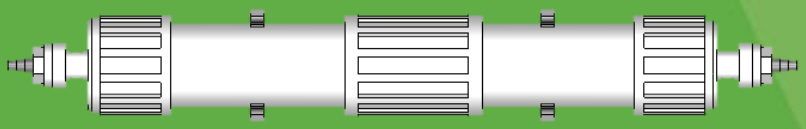
Technical Instruction Document

AERCO Condensate Neutralization Kit

Applies to all models of KC1000, Benchmark, Innovation, Modulex, and Esteem Boilers.



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Heating and Hot Water Solutions

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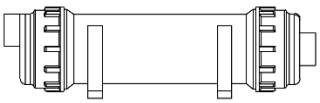
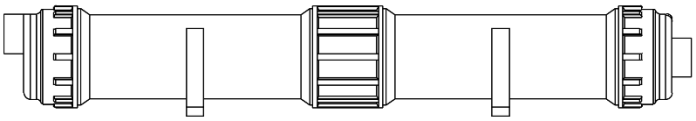
Table of Contents

1. INTRODUCTION



One Liter (P/N 89025-1) Condensate Neutralization Capsule



Two Liter (P/N 89025-2) Condensate Neutralization Capsule

Condensate Neutralization Kit Part Numbers:

Kit or Part Description:	AERCO P/N:
Condensate Neutralization Kit: 1 liter (0.26 U.S. gallon) Capsule	89025-1
Condensate Neutralization Kit: 2 liter (0.53 U.S. gallon) Capsule	89025-2
Replacement Neutralization Media	89026

Waste condensate produced by the burning of natural gas or propane is potentially harmful to the environment and can corrode unprotected piping systems. The Condensate Neutralization Kit is used to neutralize the acidic PH of condensate to minimize these harmful effects.

- Prevents acidic condensate from corroding pipes and sewer systems
- Environmentally friendly
- Fast and easy installation
- Kit materials are made from corrosion resistant materials
- For use on all types of Natural Gas and Propane appliances
- Initial charge of neutralizer agent is included

The AERCO Condensate Neutralizer Kits include:

#	Qty	P/N 89025-1 KIT (1 Liter/.25 Gal.)
1	1	1 liter (0.26 U.S. gallon) capsule — with two 3” fill/access openings, 3/4”-14NPT threaded inlet, 3/4”-14NPT threaded outlet; comes filled with neutralization media (**P/N 89026**).
2	3	3/4” NPT to 1/2” Hose Barb Fitting
3	1	1/2” Barbed Y Fitting
4	6	Hose Clamp
5	1	10 feet of 1/2” ID Vinyl Tubing
6	2	Base/wall Mounting Clamp

#	Qty	P/N 89025-2 KIT (2 Liter/.53 Gal.)
1	1	2 liter (0.53 U.S. gallon) capsule — with two 3” fill/access openings, 3/4”-14NPT threaded inlet, 3/4”-14NPT threaded outlet; comes filled with neutralization media (**P/N 89026**).
2	3	3/4” NPT to 1/2” Hose Barb Fitting
3	1	1/2” Barbed Y Fitting
4	6	Hose Clamp
5	1	10 feet of 1/2” ID Vinyl Tubing
6	2	Base/wall Mounting Clamp

Each 89025-1 kit will neutralize condensate from appliances up to 400,000 BTU/hr input.

Each 89025-2 kit will neutralize condensate from appliances up to 1,000,000 BTU/hr input.

If the connected appliance is > 1,000,000 BTU/hr input, multiple kits can be installed in series. See Table 1 for condensate neutralizer kit selection guideline for all AERCO gas fired products.

Table 1: Condensate Neutralizer Kit Selection Chart

Equipment	BTU/hr Input	Condensate Neutralizer Kit P/N	Qty Req.
BMK750	750,000	89025-2	1
BMK1000	1,000,000	89025-2	1
BMK1500	1,500,000	89025-2	2
BMK2000	2,000,000	89025-2	2
BMK2500	2,500,000	89025-2	3
BMK3000	3,000,000	89025-2	3
BMK4000	4,000,000	89025-2	4
INN600	600,000	89025-2	1
INN800	800,000	89025-2	1
INN1060	1,060,000	89025-2	1
INN1350	1,350,000	89025-2	2
INN1600	1,600,000	89025-2	2
INN2000	2,000,000	89025-2	2
MLX EXT 321	321,000	89025-1	1
MLX EXT 481	481,000	89025-2	1
MLX EXT 641	641,000	89025-2	1
MLX EXT 802	802,000	89025-2	1
MLX EXT 962	962,000	89025-2	1
MLX EXT 1123	1,123,000	89025-2	2
MLX EXT 1530	1,530,000	89025-2	2
MLX EXT 1912	1,912,000	89025-2	2
MLX EXT 2295	2,295,000	89025-2	3
MLX EXT 2677	2,677,000	89025-2	3
MLX EXT 3060	3,060,000	89025-2	3
EST399	399,000	89025-1	1

NOTE: For models BMK5000N-6000, neutralizer tank 89030 is recommended due to potential high volume of condensate production.

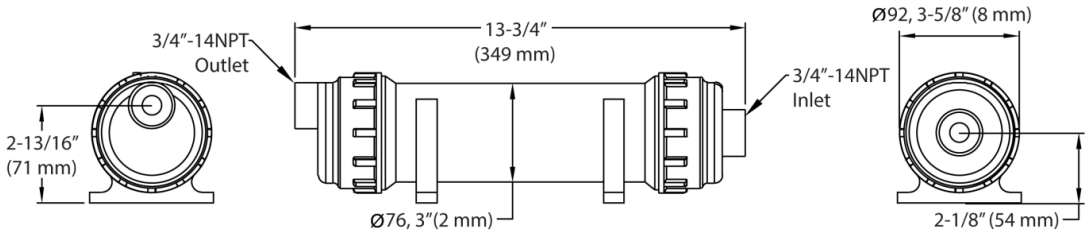


Figure 1: 89025-1 (1 Liter) Condensate Neutralization Kit

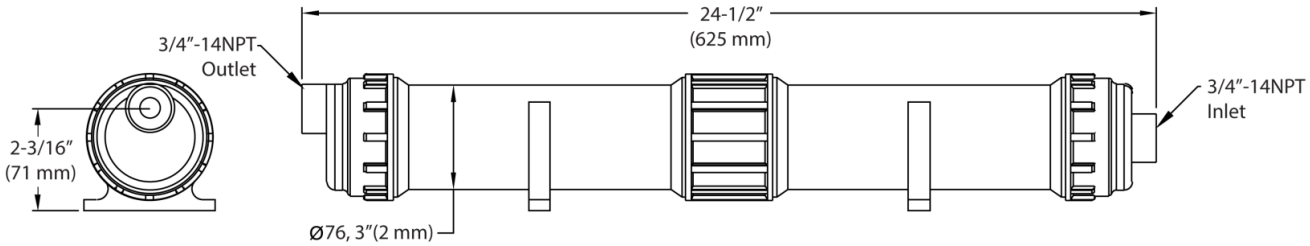


Figure 2: 89025-2 (2 Liter) Condensate Neutralization Kit

2. INSTALLATION INSTRUCTIONS

NOTE: Check with your local water authority for regulations regarding discharge of treated condensate to the drain or sewer system.

The neutralization kit may be installed using either of the following methods:

1) Neutralization kit is installed such that the inlet and discharge are at a lower elevation than the condensate drain from the appliance. See examples A, B, and C in Figure 3.
2) A condensate pump is used to lift the condensate from the appliance to the neutralization kit (Figure 6). The maximum condensate lift shall not exceed 5ft.

Do not allow exhaust flue gases to vent through the neutralization kit. Flue gas leakage can cause injury or death from carbon monoxide. Ensure the AERCO condensate trap is properly installed with the boiler/water heater, upstream of the neutralization kit. See the boiler/water heater installation manual for condensate trap installation instructions.

Connection to the appliance and neutralization kit must be installed to ensure that no condensate backflow into the appliance can occur.

The inlet has a center connection port and the outlet connection is off center. Mount the neutralization capsule on the wall or floor securing it with the provided brackets. When mounting capsule in the horizontal position rotate the tube so the outlet is at its highest point (example A and B). When mounting in the vertical position ensure the outlet is at a higher elevation than the inlet (Example C). The preferred mounting method is in the horizontal position.

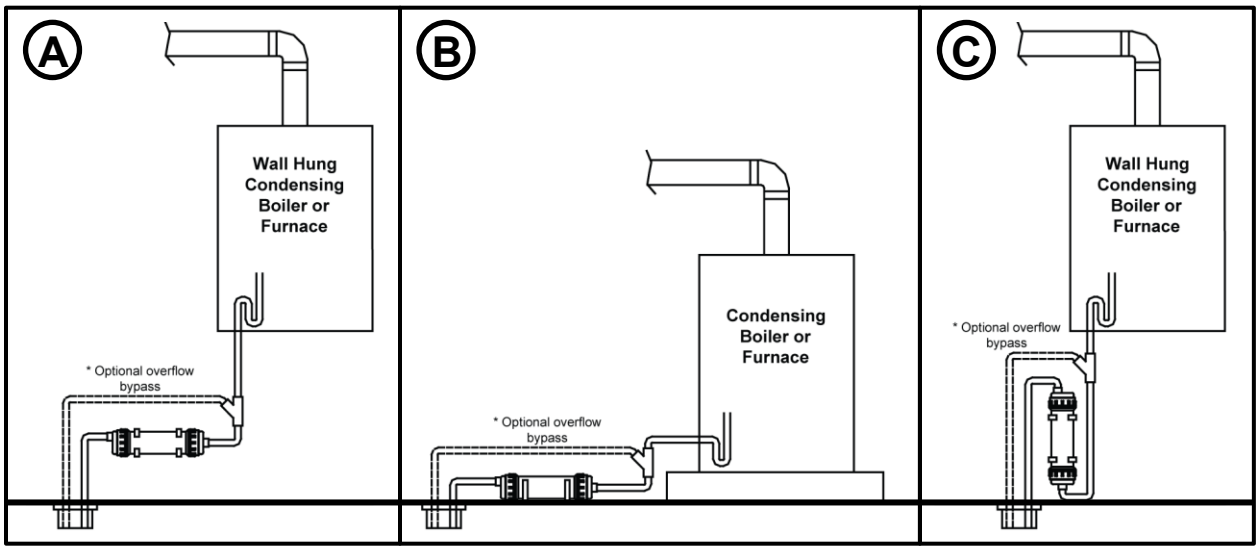


Figure 3: Condensate Drainage examples Without Condensate Pump

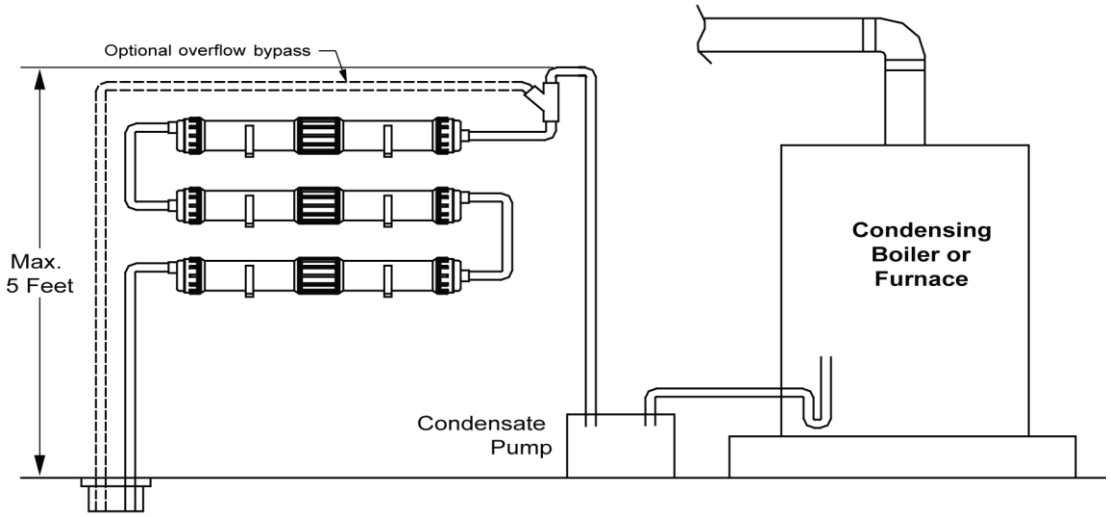


Figure 4: Condensate Drainage Example Using a Condensate Pump

NOTE: The optional safety overflow lines indicated in Figures 3 and 4 function in the event that the drainage through the condensate neutralizer becomes clogged.

Connections to the appliance and neutralization kit must be installed to ensure that no condensate backflow can occur. Connect corrosion resistant piping and secure it to the floor or wall to prevent movement. Do not route the condensate line through any area that is exposed to freezing temperatures. If traffic poses a risk, install some protection to prevent movement and/or damage. The Y-fitting is a safety overflow in the event that the condensate drain becomes clogged. Mount as per installation diagram. Ensure that the condensate will flow freely from the appliance drain into the capsule then to the drain. Access to the discharge is necessary for proper maintenance in order to check the effectiveness of the neutralizing media, using pH test strips.

If there is no gravity drain available, install a condensate removal pump designed for use on condensing boilers and furnaces (Figure 4). The maximum condensate lift shall not exceed 5ft.

NOTE: If there is a pit on the floor below the appliance that can accommodate the AERCO condensate neutralizer kits, they can be arranged in the pit in a similar cascading method as Figure 6 without the pump).

The condensate pump must be equipped with an over flow switch to prevent the appliance from running should a failure occur. The over flow switch must be wired to the Remote Interlock of the AERCO boiler/water heater I/O Box for KC1000, Innovation, and Benchmark units (see Figure 5); Pins 3 and 4 of Connector I on Modulex E8 controller (see Figure 6); pins 15 and 16 of the 24V terminal strip on Esteem boilers (see Figure 7).

For Modulex boilers, an over flow switch may only be utilized in Indoor/Outdoor Reset and Constant Set Point modes of operation. **It cannot be utilized in 0 to 10 Volt Remote Set Point mode and when a BMS II boiler management unit is used.** To utilize an overflow switch, set the Modulex boiler to Standby mode (⏻). To set the boiler to Standby mode, close the swing-down front panel door of the E8 and turn the wheel counter-clockwise until the Standby symbol (⏻) is displayed. With pins 3 and 4 closed, the Standby symbol, and others in the display, will be blinking. This indicates that the boiler is enabled. When the connection is broken between pins 3 and 4, the Standby symbol, and others in the display, will stop blinking indicating that the boiler is disabled. Closing/breaking pins 3 and 4 not only start/stops the boiler but also start/stops other pumps (boiler water pumps) wired to the Modulex boiler.

NOTE: Remove jumper between REMOTE INTL'K IN terminals before connecting Overflow Switch Relay.

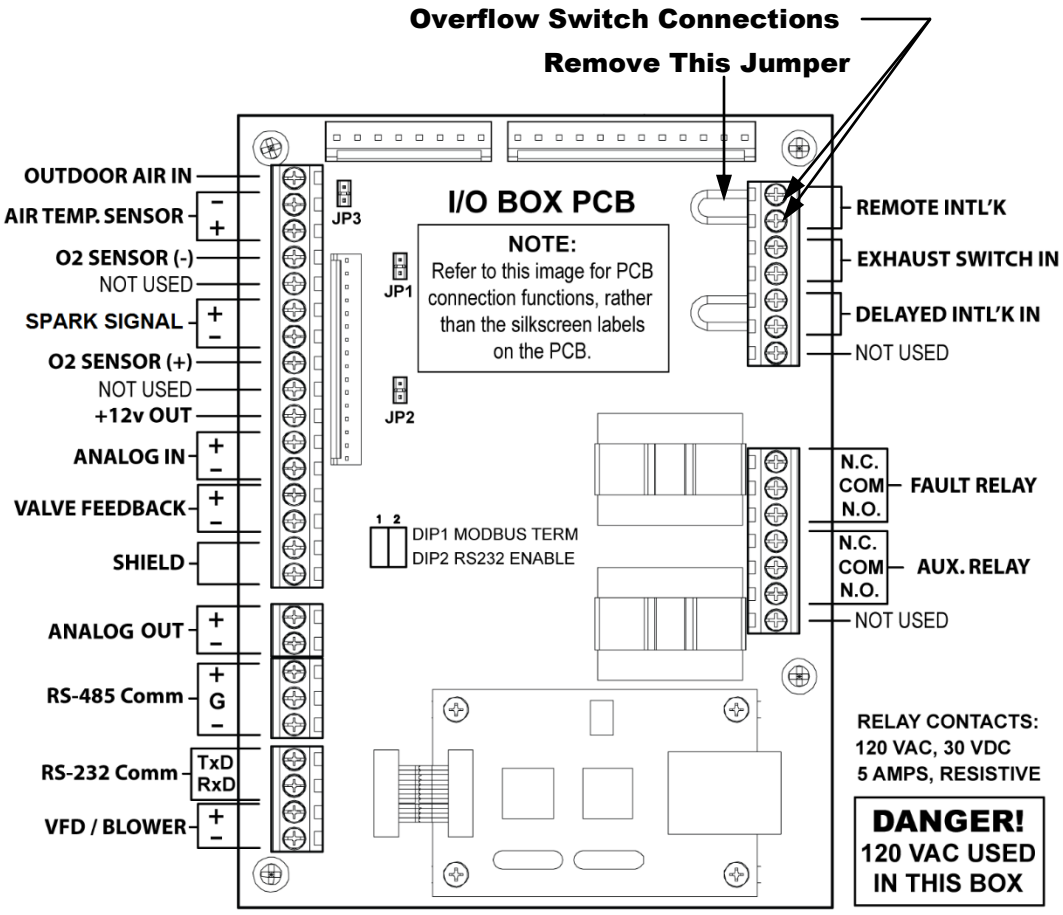


Figure 5: C-More Controller I/O Overflow Switch Relay Connection Points (for KC1000, Benchmark, Innovation, and RECON Units)

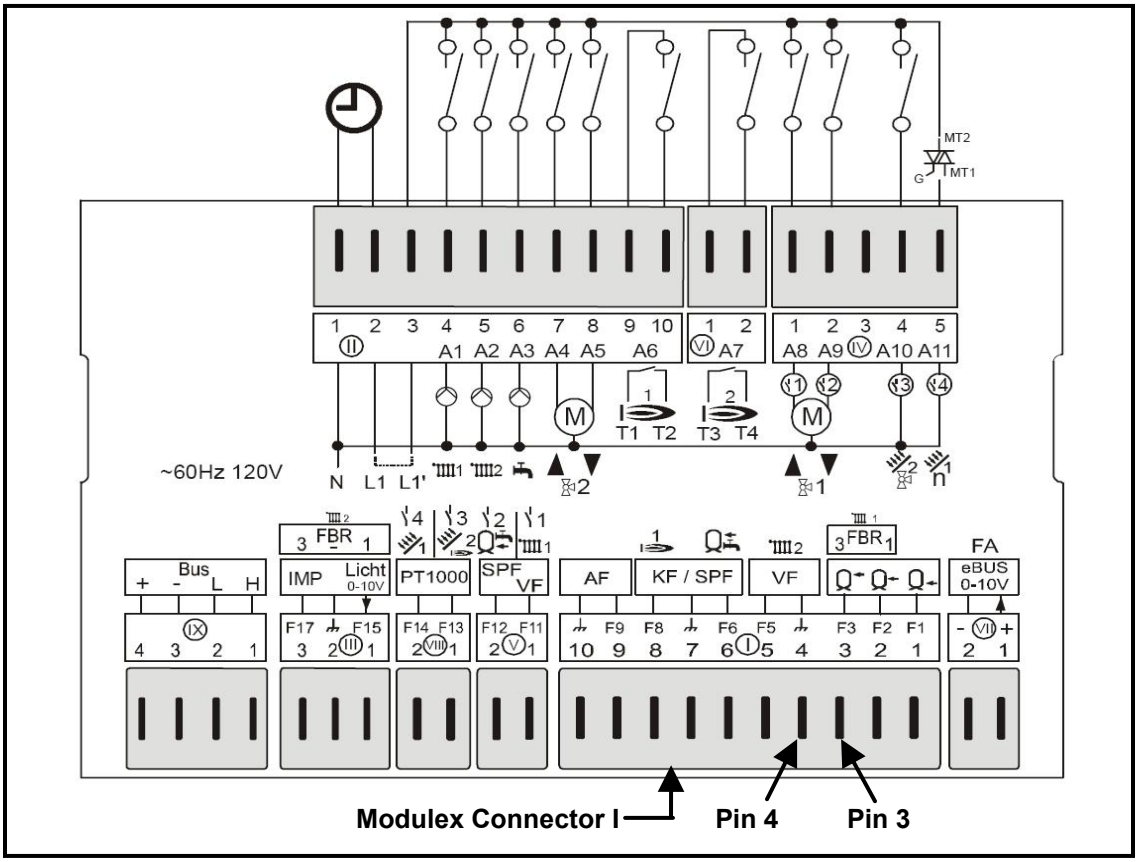


Figure 6: Modulex E8 Controller Overflow Switch Relay Connection Points

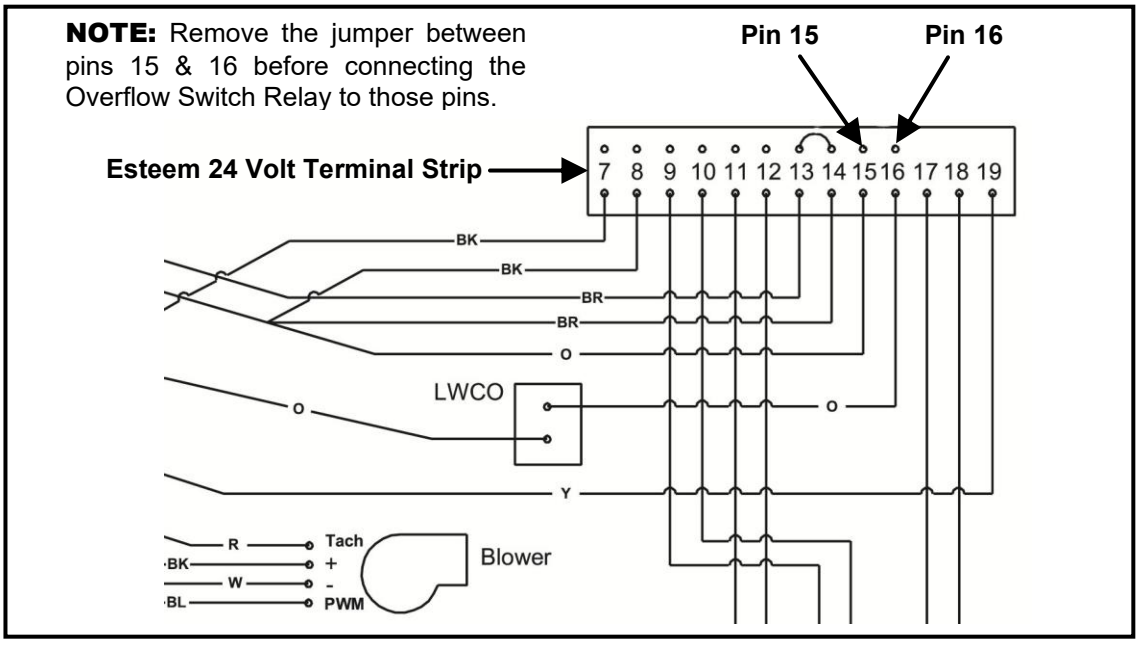


Figure 7: Esteem Overflow Switch Relay Connection Points

3. OPERATION

The appliance condensate flows through the neutralizing media, raising the pH of the condensate to a level that will help prevent corrosion of the domestic drain and the public sewer system.

4. MAINTENANCE

Monitor the level of the neutralization media in the capsule periodically. Check the pH level at the outlet of the neutralizing kit every three months for the first year. Use a suitable pH test strip paper or an electronic pH meter for precise measurement. The frequency of checking the pH level can be reduced to every six months or every year depending on the readings obtained compared to local water authority requirements. The neutralizing media should be replaced when the pH level drops below the minimum level of the local water authority. For replacement media contact your local AERCO sales representative.

Replacement neutralization media is P/N 89026 (one (1) required for each 89025-1 kit; two (2) required for each 89025-2 kit)

5. LIMITED WARRANTY

The unit is warranted against defects in materials and workmanship for one year.