

Hi-Velocity Systems™

Small Duct Heating, Cooling and
Indoor Air Quality Systems

www.hi-velocity.com

JH Installation Manual



Includes:

JH-15

JH-30

Manufactured By
Energy Saving Products Ltd.

Module JHI - JH Installation Manual 010109

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JH Series Fancoils

Installation, Operation, and Maintenance Manual

JH Installation Instructions

JH Fancoils by Energy Saving Products Ltd. can be installed in the Hi-Boy, Horizontal, or Counterflow Positions. The JH Fancoil can also be positioned on its side for between the joist locations. Return air (Intake Air) access can be from the rear of the unit (Standard), or optionally from the side access panel that is opposite from the motor access. The JH Fancoil comes complete with filter and filter frame.

When used for fresh air make-up in radiant only systems, the JH Fancoil can be used either with or without return air to temper the outside air. The fresh air intake must be insulated and vapour barriered, with a balancing damper installed. A humidifier can also be installed on the JH Fancoil. When used for humidification, the humidifier can be mounted on the back access panel.

When used for heating, the JH Fancoil can be used with a line volt thermostat to operate the fan. This would be used when there is a constant flow of hot water to the JH Fancoil. An optional 24 volt relay or circuit board may be installed to operate the unit from a 24 volt thermostat, and to control boiler operation.

Hydronic connections are 3/8" I.D. copper sweat connections, and should be piped to allow access to the filter and motor access panel for maintenance and service.

Optional Equipment

Variable Speed Controller - This allows the airflow to be adjusted to meet exact system requirements. This is especially important when using the JH Fancoil for fresh air make-up, as over ventilating a structure will cause excessive fuel usage, and possibly create positive pressure problems within the structure.

Low Temperature Cut-Out - When the discharge air temperature drops below 50 Deg. F, this control will shut down power to the blower and to the fresh air damper motor (if installed). This control is located in the supply air duct work, within eighteen inches of the fancoil. The disc will automatically reset when the ambient temperature around the disc reaches 60 Deg. F.

Constant Temperature Controller - This control will provide a constant discharge air temperature by modulating the water flow through the coil. The controller body is installed in the hydronic supply line, and the remote sensor will mount in the discharge air duct within eighteen inches of the fancoil. The control head may then be adjusted to provide the desired leaving air temperature.

Isolation Hanging Straps - To eliminate any chance of vibration transfer from the Fancoil, neoprene meshed straps may be used to suspend the Fancoil.

Low temperature Cut-In - This control is located in the air stream and wired parallel with the rest of the boiler controls running back to control the firing of the boiler.

Winter Pump Control - The sensor for this control will be located outside the structure or inside the fresh air duct to allow constant water circulation to the Fancoil when the outdoor temperature drops to the setpoint temperature. See page 7 for cut-in temperature settings.

Fan Center Relay - This Relay/Transformer combination allows the fancoil to operate with a 24 volt thermostat providing on/off operation of the fan and/or 24 volt controls. (eg: 24 volt zone valve or damper motor.)

Fresh Air Damper Box - This consists of an insulated return air box, with a normally closed, line volt damper. A Low Temperature Cut-Out must be used in conjunction with this damper box to cut power to the damper motor when there is a low discharge air temperature from the Fancoil. A filter frame and a six inch round intake collar are standard on this damper box.

R/A and S/A Collars - When using round duct work with the JH Fancoil, square to round transitions may be ordered from the factory. Transitions are available to either six inch or eight inch round.

Directional Discharge Vanes - When using the Fancoil for area heating in an exposed application such as an overhead style heater, these vanes may be installed to direct the airflow as needed.

Balanced Ventilation Exhaust Unit - When using the JH Fancoil for fresh air make-up, a central exhaust ventilator can be interlocked with the fancoil to provide a balanced ventilation system. These JH-xx EX units come with six inch discharge and eight inch intake transitions.

Domestic Water Package (DHW) - When used with open potable water systems, the water must be circulated once per day to prevent stagnation during the summer months. Our DHW package includes a Printed Circuit Board with timer chip, transformer, and bronze body circulator pump.

JH Series Northern Pak (JH-xx NP)

The JH Series of Fancoils can be ordered as a fresh air make-up package by adding the suffix “NP” to the model number. The Northern Pak consists of:

- Fancoil
- Filter and Filter Frame
- Isolation Hanging Straps
- Low Temperature Cut-Out
- Variable Speed Controller
- 1/2" Constant Temperature Controller

NOTE: The Northern Pak can be ordered with the Fresh Air Damper Box by using the Suffix “NPF” (eg: JH-xx NPF)

JH Series Specifications

JH Series Fancoils	JH-15	JH-30
CFM @ 0.12" E.S.P.	200	380
Electrical	115/1/60	115/1/60
Amps	1.5	2.4
Dimensions (L/W/H)	22/14/12	22/14/12
S/A Size	9 x 10	9 x 10
R/A Size	10 x 10	10 x 10
Hydronic Connections	3/8" I.D.	3/8" I.D.

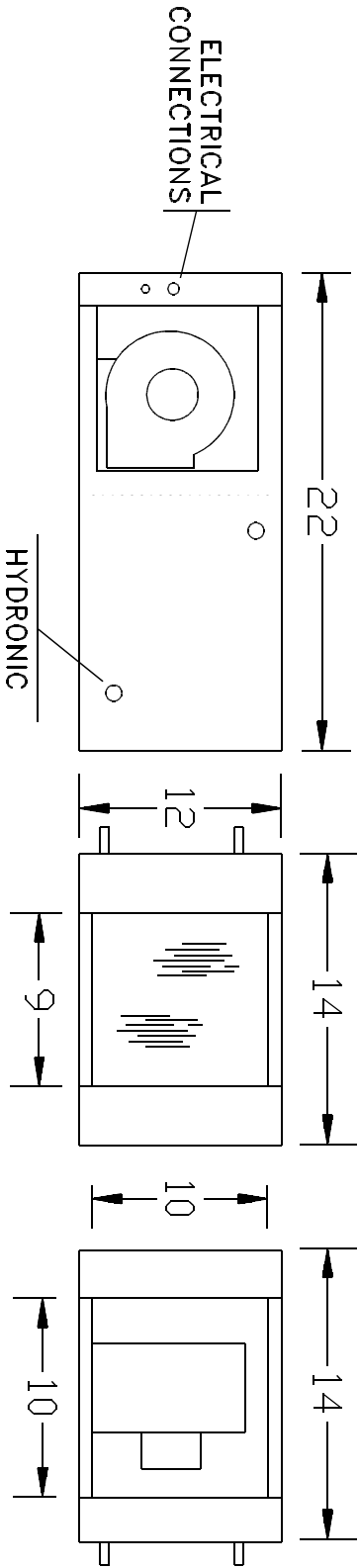
BTUH Ratings with Different Entering Water and Air Temperatures

JH-15 Fancoils	EAT 60 Deg F	EAT 30 Deg F	EAT 0 Deg F	EAT -30 Deg F
BTUH @ 200 EWT	14,500	17,500	20,600	23,000
BTUH @ 190 EWT	13,500	16,500	19,600	22,000
BTUH @ 180 EWT	12,400	15,400	18,500	20,900
BTUH @ 170 EWT	11,300	14,400	17,500	19,900
BTUH @ 160 EWT	10,300	13,300	16,400	18,900
BTUH @ 150 EWT	9,200	12,300	15,400	17,900
BTUH @ 140 EWT	8,200	11,300	14,300	16,900
BTUH @ 130 EWT	7,200	10,200	13,300	15,800
BTUH @ 120 EWT	6,100	9,200	12,200	14,800

JH-30 Fancoils	EAT 60 Deg F	EAT 30 Deg F	EAT 0 Deg F	EAT -30 Deg F
BTUH @ 200 EWT	31,400	38,200	44,900	51,600
BTUH @ 190 EWT	29,200	35,900	42,600	49,300
BTUH @ 180 EWT	26,900	33,600	40,300	47,000
BTUH @ 170 EWT	24,600	31,300	38,000	44,700
BTUH @ 160 EWT	22,300	29,000	35,700	42,400
BTUH @ 150 EWT	21,100	26,800	33,400	40,100
BTUH @ 140 EWT	17,800	24,500	31,200	37,900
BTUH @ 130 EWT	15,600	22,200	28,900	35,500
BTUH @ 120 EWT	13,300	20,000	26,600	33,200

NOTE: All BTUH Ratings Based on 3 USGPM

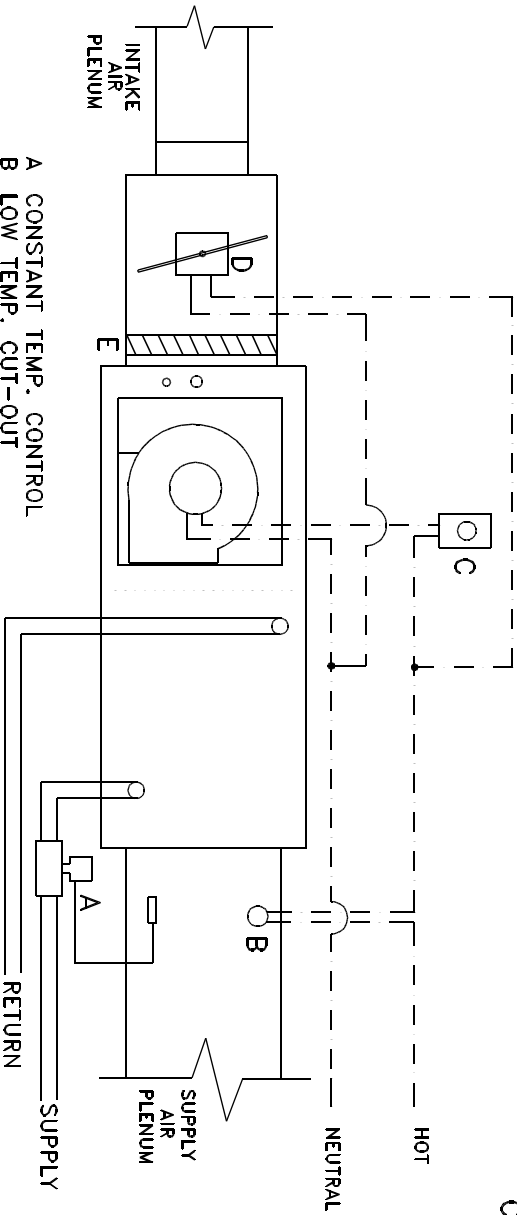
SIDE VIEW



- ALL DIMENSIONS IN INCHES.
- ALL DIMENSIONS +/- 1/8"
- CABINET FINISH IS POLYESTER POWDER COAT - SKY WHITE
- ALL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

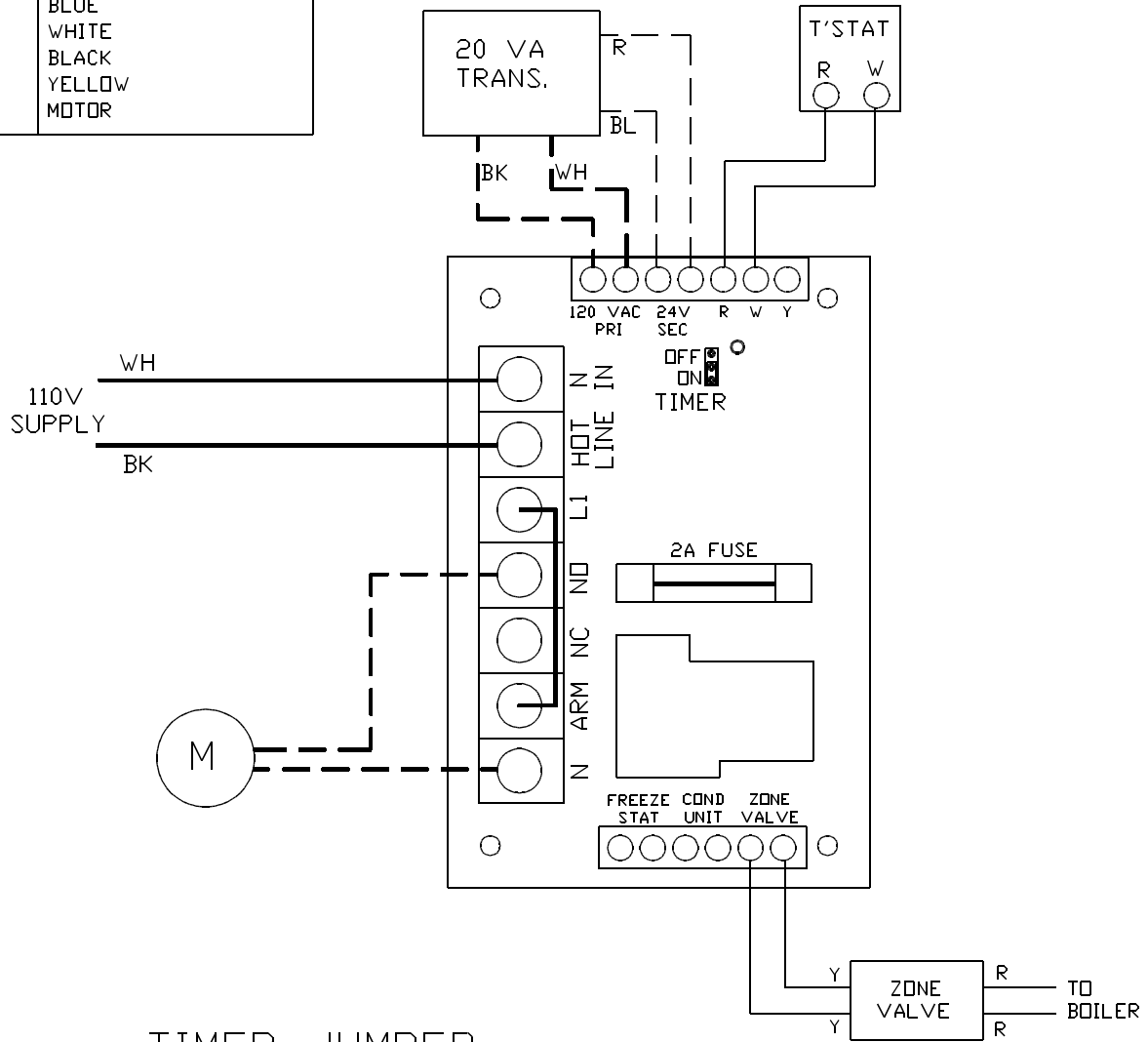
- A CONSTANT TEMP. CONTROL
- B LOW TEMP. CUT-OUT
- C VARIABLE SPEED CONTROL
- D FRESH AIR DAMPER MOTOR
- E FILTER ACCESS

TYPICAL JH-XX NPF CONNECTIONS

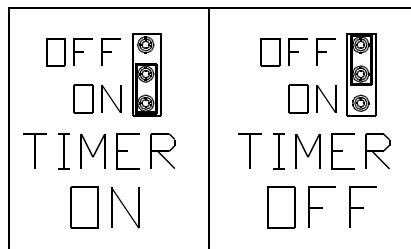


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---	FACTORY 24V WIRING
---	FIELD 24V WIRING
---	FACTORY 110V WIRING
---	FIELD 110V WIRING
R	RED
BL	BLUE
WH	WHITE
BK	BLACK
Y	YELLOW
M	MOTOR



TIMER JUMPER
SETTING DETAIL

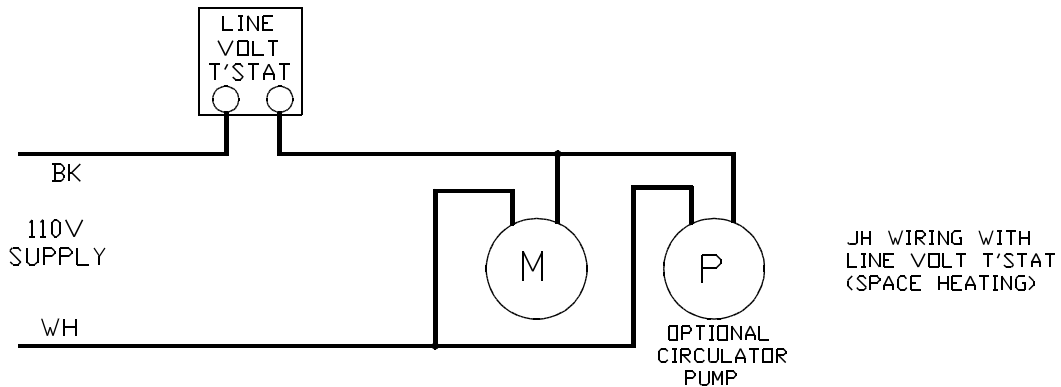
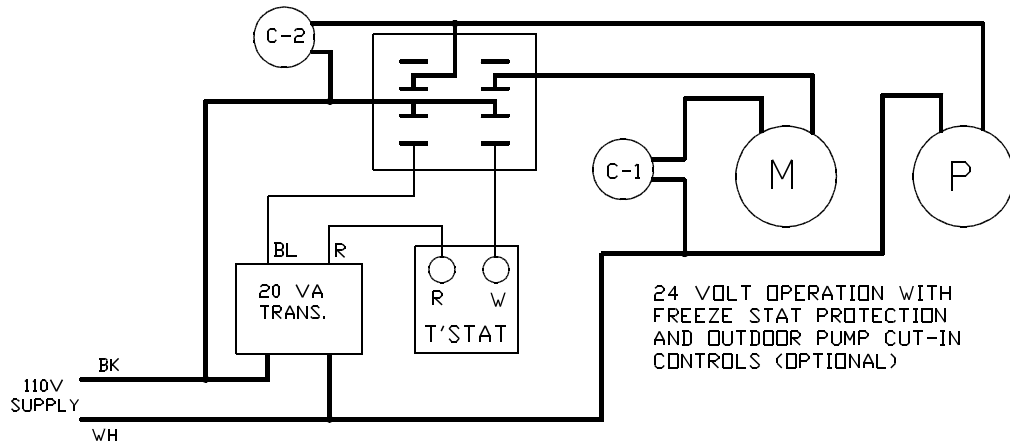
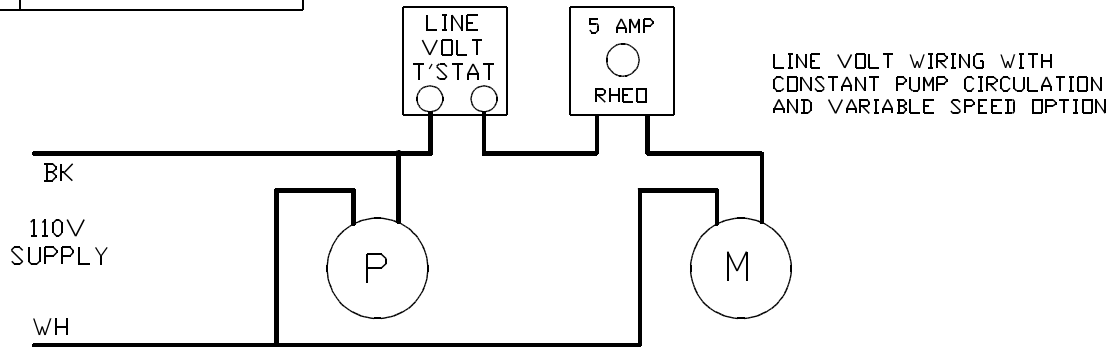


JH FANCOIL WITH ON/OFF OPERATION
FROM PRINTED CIRCUIT BOARD

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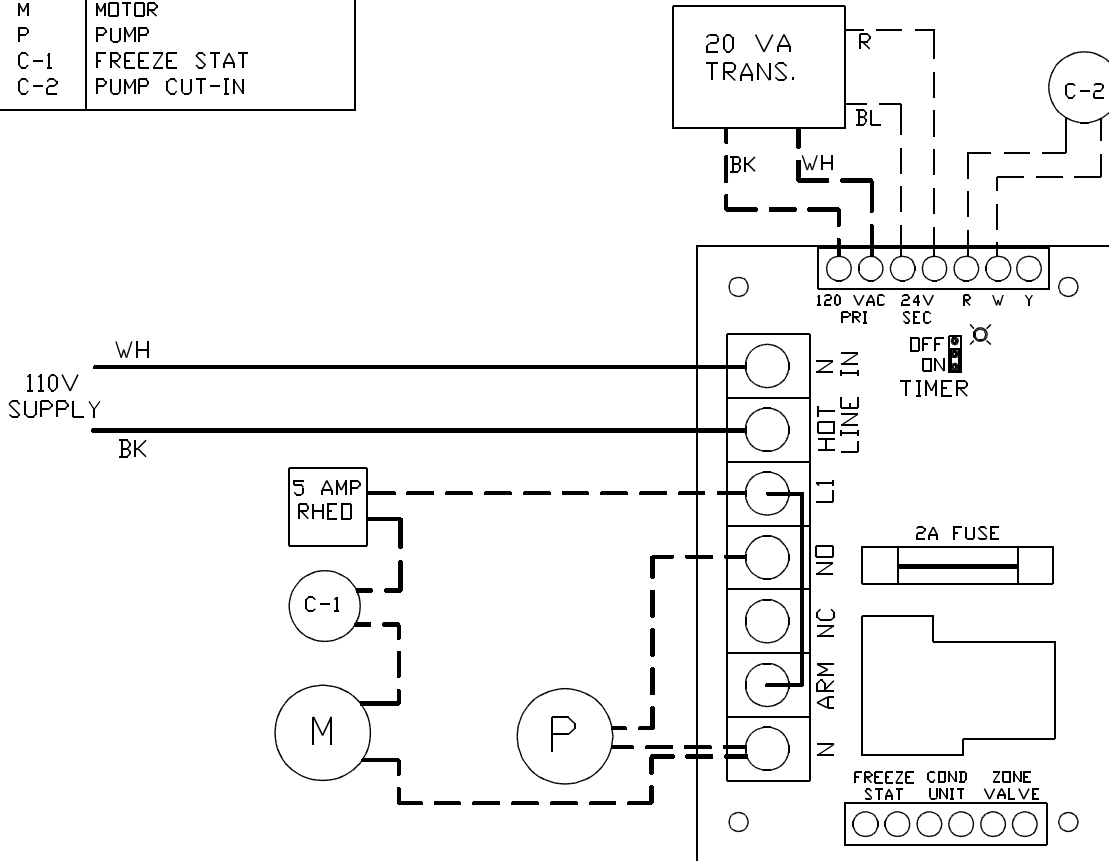
---	FACTORY 24V WIRING
—	FIELD 24V WIRING
---	FACTORY 110V WIRING
—	FIELD 110V WIRING
R	RED
BL	BLUE
WH	WHITE
BK	BLACK
Y	YELLOW
M	MOTOR
P	PUMP
C-1	FREEZE STAT
C-2	OUTDOOR PUMP CUT-IN



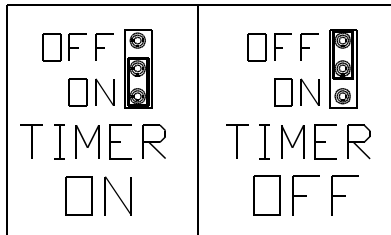
---	FACTORY 24V WIRING
---	FIELD 24V WIRING
---	FACTORY 110V WIRING
---	FIELD 110V WIRING
R	RED
BL	BLUE
WH	WHITE
BK	BLACK
Y	YELLOW
M	MOTOR
P	PUMP
C-1	FREEZE STAT
C-2	PUMP CUT-IN

C-2 CUT-IN SETTINGS BASED ON PERCENTAGE OF FRESH AIR INTRODUCED

% F/A	100	80	60	40	20
Deg. F	55	50	45	35	10



TIMER JUMPER SETTING DETAIL



TIMER SET TO THE ON POSITION WILL ACTIVATE THE CIRCULATOR PUMP FOR FIVE MINUTES PER DAY TO PREVENT STAGNATION DURING THE WARMER SEASON.

JH PACKAGED MAKE-UP AIR WIRING WITH CIRCUIT BOARD

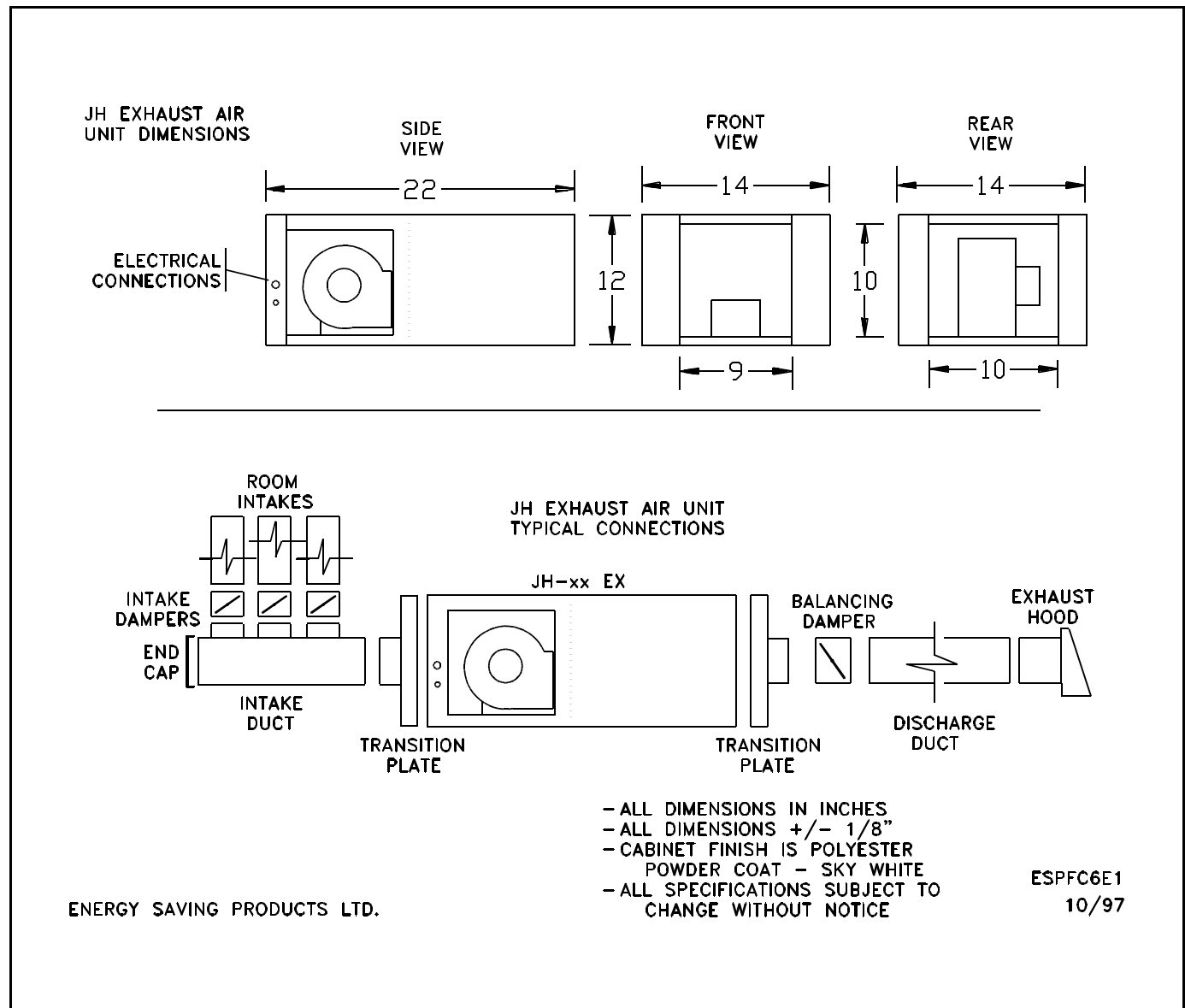
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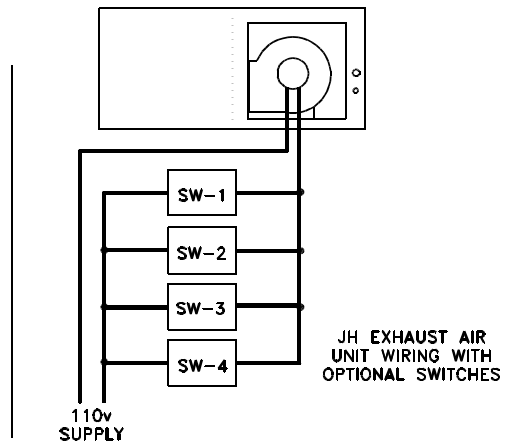
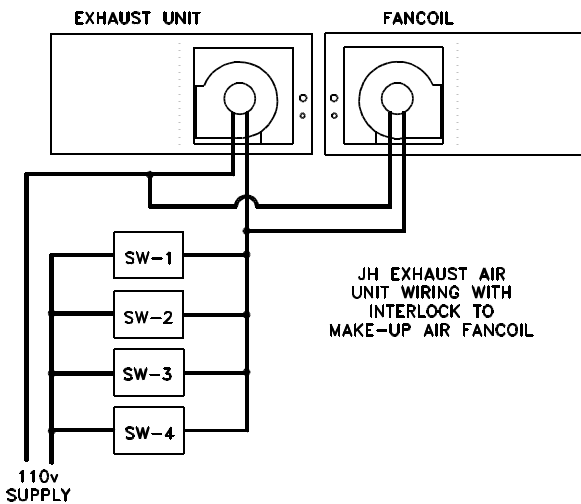
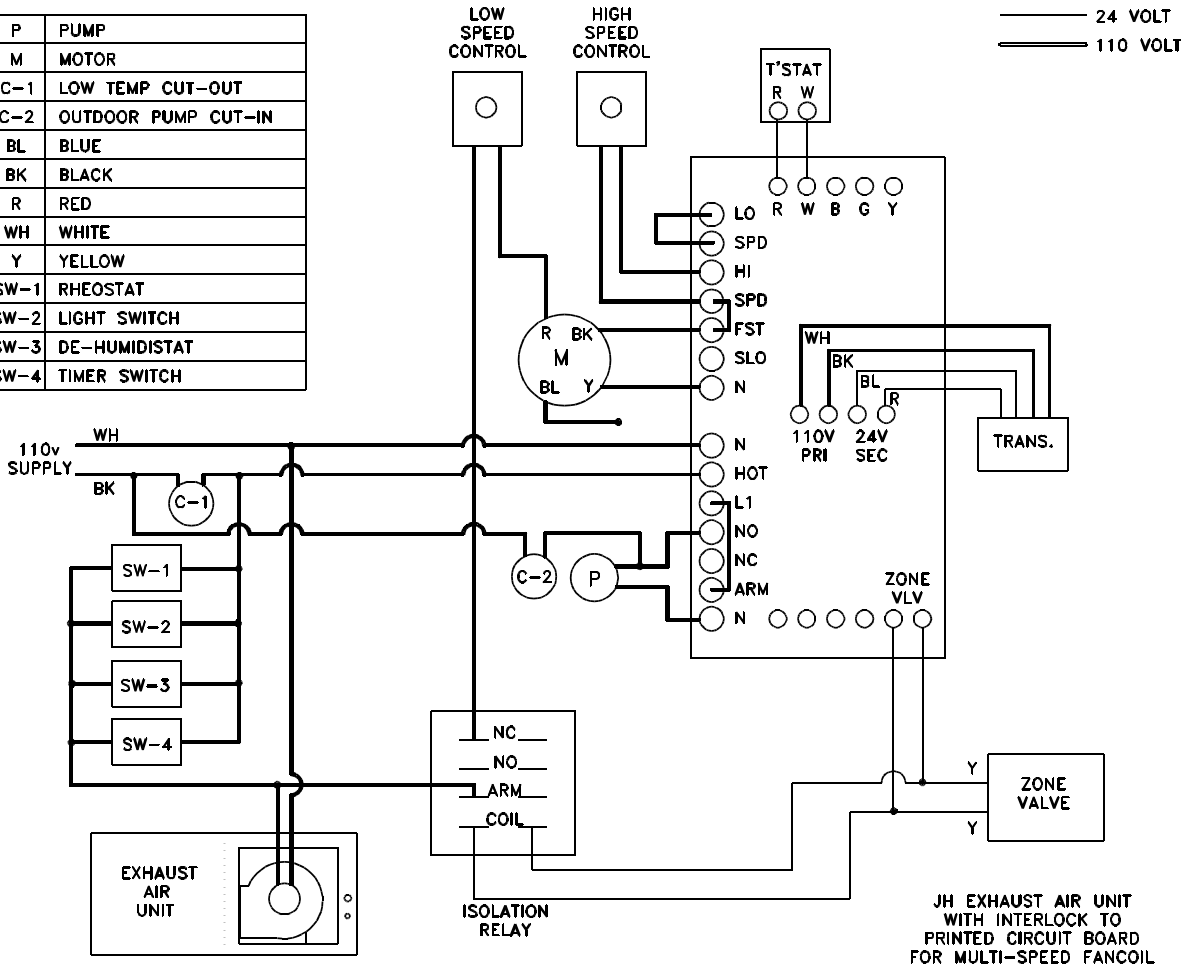
JH EX Series Exhaust Air Units

The JH-xx EX units can be used as stand alone central exhaust ventilators, or in conjunction with a fancoil for fresh air make-up to provide a balanced ventilation system. Typical installations will have an intake from each bathroom and an intake from the kitchen running to the unit with a six inch exhaust to outside. Manual dampers are recommended to be installed on each duct run to assist in system balancing.

A variable speed fan control will be used to set the minimum constant ventilation rate for the structure requirements. Override switches such as de-humidistats or bathroom light switches can be wired parallel to the variable speed control to increase the ventilation rate when needed. When interlocked to a fancoil with multiple speeds, an isolation relay may be needed to prevent voltage being sent to two sets of motor windings at the same time.



P	PUMP
M	MOTOR
C-1	LOW TEMP CUT-OUT
C-2	OUTDOOR PUMP CUT-IN
BL	BLUE
BK	BLACK
R	RED
WH	WHITE
Y	YELLOW
SW-1	RHEOSTAT
SW-2	LIGHT SWITCH
SW-3	DE-HUMIDISTAT
SW-4	TIMER SWITCH



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WARRANTY

One year limited warranty. The heat exchanger, motor, controls, and wiring are free from defects in workmanship for one year from date of purchase.

Two year limited warranty. The electrical strip heater is free from defects in workmanship for two years from date of purchase

This warranty applies only to the fan coil unit and does not include connections, attachments, and other products or materials furnished by the installer. This warranty applies only to the first purchaser at retail and excludes any damages caused by changes, relocation to, or installation in a new site. This warranty does not cover any defects caused by failure to follow the installation and operating instructions furnished with the fan coil, local building codes, and good industry standards. Failure to correctly install the fan coil, or material related to the unit, may result in improper system performance and/or damages and will void this warranty.

TERMS AND CONDITIONS

- Any repair performed under warranty must be approved by Energy Saving Products Ltd. for this warranty to be valid.
- The manufacturer is not liable for any other damages, personal injury, or any other losses of any nature.
- The liability of the manufacturer is limited to and shall not exceed the cost of replacement parts and shall not include transportation to and from the factory, and field labour.
- Inoperative parts must be returned with serial number, purchase date, and a detailed description of the entire problem with an ESP RMA Form.
- This warranty replaces all other warranties expressed or implied.

ENERGY SAVING PRODUCTS LTD.
12615-124 STREET
EDMONTON, ALBERTA, CANADA T5L 0N8
PHONE (780) 453-2093 FAX (780) 453-1932
TOLL FREE 1-888-652-2219
www.hi-velocity.com

Energy Saving Products Ltd., established in 1983, manufactures the **Hi-Velocity Systems™** product line for residential, commercial and multi-family markets. Our facilities house Administration, Sales, Design, Manufacturing, as well as Research & Development complete with an in-house test lab. Energy Saving Products prides itself on Customer Service and provides design services and contractor support.

***Comfort from floor to ceiling,
Satisfaction from room to room,***

with

***Hi-Velocity
Systems***

It's not just a dream, it's reality.



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