manual

STN715W

Thermostat Application Guide

Description	
Gas or Oil Heat	Yes
Electric Furnace	Yes
Heat Pump (No Aux. or Emergency Heat)	Yes
Heat Pump (With Aux. or Emergency Heat)	No
Multi-Stage Systems	No
Heat Only Systems	Yes
Heat Only Systems - Floor or Wall Furnace	Yes
Cool Only Systems	Yes
Millivolt	No

Power Type

Battery Power
Hardwire (Common Wire)
Hardwire (Common Wire) with
Battery Backup

A trained, experienced technician must install this product.

Carefully read these instructions. You could damage this product or cause a hazardous condition if you fail to follow these instructions.
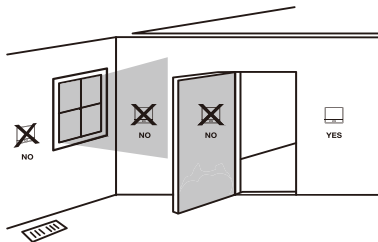
❶

Installation Manual

Table of Contents

Specifications

The display range of temperature ...	32˚F to 95˚F(1℃ to 40℃)
The control range of temperature....	44˚F to 90˚F (7℃ to 32℃)
Swing (cycle rate or differential)	Heating is adjustable from 0.2˚ to 2.0˚
	Cooling is adjustable from 0.2˚ to 2.0˚
Power source	18 to 30 VAC, NEC Class II, 50/60 Hz for hardwire
	Battery power from 2 AAA Alkaline batteries
Operating ambient	32˚F to +105˚F (0℃ to +41℃)
Operating humidity	90% non-condensing maximum
Dimensions of thermostat	4.7"W x 4.4"H x 0.8"D

Wall Locations

The thermostat should be installed approximately 4 to 5 feet above the floor. Select an area with average temperature and good air circulation.


NO

NO

NO

YES

Do not install thermostat in locations:

- Close to hot or cold air ducts
- That are in direct sunlight
- With an outside wall behind the thermostat
- In areas that do not require conditioning
- Where there are dead spots or drafts (in corners or behind doors)
- Where there might be concealed chimneys or pipes

Installation Tip

Pick an installation location that is easy for the user to access. The temperature of the location should be representative of the building.

Subbase Installation

① Horizontal Mount
② Vertical Mount

② Vertical mount
① Horizontal mount
① Horizontal mount
② Vertical mount
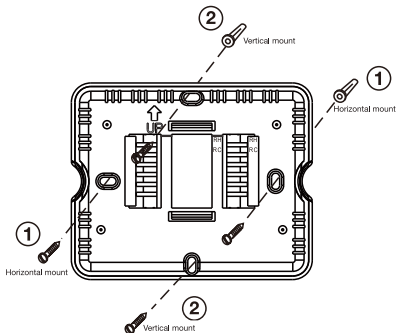
For vertical mount put one screw on the top
and one screw on the bottom.
For horizontal mount put one screw on the
left and one screw on the right.

**Installation Tip:
Electrical Hazard**
Failure to disconnect the power before
beginning to install this product can
cause electrical shock or equipment
damage.

Mercury Notice

All of our products are mercury free.
However, if the product you are
replacing contains mercury, dispose of
it properly. Your local waste
management authority can give you
instructions on recycling and proper
disposal.

Installation Tips

Mount Thermostat

Align the 4 tabs on the subbase with corresponding slots on the back of the thermostat, then push gently until the thermostat snaps in place.
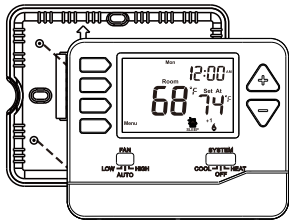
Battery Installation

Battery installation is recommended even if thermostat is hardwired (C terminal connected). When thermostat is hardwired and batteries are installed, the thermostat will activate a compressor delay of 5 minutes when the thermostat detects a power outage from the hardwired power supply.
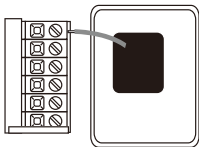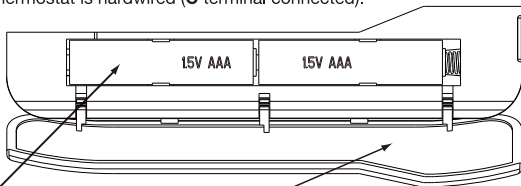
Important:

High quality alkaline batteries are recommended. Rechargeable batteries or low quality batteries do not guarantee a 1-year life span.
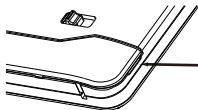
Battery installation is optional if thermostat is hardwired (**C** terminal connected).

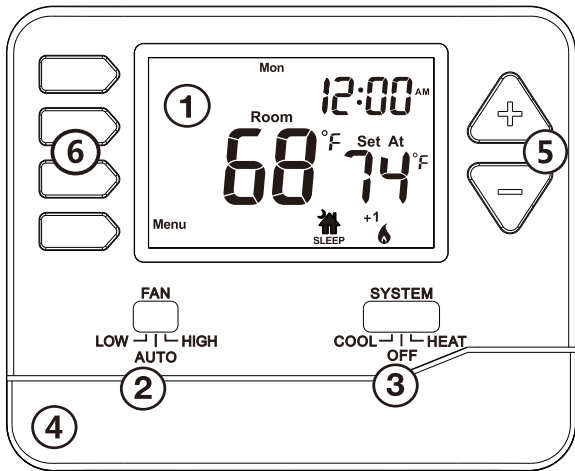Insert 2 AAA Alkaline batteries (included).

Simple operating instructions are found on the back of the battery door.

Use the finger bevel on the lower portion of the thermostat to open the easy access battery door.

Getting to know your thermostat

Getting to know your thermostat

① LCD Display

② Fan Switch

③ System Switch

④ Easy change battery door

⑤ Temperature Setpoint Buttons

⑥ User Buttons

Getting to know your thermostat

① **LCD**

Days of the week and time.

Displays the user selected setpoint temperature.

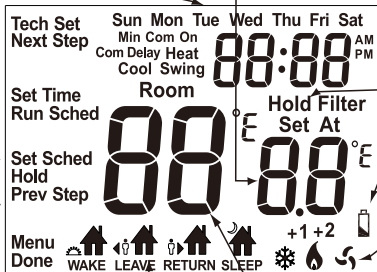**Hold:** Is displayed when thermostat program is permanently overridden.

Low Battery Indicator: Replace batteries when indicator is shown.

System Operation Indicators:

The ❄, 🔥 or 🌀 icon will display when the COOL, HEAT, or 🌀 (fan) is on.

NOTE: The compressor delay feature is active if these icons are flashing. The compressor will not turn on until the 5 minute delay has elapsed.

Tech Set
Next Step
Min Com On
Com Delay Heat
Cool Swing
Room
Sun Mon Tue Wed Thu Fri Sat
88:88 AM PM

Set Time
Run Sched

Set Sched
Hold
Prev Step

Menu
Done

Hold Filter
Set At
88.8 °F °C
+1 +2
❄ 🔥 🌀

WAKE LEAVE RETURN SLEEP

Button Options

Programmable Time Periods: This thermostat has 4 programmable time periods per day.

Indicates the current room temperature.

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Wiring

Wiring

1. If you are replacing a thermostat, make note of the terminal connections on the thermostat that is being replaced. In some cases the wiring connections will not be color coded. For example, the green wire may not be connected to the **G** terminal.

2. Loosen the terminal block screws. Insert wires then retighten terminal block screws.

3. Place nonflammable insulation into wall opening to prevent drafts.

> ⚠ **Caution:**
> **Electrical Hazard**
>
> Failure to disconnect the power before beginning to install this product can cause electrical shock or equipment damage.

> ⚠ **Warning:**
>
> All components of the control system and the thermostat installation must conform to Class II circuits per the NEC Code.

Wiring

1. If you are replacing a thermostat, make note of the terminal connections on the thermostat that is being replaced. In some cases the wiring connections will not be color coded. For example, the red wire may not be connected to the **R** terminal.

2. Loosen the terminal block screws. Insert wires then retighten terminal block screws.

Installation Tip

Do not overtighten terminal block screws, as this can damage the terminal block. A damaged terminal block can keep the thermostat from fitting on the subbase correctly or cause system operation issues.

Max Torque = 6in-lbs.

Terminal	1 Heat 1 Cool Conventional System	1 Heat 1 Cool Heat Pump System	2 Heat 1 Cool Heat Pump System
R	Transformer power (cooling)	Transformer power (cooling)	Transformer power (cooling)
C	Transformer common	Transformer common	Transformer common
B/O	Energized in heating	Heat pump changeover valve energized in heating	Heat pump changeover valve energized in heating
B/O	Energized in cooling	Heat pump changeover valve energized in cooling	Heat pump changeover valve energized in cooling
GL	Fan Relay, Low	Fan Relay, Low	Fan Relay, Low
GH	Fan Relay, High	Fan Relay, High	Fan Relay, High
W	First stage of heat	N/A	Second stage of heat
Y	First stage of cool	First stage of heat & cool	First stage of heat & cool

Wiring Tips

C Terminal

The C (common wire) terminal does not have to be connected when the thermostat is powered by batteries.

Wire Specifications

Use shielded or non-shielded 18-22 gauge thermostat wire.

Installation Tip: Do not overtighten terminal block screws, as this can damage the terminal block. A damaged terminal block can keep the thermostat from fitting on the subbase correctly or cause system operation issues. **Max Torque = 6in-lbs.**

Features

Temporary and Permanent Hold Feature   (If using programming)

When cool or heat is turned on, the thermostat will display **HOLD** and **RUN SCHED** on the left of your screen when you press the ⊞ or ⊟ button.

Temporary Hold: At this time if you do nothing, the temperature will remain at this setpoint until next scheduled time period.

Permanent Hold: If you press the **HOLD** key on the left of your screen, you will see **HOLD** appear below the setpoint temperature in the display. The thermostat will now permanently stay at this setpoint and can be adjusted using the ⊞ or ⊟ keys.

To Return to Running Schedule: Press the **RUN SCHED** button on the left of your screen to exit either temporary or permanent hold.

Filter Change Reminder

If your installing contractor has configured the thermostat to remind you when the air filter needs to be changed, you will see **Filter** in the display when your air filter needs to be changed.

Features

Resetting the filter change reminder: When `Filter` reminder is displayed, you should change your air filter and reset the reminder by holding down the second button from the top left side of the thermostat for 3 seconds.
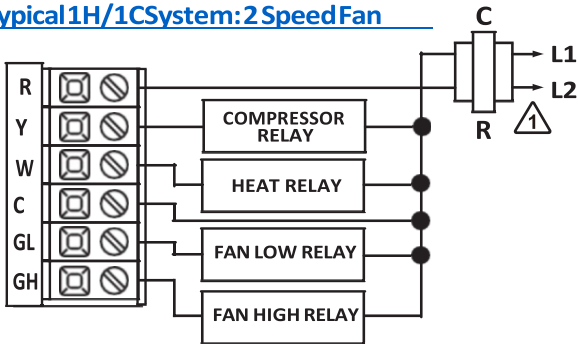
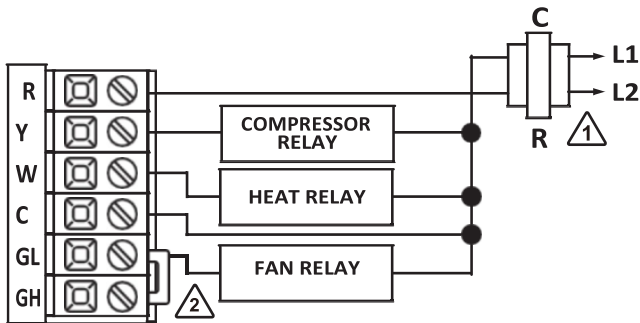Hold down for 3 seconds, to reset filter reminder.
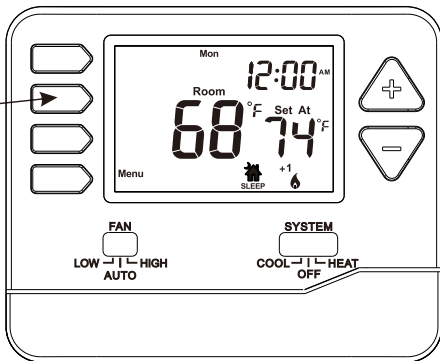
Wiring Diagrams

1. Power supply
2. Jumper (not supplied) to connect GL and GH terminals.
3. Thermostat must be set to O and B to match the changeover valve, O is the cool changeover valve, B is the heat changeover valve.
4. The Aux Heat Relay is energized as the second stage of heat.
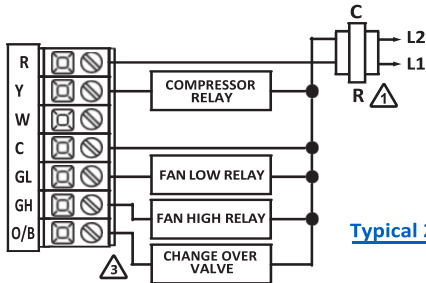
Typical 1H/1C System: 2 Speed Fan

Wiring Diagrams

Typical 1H/1C System: 1 Speed Fan

Wiring Diagrams

Note:
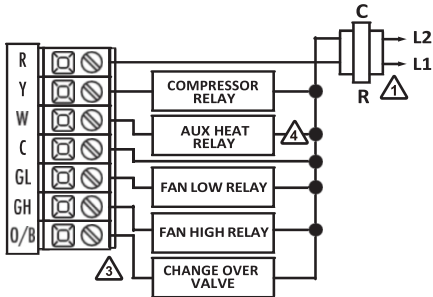
Most PTAC systems support two speed fan operation. In a single speed fan PTAC system or conventional single speed fan system, a jumper should be installed between GL and GH on the thermostat.

Typical 2H/1C Heat Pump System: 2 Speed Fan

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Technician Setup Menu

This thermostat has a technician setup menu for easy installer configuration. To setup the thermostat for your particular application:

1. Press the **MENU** button
2. Press and hold **TECH SET** button for 3 seconds. This 3 second delay is designed so that homeowners do not accidentally access the installer settings.
3. Configure the installer options as desired using the table below.

Use the ⊞ or ⊟ keys to change settings and the **NEXT STEP** or **PREV STEP** key to move from one step to another. **Note:** Only press the **DONE** key when you want to exit the Technician Setup options.

Tech Settings		LCD Will Show	Adjustment Options	Default
Filter Change Reminder	This feature will flash "FILT" in the display after the elapsed run time to remind the user to change the filter. A setting of "OFF" will disable this feature.	Next Step OFF FL SE Prev Step	You can adjust the filter change reminder from OFF to 2000 hours of runtime in 50 hour increments. Tap the second button from the top left side of the thermostat to display the current filter elapsed runtime.	OFF
Link Establish	This step is used to connect thermostat to Base Module. Refer to page 14 for connection instructions.	Next Step PA Ir LE Prev Step	NA	NA
Room Temperature Calibration	This feature allows the installer to change the calibration of the room temperature display. For example, if the thermostat reads 70° degrees and you would like it to read 72° then select +2.	Next Step CAL 0°F Prev Step	You can adjust the room temperature display to read 3° above or below the factory calibrated reading.	0
Minimum Compressor On Time	This feature allows the installer to select the minimum run time for the compressor. For example: a setting of 4 will force the compressor to run for at least 4 minutes every time the compressor turns on, regardless of the room temperature.	Next Step OFF An on Prev Step	You can select the minimum compressor run time from "off", "3", "4", or "5" minutes. If 3,4, or 5 is selected, the compressor will run for at least the selected time before turning off.	OFF

Tech Settings		LCD Will Show	Adjustment Options	Default
Compressor Short Cycle Delay	The compressor short cycle delay protects the compressor from short cycling. This feature will not allow the compressor to be turned on for 5 minutes after it was last turned off.	Next Step **On** **CO** OF Prev Step	Selecting "ON" will not allow the compressor to be turned on for 5 minutes after the last time the compressor was switched off. Select "OFF" to remove this delay.	**ON**
Change Over Valve Selection	Select 0 for a changeover valve that energizes in cooling. Select b for a change over valve that energizes in heating.	Next Step **CO** **0** Prev Step	0 for cooling changeover valve. b for heating changeover valve.	**0**
Heat Pump	When turned on the thermostat will operate a heat pump. Y will be the first stage of heat & cool, W will be the second stage of heat.	Next Step **OFF** **HU** Prev Step	OFF configures the thermostat for non heat pump systems. ON configures the thermostat for heat pump systems.	**OFF**

Tech Settings	LCD Will Show	Adjustment Options	Default
Cooling Swing	Next Step dF C0 **0.5** °F Prev Step	The cooling swing setting is adjustable from 0.2° to 2°. For example: A swing setting of 0.5° will turn the cooling on at approximately 0.5° above the setpoint and turn the cooling off at approximately 0.5° below the setpoint.	0.5
Heating Swing	Next Step dF HE **0.4** °F Prev Step	The heating swing setting is adjustable from 0.2° to 2°. For example: A swing setting of 0.5° will turn the heating on at approximately 0.5° below the setpoint and turn the heating off at approximately 0.5° above the setpoint.	0.4
Heating Setpoint Limit	Next Step HEL **90** °F Prev Step	Use the [+] and [−] key to select the maximum heat setpoint.	90

The swing setting often called "cycle rate", "differential" or "anticipation" is adjustable. A smaller swing setting will cause more frequent cycles and a larger swing setting will cause fewer cycles.

The swing setting often called "cycle rate", "differential" or "anticipation" is adjustable. A smaller swing setting will cause more frequent cycles and a larger swing setting will cause fewer cycles.

This feature allows you to set a maximum heat setpoint value. The setpoint temperature cannot be raised above this value.

Tech Settings		LCD Will Show	Adjustment Options	Default
Cooling Setpoint Limit	This feature allows you to set a minimum cool setpoint value. The setpoint temperature cannot be lowered below this value.	Next Step **COL** **44** °F Prev Step	Use the ⊞ and ⊟ key to select the minimum cool setpoint.	44
F or C	Select F for Fahrenheit temperature read out or select C for Celsius read out.	Next Step °F **82** °F Prev Step	F for Fahrenheit C for Celsius	F
12 or 24 Hour Clock	You can select either a 12 or 24 hour clock setting.	Next Step **24H** Prev Step	Use the ⊞ and ⊟ to select 12 or 24 hour clock.	12
Fan Operation	Select GAS for systems that control the fan during a call for heat. Select ELEC to have the thermostat control the fan during a call for heat.	Next Step **GAS** Prev Step	GAS - GS or ELEC - EL	GAS

Tech Settings

Tech Settings	LCD Will Show	Adjustment Options	Default
Program Options	Next Step Pr 0G 5d Prev Step	You can configure this thermostat to have 7 Day, 5+1+1 programming or non programmable. Note: If 7d is selected, in set schedule you will program all seven days individually. If 5d is selected, in set schedule you will program Monday – Friday together and Saturday and Sunday individually. If 0d is selected the thermostat becomes non-programmable and the Set Schedule button goes away in Menu.	Use the ⊞ and ⊟ key to select **7d** for 7 Day, **5d** for 5+1+1, or **0d** for non programmable.
			5d

Swing Setting

The second stage will turn on at 2x the swing setting. The second stage will turn off when 1x the swing is reached. For example, if the swing setting is 0.8° for heating and the thermostat is set at 70° F, the first stage will turn on at approximately 69.2° F. The second stage will turn on at 68.4°F and the first will turn off at 70.8° F.

Reestablishing Communication

Set Time (If using programming)

1. Press the **MENU** button
2. Press **SET TIME**
3. Day of the week will be flashing. Use the ⊞ or ⊟ key to select the current day of the week.
4. Press **NEXT STEP**
5. The current hour is flashing. Use the ⊞ or ⊟ key to select the current hour. When using 12-hour time, make sure the correct a.m. or p.m. choice is selected.
6. Press **NEXT STEP**
7. Minutes are now flashing. Use the ⊞ or ⊟ key to select current minutes.

8. Press **DONE** when completed.

Establishing Communication between Thermostat & the base module

The thermostat and base module come factory linked out of the box. If however, communication is lost, follow this easy- **Two Step** process to re-establish the communication link.

1. Press and hold the base module learn button for 3 seconds. The **Red LED** will flash when ready to receive initial signal from **Thermostat** . (Base module must be powered by 24V).

2. Press the MENU button,Press and hold TECH SET button for 3 seconds.Use the $\boxed{+}$ or $\boxed{-}$ to change settings until LE is displayed.Press and hold learn button for 3 seconds,the red LED on the base module will stop flashing after communication has been estabilshed between base module and thermostat
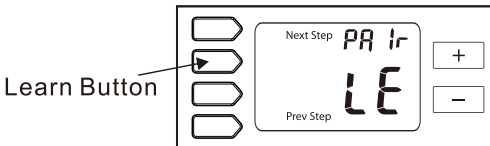
Step 1.
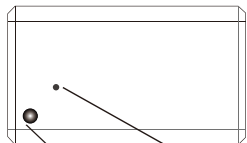
Step 2.

Learn Button

Red LED   Learn Button

Next Step   PA ir

Prev Step   LE

+

–

Programming

All of our programmable thermostats are shipped with an energy saving pre-program. You can customize this default program by following the steps on page 15.

Your thermostat can be programmed to have all the weekdays the same, a separate program for Saturday, and a separate program for Sunday or 7 Days individually. There are four time periods for each program **(WAKE, LEAVE, RETURN, SLEEP).**

Factory Default Program				
Day of the Week	Events	Time	Setpoint Temperature (HEAT)	Setpoint Temperature (COOL)
Weekday	Wake	6 AM	70˚F (21˚C)	75˚F (24˚C)
	Leave	8 AM	62˚F (17˚C)	83˚F (29˚C)
	Return	6 PM	70˚F (21˚C)	75˚F (24˚C)
	Sleep	10 PM	62˚F (17˚C)	78˚F (26˚C)
Saturday	Wake	6 AM	70˚F (21˚C)	75˚F (24˚C)
	Leave	8 AM	62˚F (17˚C)	83˚F (29˚C)
	Return	6 PM	70˚F (21˚C)	75˚F (24˚C)
	Sleep	10 PM	62˚F (17˚C)	78˚F (26˚C)
Sunday	Wake	6 AM	70˚F (21˚C)	75˚F (24˚C)
	Leave	8 AM	62˚F (17˚C)	83˚F (29˚C)
	Return	6 PM	70˚F (21˚C)	75˚F (24˚C)
	Sleep	10 PM	62˚F (17˚C)	78˚F (26˚C)

Set Program Schedule 5+1+1 or 7 Day

To customize your program schedule, follow these steps.

1. Select **HEAT** or **COOL** with the system switch. **Note:** You have to program heat and cool each seperately.

2. Press the **MENU** button (If menu does not appear first press **RUN SCHED**)

3. Press **SET SCHED**. Note: Monday-Friday or **(Monday if in 7 Day)** is displayed and the **WAKE** icon is shown. You are now programming the wake time period for that day.

4. Time is flashing. Use the $\boxed{+}$ or $\boxed{-}$ key to make your time selection for that day's **WAKE** time period.

5. Press **NEXT STEP**

6. The setpoint temperature is flashing. Use the $\boxed{+}$ or $\boxed{-}$ key to make your setpoint selection for that day's **WAKE** time period.

7. Press **NEXT STEP**

8. Repeat steps 4 thru 7 for that day's **LEAVE** time period, **RETURN** time period, and **SLEEP** time period.

Saturday:
Repeat steps 4 through 7 for the Saturday **WAKE** time period, **LEAVE** time period, **RETURN** time period, and for the Saturday **SLEEP** time period.

Sunday:
Repeat steps 4 through 7 for the Sunday **WAKE** time period, **LEAVE** time period, **RETURN** time period, and for the Sunday **SLEEP** time period.

Set Program Schedule 5+1+1 or 7 Day (Continue...)

If using 7-Day Programming use previous steps for every individual day.

You can also use these time saving functions. You must be in **Set Sched** Programming Mode (**Press Menu** >> **Press Set Sched**) for the following functions to work:

1) To copy ALL time periods and temperatures of current system and day to ALL days, Press and Hold 2nd button down on left until the Days and Time flash.

-English: "
This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions:
(1) this device may not cause interference, and
(2) this device must accept any interference, including interference that may cause undesired operation of the device."

-French:"
Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :
(1) l'appareil nedoit pas produire de brouillage, et
(2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement."

FCC STATEMENT :

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) This device must accept any interference received, including interference that may cause undesired operation.

Warning: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: 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.

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

Installation Manual