TOSOT

Dual Fuel Heat Pump Engineering Instruction

MODELS:

TU36-24WADU

TU60-48WADU

TOSOT

Installation Mandatory Instructions

Mandatory Requirements for Indoor Coil, Furnace, and Thermostat:

1. TOSOT Dual fuel heat pumps must be paired with high-efficiency Furnaces with AFUE ≥ 90%. This pairing is essential not only to ensure efficiency post-installation but also because high-efficiency Furnaces have various controls and safeguards to regulate discharge temperatures that might otherwise harm the TOSOT A-Coil Drain Pan.

2. The TOSOT A-Coil Drain Pan is designed to tolerate temperatures up to 176 degrees Fahrenheit (80 degrees Celsius). Exceeding this limit may result in the pan cracking or deforming.

3. After completing the installation, it is critical to test your Furnace's discharge temperature. If it surpasses 155 degrees Fahrenheit, please refer to the Furnace's Manual to adjust the discharge temperature (by increasing the airflow).

4. If the measured discharge temperature exceeds 160 degrees Fahrenheit and you are unable to lower it to beneath 155 degrees Fahrenheit, contact your local TOSOT sales representative for the alternative "High Discharge Temperature A-Coil Drain Pan" as a replacement component.

5. Employ a thermostat that is engineered for Dual fuel systems. It is vital to configure the thermostat accurately to prevent the heat pump and gas heating from operating simultaneously. If the heat pump's indoor coil is installed at the discharge end of the Furnace, and both gas and heat pump are run together, this may lead to extremely high refrigerant pressures within the heat pump, which could cause equipment damage and personal injury.

6. Advising users to routinely replace their Furnace filters to sustain sufficient airflow is also a key measure in maintaining the Furnace's discharge temperature at a safe level.

Mandatory Requirements for Outdoor Unit:

1. Heat pumps require installation on stands that elevate the unit's base above the snowfall levels. Snow accumulation around the base can interfere with the proper functioning of the equipment.

2. Position the unit to avoid snow accumulation on its top or sides.

3. Confirm that there is no airflow restriction to the outdoor unit.

Requirements:

Furnace:

This furnace is in perfect working condition;
AFUE ≥ 90%;
The installation instructions for this furnace include instructions for installing the cooling coil, and our coil meets its requirements;

Thermostat:

The 24V AC thermostat must support a 2H/1C Heat Pump system;
Recommended: It has an outdoor temperature sensor or with the capability to obtain local temperature through internet connectivity;

Copper:

Liquid line: 3/8, insulation recommended, but even without insulation, it will not produce condensation;
Gas line: 3/4, insulation is required. If the length is less than 30 feet, a larger or smaller size is also acceptable. An S-trap is required for every 20 feet of vertical height difference;

Filter & Drier:

If using previously used copper pipes, a **Bi-Directional** dryer is necessary;
If there are brazinged in the new copper pipes, a Bi-Directional dryer is also necessary;
If the new copper pipes are flared, it is not recommended to use a dryer;

Coil condensate pipe P-trap:

If the coil is installed on the supply side of the furnace, no P-trap is needed. If it is installed on the return side of the furnace, a ≥2" P-trap must be installed;

Electricity:

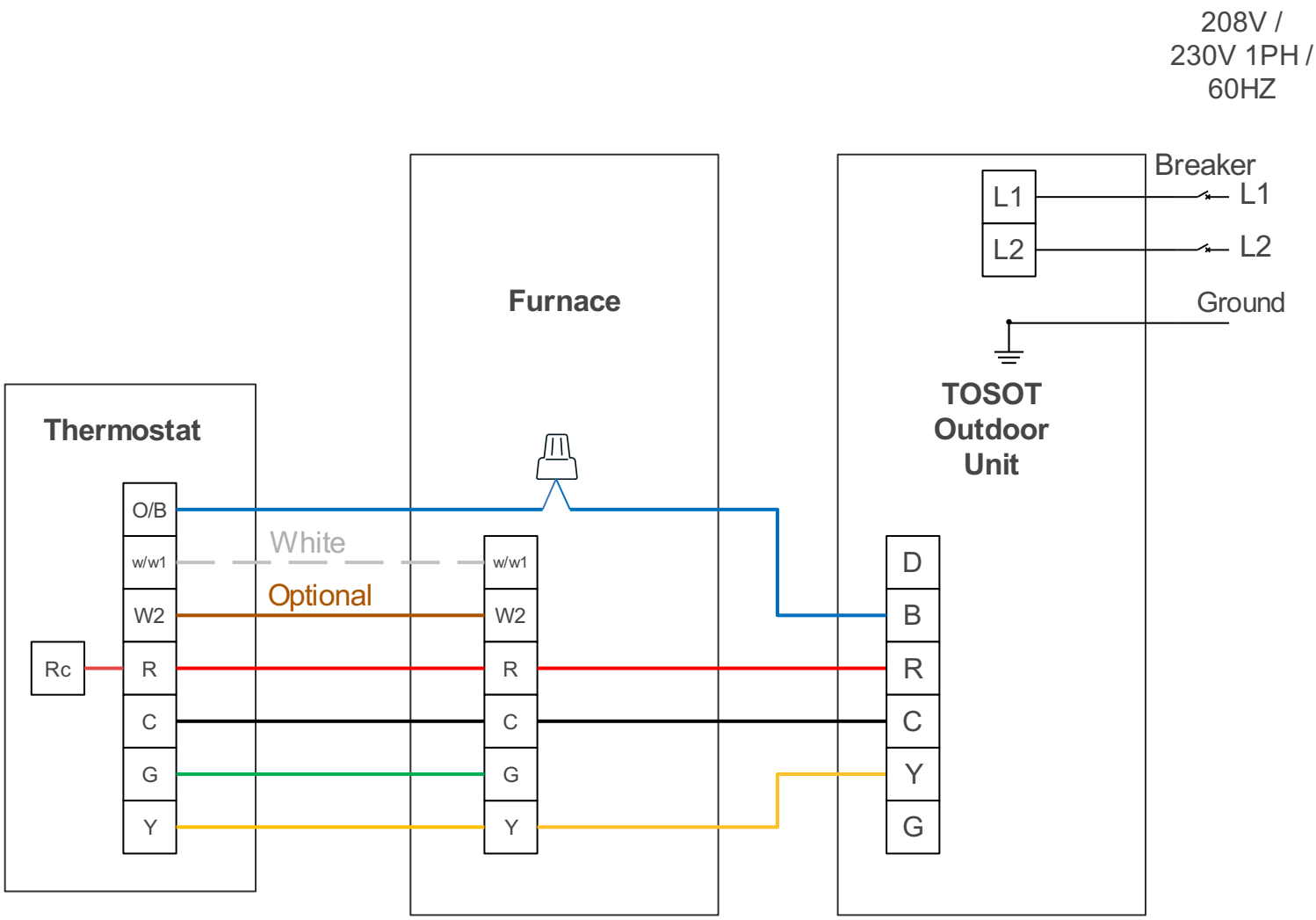
2&3 tons Outdoor: 208 - 230V 30A;
4&5 tons Outdoor: 208 - 230V 40A;
Indoor coil: No power needed;
Power Surge Protective Device: Not recommended;
Control communication wire: 18/6 (If the existing system uses 2 wire, it is possible to utilize TOSOT WIRE ADOPT to treat the 2-core wire as a 7-core wire);
TOSOT flip Relay: If the existing system has a humidifier;

Settings and Wiring

Setting:

Thermostat:	Furnace:
2H/1C Heat Pump System; **B=1 O/B In Heat** (24V=heat); Backup Heat Droop = 4 °F ; Outdoor Lockout Backup Heat = 14°F ;	If there is a cooling capacity configuration option, set the cooling capacity to match the heat pump; Alternatively, set the cooling airflow to: 2 tons = 800 CFM; 3 tons = 1000 CFM; 4 and 5 tons = 1600 CFM;

Wiring:

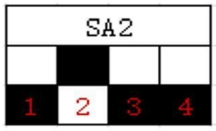
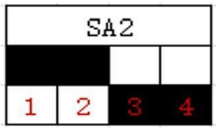
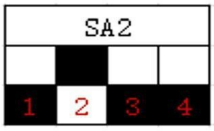
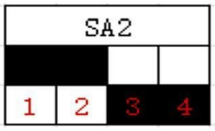


Outdoor Unit settings

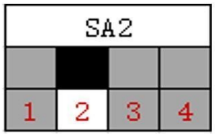
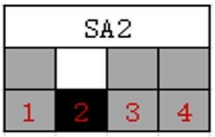
Switches Indicator:

ON	OFF	NO TOUCH
3	3	3

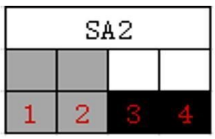
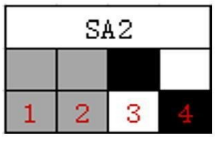
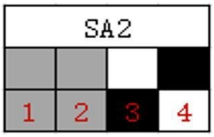
capacity settings:

Capacity	24K	36K	48K	60K
Dip Switches				

Defrost mode settings:

Defrost mode	Outdoor unit dip switches
Standard Defrost (Default)	
Strong Defrost	

Operating mode settings:

Operating mode	Outdoor unit dip switches
Standard mode (Default)	
Strong mode	
Energy saving mode	

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