

WARMFLO®

COMFORT MODULE

Specific Application

- Air exchanger, temperature boost
- Make-up air
- Temperature comfort boost
- Air source HP comfort boost

Comment

This module is a heating element and controller to “temper” the supply air and bring it to a comfortable level. For general duct temperature boost or heat pump comfort, this unit raises the warm air supply temperature to the set point temperature value desired. In the make-up air application the supply or inlet is actually outside air. This unit contains a built-in controller with duct sensor to modulate the electric element (part of this unit) using only the required electric energy to reach comfort level. This is more than basic on/off.

This is a single (duct temperature) WarmFlo sensor product. If you need the outdoor sensor WarmFlo controller, call factory for other models.

MODELS

EM-WC0515H	4,800 WATT AT 240 VOLT, SINGLE PHASE
EM-WC0515L	4,800 WATT AT 240 VOLT, SINGLE PHASE
EM-WC1025H	9,600 WATT AT 240 VOLT, SINGLE PHASE
EM-WC1025L	9,600 WATT AT 240 VOLT, SINGLE PHASE

Drawings: **EL907, HH313, HH315, HH321, UAW878, UAW880, XX017**



GENERAL

This is a completely functional electric heat element package with the built-in WarmFlo, **duct sensing**, controller. It is installed in the main distribution duct or external to the heat pump unit/air handler.

This module can be installed upflow, downflow, or horizontal. However, it must always be on the warm air side of the HP coil.

If you desire the outside temperature sensing WarmFlo Smart Controller with its various application modules (total electric, dual fuel, HP add-on, load management, etc.) this is the wrong product. Call the factory for further WarmFlo information.

Purpose

When comfort level requires a slight increase in the heat pump air delivery temperature, this module “tempers” the warm air by raising the warm air temperature a very small number of degrees to produce comfort level.

Concept (Heat Pump Application)

1. One piece unit, including the electric element.
2. No outdoor sensor.
3. Modulates its own electric element, based upon remote duct sensor and installer set comfort level temperature.
4. Totally external to the heat pump air handler product.
5. Existing or standard heat pump room thermostat, air handler, strip heat, compressor, etc.; all remain without modification or functional change.
6. Anyone can install (non HP trade).
7. Adds the comfort level increase in temperature whenever the compressor is on (roomstat stage 1) **and** before roomstat stage 2 activates strip heat.
8. Electric element power usage is controlled by duct sensor and comfort level. Electric element Power is not wasted or turned on in banks.
9. Does not necessarily add to the building service panel loading because as soon as the normal strip heat turns on (stat stage 2) and raises the temperature, this unit automatically shuts off.
10. Internal logic or chip begins with reset at each “Y” heat call.

ELECTRICAL REQUIREMENTS

EM-WC0515* – 30A Panel Breaker, 20A Nominal Amp

EM-WC1025* – 60A Panel Breaker, 40A Nominal Amp

* H = 10” long element; L = 16” long element

208 Volt application – the elements within the standard product are rated a 240 volts. If operating at 208, there will be approximately 25% reduced capacity. The internal transformer may or may not adequately operate the control system from a 208 source. Voltage measurements between “R” and “C” must be 22VAC or greater when the system is in the complete operational mode.

INSTALLATION REQUIREMENTS

1. All installation work must be performed by trained, qualified contractors or technicians. Electro Industries, Inc., sponsors installation and service schools to assist the installer.
2. All electrical wiring must be in accordance with national electric codes and local electric codes, ordinances, and regulations.
3. Observe electric polarity and wiring colors. Failure to observe could cause electric shock and/or damage to the equipment.
4. This unit can only be used for its intended design as described in this manual. Any internal wiring changes, modifications to the circuit board, modifications or bypass of any controls, or installation practices not according to the details of this manual will void the product warranty, the ARL certification label, and manufacturer product liability. Electro Industries, Inc., cannot be held responsible for field modifications, incorrect installation, and conditions which may bypass or compromise the built-in safety features and controls.

HEAT PUMP INSTALLATION – AIR FLOW REQUIREMENTS

Since this is a heat pump application and since this is typically a “temperature boost” electric heating unit, it is assumed the heat pump air handler capacity is larger than the basic requirement of this product. But as a verification, the minimum airflow required by this product is:

EM-WC0515* 1000 CFM
EM-WC1025* 1500 CFM

This unit is installed in the warm air, discharge, plenum of the heat pump air handler or in the plenum above the A-coil (typically two units, one on each side). In all cases it must be **external** to the heat pump cabinet. The location within the plenum is determined by the following requirements:

1. Before any horizontal distribution duct, elbows, tee, etc.
2. Maximum practical distance from the HP air handler, but meeting the requirements of paragraph 1 above.
3. If the plenum is a straight discharge (no elbow, obstruction, tee, etc.) from the HP air handler, National Electric Code paragraph 424-59, four ft. rule, does **not** apply.
4. If the plenum is larger than 12” x 12” **and** there is a need to install this unit closer than 18 inches to the HP air handler discharge blower, call the factory for special baffling instructions.
5. HP air handler discharge blower – attempt to center the electric elements in the plenum and with the maximum practical distance from the blower discharge.
6. Above A-coil – typically one on each side, angled such that the discharge air from each A-coil “slab” goes through the element rack. Typically the heat pump airflow is significantly greater than required by these boost inserts (electric insert is typically small in capacity); therefore, baffling is not required, simply locate so the majority of the A-coil discharge air goes through the element rack.

CLEARANCE – DUCT SURFACE AREAS, DUCT INSTALLATION, ETC.

When installed within air handler plenum or furnace/A-coil plenum, the codes and rules relating to clearance apply.

When installed in an “inline” duct or round pipe adapter for a general distribution boost heater or air make-up application, observe the following guidelines:

1. This product must be installed in a metal duct, size of the element rack.
2. There shall be no insulation on the inside of this sheet metal duct section.
3. Any flex-pipe or other insulated pipe must be at least 24” from the electric element.
4. Mounting – there must be at least 2” air clearance around all sides of this sheet metal duct section.
5. If there is a need to insulate this duct section for moisture condensation or in an unheated compartment, it is permissible to wrap insulation around the exterior of this metal duct section.
6. The control box must be positioned so it will not receive water dripping or collection of moisture.
7. See next section on duct sensor installation.

BOOST HEAT INSTALLATION

This section applies to any warm air duct or inlet/outlet of an air-to-air (HRV) heat exchanger. Also can be applied for fresh air inlets such as hood vents, small commercial fresh air, make-up air, etc.

Duct size needs to be approximately the size of the electric element rack. If the duct is more than approximately 2 inches larger for either depth or width, **baffling is required**. See drawing HH313 for the single element product or HH315 for the dual element, 10KW product.

1. **Air-to-air heat exchanger** – install the electric element rack within the discharge duct of the heat exchanger.
2. **Distribution duct, boost heater** – install the electric element rack within the air flow duct, locating a position to cause a majority of the forced air through the electric elements. If the distribution duct has a depth of 16” or more, we strongly suggest using the “L” model with the 8” x 16” element rack.

MAKE-UP AIR

Typically in this application outside air enters the inlet and this module gets used to bring up the mechanical ventilation temperature. You will probably want to use “C” chip, see next page. Use the following chart to provide additional temperature rise information.

CFM CHART

Temperature Rise Needed		80	70	60	50	40	30
<u>Model Number</u>	<u>Watts*</u>	<u>CFM</u>	<u>CFM</u>	<u>CFM</u>	<u>CFM</u>	<u>CFM</u>	<u>CFM</u>
EM-WC0515H	4800	189	216	252	302	378	504
EM-WC0515L	4800	189	216	252	302	378	504
EM-WC1025L	9600	378	432	504	604	756	1007

*At maximum capacity, duct sensor reduces watts as required.

TEMPERATURE RISE COMMENTS

Typically the maximum temperature rise for this product is 40°F for room air inlet or 20°F for elevated supply temperature from a typical heat pump.

If it is air make-up, outside air, larger temperature rises are permissible, see table above.

INSTALLATION

1. Locate the appropriate location where this element will temper all the air going to the room registers or distribution ducting.
2. Cut an 8.5" x 2" slot in the warm air plenum/duct.
3. Control box orientation is not critical.
4. Install duct sensor 2 to 4 air flow feet on the warm side of this module. Select a location where there is good air mixing.
5. Locate the 24 volt control system "common". Depending upon heat pump manufacturer, this could be a "C", "X" or in some cases "B" screw terminal (probably black or blue wire). Connect the black (18 gauge) control wire to this common point (this is a "tap" connection).
6. Locate the 1st stage call for heat or compressor turn-on wire. This is typically "Y" terminal (yellow wire). Connect the yellow wire to this terminal (this is a "tap" connection).
7. From the electrical panel breaker specified above, extend the 240 power to the bottom right control box compartment and connect as standard 240 volt L1 and L2 power wiring.
8. This power wire must contain a copper safety ground, terminate with green wire.

DUCT SENSOR

This unit is equipped with a remote temperature-sensing probe. This is a solid state probe (actually mini-micro computer chip at the end of the probe), handle with care.

Suggested installation is in the main warm air stream approximately 20 to 24 airflow inches away from the electric element. Simply drill a 1/2" hole in the duct, insert probe, and screw in place.

This duct sensor has a 6-wire cable, coil and tie excess. It should be connected to the Red, ST, and COM screw terminals. The "OT" screw terminal is **not** used for this product application.

WARNING

IF THE BLACK AND RED SENSOR WIRES ARE CROSSED OR INCORRECTLY INSTALLED AT THE TERMINAL BLOCK AND POWER IS TURNED ON, BURNOUT DAMAGE CAN RESULT WITHIN THE SENSOR PROBE.

ELECTRICAL HOOKUP

240-volt source – from the model number and nameplate determine KW size and amp draw. According to local codes, building type, wiring length, etc. use appropriate wiring conductor size and source circuit breaker. Connect to the pigtail wires or terminal block.

Grounding – route and install appropriate size ground conductor between the ground lug and the building service panel ground bus. This must be a conductor size according to the total amp rating of the appropriate unit. Conduit is not an adequate ground conductor.

Operation – this unit “turns on” or heats when 24 volts are applied to the yellow and gray wires. Via an external 24-volt transformer or an external transformer applying 24 volts through a contact (airflow switch, thermostat, heat pump “Y” wire, etc.) arrange your control circuit to apply 24VAC power when you want boost heat.

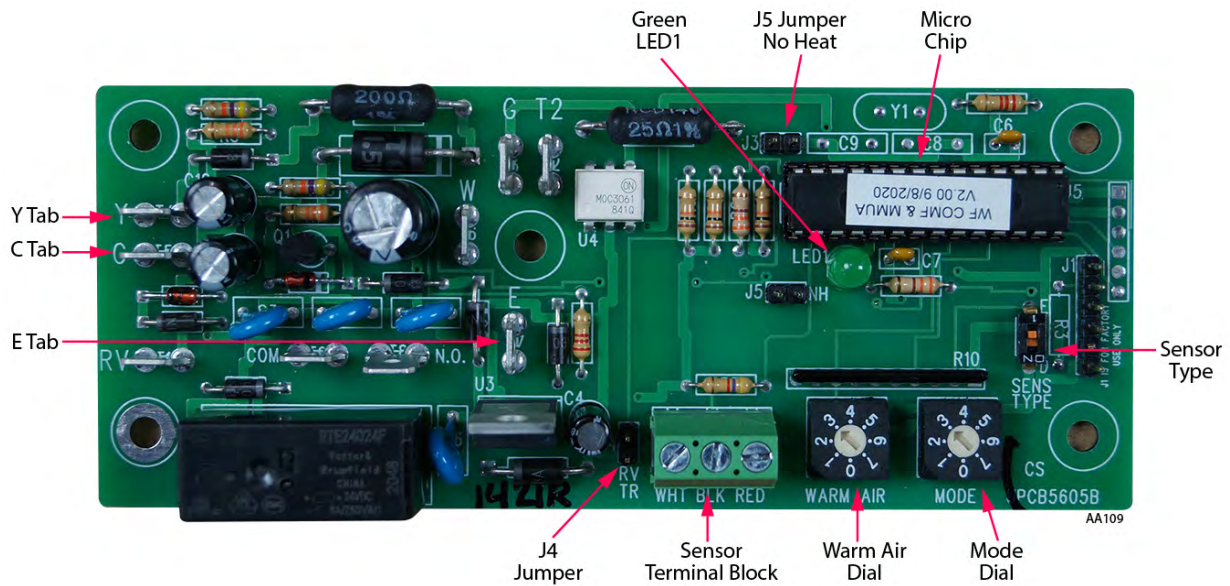
SUMMER OR COOLING DISABLE

This module must be disabled during the cooling cycle to prevent adding heat to the air conditioning operation.

Select one of the following 3 installation techniques or methods

- A. Extend HP reversing valve wire to the designated “RV” tab. When J4 jumper is in place, a 24VAC input on the RV tab will disable the elements. Review your heat pump’s installation manual to make certain of your heat pump’s reversing valve logic
- B. Add a manual (summer) disable toggle switch between “R” and “RV” tab.
- C. Simply turn off 240V breaker during the cooling season.

Method B or C should be used for boost heater applications.



OPERATIONAL TIPS

Comfort Level Temperature Setting

The inside circuit board contains two screwdriver switches marked 0 through 7. Adjust them to select the desired set point for your application.

EX: Ideal set point = 86°

Mode Dial would be set to #4

Warm Air Dial would be set to #0

NOTE: MODE DIAL setting # 7 is not applicable to this product

Mode Dial Temperature Range Options

WARM AIR DIAL	MODE DIAL							7
	0	1	2	3	4	5	6	
0	-10	14	38	62	86	110	134	MUA II
1	-7	17	41	65	89	113	137	
2	-4	20	44	68	92	116	140	
3	-1	23	47	71	95	119	140	
4	2	26	50	74	98	122	140	
5	5	29	53	77	101	125	140	
6	8	32	56	80	104	128	140	
7	11	35	59	83	107	131	140	

Function

1. Electric element power is only used if the heat pump warm air temperature drops below the above selected setting.
2. Assuming the heat pump warm air temperature is below this setting, the duct sensor sends a signal to the internal circuit board requesting a boost in warm air temperature.
3. The built-in controller begins pulsing the electric element to add this temperature. The inside monitor LED indicates the pulsing duration and the electric element is turned on whenever the LED is on.
4. Except for the LED and/or clamp on amp meter monitor, there are no other indicators or troubleshooting aids.
5. See previous section titled “Summer or Cooling Disable”.

Option

This unit can be used as a 5Kw duct heater for room stat, **second stage** operation.

Internal to the circuit board is a “W” terminal. Connecting roomstat second stage heat function to this “W” terminal causes full electric element turn on (by-pass duct sensor).

Utility Company Load Control Requirement

Arrange wiring so load control receiver interrupts the yellow or “Y” input. If the yellow wire is connected to the heat pump first stage Y function, the load control receiver is before this yellow wire connection and the outdoor unit yellow wire.

Checkout and Calibration

There are no field calibration or adjustments.

Total element turn on can be accomplished by jumpering system “R” (24 volts) to “W” internal terminal. In essence, this bypasses the temperature modulation function and causes the element to be full on. However, see previous section “Summer or Cooling Disable”.

MONITOR LIGHTS

The green LED on the circuit board indicates power at the electric element or modulation of the electric element. In other words, when the LED is on, full power is at the electric element.

Sequence

- A. Electric element is on for 10 seconds after the application of 24 volts AC between yellow and black wire.
- B. Electric element turns off if the temperature is above the warm air set point.
- C. If the temperature drops, the electric element modulates to bring it back to the desired temperature level.
- D. If the electric element is fully on (LED on constant) this unit cannot make up the air temperature required between the duct inlet air and the temperature set point at the sensor probe.

TROUBLESHOOTING

A volt/ohm meter is required for proper diagnosing. A clamp-on amp meter is also very helpful.

1. Green LED 1 flashing two pulses every two seconds – indicates control board cannot read temperature sensor. Verify temperature sensor connections. If secure, replace sensor.
2. No Heat –
Green LED 1 off:
 - a) Verify temperature set point. If incoming air is higher than set point, element remains off. Adjust temperature set point to a higher setting and verify element comes on.
 - b) If incoming air temperature is less than set point, disconnect the red/black/white sensor wires.
 - 1) If unit starts heating and green LED 1 on pulsing, replace temperature sensor
 - 2) If green LED 1 remains off, replace control board
Green LED 1 on:
 - a) Verify incoming 240 volts power. 24VAC control voltage is typically sourced separately from the 240 element voltage.
 - b) Verify 240 volts across element terminals.
 - 1) If 240 volts is present, shut off 240V and disconnect element wires to verify element resistance. A good element is approximately 10 ohms each.
 - 2) With 240V incoming and if no 240 volts directly across the elements check the following points referencing UAW890 or UAW892 depending on your model:
 - a) Measuring across limit switches, 0v (closed) limit is okay. 240V (open) limit is bad or sensing over 118° or 150°. With power disconnected check ohms when limit is room temperature. OL means bad limit.
 - b) Solid state relay (SSR) 4-wire – check for 240VAC across terminals (3, 4) and (1, 2)
 - 1) 240V measured between terminals 3-4 and 0V measured between terminals 1-2 indicate the solid state relay is good.
 - 2) 240V measured between terminals 3-4 and 240V measured between terminals 1-2 indicate the solid state relay is bad.
 - c) Mechanical K1 relays:
 - 1) 240V measured across coil and 0V across contacts indicates relay is good.
 - 2) 240V measured across coil and 240 across contacts indicates relay is bad.
 - d) If there is no control voltage present at SSR or K1 with green LED 1, replace control board.
 3. Not enough heat:
 - a) Check amp draw. Approximately 10 amps per element means full power output.
 - b) Verify CFM and temperature rise. High CFM will result in low temperature rise. Cold incoming air will be warmed based on the CFM Temperature Rise Chart in attached document EL907.

Specification Sheet - Electric Make-Up Air/Boost Heater

STANDARD EQUIPMENT

- 240V, single phase, external fusing required
- Quiet DC power relays
- Thermostat end switch connection point
- Hi-limits, automatic reset - 150° F/180° fused link
- Compact enclosure
- Two element sizes available - 8 x 10 or 8 x 16
- 5-year element warranty
- 2-year parts warranty
- Temperature sensing with full modulation
- Maintains specific temperature set point
- Unique design allows for simplified installation
- Cooling mode element disable option
- Requires 24V external control power supply
- ARL listed
- Made in the USA

TEMPERATURE RISE CHART*

Temperature Rise Needed		80° F	70° F	60° F	50° F	40° F	30° F
Model	Watts	CFM	CFM	CFM	CFM	CFM	CFM
EM-WC0515H	4800	198	216	252	302	378	504
EM-WC1025H	9600	378	432	504	604	756	1007
EM-WC0515L	4800	189	216	252	302	378	504
EM-WC1025L	9600	378	432	504	604	756	1007

*Typically the maximum temperature rise for this product is 40° F for room air inlet. If used for make-up air, larger temperature rises are permissible, see table above.

ELECTRIC SUPPLY

Model	kW	Btu/h	Amps	Fuse	Phase	Voltage	Source CB	Shipping Weight	Minimum CFM
EM-WC0515H	4800	16,383	20	N/A	1-60	240	30	7	180
EM-WC1025H	9600	32,765	40	N/A	1-60	240	50	7	370
EM-WC0515L	4800	16,383	20	N/A	1-60	240	30	14	180
EM-WC1025L	9600	32,765	40	N/A	1-60	240	50	14	370

CHIP CODE OPTIONS†

Switch Position	B	C	D	E	H
0	96°	20°	40°	60°	88°
1	100°	25°	52°	65°	90°
2	104°	30°	64°	70°	92°
3	108°	35°	76°	75°	94°
4	112°	40°	88°	80°	96°
5	116°	45°	100°	85°	98°
6	120°	50°	112°	90°	100°
7	124°	55°	124°	95°	102°

†Comfort level temperature setting - choose correct chip code for application. Note: Unless otherwise specified, product will be shipped with a default "D" chip.



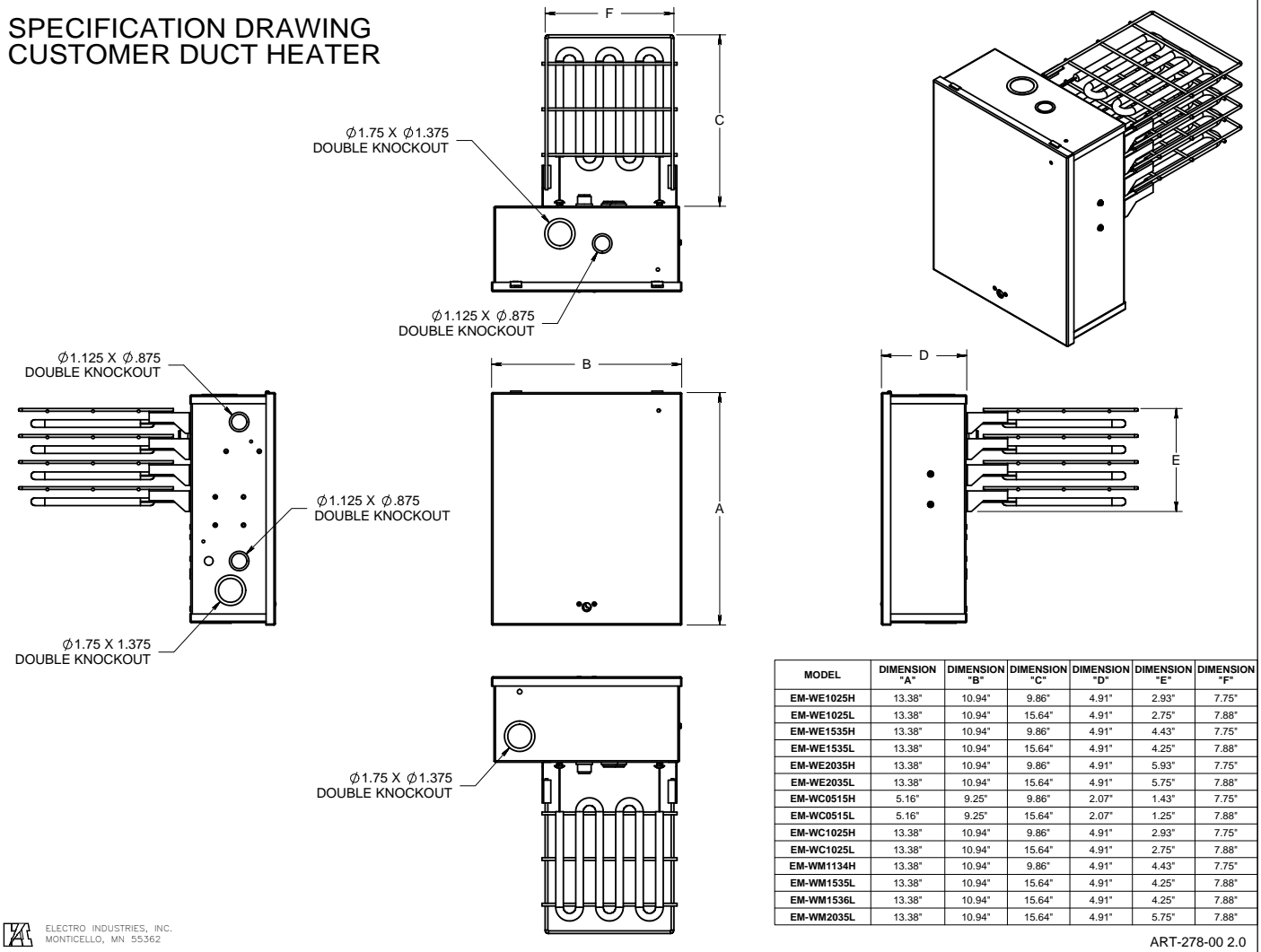
Specifications subject to change without notice,
all rights reserved.



**ELECTRO
INDUSTRIES**

Monticello, Minnesota
800.922.4138
www.electromn.com

SPECIFICATION DRAWING CUSTOMER DUCT HEATER



ELECTRO INDUSTRIES, INC.
MONTICELLO, MN 55362

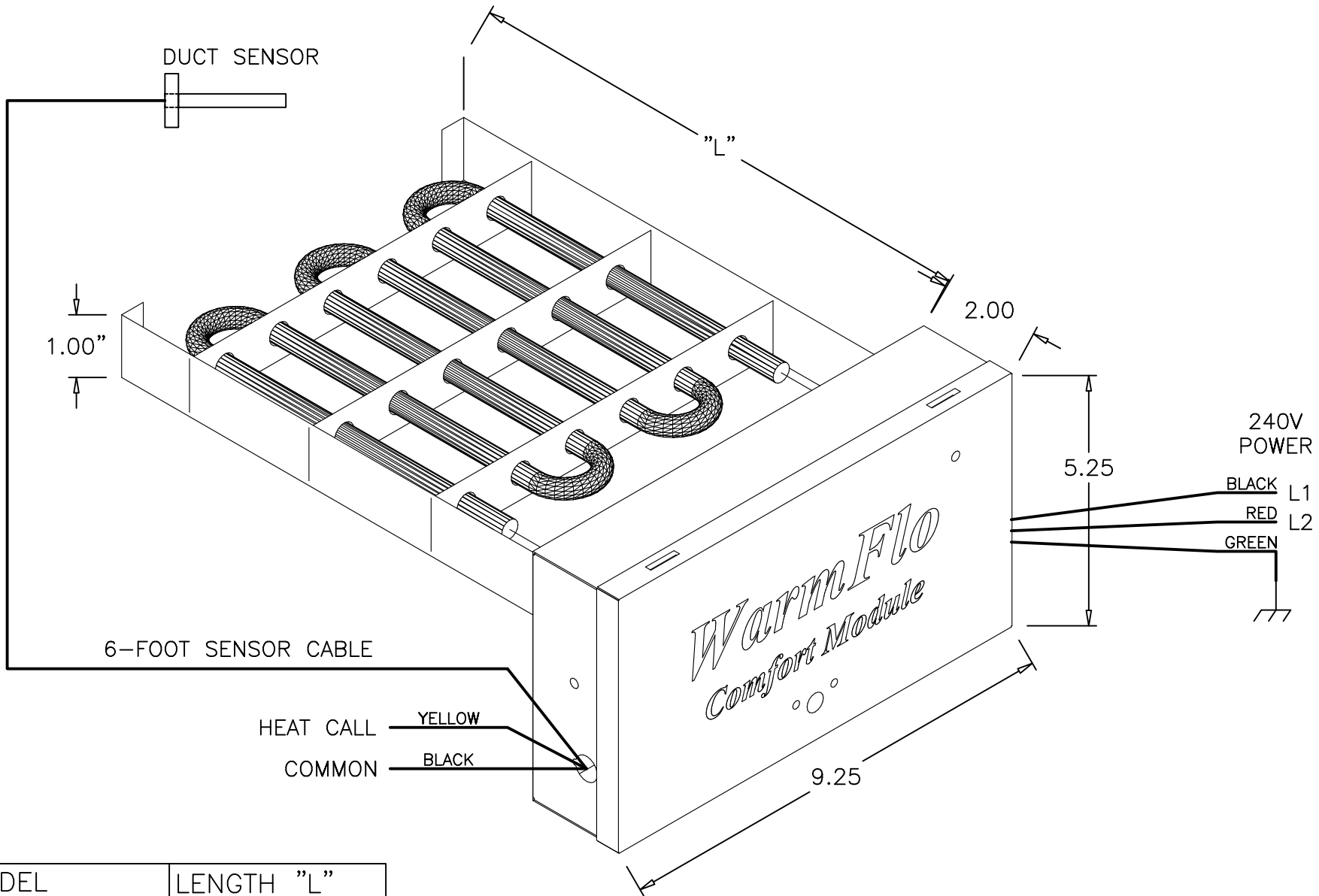
ART-278-00 2.0

Installation Specifications

When installing this duct heater, NEC 424, Part IV, Duct Heaters, applies.

When installed in an "inline" duct or round pipe adapter for a general distribution boost heater or make-up air application, observe the following guidelines:

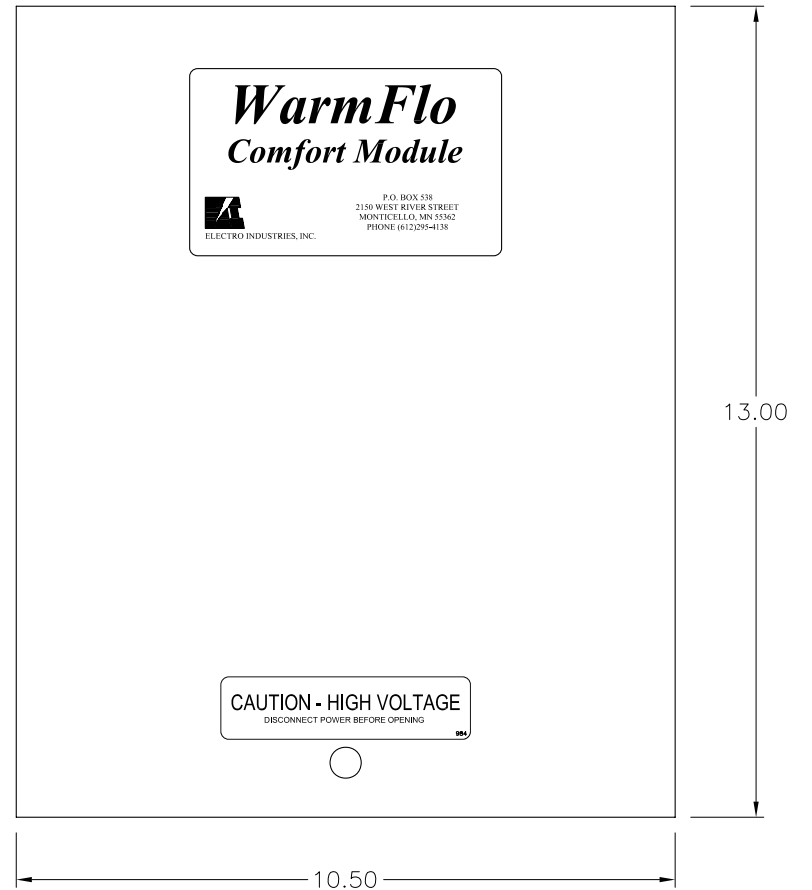
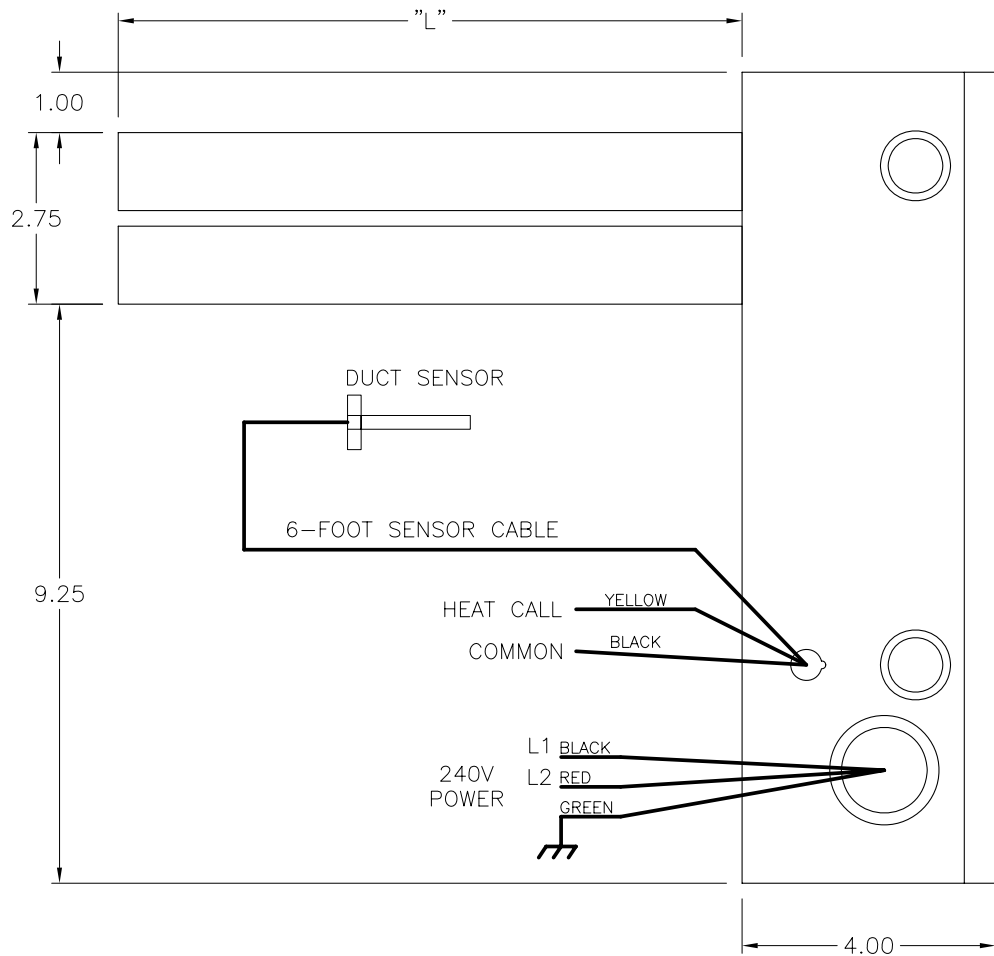
1. This product must be installed in a metal duct, size of element rack.
2. There shall be no insulation on the inside of this sheet metal duct section.
3. Any flex-pipe or other insulated pipe must be at least 24" from the electric element.
4. Mounting - there must be at least 2" air clearance around all sides of this sheet metal duct section.
5. If there is a need to insulate this duct section for moisture condensation or in an unheated compartment, it is permissible to wrap insulation around the exterior of this metal duct section.
6. The control box must be positioned so it will not receive dripping water or collection of moisture.



MODEL	LENGTH "L"
EM-WC0515H	10.00"
EM-WC0515L	16.00"

Rev.B 03-20-09: Removed EM-WC0313H From Table.
 Rev.A 01-31-00.

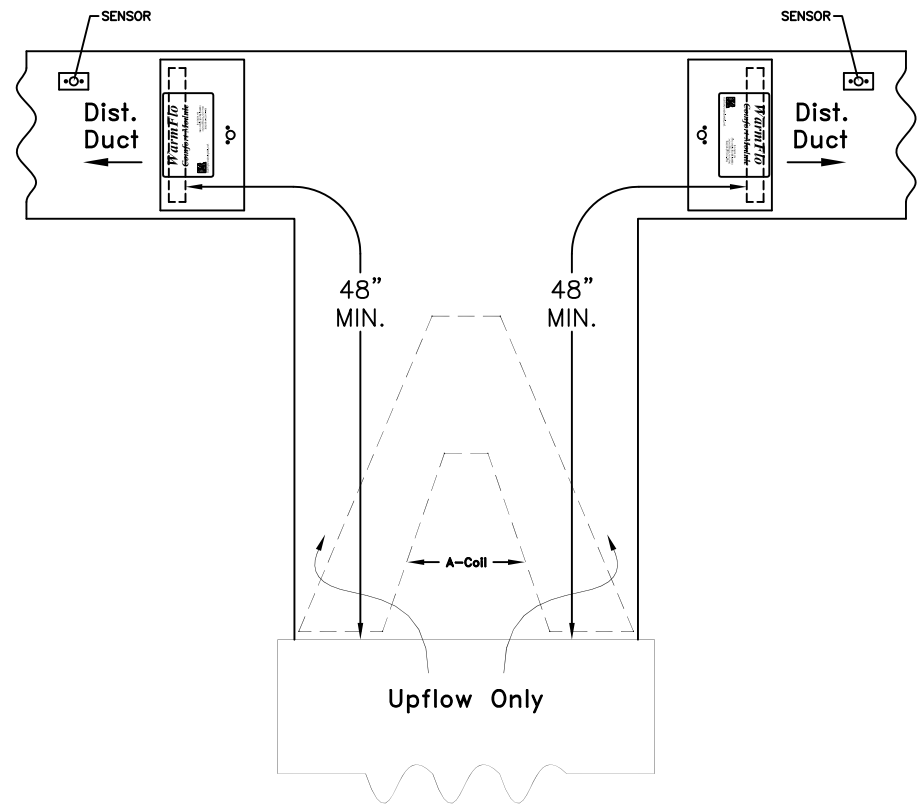
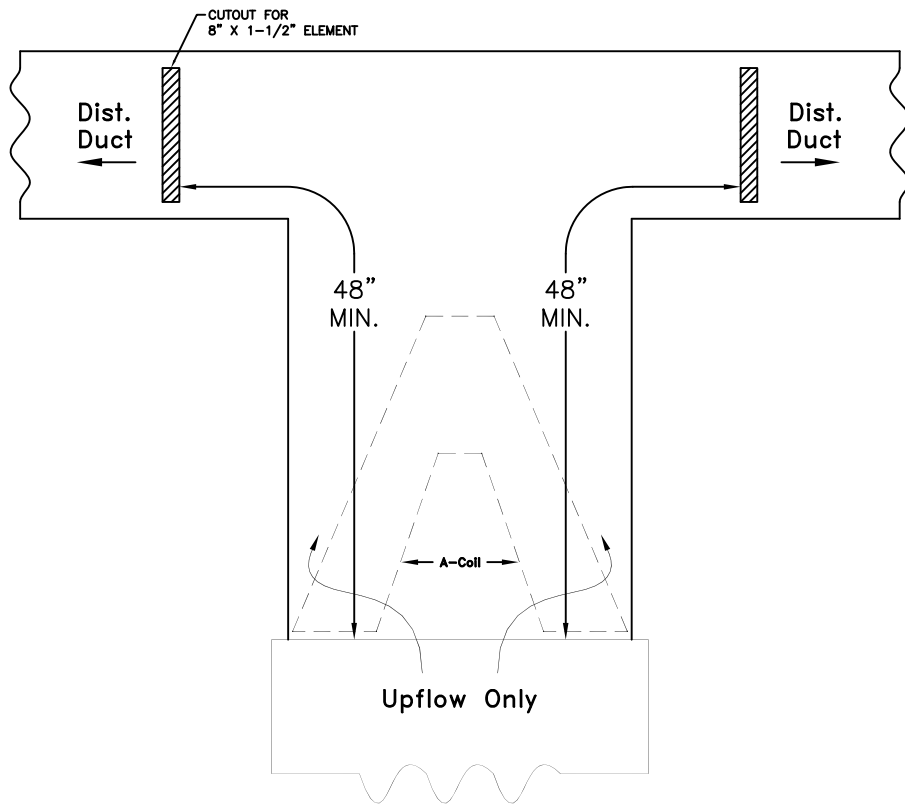
PROPRIETARY AND CONFIDENTIAL NOTE: THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF ELECTRO INDUSTRIES INC. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF ELECTRO INDUSTRIES INC. IS PROHIBITED.	DESCRIPTION	 ELECTRO INDUSTRIES, INC. MONTICELLO, MN 55362	SHEET	SCALE	PART/MODEL NUMBER			
	WF-CM OUTLINE		1/1	NTS	EM-WCO*1**			
			DRAWN	CHECKED	APPROVED	DATE	REV/STATUS	DOCUMENT NUMBER
			JAD			03-20-09	B	HH313



MODEL	LENGTH "L"
EM-WC1025H	10.00"
EM-WC1025L	16.00"

ELECTRO INDUSTRIES, INC. MONTICELLO, MN 55362		DESCRIPTION	
DRAWN	REFERENCE DOCUMENT	WF-CM OUTLINE	
MEF	--		
CHECKED	VIEW/DRAWING TYPE	SCALE	PART/ASSY/MODEL NUMBER
	HOOKUP	NTS	EM-WC1025*
APPROVED	DRAWING STATUS	DOCUMENT DATE	SHEET
	RELEASED	02-01-00	1/1
		DOCUMENT NUMBER	
		HH315	

EXISTING HP DUAL FUEL ADDING 10KW

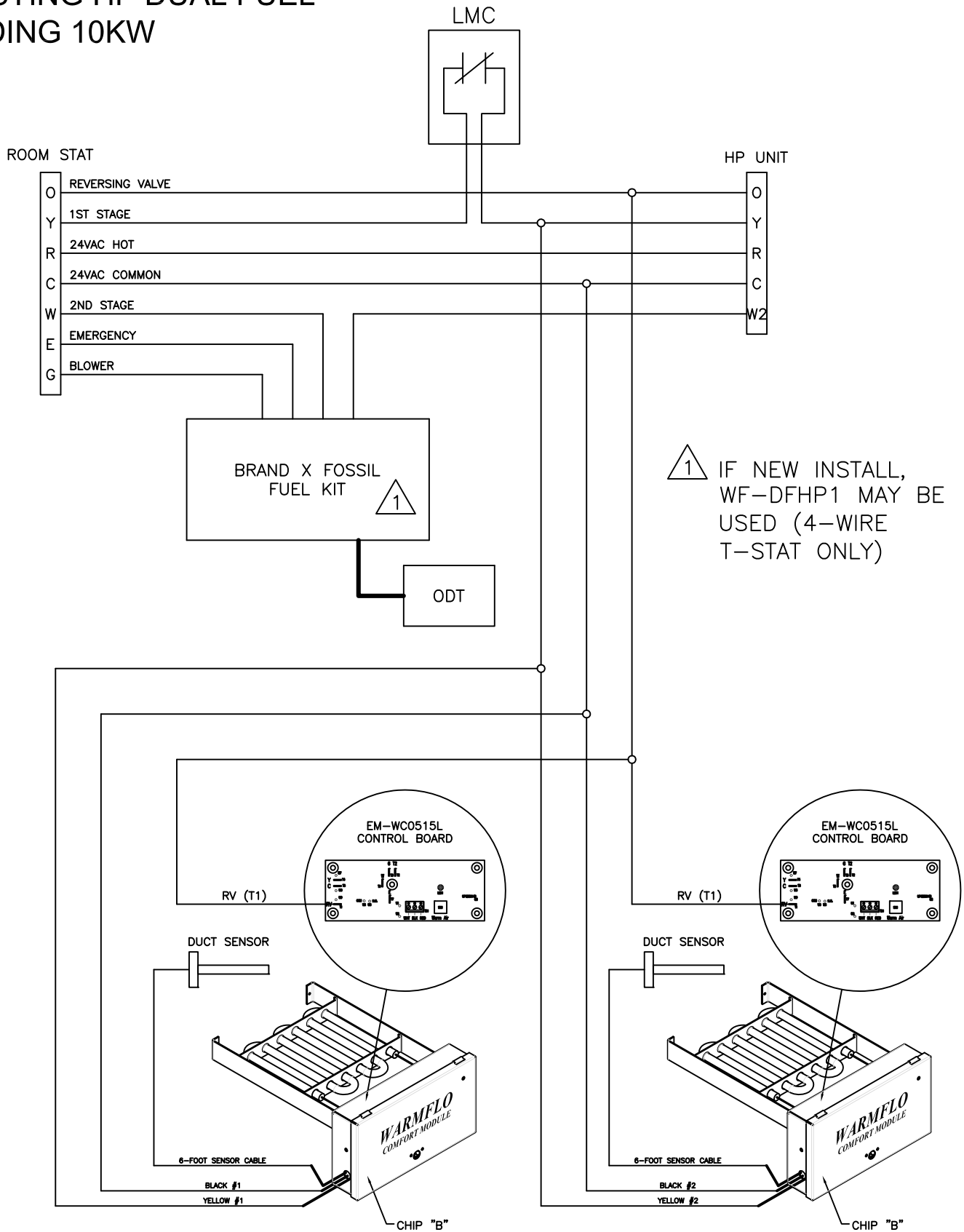


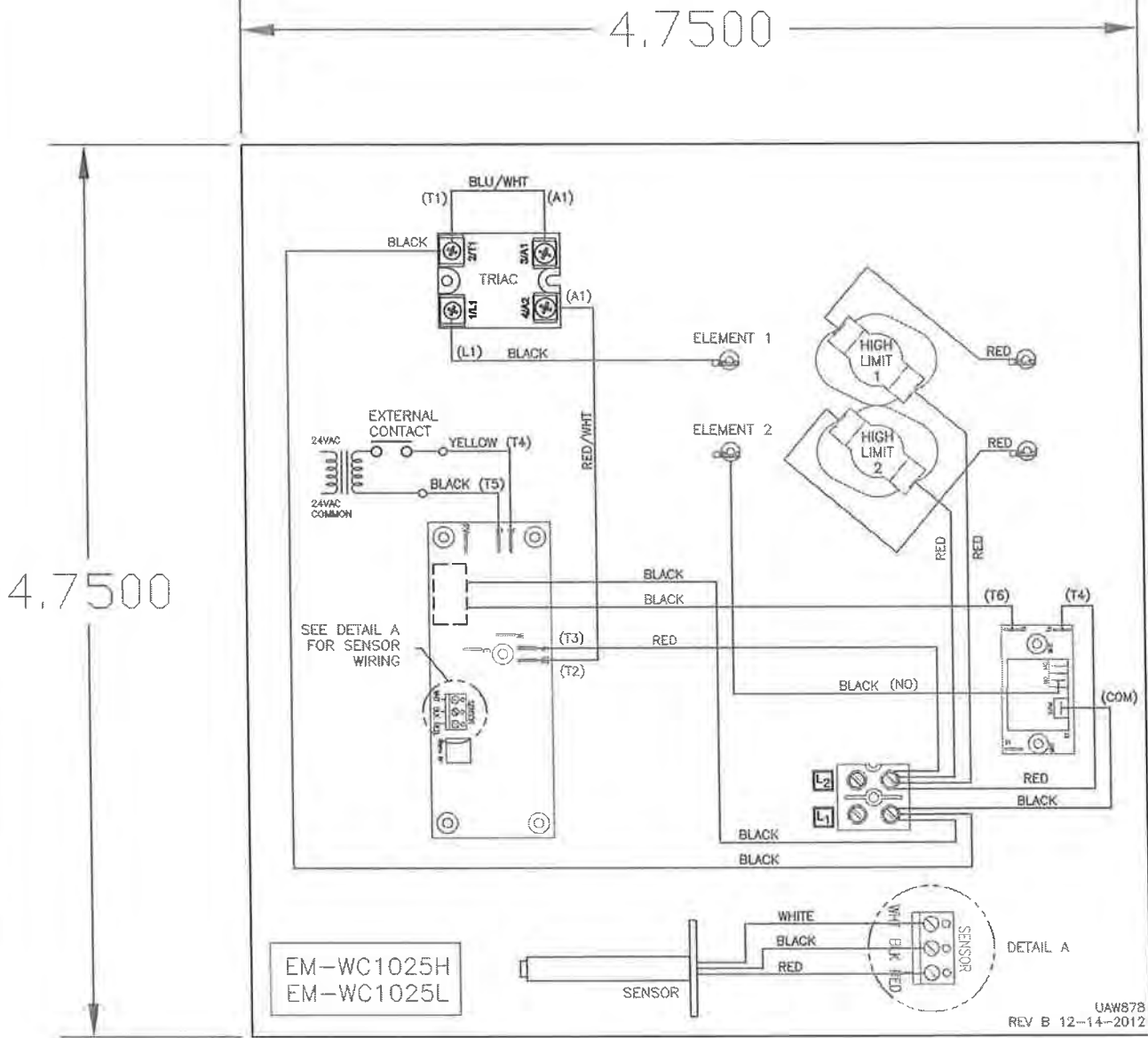
REFERENCE
MODEL SERIES:

EM-WC0515*



EXISTING HP DUAL FUEL ADDING 10KW

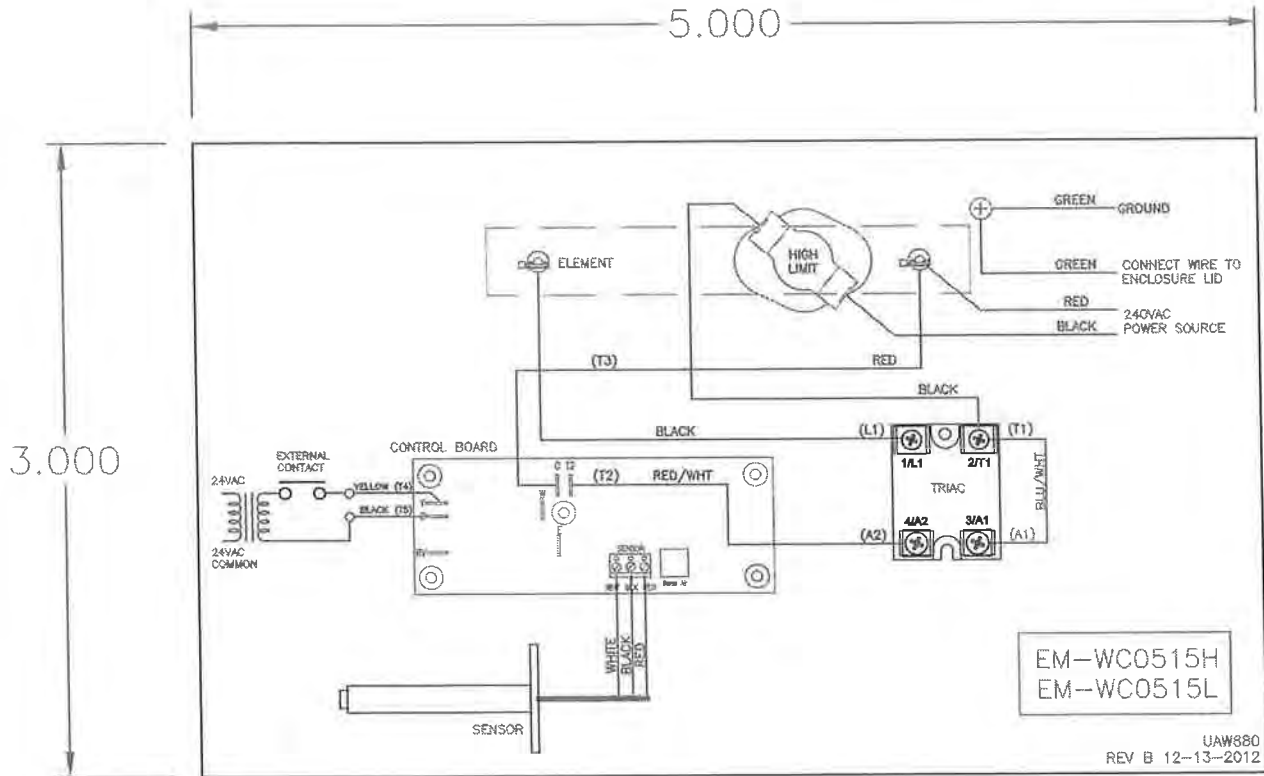




NOTES:

1. MATERIAL= VINYL WITH ADHESIVE AND LAMINATE.
2. COLOR= BLACK ON WHITE.
3. NO BORDER.
4. SIZE- 4.75 X 4.75

B12-14-12 -RELEASED	ELECTRO INDUSTRIES, INC. MONTICELLO, MN 55362		DESCRIPTION	
	DRAWN	MEF	EM-WC1025H/EM-WC1025L WIRING DECAL	
	CHECKED	VIEW/DRAWING TYPE	SCALE	PART/ASSY/MODEL NUMBER
	APPROVED	WIRING SCHEMATIC	NTS	UAW878
	DRAWING STATUS	DOCUMENT DATE	SHEET	DOCUMENT NUMBER
	RELEASED	12-14-12	1/1	UAW878-00



NOTES:

1. MATERIAL= VINYL WITH ADHESIVE AND LAMINATE.
2. COLOR= BLACK ON WHITE.
3. NO BORDER.
4. SIZE- 5.00 X 3.00

B12-13-12 -RELEASED			DESCRIPTION	
	DRAWN MEF		REFERENCE DOCUMENT	
	CHECKED		VIEW/DRAWING TYPE	
	APPROVED		DRAWING STATUS	
		WIRING SCHEMATIC		SCALE NTS
		RELEASED		PART/ASSY/MODEL NUMBER UAW880
		12-13-12		DOCUMENT NUMBER UAW880-00
		1/1		

Electro Industries, Inc. Residential Limited Product Warranty

Effective November 1, 2009

Electro Industries, Inc. warrants to the original owner, at the original installation site, for a period of two (2) years from date of original purchase, that the product and product parts manufactured by Electro Industries, Inc. are free from manufacturing defects in materials and workmanship, when used under normal conditions and when such product has not been modified or changed in any manner after leaving the plant of Electro Industries, Inc. If any product or product parts manufactured by Electro Industries, Inc. are found to have manufacturing defects in materials or workmanship, such will be repaired or replaced by Electro Industries, Inc. Electro Industries, Inc., shall have the opportunity to directly, or through its authorized representative, examine and inspect the alleged defective product or product parts. Electro Industries, Inc. may request that the materials be returned to Electro Industries, Inc. at owner's expense for factory inspection. The determination as to whether product or product parts shall be repaired, or in the alternative, replaced, shall be made by Electro Industries, Inc. or its authorized representative.

Electro Industries, Inc. will cover labor costs according to the Repair / Replacement Labor Allowance Schedule for a period of ninety (90) days from the date of original purchase, to the original owner, at the original installation site. The Repair / Replacement Labor Allowance is designed to reduce the cost of repairs. This Repair / Replacement Labor Allowance may not cover the entire labor fee charged by your dealer / contractor.

TWENTY YEAR (20) LIMITED WARRANTY ON BOILER ELEMENTS AND VESSELS

Electro Industries, Inc. warrants that the boiler elements and vessels of its products are free from defects in materials and workmanship through the twentieth year following date of original purchase. If any boiler elements or vessels are found to have a manufacturing defect in materials or workmanship, Electro Industries, Inc. will replace them.

TWENTY YEAR (20) LIMITED WARRANTY ON SPIN FIN ELEMENTS

Electro Industries, Inc. warrants that the spin fin elements of its products are free from defects in materials and workmanship through the twentieth year following date of original purchase. If any spin fin elements are found to have a manufacturing defect in materials or workmanship, Electro Industries, Inc. will replace them.

FIVE YEAR (5) LIMITED WARRANTY ON OPEN WIRE ELEMENTS

Electro Industries, Inc. warrants that the open wire elements of its products are free from defects in materials and workmanship through the fifth year following date of original purchase. If any open wire elements are found to have a manufacturing defect in materials or workmanship, Electro Industries, Inc. will replace them.



CONDITIONS AND LIMITATIONS:

1. This warranty is limited to residential, single family dwelling installations only. Any commercial or multi-unit dwelling installations fall under the Electro Industries Commercial Limited Product Warranty.
2. Electro Industries, Inc. shall not be liable for performance related issues resulting from improper installation, improper sizing, improper duct or distribution system, or any other installation deficiencies.
3. If at the time of a request for service the original owner cannot provide an original sales receipt or a warranty card registration then the warranty period for the product will have deemed to begin the date the product is shipped from the factory and **NOT** the date of original purchase.
4. The product must have been sold and installed by a licensed electrician, plumbing, or heating contractor.
5. The application and installation of the product must be in compliance with Electro Industries, Inc. specifications, as stated in the installation and instruction manual, and all state, provincial and federal codes and statutes. If not, the warranty will be null and void.
6. The purchaser shall have maintained the product in accordance with the manual that accompanies the unit. Annually, a qualified and licensed contractor must inspect the product to assure it is in proper working condition.
7. All related heating components must be maintained in good operating condition.
8. All lines must be checked to confirm that all condensation drains properly from the unit.
9. Replacement of a product or product part under this limited warranty does not extend the warranty term or period.
10. Replacement product parts are warranted to be free from defects in material and workmanship for ninety (90) days from the date of installation. All exclusions, conditions, and limitations expressed in this warranty apply.
11. Before warranty claims will be honored, Electro Industries, Inc. shall have the opportunity to directly, or through its authorized representative, examine and inspect the alleged defective product or product parts. Remedies under this warranty are limited to repairing or replacing alleged defective product or product parts. The decision whether to repair or, in the alternative, replace products or product parts shall be made by Electro Industries, Inc. or its authorized representative.

THIS WARRANTY DOES NOT COVER:

1. Costs for labor for diagnosis, removal or reinstallation of an alleged defective product or product part, transportation to Electro Industries, Inc., and any other materials necessary to perform the exchange, except as stated in this warranty. Replacement material will be invoiced to the distributor in the usual manner and will be subject to adjustment upon verification of defect.
2. Any product or product part that has been damaged as a result of being improperly serviced or operated, including, but not limited to, the following: operated during construction phase, with insufficient water or air flow; allowed to freeze; subjected to flood conditions; subjected to improper voltages or power supplies; operated with air flow or water conditions and/or fuels or additives which cause unusual deposits or corrosion in or on the product; chemical or galvanic erosion; improper maintenance or subject to any other abuse or negligence.
3. Any product or product part that has been damaged as a result of natural disasters, including, but not limited to, lightning, fire, earthquake, hurricanes, tornadoes or floods.
4. Any product or product part that has been damaged as a result of shipment or handling by the freight carrier. It is the receiver's responsibility to claim and process freight damage with the carrier.
5. Any product or product part that has been defaced, abused or suffered unusual wear and tear as determined by Electro Industries, Inc. or its authorized representative.
6. Workmanship of any installer of the product or product part. This warranty does not assume any liability of any nature for unsatisfactory performance caused by improper installation.
7. Transportation charges for any replacement product, product part or component, service calls, normal maintenance; replacement of fuses, filters, refrigerant, etc.

THESE WARRANTIES DO NOT EXTEND TO ANYONE EXCEPT THE ORIGINAL PURCHASER AT RETAIL AND ONLY WHEN THE PRODUCT IS IN THE ORIGINAL INSTALLATION SITE. THE REMEDIES SET FORTH HEREIN ARE EXCLUSIVE.

ALL IMPLIED WARRANTIES, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE HEREBY DISCLAIMED WITH RESPECT TO ALL PURCHASERS OR OWNERS. ELECTRO INDUSTRIES, INC. IS NOT BOUND BY PROMISES MADE BY OTHERS BEYOND THE TERMS OF THESE WARRANTIES. FAILURE TO RETURN THE WARRANTY CARD SHALL HAVE NO EFFECT ON THE DISCLAIMER OF THESE IMPLIED WARRANTIES.

ALL EXPRESS WARRANTIES SHALL BE LIMITED TO THE DURATION OF THIS EXPRESS LIMITED WARRANTIES SET FORTH HEREIN AND EXCLUDE ANY LIABILITY FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES RESULTING FROM THE BREACH THEREOF. SOME STATES OR PROVINCES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATIONS OR EXCLUSIONS MAY NOT APPLY. PRODUCTS OR PARTS OF OTHER MANUFACTURERS ATTACHED ARE SPECIFICALLY EXCLUDED FROM THE WARRANTY.

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY HAVE OTHER RIGHTS WHICH VARY UNDER THE LAWS OF EACH STATE. IF ANY PROVISION OF THIS WARRANTY IS PROHIBITED OR INVALID UNDER APPLICABLE STATE OR PROVINCIAL LAW, THAT PROVISION SHALL BE INEFFECTIVE TO THE EXTENT OF THE PROHIBITION OR INVALIDITY WITHOUT INVALIDATING THE REMAINDER OF THE AFFECTED PROVISION OR THE OTHER PROVISIONS OF THIS WARRANTY.