

Tranquility® Digital Air Handler (TAH)

97B0048N07

Air Handler for
Tranquility® Split Series

Installation, Operation &
Maintenance Instructions

Rev.: October 18, 2022

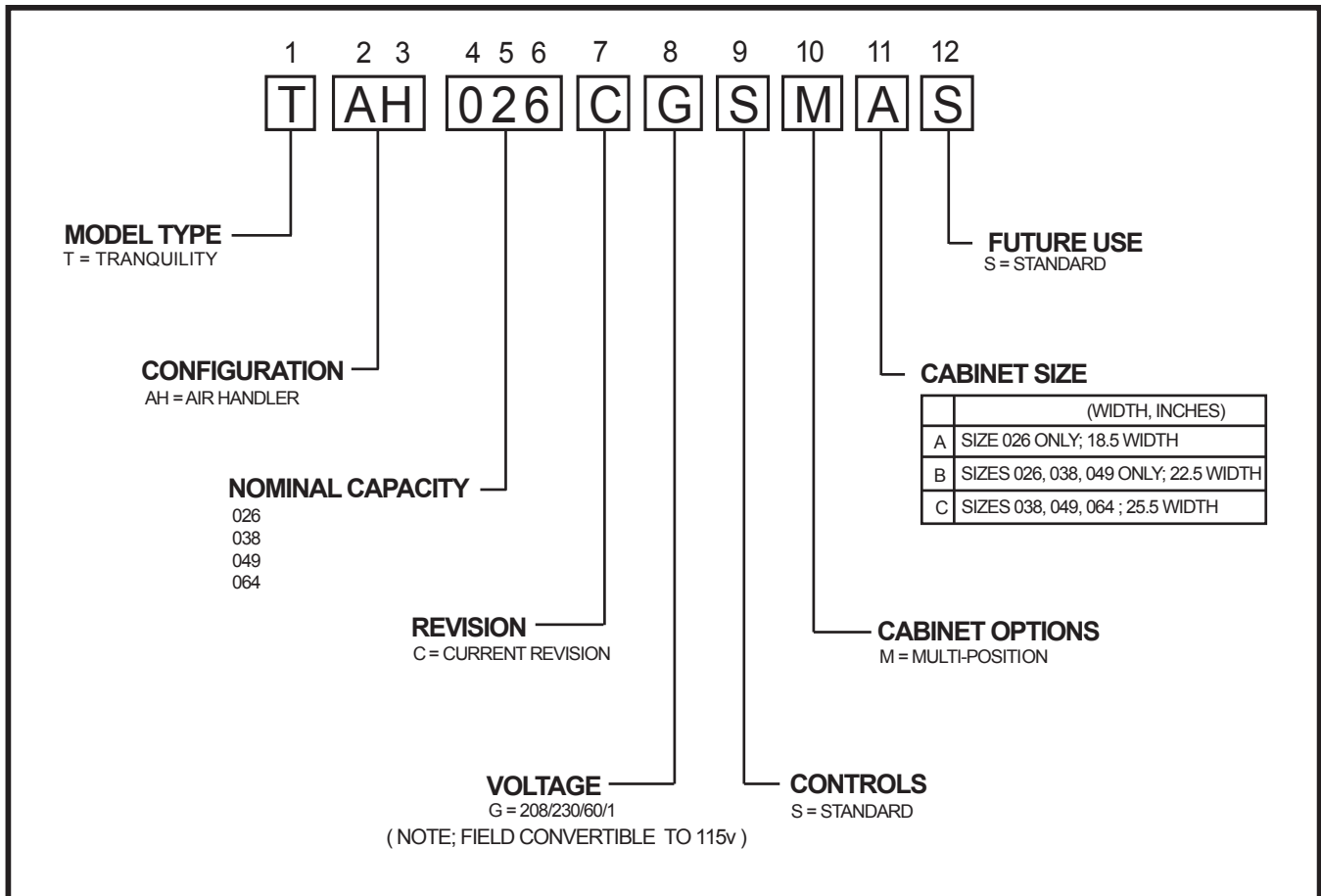


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Model Nomenclature



General Information

AIR HANDLER DESCRIPTION

ClimateMaster Tranquility® Digital Air Handlers are designed for use with Tranquility indoor/outdoor split units and are available for vertical upflow or downflow, and horizontal left or horizontal right airflow.

- The AXM board allows 4-wire connection with communicating split (TEP/TES) and AWC Communicating Thermostat. Airflow and accessories can be configured on the thermostat in plain English.
- Air coils are constructed of aluminum fins bonded to internally grooved aluminum tubing.
- Air coils are tested at the factory with an extensive refrigerant leak check.
- Air coils have sweat refrigerant connections.
- Ideally suited for new installations or add on air conditioning.
- Feature two sets of 3/4" FPT Condensate drain connections for ease of connection.
- Air handlers are AHRI certified for system application with ClimateMaster indoor and outdoor split units.
- Condensate drain pan is constructed of high grade, heat resistant, corrosion free thermal-set material.
- Unique drain pan design maximizes application flexibility and condensate removal.

INSPECTION

Upon receipt of the equipment, carefully check the shipment against the bill of lading. Make sure all units have been received. Inspect the packaging of each unit, and inspect each unit for damage. Insure that the carrier makes proper notation of any shortages or damage on all copies of the freight bill and completes a common carrier inspection report. Concealed damage not discovered during unloading must be reported to the carrier within 15 days of receipt of shipment. If not filed within 15 days, the freight company can deny the claim without recourse. **NOTE: It is the responsibility of the purchaser to file all necessary claims with the carrier. Notify your equipment supplier of all damage within fifteen (15) days of shipment.**

STORAGE

Equipment should be stored in its original packaging in a clean, dry area. Store units in an upright position at all times. Stack units a maximum of 3 units high.

UNIT PROTECTION

Cover units on the job site with either the original packaging or an equivalent protective covering. Cap the open ends of pipes stored on the job site. In areas where painting, plastering, and/or spraying has not been completed, all due precautions must be taken to avoid physical damage to the units and contamination by foreign material. Physical damage and contamination may prevent proper start-up and may result in costly equipment clean-up.

Examine all pipes, fittings, and valves before installing any of the system components. Remove any dirt or debris found in or on these components.

PRE-INSTALLATION

Installation, Operation, and Maintenance instructions are provided with each unit. Horizontal equipment is designed for installation above false ceiling or in a ceiling plenum. Other unit configurations are typically installed in a mechanical room. The installation site chosen should include adequate service clearance around the unit. Before unit start-up, read all manuals and become familiar with the unit and its operation. Thoroughly check the system before operation.

Prepare units for installation as follows:

1. Compare the electrical data on the unit nameplate with ordering and shipping information to verify that the correct unit has been shipped.
2. Keep the cabinet covered with the original packaging until installation is complete and all plastering, painting, etc. is finished.
3. Verify refrigerant tubing is free of kinks or dents and that it does not touch other unit components.
4. Inspect all electrical connections. Connections must be clean and tight at the terminals.

WARNING!

WARNING! These instructions are intended as an aid to qualified licensed service personnel for proper installation, adjustment and operation of this unit. Read these instructions thoroughly before attempting installation or operation. Failure to follow these instructions may result in improper installation, adjustment, service or maintenance possibly resulting in property damage, personal injury or death.

CAUTION!

CAUTION! DO NOT store or install units in corrosive environments or in locations subject to temperature or humidity extremes. Corrosive conditions and high temperature or humidity can significantly reduce performance, reliability, and service life.

CAUTION!

CAUTION! CUT HAZARD - Failure to follow this caution may result in personal injury. Sheet metal parts may have sharp edges or burrs. Use care and wear appropriate protective clothing, safety glasses and gloves when handling parts and servicing.

Safety

The installation of water source heat pump units and all associated components, parts and accessories which make up the installation shall be in accordance with the regulations of ALL authorities having jurisdiction and MUST conform to all applicable codes. It is the responsibility of the installing contractor to determine and comply with ALL applicable codes and regulations.

REPLACEMENT PARTS

Any replacement part must be the same as or an approved alternate to the original part supplied. The manufacturer will not be responsible for replacement parts not designed to physically fit or operate within the design parameters the original parts were selected for. When ordering replacement parts, it is necessary to order by part number and include the complete model number and serial number from the coil rating plate. (See parts list for unit component part numbers. Parts are available through the local distributor.)

SAFETY

Warnings, cautions and notices appear throughout this manual. Read these items carefully before attempting any installation, service, or troubleshooting of the equipment.

DANGER: Indicates an immediate hazardous situation, which if not avoided will result in death or serious injury. DANGER labels on unit access panels must be observed.

WARNING: Indicates a potentially hazardous situation, which if not avoided could result in death or serious injury.

CAUTION: Indicates a potentially hazardous situation or an unsafe practice, which if not avoided could result in minor or moderate injury or product or property damage.

NOTICE: Notification of installation, operation or maintenance information, which is important, but which is not hazard-related.

WARNING!

WARNING! The EarthPure® Application and Service Manual should be read and understood before attempting to service refrigerant circuits with HFC-410A.

WARNING!

WARNING! To avoid the release of refrigerant into the atmosphere, the refrigerant circuit of this unit must be serviced only by technicians who meet local, state, and federal proficiency requirements.

CAUTION!

CAUTION! It is recommended that an auxiliary secondary drain pan be installed under units containing evaporator coils that are located in any area of a structure where damage to the building or building contents may occur as a result of an overflow of the coil drain pan or a stoppage in the primary condensate drain piping.

WARNING!

WARNING! All refrigerant discharged from this unit must be recovered WITHOUT EXCEPTION. Technicians must follow industry accepted guidelines and all local, state, and federal statutes for the recovery and disposal of refrigerants. To avoid leakage of compressor oil, refrigerant lines of the compressor must be sealed after it is removed.

CAUTION!

CAUTION! To avoid equipment damage, DO NOT use these units as a source of heating or cooling during the construction process. The mechanical components and filters will quickly become clogged with construction dirt and debris, which may cause system damage.

The following warning complies with State of California law, Proposition 65.

WARNING!

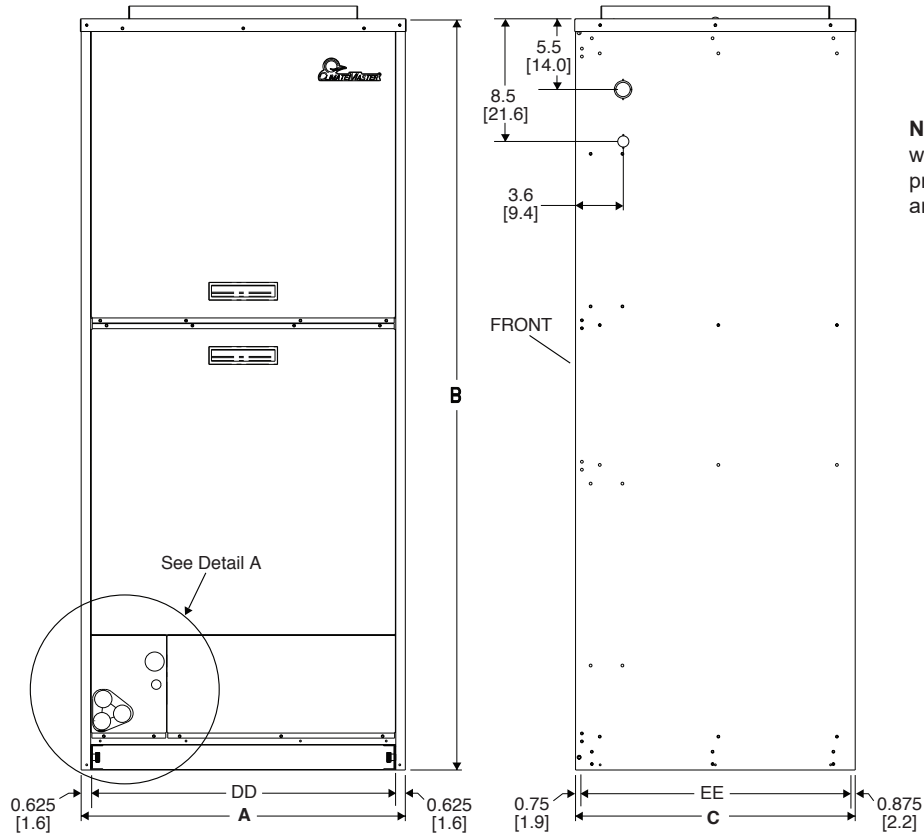
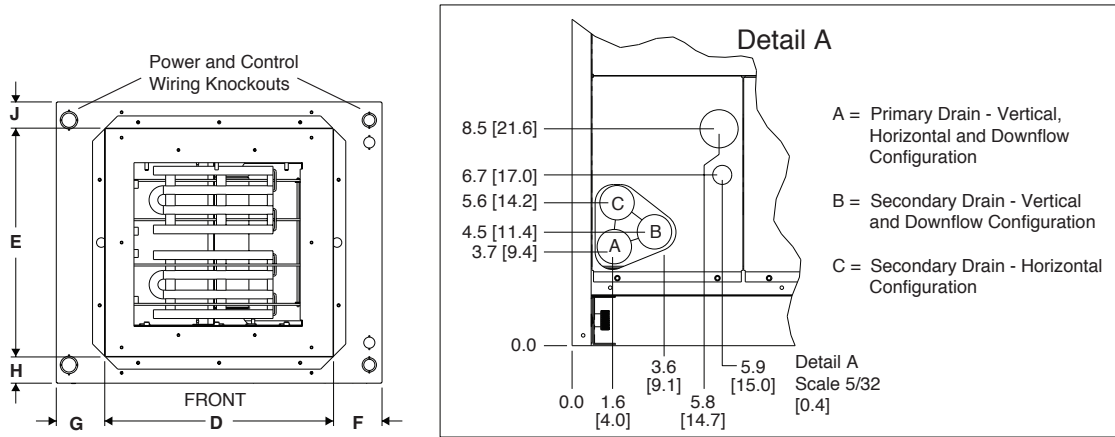
WARNING! This product can expose you to chemicals including Carbon Black, which is known to the State of California to cause cancer and Methanol, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Unit Physical Data

Table 1: TAH Physical Data

Model	026-A	026-B	038-B	038-C	049-B	049-C	064-C
Liquid I.D. in.	3/8	3/8	3/8	3/8	3/8	3/8	3/8
Suction I.D. in.	3/4	3/4	7/8	7/8	7/8	7/8	7/8
Fan Motor Type/Speeds	ECM Variable						
Fan Motor (hp)	1/2				1		
Blower Wheel Size (Dia x W) in. [mm]	9 x 7 [229 x 178]		11 x 10 [279 x 254]				
Air Coil Dimensions (H x W) in. [mm]	14 x 17 [356 x 432]		24 x 17 [610 x 432]				24x17 [610 x 432]
Filter Standard - 1" [25mm] Thick Throwaway in. [mm]	16 x 20 [406 x 508]	20 x 20 [508 x 508]		20 x 24 [508 x 610]	20 x 20 [508 x 508]	20 x 24 [508 x 610]	
Weight - Operating lbs. [kg]	80 [36]	163 [74]	173 [78]	181 [82]	180 [82]	188 [85]	198 [90]
Weight - Packaged lbs. [kg]	96 [44]	179 [81]	198 [90]	206 [93]	218 [99]	226 [103]	236 [107]

Unit Dimensional Data



Cabinet Size	Overall Cabinet			Supply Air Opening		Return Air Opening		F	G	H	J	
	A Width	B Height	C Depth	D Width	E Depth	DD Width	EE Depth					
A - Cabinet	in.	18.5	44.0	22.0	14.0	14.0	17.3	20.4	2.3	2.3	4.1	4.1
	cm.	47.0	111.8	55.9	35.6	35.5	43.9	51.8	5.8	5.8	10.3	10.3
B - Cabinet	in.	22.0	55.0	22.0	18.0	18.0	20.8	20.4	2.1	2.1	2.1	2.1
	cm.	55.9	139.7	55.9	45.7	45.7	52.8	51.8	5.2	5.2	5.2	5.2
C - Cabinet	in.	25.5	59.0	22.0	18.0	18.0	24.3	20.4	3.8	3.8	2.1	2.1
	cm.	64.8	149.9	55.9	45.7	45.7	61.7	51.8	9.9	9.9	5.2	5.2

Installation

The TAH Air Handler(s) are designed for upflow, horizontal, and downflow applications. The coils have a dry nitrogen holding charge and are equipped with brazing stub refrigerant connections for easy installation. All models come equipped with a factory installed TXV.

THE INSTALLER SHOULD:

- Where precise forming of refrigerant lines is required, a tubing bender is recommended for copper tubing. One should avoid sharp bends and contact of the refrigerant lines with metal surfaces.
- Refrigerant lines should be protected where they pass through the raw edges of holes.
- Air handler must be level or slightly pitched toward drain for proper condensate drainage.
- Seal the openings into the cabinet to reduce risk of condensate blow off from the coil.

Air Handler Installation



WARNING!

WARNING! Electric furnaces may be connected to more than one supply circuit.

CHARGING THE SYSTEM

TAH Air Handler(s) are designed to match TEP/TES split units. For correct charging, please refer to the Compressor Section IOM.

UPFLOW INSTALLATION

- Position unit on plenum box or other suitable foundation. Provide a minimum height for proper unrestricted airflow based on CFM requirement for each unit size.
- If a return air duct is connected to the air handler, it must be the same dimensions as shown in the outline drawing in Figure 1.
- Plenum box and unit should be isolated from the foundation using a suitable isolating material.
- Openings where field wiring enters the cabinet must be completely sealed. Location of power entry is shown on the outline drawing.
- After ductwork connections are made, seal airtight and per local codes.

DOWNFLOW INSTALLATION

- Position unit on plenum box or other suitable foundation. Provide a minimum height for proper unrestricted airflow based on CFM requirement for each unit size.
- If a return air duct is connected to the air handler, it must be the same dimensions as shown in the outline drawing in Figure 1.
- Plenum box and unit should be isolated from the foundation using a suitable isolating material.
- Openings where field wiring enters the cabinet must be completely sealed. Location of power entry is shown on the outline drawing.

- After ductwork connections are made, seal airtight and per local codes.
- The unit is then placed with the blower side down and the coil is replaced on the coil channel supports with the drain connections at the bottom. The unit is now in downflow position with front access. Position the ECM wire harness connection at the 4 to 8 o'clock position to prevent condensation from entering motor controller.
- If a return duct is connected to the air handler, it must be the same dimensions as the return opening.
- After ductwork connections are made, seal airtight and per local codes.

HORIZONTAL RIGHT INSTALLATION

For horizontal installations where access to the factory provided air filter is limited it is recommended to remove the factory filter and use a properly sized remote filter grille/box to maintain maximum efficiency and for customer ease of filter maintenance. Unit airflow should not exceed the rated velocity of the air filter that is used.

- To convert the unit to horizontal right, front access, slide the coil out on the coil channel supports and rotate the complete coil 180 degrees.
- The coil is then inserted back into the cabinet on the opposite side coil channel supports. The unit is now horizontal right with front access. Rotate blower motor as needed so that wiring connections are at the 4 to 8 o'clock position. This will prevent any condensation present on the wiring from entering the motor.
- If the unit is suspended, it must be supported from the bottom near both ends as well as the middle to prevent sagging. The service access must remain unobstructed. If the unit is supported along the length of the front and back with rails, the air handler only needs to be suspended at both ends. See Figure 2. If the unit is not suspended it must be supported as mentioned above and isolated carefully to prevent sound transmission. Vibration isolators (purchased locally) must be placed under the unit.
- It is always recommended that an auxiliary drain pan be installed under a horizontal air handler (See Figure 2) to prevent possible damage to ceilings.
- Isolate the auxiliary drain pan from the unit or from the structure.
- Connect the auxiliary drain line to a separate drain line (no trap is needed in this line) and terminate according to national and local codes.
- If a return duct is connected to the air handler, it must be the same dimensions as the return opening shown in the outline drawing on Figure 1.
- Openings where field wiring enters the cabinet must be completely sealed.
- After ductwork connections are made, seal airtight and per local codes.

Installation (Cont.)

HORIZONTAL LEFT INSTALLATION

For horizontal installations where access to the factory provided air filter is limited it is recommended to remove the factory filter and use a properly sized remote filter grille/box to maintain maximum efficiency and for customer ease of filter maintenance. Unit airflow should not exceed the rated velocity of the air filter that is used.

1. Unit is shipped from the factory in the upflow or horizontal left configuration. Unit conversion is not required. Rotate blower motor as needed so that wiring connections are at the 4 to 8 o'clock position. This will prevent any condensation present on the wiring from entering the motor.
2. If the unit is suspended, it must be supported from the bottom near both ends as well as the middle to prevent sagging. The service access must remain unobstructed. If the unit is supported along the length of the front and back, the air handler only needs to be suspended at both ends. See Figure 2.
3. If the unit is not suspended it must be supported as mentioned above and isolated carefully to prevent sound transmission. Vibration isolators (purchased locally) must be placed under the unit.
4. It is always recommended that an auxiliary drain pan be installed under a horizontal air handler (See Figure 2) to prevent possible damage to ceilings.
5. Isolate the auxiliary drain pan from the unit or from the structure.
6. Connect the auxiliary drain line to a separate drain line (no trap is needed in this line) and terminate according to national and local codes.
7. If a return duct is connected to the air handler, it must be the same dimensions as the return opening shown in the outline drawing on Figure 1.
8. Openings where field wiring enters the cabinet must be completely sealed. Location of power entry is shown on the outline drawing.
9. After ductwork connections are made, seal airtight and per local codes.

DUCT CONNECTIONS

The supply and return air ducts should be connected to the unit with flame retardant duct connectors.

NOTE: No sheetmetal screws may be used to attach return ductwork on the side.

NOTE: Any duct board return connection can be made to the sides of the unit using tape or mastic.

Figure 2: Mounting Installation Options

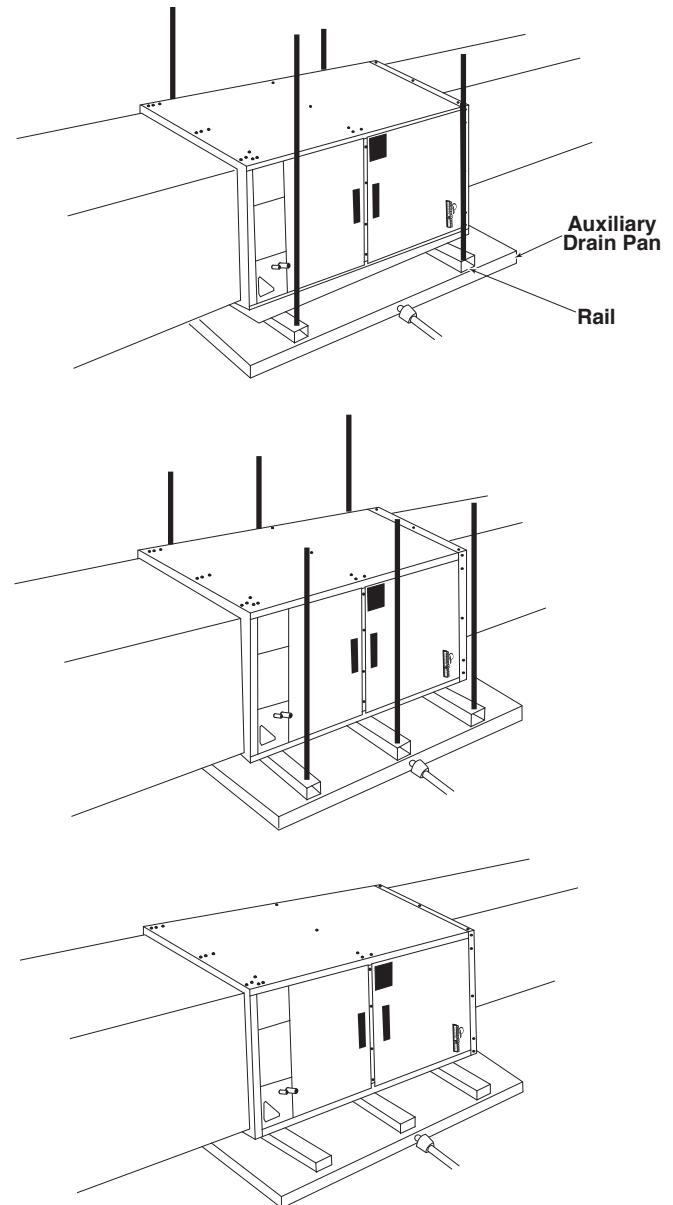
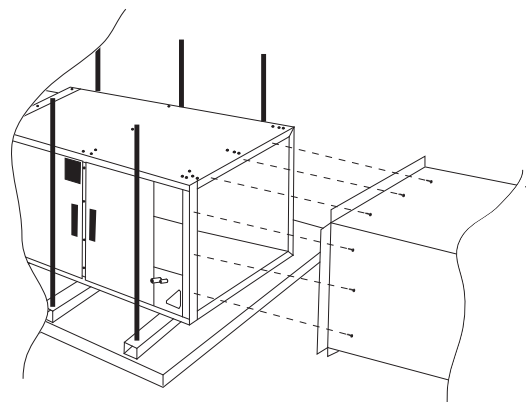


Figure 3: Flange Attachment



Installation (Cont.)

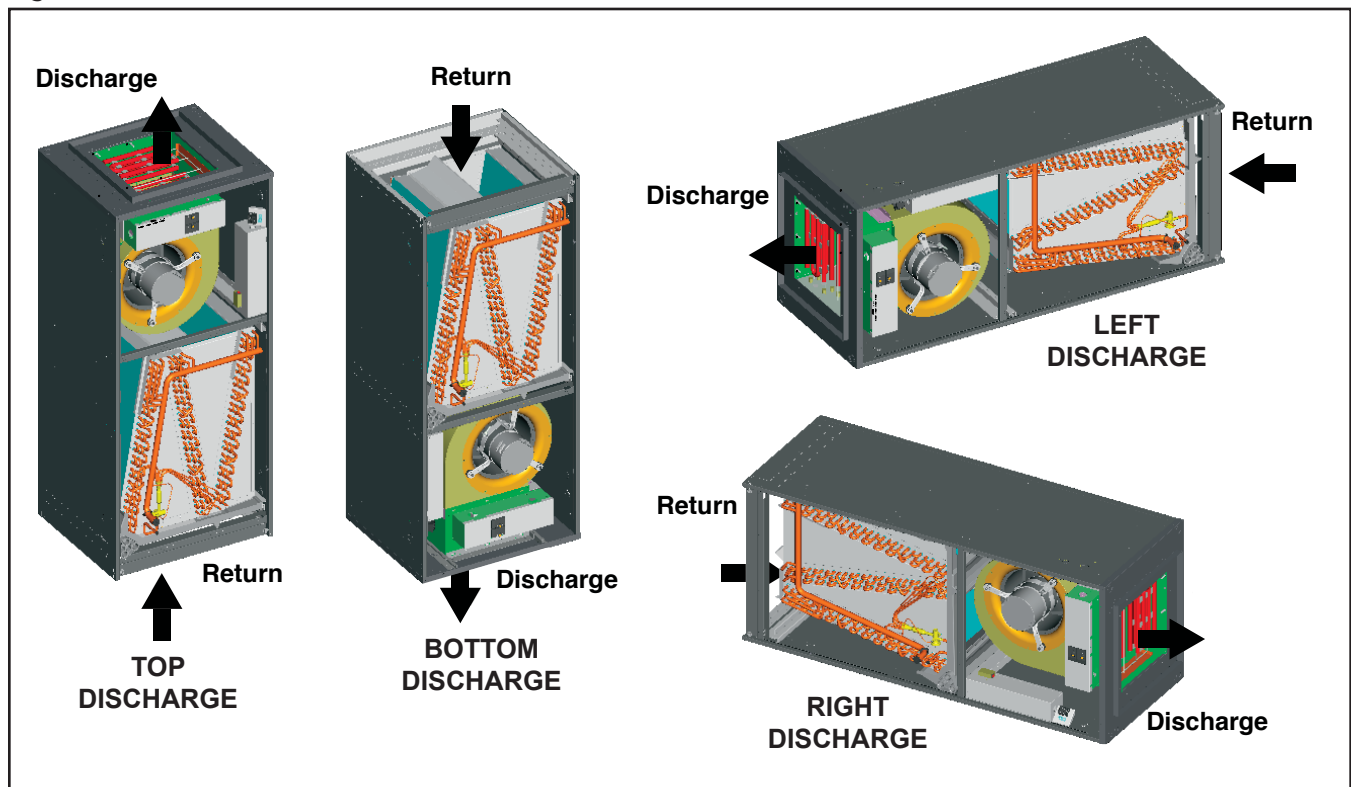
APPLICATIONS

TAH Air Handler(s) can be applied in upflow, downflow, horizontal right and horizontal left applications. For horizontal applications, installation of an auxiliary/secondary drain pan is always recommended to prevent possible damage to ceilings.

⚠ CAUTION! ⚠

CAUTION! For horizontal applications, the horizontal drain pan must be located under the indoor coil. Failure to place the pan under the coil can result in property damage.

Figure 4: Air Handler Orientation



TAH 1" TO 2" FILTER RACK CONVERSION

The unit is shipped with 1" filter rack from the factory. The conversion process is assumed that the unit is in upflow configuration.

1. Place unit on a flat surface. Remove 2 knurled thumb knobs that secure the filter rack door at the bottom of the unit.
2. Remove 3 screws that secure the lower filter tracks on each side of the unit.
3. Lift and rotate the filter tracks upside down and reinstall filter tracks and screws back.
4. Replace the filter rack door and the 2 knurled thumb knobs.

Installation (Cont.)

⚠ CAUTION! ⚠

CAUTION! HFC-410A systems operate at higher pressures than R-22 systems. Be certain that service equipment (gauges, tools, etc.) is rated for HFC-410A. Some R-22 service equipment may not be acceptable.

⚠ CAUTION! ⚠

CAUTION! Installation of a factory supplied liquid line bi-directional filter drier is required. Never install a suction line filter in the liquid line.

LINE SET INSTALLATION

Figure 7 illustrates a typical installations of an air handler or cased coil matched to an indoor compressor section. Table 2 shows typical line-set diameters at various lengths. Lineset lengths should be kept to a minimum and should always be installed with care to avoid kinking. Line sets are limited to 60 feet (18 meters) in length (one way). Line sets over 60 feet void the equipment warranty. If the line set is kinked or distorted, and it cannot be formed back into its original shape, the damaged portion of the line should be replaced. A restricted line set will effect the performance of the system.

All brazing should be performed using nitrogen circulating at 2-3 psi [13.8-20.7 kPa] to prevent oxidation inside the tubing. All linesets should be insulated with a minimum of 1/2" [13mm] thick closed cell insulation. All insulation tubing should be sealed using a UV resistant paint or covering to prevent deterioration from sunlight.

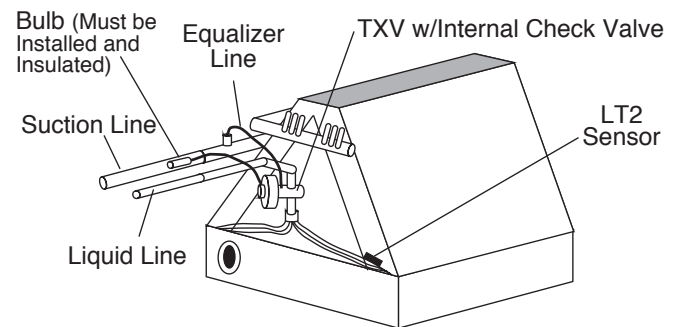
See compressor section IOM for refrigerant charge information.

When passing refrigerant lines through a wall, seal opening with silicon-based caulk. Avoid direct contact with water pipes, duct work, floor joists, wall studs, floors or other structural components that could transmit compressor vibration. Do not suspend refrigerant tubing from joists with rigid straps. Do not attach line set to the wall. When necessary, use hanger straps with isolation sleeves to minimize transmission of line set vibration to the structure.

INSTALLING THE INDOOR COIL AND LINESET

Figure 5 shows the installation of the lineset and TXV bulb to a typical indoor coil. Braze the copper line set to the coil. Nitrogen should be circulated through the system at 2-3 psi [13.8-20.7 kPa] to prevent oxidation inside the refrigerant tubing. Use a low silver phos-copper braze alloy on all brazed connections.

Figure 5: Air Coil Connection



SENSING BULB

IMPORTANT: DO NOT perform any brazing with the TXV bulb attached to any line. After brazing operations have been completed, clamp the TXV bulb securely on the suction line at the 10 or 2 o'clock position with the strap provided in the parts bag. Insulate the TXV sensing bulb and suction line with the provided pressure sensitive insulation.

IMPORTANT: TXV sensing bulb should be located on a horizontal section of copper suction line, just outside of coil box. The copper sensing bulb must never be placed on any aluminum tube as this will result in galvanic corrosion and eventual failure of the aluminum tube.

IMPORTANT: Always protect TXV from heat when brazing.

AIR COIL

To obtain maximum performance of a newly manufactured air coil it should be cleaned before start-up. A 10% solution of dishwasher detergent and water is recommended for both sides of the coil. A thorough water rinse should follow.

Table 2: Line Set Diameters

Model	20 feet [6 meters]		40 feet [12 meters]		60 feet [18 meters]	
	Liquid	Suction	Liquid	Suction	Liquid	Suction
TES/P026 in.	3/8"	3/4"	3/8"	3/4"	3/8"	3/4"
TES/P038 in.	3/8"	7/8"	3/8"	7/8"	3/8"	7/8"
TES/P049 in.	3/8"	7/8"	3/8"	7/8"	3/8"	7/8"
TES/P064 in.	1/2"	7/8"	1/2"	7/8"	1/2"	7/8"

* 60 feet (18 meters) is the maximum line set length.

Installation (Cont.)

EVACUATION AND CHARGING THE UNIT

LEAK TESTING - The refrigeration line set must be pressurized and checked for leaks before evacuating and charging the unit. To pressurize the line set, attach refrigerant gauges to the service ports and add an inert gas (nitrogen or dry carbon dioxide) until pressure reaches 60-90 psig [413-620 kPa]. Never use oxygen or acetylene to pressure test. Use a good quality bubble solution to detect leaks on all connections made in the field. Check the service valve ports and stem for leaks. If a leak is found, repair it and repeat the above steps. For safety reasons do not pressurize system above 150 psig [1034 kPa]. System is now ready for evacuation and charging.

CONDENSATE DRAIN TUBING

Consult local codes or ordinances for specific requirements.

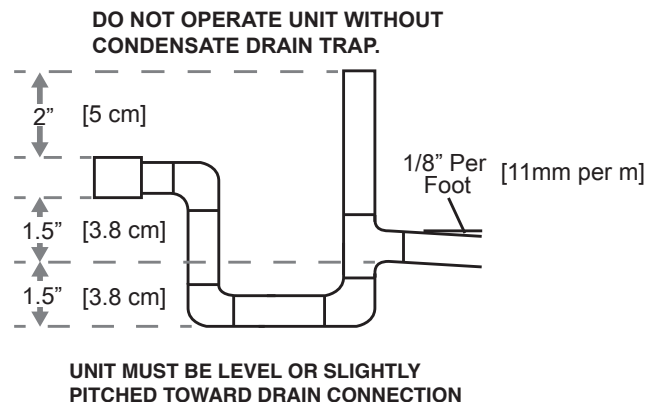
IMPORTANT: When making drain fitting connections to the drain pan, use a thin layer of Teflon paste, silicone or Teflon tape and install hand tight.

IMPORTANT: When making drain fitting connections to drain pan, do not overtighten. Overtightening fittings can split pipe connections on the drain pan.

- Install drain lines so they do not block service access to front of the unit. Minimum clearance of 24 inches (61 cm) is required for filter, coil or blower removal and service access.
- Make sure unit is level or pitched slightly toward primary drain connection so that water will drain completely from the pan (See Figure 6).
- Do not reduce drain line size less than connection size provided on condensate drain pan.
- All drain lines must be pitched downward away from the unit a minimum of 1/8" per foot (11 mm per m) of line to ensure proper drainage.
- Do not connect condensate drain line to a closed or open sewer pipe. Run condensate to an open drain or outdoors.
- The drain line should be insulated where necessary to prevent sweating and damage due to condensate forming on the outside surface of the line.
- Make provisions for disconnecting and cleaning of the primary drain line should it become necessary. Install condensate trap at each unit with the top of the trap positioned below the unit condensate drain connection as shown in Figure 6. Design the depth of the trap (water-seal) based upon the amount of ESP capability of the blower (where 2 inches [51mm] of ESP capability requires 2 inches [51mm] of trap depth). As a general rule, 1-1/2 inch [38mm] trap depth is the minimum.

- Always vent the condensate line when dirt or air can collect in the line or a long horizontal drain line is required. Also vent when large units are working against higher external static pressure than other units connected to the same condensate main since this may cause poor drainage for all units on the line. **WHEN A VENT IS INSTALLED IN THE DRAIN LINE, IT MUST BE LOCATED AFTER THE TRAP IN THE DIRECTION OF THE CONDENSATE FLOW.**
- Auxiliary drain line should be run to a place where it will be noticeable if it becomes operational. Occupant should be warned that a problem exists if water should begin running from the auxiliary drain line.
- Plug the unused drain connection with the plugs provided in the parts bag, using a thin layer of Teflon paste, silicone or Teflon tape to form a water tight seal.
- Test condensate drain pan and drain line after installation is complete. Pour water into drain pan, enough to fill drain trap and line. Check to make sure drain pan is draining completely, no leaks are found in drain line fittings, and water is draining from the termination of the primary drain line.

Figure 6: Condensate Drain Trap



It is always recommended that an auxiliary drain pan be installed under a horizontally installed air handler.

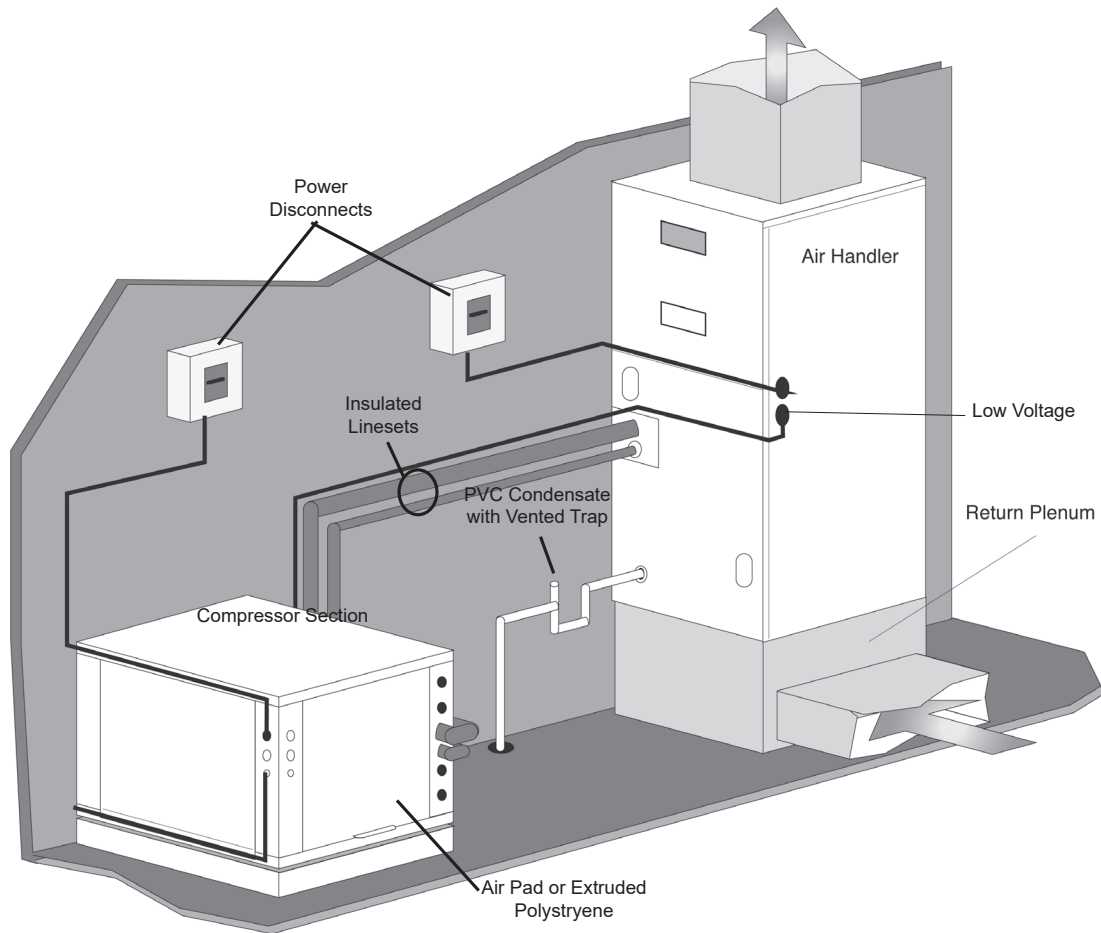
Connect the auxiliary drain line to a separate drain line (no trap is needed in this line) and terminate according to local codes.

NOTE: DO NOT use a torch or flame near the plastic drain pan coupling.

NOTE: DO NOT tighten the drain pipe excessively. Support the condensate piping and traps outside the unit to prevent strain on the drain connection.

Installation (Cont.)

Figure 7: Typical Split/Air Handler Installation



Installation (Cont.)

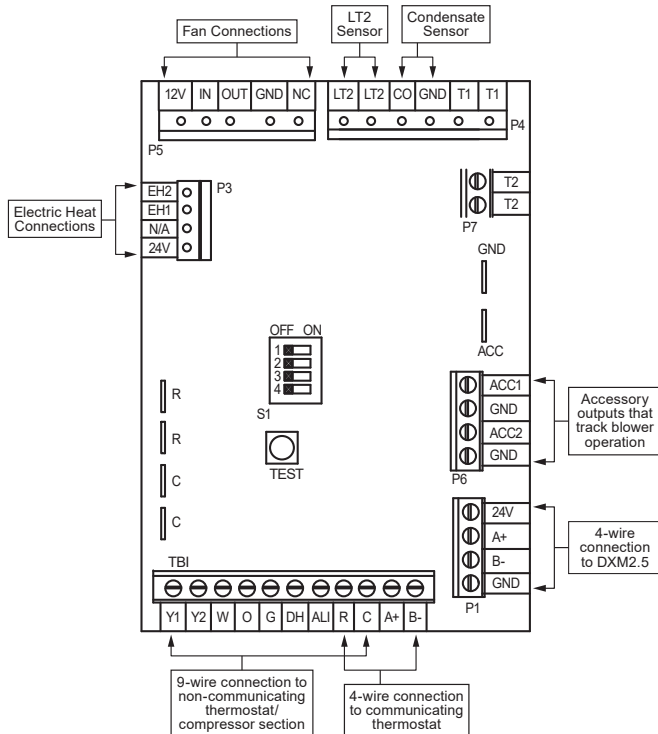
AXM CONTROL

The Tranquility® Digital Air Handler (TAH Revision C) is equipped with a communicating AXM board to allow communication with the communicating compressor section (TES/TEP) and iGate® 2 Communicating (AWC) Thermostat.

The AXM control allows a 4-wire connection with Communicating DXM2.5 board and AWC Communicating Thermostat. It can also be connected to a non-communicating thermostat and compressor section using up to 9-wires (plus additional if functionality requires). Please see Thermostat section for more details.

When a non-communicating thermostat will be used to control the system, an AWC Communicating Thermostat must be connected so that proper system communications and operation are maintained. The AWC Communicating Thermostat may be installed at an inconspicuous location near the air handler and wired to the TB1 terminal strip of the AXM control board. The AWC Communicating Thermostat should be set to the OFF mode.

Figure 8: AXM Connections



LOW AIR TEMPERATURE SENSOR INSTALLATION

TAH Digital Air Handler(s) are shipped with LT2 (Low Air Temperature) sensor installed in the air handler (Figure 5) and connected to the AXM control. No additional action required (do not clip the VIO wires).

TEST BUTTON

The test button puts the AXM into test mode, which bypasses the soft start ramping profile and the blower immediately ramps up to the nominal target speed.

FIELD SELECTABLE INPUTS

DIP SWITCHES

NOTE: In the following field configuration options, DIP switches should only be moved when power is removed from the DXM2.5 Control to ensure proper operation.

DIP #2 – Dehumidification Mode: Provides selection of normal or Dehumidification Fan Mode. In Dehumidification Mode, the fan speed will be adjusted for Cooling. In Normal Mode, the fan speed will be normal during Cooling.

On = Dehumidification Mode. Off = Normal Fan Mode.

Rest of the DIP switches are not used.

ACCESSORY CONNECTION/ CONFIGURATION

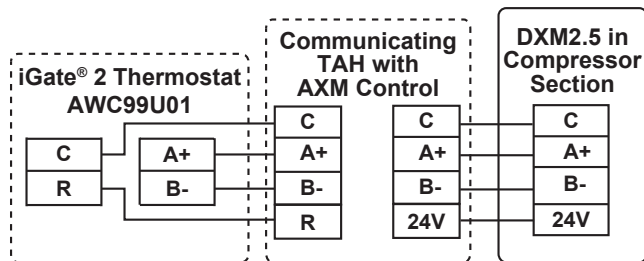
The AXM board includes two Accessory outputs available that track the blower operation. The DXM2.5 board contained in the TES and TEP compressor section contains additional Accessory outputs which are configurable. See the DXM2.5 AOM for more details.

Electrical – Thermostat Wiring

THERMOSTAT INSTALLATION

The thermostat should be located on an interior wall in a larger room, away from supply duct drafts. DO NOT locate the thermostat in areas subject to sunlight, drafts or on external walls. The wire access hole behind the thermostat may in certain cases need to be sealed to prevent erroneous temperature measurement. Position the thermostat back plate against the wall so that it appears level and so the thermostat wires protrude through the middle of the back plate. Mark the position of the back plate mounting holes and drill holes with a 3/16" (5 mm) bit. Install supplied anchors and secure plate to the wall. Thermostat wire must be 18 AWG wire. Wire the appropriate thermostat as shown in Figures 9 and 10 to the low voltage terminal strip on the ECM control board. Practically any heat pump thermostat will work with these units, provided it has the correct number of heating and cooling stages.

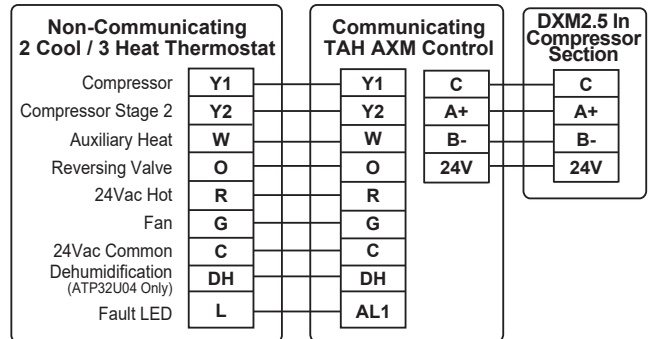
Figure 9: 4-Wire Connection to AWC Communicating Thermostat, AXM Communicating Control and Tranquility® Digital Splits



Thermostat Connections

- C 24V Common for Control Circuit
- R 24V Supply for Control Circuit
- A+ Communications (Positive)
- B- Communications (Negative)

Figure 10: Connection to Non-Communicating Thermostat and AXM communicating control in Tranquility® Digital Air Handler (TAH)



When a non-communicating thermostat will be used to control the system, an AWC Communicating Thermostat must be connected so that proper system communications and operation are maintained. The AWC Communicating Thermostat may be installed at an inconspicuous location near the air handler and wired to the TB1 terminal strip of the AXM control board. The AWC Communicating Thermostat should be set to the OFF mode.



IMPORTANT: Violet jumper from FP to FP on Terminal block 2 in compressor section must be removed when unit is installed with TAH Air Handler(s) or when FP2 sensor is field installed on existing air handler.

See equipment wiring diagram for more details.

Constant Volume (CV) ECM

The Intelligent Constant Volume (CV) ECM blower motor provides unmatched functionality that saves installing and service technicians time while also providing increased comfort levels to occupants.

CV ECM's are programed to maintain a constant CFM across a wide range of external static pressures (ESP). This functionality differs from traditional PSC or even Constant Torque (CT) ECM's. With traditional PSC and CT ECM fan motors, as ESP is increased CFM is reduced. To increase or decrease the speed of the fan motor requires a fan motor switch or a technician to wire into a different motor tap. CT ECM's provide increased efficiency over PSC motors but with no additional functionality. With a CV ECM, as changes in ESP occur the fan motor will adjust its speed to deliver the desired CFM (within its operating range). This ensures the system is delivering the airflow and capacity it was designed for.

A major benefit of the CV ECM over other fan motor types is its ability to adjust airflow remotely through the iGate® 2 web portal/mobile app or directly at the unit with a communicating diagnostic service tool or thermostat. Airflow levels can be adjusted in increments of 25 CFM from the units minimum and maximum CFM range (see CV ECM configuration table for details). This functionality allows technicians to dial in airflow during start-up and commissioning via an easy to use service tool. During operation occupants may have a desire for airflow adjustments. Reducing CFM can reduce airflow sound levels and increase cooling dehumidification (latent capacity). Technicians can easily make these adjustments without making wiring changes reducing service time with minimal disruption to the occupants.

The fan motor operating modes include:

- First Stage Cooling (Y1 & O)
- Second Stage Cooling (Y1, Y2, & O)
- First Stage Heating (Y1)
- Second Stage Heating (Y1 & Y2)
- Fan (G with no Y1, Y2, or W)

The CV ECM motor includes **“soft start”** and **“ramp down”** features. The soft start feature gently increases the motors rpm at blower start up resulting in quieter blower start cycles. Likewise, the ramp down feature allows the blower to slowly decrease rpm to a full stop resulting in a quieter end to each blower cycle. The ramp down feature (also known as the heating or cooling “Off Delay”) also has the functionality to be field selected by the technician in the allowable range of 0 to 255 seconds.



Airflow Configuration Screen on Mobile App

Blower Performance Data

Table 3: TAH Digital Standard Unit

Airflow in CFM with wet coil and clean air filter

Model	Max ESP (in. wg)	Fan Motor (hp)	Range	Cooling Mode		Dehumid Mode		Heating Mode		Fan Only Mode	Aux/ Emerg Mode
				Stg 2	Stg 1	Stg 2	Stg 1	Stg 2	Stg 1		
TAH 026	1.0	1/2	Default	700	525	550	425	750	600	350	850
			Maximum	1000	800	800	600	1000	850	1000	1000
			Minimum	600	450	550	400	600	450	300	700
TAH 038	0.9	1/2	Default	1050	800	850	650	1100	850	550	1350
			Maximum	1500	1100	1200	900	1500	1100	1500	1500
			Minimum	900	600	825	550	900	600	450	1350
TAH 049	1.0	1	Default	1400	1050	1100	850	1500	1150	700	1500
			Maximum	2000	1500	1600	1200	2000	1500	2000	2000
			Minimum	1200	900	1100	825	1200	900	600	1350
TAH 064	0.7	1	Default	1750	1300	1400	1050	1875	1450	875	1875
			Maximum	2300	1900	2000	1500	2300	1900	2300	2300
			Minimum	1500	1100	1375	1000	1500	1100	750	1500

Airflow is controlled within 5% up to the Max ESP shown with wet coil

Electrical - Power Wiring

⚠️ WARNING! ⚠️

WARNING! Electrical shock hazard - Lock unit disconnect switch in open position before servicing unit. Failure to follow this warning could result in property damage, personal injury, or death.

1. TAH Air Handler(s) are shipped from the factory wired for 230 volts. The units may be wired for 208 or 115 volts. Follow instructions on unit wiring diagram located on blower housing and in the Service Facts document included with the unit.
2. The selection of wire and fuse sizes should be made according to the Minimum Branch Circuit Ampacity and the Maximum Overcurrent Device listed on the unit nameplate.
3. Field wiring diagrams for electric heaters and unit accessories are shipped with the accessory.
4. Wiring must conform to National and Local codes.
5. Ground unit per local codes with good safety procedures.

NOTE: If air handler is used with or without a heater, the electrical entry hole as well as any other cabinet penetrations must be sealed air-tight.

Wiring Instructions for 115v Conversion from 230 volt

1. Disconnect all power to the unit.
2. Disconnect Transformer primary orange wire from power block T2 and insulate open end of wire. Connect the white lead from transformer primary wire to power block terminal T2. **NOTE: L2 will be used as Neutral.**
3. Remove plug in ECM power wiring harness (Figure 11) and Install 2 pin jumper plug provided in control box (Figure 12).

NOTE: When supplementary heaters are installed, inspect to insure that all packaging material has been removed.

Table 4: Electric Table (115) 208/230

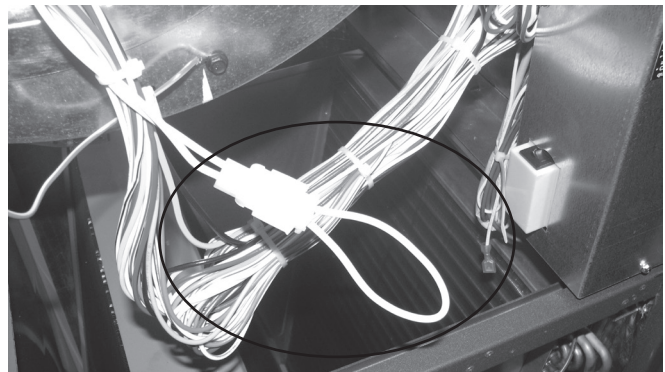
Model	Fan Motor FLA	Fan Motor HP	Max Fan ESP	Min Circ Amp (115) 208/230	Total Unit FLA	Max Fuse/HACR (115) 208/230
026	(7.7) 4.3	1/2	0.5	(7.8) 4.9	(7.7) 4.3	(15) 15
038	(7.7) 4.3	1/2	0.5	(7.8) 4.9	(7.7) 4.3	(15) 15
049	(12.8) 7	1	1	(14.4) 8.6	(12.8) 7	(25) 15
064	(12.8) 7	1	1	(14.4) 8.6	(12.8) 7	(25) 15

Dual Rated Voltage: (115) 208/230
 Min/Max Voltage: 115: 114/132
 Min/Max Voltage: 208/230: 197/252

Figure 11: Remove Harness Plug

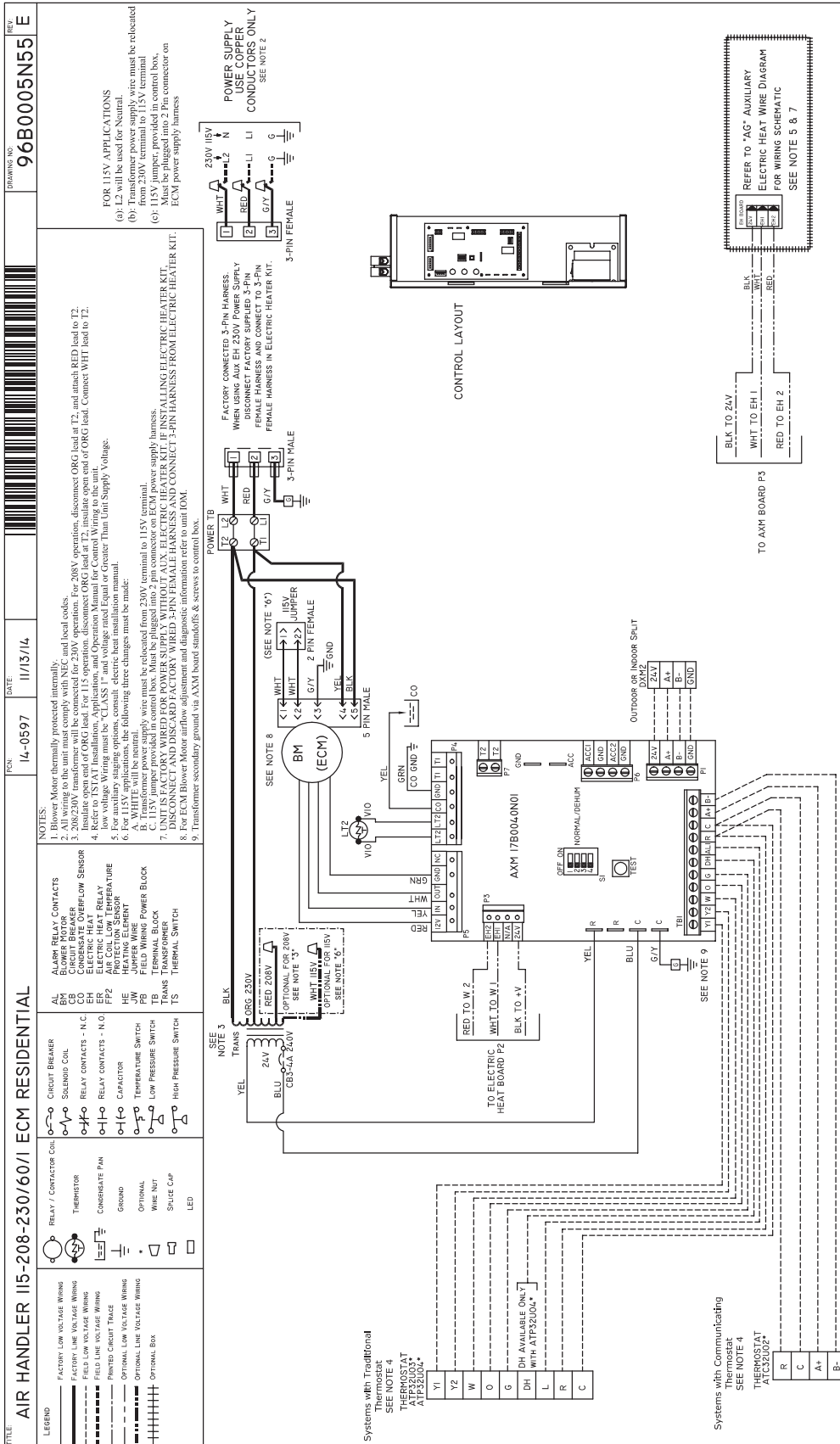


Figure 12: Install Two Pin Jumper Plug



NOTE: For 115v power only. Damage will occur to motor with 230v power supply if 115v jumper is used.

Typical Wiring Diagram - 96B0005N55



Unit & System Checkout

WARNING!

WARNING! Electrical shock hazard - Lock unit disconnect switch in open position before servicing unit. Failure to follow this warning could result in property damage, personal injury, or death.

After installation has been completed, it is recommended that the air handler be checked against the following checklist:

CHECKOUT PROCEDURE

- Power:** Make sure power is “OFF” at power disconnect switch.
- Field Wiring:** Check all field wiring for tight connections. See that grounding of unit is in accord with code
- Unit Suspension:** Make sure unit suspension (if used) is secure and that there are no tools or loose debris in, around or on top of the unit.

- Ducts:** Check all duct outlets; they must be open and unrestricted.
- Drain Lines:** Check drain lines and be sure all joints are tight.
- Drain Pan:** Make sure that the unit drain pan and secondary drain pan (if applicable) and drain outlets are clear of any debris that may cause obstruction.
- Power Supply:** Check power supply for correct requirements per unit nameplate.
- Filters:** Check filters for proper size. Inform owner of proper procedure for removal and reinstallation.
- Operation:** Energize the system and carefully observe its operation; make any necessary adjustment.
- Procedure:** Instruct owner/user on the proper operating procedure and leave the Installation, Operation, Maintenance Instruction manual with the equipment.

MAINTENANCE

WARNING!

WARNING! These instructions are intended as an aid to qualified licensed service personnel for proper installation, adjustment and operation of this unit. Read these instructions thoroughly before attempting installation or operation. Failure to follow these instructions may result in improper installation, adjustment, service or maintenance possibly resulting in property damage, personal injury or death.

FILTERS

Filters must be clean to obtain maximum performance. Filters should be inspected every month under normal operating conditions and be replaced when necessary. Units should never be operated without a filter.

Washable, high efficiency, electrostatic filters, when dirty, can exhibit a very high pressure drop for the fan motor resulting in poor performance. It is especially important to provide consistent washing of these filters (in the opposite direction of the normal air flow) once per month using a high pressure wash.

IMPORTANT: Do not operate the system without a filter in place.

CONDENSATE DRAIN

In areas where airborne bacteria may produce a “slimy” substance in the drain pan, it may be necessary to treat the drain pan chemically with an algaecide approximately every three months to minimize the problem. The condensate pan

may also need to be cleaned periodically to insure indoor air quality. The condensate drain can pick up lint and dirt, especially with dirty filters. Inspect the drain twice a year to avoid the possibility of plugging and eventual overflow.

IMPORTANT: Do not use caustic household drain cleaners or bleach in the condensate pan or near the indoor coil. Drain cleaners will quickly damage the indoor coil.

AIR COIL

The air coil must be cleaned to obtain maximum performance. Check once a year under normal operating conditions and, if dirty, brush or vacuum clean. Care must be taken not to damage the aluminum fins while cleaning. CAUTION: Fin edges are sharp.

FAN MOTORS

All residential units have permanently lubricated fan motors. Further lubrication is not recommended. Conduct annual amperage check to insure amp draw is no more than 10% greater than indicated on serial data plate.

COMPRESSOR

Conduct annual amperage checks to insure that amp draw is no more than 10% greater than indicated on the serial plate data.

Warranty



CLIMATE MASTER, INC. LIMITED EXPRESS WARRANTY AND LIMITATION OF LIABILITY AND REMEDIES FOR RESIDENTIAL CLASS PRODUCTS WITH LABOR ALLOWANCE

This Limited Express Warranty And Remedies Affects Your Legal Rights And Should Be Read Carefully In Its Entirety.

Subject to the terms and conditions below, Climate Master, Inc. ("CM") extends a limited warranty ("Limited Warranty") for Residential Class heating and cooling equipment manufactured or sold by CM ("Products"), that was purchased on or after May 1, 2010 (this would generally include CM Units with serial numbers beginning with "N18" and higher), and installed in a one or two family residential dwelling, for personal, household or family purposes in the United States of America or Canada, ("Application"), to be free from defects and workmanship under normal use and maintenance. If you are unsure if this Limited Warranty applies to a Product you have purchased, contact CM at the phone number or address reflected below.

This Limited Warranty DOES NOT cover commercial applications of the Products. Commercial applications include any application other than installation in a one or two family residential dwelling for personal, household or family purposes. Refer to ClimateMaster Commercial Limited Express Warranty for details. Full copies are available for download at ClimateMaster.com.

This Limited Warranty provides a complete statement of CM's responsibilities to purchasers of the Products. No oral or written statement made by CM, any person or entity associated with CM, or by any person or entity claiming to be associated with CM, including but not limited to statements made in sales literature, catalogs, or agreements to purchase or install the Products, is intended to provide an express or implied warranty of any kind and does not form a part of the basis of the bargain. Further, no such statement shall operate to extend, alter or modify the scope or terms of this Limited Warranty.

EXCEPT AS SPECIFICALLY SET FORTH HEREIN, THERE IS NO EXPRESS WARRANTY, AS TO ANY OF CM'S PRODUCTS, CM MAKES NO WARRANTY AGAINST LATENT DEFECTS, OF MERCHANTABILITY OF THE PRODUCTS OR OF THE PRODUCTS FOR ANY PARTICULAR PURPOSE.

TERM: This Limited Warranty shall commence on the earliest to occur of the following dates: (i) proof of date of first occupancy; (ii) proof of date of start-up of the Product by a qualified and trained HVAC contractor; or (iii) six (6) months from the shipment date of the Product from CM. If items (i) or (ii) are not available ("Warranty Inception Date"), The Limited Warranty shall extend as follows:

- (1) Ten (10) years from the Warranty Inception Date for air conditioning, heating and/or heat pump units built or sold by CM ("CM Units");
- (2) Ten (10) years from the Warranty Inception Date for thermostats, auxiliary electric heaters, water storage tanks, and geothermal pumping modules built or sold by CM, when installed with CM Units;
- (3) One (1) year from the date of shipment from CM for any other accessories or parts built or sold by CM, when installed with CM Units; and
- (4) Ninety (90) days from the date of shipment from CM for all repair or replacement parts that are not supplied under this warranty.

Costs of Labor to Install/Repaired or Replaced Covered Product Parts

- (1) Five (5) years from the Warranty Inception Date for CM Units.
 - (2) Five years from the Warranty Inception Date for thermostats, auxiliary electric heaters, water storage tanks, and geothermal pumping modules built or sold by CM, when installed with CM Units.
- This Limited Warranty does not cover labor costs for installation of other accessories or parts built or sold by CM or any repair or replacement parts that are not supplied under this Limited Warranty.

WHO IS COVERED: This Limited Warranty is provided only to the original owner of the one or two family residential dwelling in which the Product is first installed. This Limited Warranty shall not be transferred. CM reserves the right to request any documentation necessary in its sole discretion to determine the date of purchase and occupancy of the residential dwelling or the date of installation and start-up of the Product(s). For the avoidance of any doubt, this Limited Warranty shall not extend to, and shall provide no remedies whatsoever for, any distributor or installer of the Products.

CLAIM PROCESS: To make a claim under this warranty, the Product or parts must be returned to CM in Oklahoma City, Oklahoma, freight prepaid, no later than ninety (90) days after the date of the failure of the part. If CM determines the Product or part to be defective and covered by this Limited Warranty, CM will either repair or replace the Product or part and send it to a CM-recognized distributor, dealer or service organization, FOB CM, Oklahoma City, Oklahoma, freight prepaid. The Limited Warranty on any Product or part repaired or replaced under this Limited Warranty extends only through the original warranty period.

WHAT IS COVERED: Subject to the Term, this Limited Express Warranty covers the: (i) the cost of repair or replacement of any covered Product or Product parts; and (ii) the cost of labor incurred by CM authorized service personnel in connection with the installation of a repaired or replaced covered Product or Product part.

If a Product part is not available, CM will, at its option, provide a free suitable substitute part or provide a credit in the amount of the retail factory selling price for a new suitable substitute part to be used by the claimant towards the retail purchase price of a new CM product. All labor costs are specifically provided for in the allowance schedule; (iii) are then extending labor allowance schedule provided by CM's Warranty Department. Actual labor costs are not covered by this Limited Warranty to the extent they: (i) exceed the amount allowed under the allowance schedule; (ii) are not specifically limited to in the allowance schedule; (iii) are not performed by CM authorized service personnel; (iv) are incurred in connection with installation of a part not covered by this Limited Warranty; or (v) are incurred under the Term.

WHAT IS NOT COVERED: This Limited Warranty does not cover and does not apply to: (1) air filters, fuses, refrigerant, fluids, oil; (2) Products rebated after initial installation; (3) any portion or component of any system that is not supplied by CM, regardless of the cause of the failure of such portion or component; (4) Products on which the unit identification tags or labels, or rating labels, have been removed or defaced; (5) Products on which payment to CM, or to the owner's seller or installing contractor, is in default; (6) Products which have not been installed and maintained by a qualified and trained HVAC contractor; (7) Products installed in violation of applicable building codes or regulations including but not limited to wiring or voltage conditions; (8) Products subjected to accident, misuse, negligence, abuse, fire, flood, freezing, lightning, unauthorized alteration, misapplication, contaminated or corrosive air or liquid supply, operation at abnormal air or liquid temperatures or flow rates, or opening of the refrigerant circuit by unqualified personnel; (9) mold, fungus or bacterial damages; (10) corrosion or abrasion of the Product; (11) products supplied by others; (12) Products that have been operated in a manner contrary to CM's printed instructions; (13) Products which have insufficient performance as a result of improper system design, sizing or the improper application, installation, or use of CM's products; (14) electricity or fuel costs, or any increases or unutilized savings in same; for any reason whatsoever; or (15) operating any water storage tanks when they are empty or partially empty (i.e. dry firing), at temperatures exceeding the maximum setting of the operating or high limit controls, at pressures greater than those shown on the rating label, with non-potable water, with alterations or adjustments (including energy savings devices) not specifically authorized in writing by CM, or without the free circulation of water. CM may request written documentation showing compliance with the above limitations.

In connection with repair or replacement of covered Product parts, CM is not responsible for: (1) the costs of any fluids, refrigerant or system components supplied by others, or associated labor to repair or replace the same, which is incurred as a result of repair or replacement of a covered Product part; (2) the costs of labor, refrigerant, materials or service incurred in diagnosis and removal of a covered Product part subject to repair or replacement under this Limited Warranty; (3) shipping costs incurred in sending a claimed defective part from the installation site to CM; (4) shipping costs to return a claimed defective part from CM to the installation site if the part is not covered by this Limited Warranty; (5) removal or disposal costs associated with the repair or replacement of covered Product Parts; or (6) the costs of normal maintenance.

OTHER WARRANTY LIMITATIONS: This Limited Warranty is given in lieu of all other warranties express or implied, in law or in fact. If, notwithstanding the disclaimers contained herein, it is determined that other warranties apply, any such warranty, including without limitation any express warranties or any implied warranties of fitness for particular purpose and merchantability, shall be limited in time to the Term of this Limited Warranty.

LIMITATION OF REMEDIES: In the event of a breach of the Limited Warranty, a claimant's remedies will be limited to repair or replacement of a part or unit, or to furnish a new or rebuilt part or unit in exchange for the part or unit which has failed. If a written notice to CM's factory in Oklahoma City, Oklahoma of each defect, malfunction or other failure, and a reasonable number of attempts by CM to correct the defect, malfunction or other failure, the remedy fails of its essential purpose, CM shall refund the purchase price paid to CM in exchange for the return of the sold goods). Said refund shall be the maximum liability of CM. THIS REMEDY IS THE SOLE AND EXCLUSIVE REMEDY OF THE BUYER OR THEIR PURCHASER AGAINST CM FOR ANY ACTION FOR BREACH OF CONTRACT, BREACH OF ANY WARRANTY, PATENT INFRINGEMENT, OR FOR CM'S NEGLIGENCE OR IN STRICT LIABILITY. NO ACTION ARISING OUT OF ANY CLAIMED BREACH OF THIS LIMITED WARRANTY MAY BE BROUGHT MORE THAN ONE (1) YEAR AFTER THE CAUSE OF ACTION HAS ARISEN.

LIMITATION OF LIABILITY: CM shall have no liability for any damages if CM's performance is delayed for any reason or is prevented to any extent by any event such as, but not limited to any war, civil unrest, government restrictions or restraints, strikes, or work stoppages, fire, flood, accident, shortages of transportation, fuel, material, or labor, acts of God or any other reason beyond the sole control of CM.

CM EXPRESSLY DISCLAIMS AND EXCLUDES ANY LIABILITY FOR CONSEQUENTIAL, INCIDENTAL, SPECIAL AND/OR PUNITIVE DAMAGES BASED ON ANY THEORY IN CONTRACT, BREACH OF ANY EXPRESS OR IMPLIED WARRANTY, PATENT INFRINGEMENT, OR IN TORT, WHETHER FOR CM'S NEGLIGENCE OR AS STRICT LIABILITY AND REGARDLESS OF WHETHER CM IS ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

OBTAINING WARRANTY PERFORMANCE: Normally, the dealer or service organization who installed the products will provide warranty performance for the owner. Should the installer be unavailable, contact any CM recognized distributor, dealer or service organization. If assistance is required in obtaining warranty performance, write or call:

Climate Master, Inc. • Customer Service • 7300 SW 44th Street • Oklahoma City, Oklahoma 73179 • (405) 745-6000 • eservices@climatemaster.com

NOTE: Some states or Canadian provinces do not allow the exclusion or limitation of implied warranties or the limitation of incidental or consequential damages for certain products supplied to consumers, or the limitation of liability for personal injury, so the above limitations and exclusions may be limited in their application to you. When the implied warranties are not allowed to be excluded in the application, they will be limited to the duration of the applicable written warranty. This warranty gives you specific legal rights, which may vary depending on local law. IF ANY PRODUCT TO WHICH THIS LIMITED WARRANTY APPLIES IS DETERMINED TO BE A CONSUMER PRODUCT, UNDER THE MAGNUSON-MOSS WARRANTY ACT (15 U.S.C.A. § 2301) OR OTHER APPLICABLE LAW, THE FOREGOING DISCLAIMER OF IMPLIED WARRANTIES SHALL NOT APPLY TO YOU, AND ALL IMPLIED WARRANTIES ON THIS PRODUCT, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR THE PARTICULAR PURPOSE, SHALL APPLY FOR THE SAME TERM SET FORTH ABOVE (ONE YEAR AS PROVIDED UNDER APPLICABLE LAW. The portions of this Limited Warranty and limitation of liability shall be considered fully severable, and all portions which are not disallowed by applicable law shall remain in full force and effect.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state and from Canadian province to Canadian province. Refer to your local laws for your specific rights under this Limited Warranty.

Refer to the CM Installation, Operation and Maintenance Manual for operating and maintenance instructions.

Part No.: RPS5
Rev. 3.00

Notes

Notes

Revision History

Date	Page #	Description
Oct. 18, 2022	All	Updated DXM2 to DXM2.5 controller and ATC32U03 to AWC99U01 TSTAT
Dec. 9, 2021	14-15	Updated ATC32U02 (obsolete) to ATC32U03
Aug. 21, 2018	4	Added Warning
July 28, 2017	24	Updated certification logos
Dec., 2015	All	Update to Rev. C
Feb. 03, 2015	All	Misc Edits
Aug. 29, 2014	15	Edit Figure 7 (w)
July 21, 2014	15	Added Figure 8
Feb. 11, 2013	22	Wire Diagram Updated
Nov. 19, 2012	Various	First Published



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