



Comfort Where It Counts.

T2H, T3H, and T4H with WLHA SYSTEMS

Multi-Zone Heat Pumps

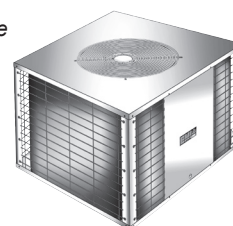
Rev. C [01/09]

JOB NAME: _____ LOCATION: _____
PURCHASER: _____
ENGINEER: _____
SUBMITTED TO: _____ FOR: REFERENCE [] APPROVAL [] CONSTRUCTION []
SUBMITTED BY: _____ DATE: _____
UNIT DESIGNATION: SCHEDULE #: _____ MODEL #: _____



WLHA
High Wall

Additional electrical specifications are located in the
Owners Manual and Specifications Sheet.



T2H, T3H, and
T4H
Top Discharge

Indoor Design Temp °F (°C) DB/WB
Cooling 80/67 (26.6/19.4)
Heating 70/60 (21.1/15.6)

Outdoor Design Temp °F (°C) DB/WB
Cooling 95/75 (35/23.9)
Heating 47/43 (8.3/6.1)

STANDARD FEATURES:

Air Handler – High Wall Mounted:

- Universal unit mounted, infrared compatible control package, configurable to either unit mount or optional wall thermostat operation.
- Compatible with most standard wall mounted, 24V thermostats
- Motorized supply louver
- Integral field condensate pump connector
- Condensate pan over flow protection

Standard features continued following page.

WLHA ELECTRICAL SPECIFICATIONS								
Model	Volts/HZ/PH	Fan RLA	Heat K.W.	Amps	Total Amps	Min Volt	M.C.A.	HACR BRKR
SMALL CABINET 09/12								
WLHA 09/12	115/60/1	0.64	–	–	0.64	104	0.8	15
	115/60/1	0.64	0.75	6.5	7.14	104	8.9	15
	208/230/60/1	0.34	–	–	0.34	197	0.4	15
	208/230/60/1	0.34	3	13.04	13.38	197	16.7	20
MEDIUM CABINET 24								
WLHA 24	115/60/1	1.2	–	–	1.20	104	1.5	15
	115/60/1	1.2	0.75	6.52	7.72	104	9.7	15
	115/60/1	1.2	1.25	10.9	12.10	104	15.1	20
	208/230/60/1	0.56	–	–	0.56	197	0.7	15
	208/230/60/1	0.56	3	13.04	13.60	197	17.0	20
	208/230/60/1	0.56	5	21.74	22.30	197	27.9	30

ELECTRICAL SPECIFICATIONS Top Discharge Multizone Heat Pumps 208/230V - 60 HERTZ 1 - PHASE

Model	Capacity*	Fan Motor		Total Amps	MCA	HACR BRKR	Min Volt
		Amps	HP				
T2H	8800	1.8	0.33	12.6	14.0	15	197
	8400	1.8	0.33	16.0	18.2	25	197
	4400	1.8	0.33	19.4	21.6	30	197
	2400	1.8	0.33	14.9	17.1	25	197
	9800	1.8	0.33	10.6	12.0	15	197
T3H	9990	1.8	0.33	12.0	12.9	15	197
	9920	1.8	0.33	12.9	14.0	15	197
	9980	1.8	0.33	14.0	15.4	20	197
	9940	1.8	0.33	17.4	19.6	25	197
	9220	1.8	0.33	13.8	14.9	15	197
	9280	1.8	0.33	14.9	16.3	20	197
	9240	1.8	0.33	18.3	20.5	25	197
	2280	1.8	0.33	15.8	17.2	20	197
	2240	1.8	0.33	19.2	21.4	30	197
	2220	1.8	0.33	14.7	15.8	20	197
T4H	9999	1.8	0.33	15.4	16.3	20	197
	9992	1.8	0.33	16.3	17.4	20	197
	9922	1.8	0.33	17.2	18.3	20	197
	9222	1.8	0.33	18.1	19.2	20	197
	2222	1.8	0.33	19.0	20.1	25	197

* 9 - 9000 Btuh circuit
8 - 18000 Btuh circuit

2 - 12000 Btuh circuit
4 - 24000 Btuh circuit



EMI ENGINEERING SUBMITTAL T2H, T3H, AND T4H WITH WLHA SYSTEMS

STANDARD FEATURES:

Air Handler – High Wall Mounted (Continued):

- Anti-short cycle compressor protection
- Indoor coil freeze protection
- Dry mode for humidity control (*optional electric heat required*)
- Memory back up for auto re-start following power outage
- Fan purge for improved efficiency
- 24 V Transformer

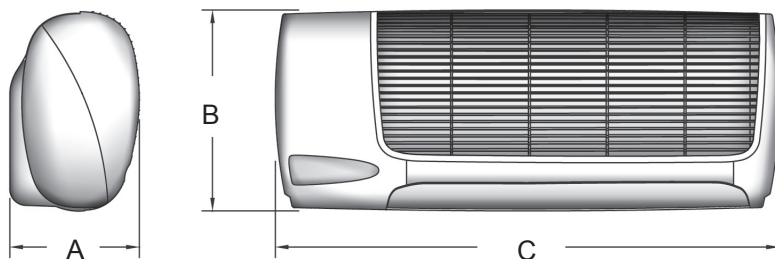
Condenser – Top Discharge:

- Compressor and fan motor contactor
- Capacitors (*compressor & motor*)

- Low Voltage (24V) terminal connections
- High pressure control (18,000 and 24,000 Btuh zones)
- Large capacity suction accumulator (9,000 12,000 and 18,000 Btuh zones)
- Factory installed solid core filter driers
- R-22 refrigerant
- All compressors on separate circuits
- Hard Start Assist
- Common suction pressure access point
- Duratec compressor protection package also includes;
 - Crankcase Heater

WLHA DIMENSIONS AND SPECIFICATIONS

Due to ongoing development programs, design and specifications may change without notice.



Note: All dimensions in inches

WLHA SHIPPING WEIGHT	
Model	Lbs.
WLHA09	58.00
WLHA12	60.25
WLHA24	66.20

WLHA SOUND VALUES * (230V High Speed Fan)	
Model	dBA
9/12	45
24	56

WLHA PHYSICAL DIMENSIONS					
Model	"A" Depth	"B" Height	"C" Length	"D" Mounting Bracket Length	"E" Tubing Access Length
WLHA09	9 7/8"	15 1/4"	38 1/2"	24"	26 1/2"
WLHA12	9 7/8"	15 1/4"	38 1/2"	24"	26 1/2"
WLHA24	9 7/8"	15 1/4"	48 1/2"	34"	36 1/2"

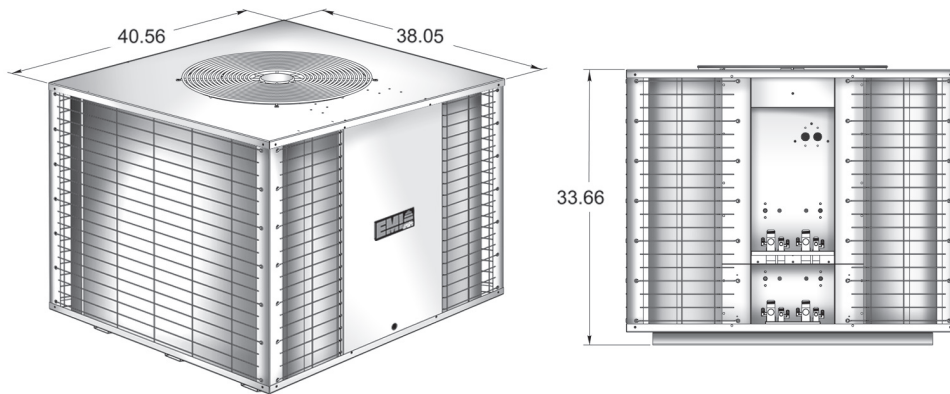
DISCHARGE AIR SPEED AND FLOW @ 230V					
Model	High CFM	Low CFM	Coil	FPM	Throw/Ft.
9/12	400	350	Dry	900	15
24	750	675	Dry	1,225	25

WLHA INTERCONNECTING-LINE SIZE IN O.D.		
System Capacity Btuh	Liquid	Suction
9,000	1/4"	1/2"
12,000	1/4"	1/2"
18,000	3/8"	5/8"
24,000	3/8"	3/4"

* WLHA Suction Connection size is 3/4" O.D. and must bush down at the WLHA Unit.

EMI ENGINEERING SUBMITTAL T2H, T3H, AND T4H WITH WLHA SYSTEMS

T2H, T3H, AND T4H SPECIFICATIONS AND DIMENSIONS



Note:
All dimensions
in inches

PART ONE "GENERAL"

The heat pump systems shall be an EMI America Series multi-zone split system per the equipment schedule. The system shall consist of two to four indoor air handler models per the air handler equipment schedule and matching America Series multi-zone heat pump condenser per the condenser equipment schedule. The units shall be made within North America. The units shall be listed by Intertek Testing Service (ITS) and bear the ETL label. All wiring shall be in accordance with the National Electrical Code (N.E.C.). The units shall be rated in accordance with ARI Standard 210/240 and bear the ARI label. The units shall be manufactured in a facility certified to ISO 9001, which is an international standard used to provide guidance in the development and implementation of an effective Quality Management System. The condensing unit shall contain R-22 refrigerant charge for the evaporator section and condenser section. The system efficiency shall meet or exceed 2006 Federal Standards.

PART TWO "WARRANTY"

The units shall have a manufacturer's warranty for a period of (1) year from date of installation. The compressors shall have a warranty of (5) years from date of installation. If, during this period, any part should fail to function properly due to defects in workmanship or material, it shall be replaced or repaired at the discretion of Enviromaster International LLC. This warranty does not include labor. Manufacturer shall have twenty years experience in the U.S. market.

PART THREE "PERFORMANCE"

COOLING - Each indoor unit, specified by the air handler equipment schedule, shall provide a total minimum capacity, SEER, and EER at ARI standard conditions per the chart below. The system net minimum total cooling capacity and circulating air rate at 80°F (DB)/67°F (WB) entering the indoor coil and 95°F (DB) air entering the outdoor coil for the circuit combinations on the equipment schedule shall be rated per the *System Performance Chart*. Cooling mode will operate down to 35°F (1.6°C) and then shut down the compressor.

HEATING - The system shall provide a heating capacity and COP per the "System Performance" chart at ARI conditions, which are 70°F (DB) (21.1°C) entering the indoor coil, and 47°F (DB)/ 43°F (WB)(8.3/6.1°C) air entering the outdoor coil. The T2H, T3H, and T4H are limited range heat pumps that will operate in heating mode down to 35°F (1.6°C) and turn off the compressor. At that time the optional electric heater in the EMI indoor unit (if option purchased) will operate to meet the heating need.

T2H, T3H, & T4HA LINE SET SOUND & WEIGHT DATA

Model	Line Set Diameters		Sound	Weight
	Liquid	Suction	dBA	Lbs.
T2H8800	3/8"	5/8"	70	325
T2H8400	3/8"	5/8" & 3/4"	70	325
T2H4400	3/8"	3/4"	70	325
T2H2400	1/4" & 3/8"	1/2" & 3/4"	70	325
T2H9800	1/4" & 3/8"	1/2" & 5/8"	70	325
T3H9990	1/4"	1/2"	70	325
T3H9920	1/4"	1/2"	70	325
T3H9980	1/4" & 3/8"	1/2" & 5/8"	70	325
T3H9940	1/4" & 3/8"	1/2" & 3/4"	70	325
T3H9220	1/4"	1/2"	70	325
T3H9280	1/4" & 3/8"	1/2" & 5/8"	70	325
T3H9240	1/4" & 3/8"	1/2" & 3/4"	70	325
T3H2280	1/4" & 3/8"	1/2" & 5/8"	70	325
T3H2240	1/4" & 3/8"	1/2" & 3/4"	70	325
T3H2220	1/4"	1/2"	70	325
T4H9999	1/4"	1/2"	70	325
T4H9992	1/4"	1/2"	70	325
T4H9922	1/4"	1/2"	70	325
T4H9222	1/4"	1/2"	70	325
T4H2222	1/4"	1/2"	70	325

▲ PART FOUR "INDOOR UNIT"

The indoor unit shall be factory assembled, wired and contain a low voltage transformer. The cabinet will be ABS plastic with a light gray finish and have galvanized steel sub chassis. The evaporator fan shall be an assembly with a tangential blower direct driven by a single motor. The fan shall be statically and dynamically balanced and run on permanently lubricated bearings. Motorized louver shall be provided with the ability to change the airflow vertically. Horizontal-manually adjustable discharge louvers will be provided that can be placed in a fixed position. Return air shall be filtered by means of a washable, reusable mesh filter. The evaporator coil shall be of nonferrous construction with louvered fins bonded to rifled copper tubing. The tubing shall have inner grooves for high efficiency heat exchange. All tube joints shall be brazed with phos copper or silver alloy. The coil shall be pressure tested at the factory. A condensate management system with over flow protection, condensate drain pan with anti-corrosion coating and drain shall be provided under the coil. System refrigerant flow shall be controlled by means of an orifice piston in the indoor unit. The unit electrical power shall be 208/230 or 115 Volts, 1 phase, 60 Hertz. The indoor unit shall be capable of satisfactory operation within the voltage limits of 208/230 or 115 +/- 10% Volts (197 min / 240 max Volts).

WLHA / T2H, T3H, OR T4H SYSTEM PERFORMANCE DATA								
Model		Cooling				Heating		
Outdoor	Indoor Air Handler	Btuh	SEER	SHR	EER	Btuh	HSPF	COP
T2H8800	(2) WLHA24	36000	13	0.72	12.1	26800	7.7	3.3
T2H8400	(2) WLHA24	42000	13	0.68	11.9	32000	7.7	3.2
T2H4400	(2) WLHA24	48000	13	0.65	11.8	37400	7.7	3.2
T2H2400	(1) WLHA12 + (1) WLHA24	35000	13	0.67	11.0	27800	7.7	3.2
T2H9800	(1) WLHA09 + (1) WLHA24	27200	13	0.74	12.0	20800	7.7	3.3
T3H9990	(3) WLHA09	27800	13	0.80	11.9	22200	7.7	3.3
T3H9920	(2) WLHA09 + (1) WLHA12	29800	13	0.76	11.0	24000	7.7	3.3
T3H9980	(2) WLHA09 + (1) WLHA24	36400	13	0.76	12.0	28200	7.7	3.3
T3H9940	(2) WLHA09 + (1) WLHA24	42500	13	0.71	11.8	33400	7.7	3.2
T3H9220	(1) WLHA09 + (2) WLHA12	31800	13	0.74	11.0	25800	7.7	3.3
T3H9280	(1) WLHA09 + (1) WLHA12 + (1) WLHA24	38500	13	0.73	11.9	30000	7.7	3.3
T3H9240	(1) WLHA09 + (1) WLHA12 + (1) WLHA24	44500	13	0.69	11.7	35200	7.7	3.2
T3H2280	(2) WLHA12 + (1) WLHA24	40500	13	0.76	11.8	31800	7.7	3.3
T3H2240	(2) WLHA12 + (1) WLHA24	46500	13	0.68	11.7	37000	7.7	3.2
T3H2220	(3) WLHA12	34000	13	0.72	11.0	27600	7.7	3.3
T4H9999	(4) WLHA09	37200	13	0.80	11.9	29600	7.7	3.3
T4H9992	(3) WLHA09 + (1) WLHA12	39000	13	0.77	11.8	31400	7.7	3.3
T4H9922	(2) WLHA09 + (2) WLHA12	41000	13	0.76	11.8	33200	7.7	3.3
T4H9222	(1) WLHA09 + (3) WLHA12	43000	13	0.72	11.6	35000	7.7	3.3
T4H2222	(4) WLHA12	45000	13	0.72	11.7	36800	7.7	3.3

Circuit Designators: 9 = 9000 Btuh 2 = 12000 Btuh 8 = 18000 Btuh 4 = 24000 Btuh (ex. - 8400 consists of one 18000 Btuh compressor and one 24000 Btuh compressor)

▲ PART FIVE "CONTROL SYSTEM"

The control system shall consist of a universal unit mounted, infrared compatible control package, configurable to either unit mount or optional wall thermostat operation. Interconnected low voltage wiring shall run from indoor unit to outdoor unit direct, **NO SPLICES**. When running low voltage wiring a double insulated, 18 gage cable is mandatory or use shielded cable. The microprocessor shall be factory wired and located within the indoor unit. The control unit will have a large LCD backlit display and be configurable to either unit mount or remote wall thermostat operation. Unit mount-control operation allows the use of an optional IR hand held controller. The control shall have the capability of sensing return air temperature and indoor coil temperature. The operational range will have adjustable set points from 55°F to 90°F (13 to 32°C) in one degree increments. The universal control can be used in cooling only, cooling with optional electric heat, heat pump or heat pump with optional second stage electric heat. Operation modes include, cool, heat, fan, auto change over and dry. Fan operation of auto (cycling), high and low (constant), auto fan operation automatically selects fan speed according to heating or cooling demand. Dry mode operates cooling and optional electric heat simultaneously to remove humidity (optional electric heat required). Test mode allows for ease of testing after installation (all timers are eliminated). Room air sampling (fan auto mode) cycles the fan on periodically to remove temperature stratification. Fan purge runs the indoor fan for 60 seconds after call is dropped for cool/heat, improving unit efficiency. Unit protection features include, anti short cycling compressor protection, minimum compressor run

time, freeze protection to prevent evaporator freeze, filter change indicator, condensate pan overflow switch, and integral condensate pump safety-switch connection. With this feature the control monitors the condensate pump safety switch and displays an error code if a fault occurs. The unit shall also provide non-volatile back up memory, where control settings are maintained for an indefinite period during a power outage. When power is restored the equipment will resume operation after a 3 minute compressor time delay. The control voltage shall be 24Vac generated from the indoor units transformer.

▲ **PART SIX "OUTDOOR UNIT"**

The outdoor unit shall be completely factory assembled, piped and wired. The cabinet shall be fabricated of G90U galvaneal steel, finished with corrosion inhibiting, polyester, powder coated paint (2,000 hr. salt spray tested), finished in light gray with a black vinyl coated fan guard. The unit shall be furnished with (1) large diameter, direct drive, high efficiency propeller type fan. The motor shall be PSC type with internal overload protection and shall be permanently lubricated and resiliently mounted for quiet operation. The fan shall be provided with a guard to prevent contact with moving parts. The 9000 and 12000 Btuh nominal compressors shall be of the high performance rotary type with Duratec package consisting of an oversized accumulators, factory installed solid core filter driers and thermal overloads. The 18000 and 24000 Btuh nominal compressors shall be high performance reciprocating or scroll type. The compressors shall be mounted as to avoid the transmission of vibration. The condenser shall have easy access service port connections at 45° from valve body. The refrigeration system shall be equipped with loss of charge switch or manual reset high pressure switch and have the capability to operate with a maximum height difference of 35 feet (10.6 m) and overall refrigerant tubing length of 100 equivalent feet (30 m) between indoor and outdoor sections without the need for line size changes or additional oil. Refrigerant circuits shall be independent and contain its own compressor, refrigerant piping, service valve, expansion device and evaporator. The condenser coil shall be U-shaped and protected by a wire coil guard. Coil construction is seamless copper tubing with enhanced aluminum fins. The tubes are mechanically expanded for secure bonding to the fin. The unit electrical power shall be 208/230V, 1 phase, 60 Hertz. The system shall be capable of operation within voltage limits of 208/230V +/- 10% (197 min / 240 max Volts).

▲ **PART SEVEN "OPTIONAL EQUIPMENT"**

- **Hand held infrared remote controller**
- **24 Volt remote wall thermostat**
- **3 kW or 5 kW electric heat** with automatic reset high temperature cutout and redundant high temperature fuse link
- **Internal condensate pump** (4 ft / 1.2 m) lift from base of unit
- **Wind baffle kit** - field installed, consists of a set of louvered panels for the condenser surface areas, which can be left on year round:
 - Wind baffles also provide an attractive covering for the condenser coil surface as well as serving as a hail guard
- **Sea coast coated coils**
- **Copper-copper condenser coils** – for protection against galvanic corrosion