COIMA USA SHK SERIES WIRING DIAGRAMS & CONNECTION TABLES FOR V3 CONTROL PANELS

FOLLOW THE INSTRUCTIONS & TABLES PROVIDED IN THIS GUIDE TO SET UP YOUR COIMA USA SHK SERIES DUST COLLECTOR.

SEE QR CODES LOCATED INSIDE CONTROL PANEL DOOR FOR MORE INFORMATION.

WARNING: DO NOT START FAN MOTOR WITHOUT DUCTWORK INSTALLED ON FAN INLET!
OVER CURRENT CONDITION WILL OCCUR, WHICH WILL TRIP MOTOR PROTECTION DEVICE AND/OR CIRCUIT BREAKER OR FUSES ON STARTUP.

NO DUCTWORK YET? CALL US FOR SPECIAL INSTRUCTIONS.

HAVE QUESTIONS?

CONTACT US FOR ASSISTANCE, AND BEFORE YOU START THE UNIT FOR THE FIRST TIME.

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SAFETY GUIDELINES

**** FOLLOW PROPER SAFETY PROCEDURES AND PRECAUTIONS ****

READ ALL DOCUMENTATION AND INSTRUCTIONS PRIOR TO INSTALLATION

+ PROTECT YOURSELF FROM RISK OF ELECTRIC SHOCK

+ DO NOT OPEN FAN MOTOR CONNECTION BOX COVER OR CONTROL PANEL IF PANEL IS ENERGIZED / CONNECTED TO LIVE POWER SOURCE

+ PROTECT YOURSELF FROM FAN INLET & OUTLET WHEN FAN IN OPERATION

+ DO NOT OPEN SHAKER MOTOR CONNECTION BOX COVER, ECCENTRIC WEIGHT COVERS, OR CONTROL PANEL IF PANEL IS CONNECTED TO POWER SOURCE

+ LOCAL AUTHORITY HAVING JURISDICTION (AHJ) MAY REQUIRE DEDICATED SERVICE DISCONNECT(S) PER NFPA 70 / NATONAL ELECTRIC CODE (NEC) FOR THIS MACHINE OR SPECIFIC MOTORS - SET DISCONNECT(S) TO "OFF" WHEN CONDUCTING ALL INSTALLATION AND SERVICE OPERATIONS

+ ALWAYS WEAR APPROPRIATE PERSONAL PROTECTION EQUIPMENT (PPE) WHEN INSTALLING, SERVICING AND CLEANING THIS EQUIPMENT

TABLE 1: POWER / PROTECTION REQUIREMENTS

		208 VAC 3 PHASE @ 60HZ			220 - 240 VAC 3 PHASE @ 60HZ			460 - 480 VAC 3 PHASE @ 60HZ		
MODEL	FAN MOTOR	AMPS (FLA)	MPCB (A)	WIRE SIZE (B)(C)	AMPS (FLA)	MPCB (A)	WIRE SIZE (B)(C)	AMPS (FLA)	MPCB (A)	WIRE SIZE (B)(C)
SHK-1	5 HP	17.4 A	35 A	4C-10GA	16.0 A	30 A	4C-10GA	8.3 A	15 A	4C-12GA
SHK-2	7.5 HP	25.0 A	50 A	4C-8GA	22.7 A	45 A	4C-8GA	11.7 A	20 A	4C-12GA
SHK-2 PLUS	10 HP	31.5 A	60 A	4C-6GA	28.7 A	50 A	4C-8GA	14.7 A	25 A	4C-12GA
SHK-3	10 HP	31.5 A	60 A	4C-6GA	28.7 A	50 A	4C-8GA	14.7 A	25 A	4C-12GA
SHK-3 PLUS	15 HP	47.0 A	90 A	4C-3GA	42.7 A	80 A	4C-4GA	21.7 A	40 A	4C-8GA
SHK-4	15 HP	47.0 A	90 A	4C-3GA	42.7 A	80 A	4C-4GA	21.7 A	40 A	4C-8GA
SHK-4 HS	15 HP	47.0 A	90 A	4C-3GA	42.7 A	80 A	4C-4GA	21.7 A	40 A	4C-8GA
SHK-5	20 HP	60.1 A	100 A	4C-3GA	54.7 A	90 A	4C-3GA	27.7 A	50 A	4C-8GA

* (A) RECOMMENDED CIRCUIT BREAKER RATING FOR POWER DISTRIBUTION PANEL / BRANCH CIRCUIT PROTECTION. MOTOR CIRCUIT PROTECTION VALUES ARE DERIVED FROM NEC ARTICLE 430, TABLE 430.52.

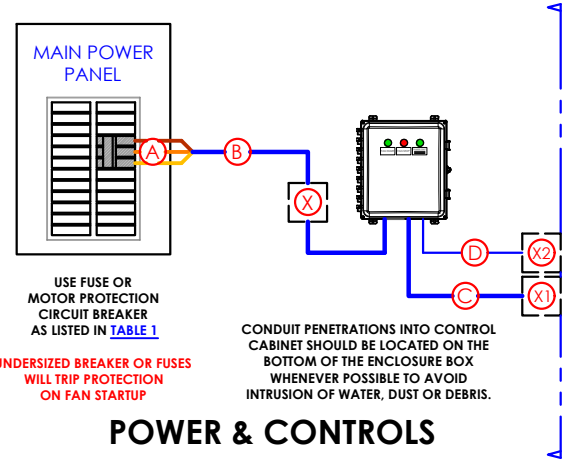
** SHAKER MOTOR WIRE SIZE: 4C-16GA FOR ALL VOLTAGES.

*** (D) FOR SHK-4, SHK-4 HS & SHK-5 MODELS USE 2X 4C-16GA TO CONNECT (2) SHAKER MOTORS TO CONTROL PANEL. SHAKER MOTORS MUST BE CONNECTED IN PARALLEL. IF DISCONNECT IS LOCATED BETWEEN CONTROL PANEL & SHAKER MOTORS, RUN 4C-14GA TO DISCONNECT AND 2X 4C-16GA FROM DISCONNECT TO MOTORS.

\+ (X)(X1)(X2) DISCONNECTS MAY BE REQUIRED PER NFPA 70 / NEC ARTICLE 430.102. THE LOCATION OF ANY DISCONNECT(S) MAY VARY DEPENDING ON THE INSTALLATION LOCATION, UTILITY CONNECTIONS AND SITE CONDITIONS. EACH DISCONNECT MUST BE SIZED NO LESS THAN 115% OF RATED FLA CURRENT, AND BE LOCATED WITHIN SIGHT OF THE MOTOR(S) SERVICED BY EACH DISCONNECT.

\++ (B)(C)(D) SOOW CORD RECOMMENDED FOR CONDITIONS WHERE CONDUIT MAY NOT BE IDEAL OR POSSIBLE. SIZING FOR WIRE IN FLEXIBLE CONDUIT MAY BE DIFFERENT DEPENDING ON TYPE OF CONDUCTOR USED. SEE NEC 310.16 (CONDUCTORS FOR GENERAL WIRING) & NEC 400.6 (FLEXIBLE CORDS AND FLEXIBLE CABLES) FOR SPECIFIC APPLICATION.

WIRE SIZE BASED ON 75°C TEMP RATING FROM NEC TABLE 310.16 USING MPCB AMPACITY RATING.

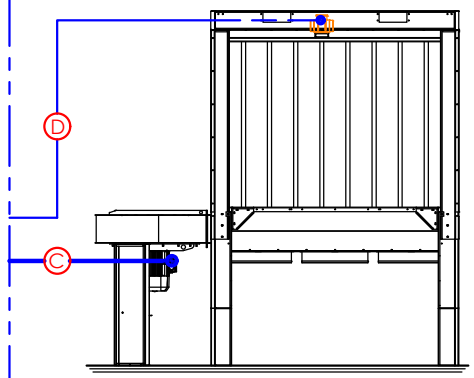


USE FUSE OR MOTOR PROTECTION CIRCUIT BREAKER AS LISTED IN TABLE 1

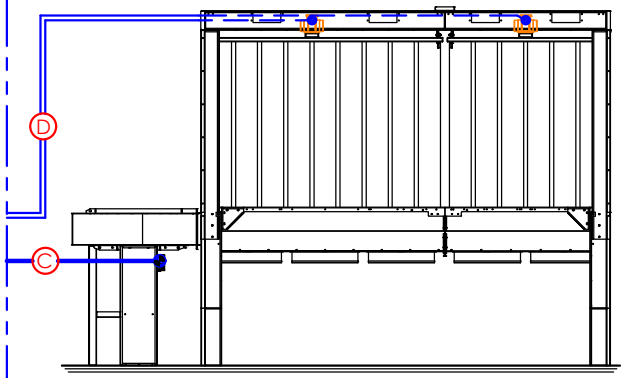
UNDERSIZED BREAKER OR FUSES WILL TRIP PROTECTION ON FAN STARTUP

CONDUIT PENETRATIONS INTO CONTROL CABINET SHOULD BE LOCATED ON THE BOTTOM OF THE ENCLOSURE BOX WHENEVER POSSIBLE TO AVOID INTRUSION OF WATER, DUST OR DEBRIS.

POWER & CONTROLS



SHK - 1 / 2 / 2 PLUS / 3 / 3 PLUS



SHK - 4 / 4 HS / 5

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SHK SERIES SETUP & WIRING GUIDE

FOR SHK SERIES WITH V3 CONTROL PANELS ONLY

POWER REQUIREMENTS & GENERAL SETUP DETAILS

REV	DATE	DESCRIPTION
1	2/21/25	INITIAL DRAWING FOR V3 PANELS

DATE APPROVED: 2/21/2025
DWG: J. JEFFRIES
CKD: F. MUNIZ, G. NICKSON

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TABLE 2: FAN MOTOR WIRING DIAGRAMS

NOTE REGARDING MOTOR CONNECTIONS
NOT ALL MOTORS ARE THE SAME

THE MOTOR WIRING CONNECTIONS SHOWN ON THIS PAGE APPLY TO MOST 3-PHASE ELECTRIC MOTORS, BUT **SOME 9-WIRE AND 12-WIRE MOTORS CONNECTION DIAGRAMS MAY DIFFER** FROM WHAT IS SHOWN HERE.

SOME MOTORS USE A **U/V/W** LABEL SCHEME, OTHERS USE **T1/T2/T3**. IT IS ACCEPTABLE TO RE-ARRANGE LEADS ON POSTS FOR **T1/T2/T3** MOTORS, ALTHOUGH THE NUMBERING MAY DIFFER BETWEEN BRANDS USING THIS STYLE.

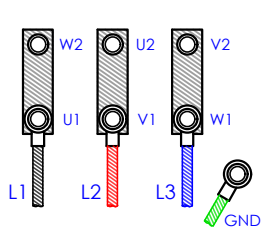
WE HAVE TAKEN CARE TO INCLUDE THE MOST COMMON HISTORICAL CONNECTION DIAGRAMS FOR MOTORS SUPPLIED FROM THE FACTORY.

HOWEVER, IT MAY BE POSSIBLE THE MOTOR RECEIVED WITH YOUR EQUIPMENT REQUIRES A DIFFERENT WIRING CONFIGURATION. REPLACEMENT MOTORS MAY ALSO DIFFER FROM THE ORIGINAL MOTOR.

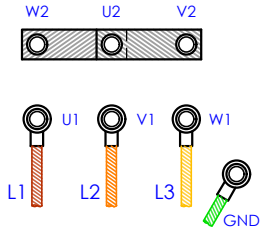
ALWAYS FOLLOW THE MOTOR'S DOCUMENTATION, NAMEPLATE, AND ANY MARKINGS OR STICKERS INSIDE THE MOTOR CONNECTION JUNCTION BOX (AKA "PECKERHEAD")

6-WIRE FAN MOTOR WIRING

MOTOR COLOR: GRAY / SILVER
MFGR: TECHTOP / SEIPEE



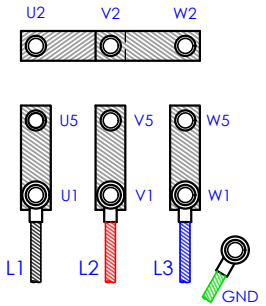
208V / 220 - 240V
DELTA - Δ



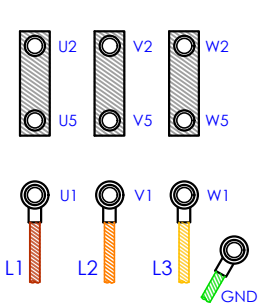
460 - 480V
STAR / WYE - Y

9-WIRE FAN MOTOR WIRING - YY / Y

MOTOR COLOR: GREEN / SILVER
MFGR: NIDEC / SEIPEE



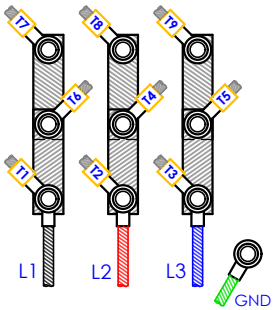
208V / 220 - 240V
DOUBLE STAR / WYE - YY



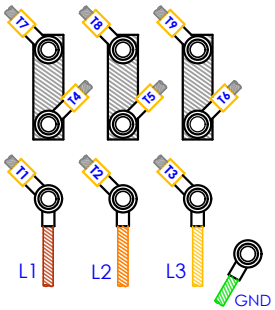
460 - 480V
STAR / WYE - Y

9-WIRE FAN MOTOR WIRING - ΔΔ / Δ

MOTOR COLOR: SILVER / BLUE
MFGR: SEIPEE, OTHERS



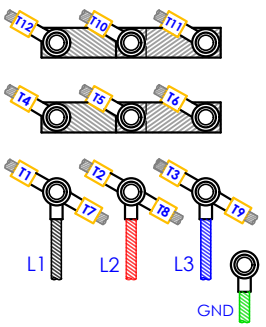
208V / 220 - 240V
DOUBLE DELTA - ΔΔ



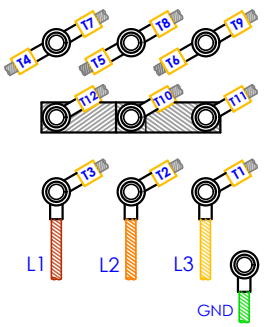
460 - 480V
DELTA - Δ

12-WIRE FAN MOTOR WIRING - YY / Y

MOTOR COLOR: SILVER / BLUE
MFGR: SEIPEE, OTHERS



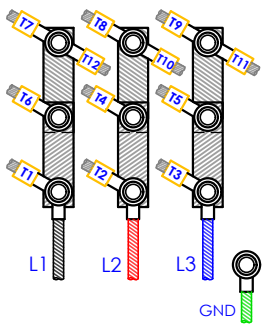
208V / 220 - 240V
DOUBLE STAR / WYE - YY



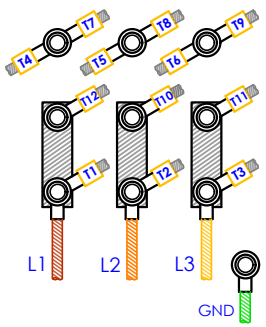
460 - 480V
STAR / WYE - Y

12-WIRE FAN MOTOR WIRING - ΔΔ / Δ

MOTOR COLOR: SILVER / BLUE
MFGR: SEIPEE, OTHERS



208V / 220 - 240V
DOUBLE DELTA - ΔΔ



460 - 480V
DELTA - Δ

ALL MOTOR CONNECTIONS MUST BE SECURE!!

LOOSE WIRING IS AN ARC FLASH RISK, AND MAY CAUSE DAMAGE TO MOTOR, EQUIPMENT, OR FACILITY.

FAN MOTOR CONNECTIONS MUST BE SECURED WITH LUGS, RING TERMINALS, AND/OR OTHER MOUNTING METHODS APPROPRIATE FOR WIRE TYPE THAT CAN WITHSTAND CONSTANT VIBRATIONS.

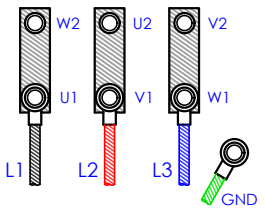
SHAKER MOTOR CONNECTIONS MUST ALWAYS USE STRANDED COPPER WIRE WITH RING TERMINALS AND FASTENERS PROVIDED INSIDE BLUE PLASTIC BAG, INCLUDING FLAT AND SERRATED LOCK WASHERS.

DISCARD BLACK FOAM RING!!

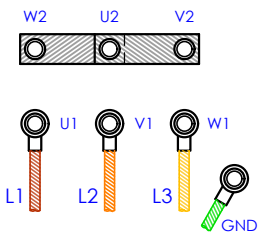
TABLE 3: SHAKER MOTOR

6-WIRE SHAKER MOTOR WIRING

MOTOR COLOR: GRAY / SILVER
MFGR: TECHTOP / SEIPEE



208V / 220 - 240V
DELTA - Δ



460 - 480V
STAR / WYE - Y

SHAKER MOTOR VOLTAGE

THE ITALVIBRAS SHAKER MOTOR NAMEPLATE SHOWS PERFORMANCE DATA FOR 50HZ POWER, AND 230V OR 400V LINE VOLTAGE. WE HAVE CONFIRMED WITH THE FACTORY THAT THESE MOTORS WILL RUN WITHOUT PROBLEM ON 60HZ SERVICE WITHOUT VOIDING THE WARRANTY OR CAUSING MECHANICAL ISSUES. THE MOTORS WILL ROTATE 20% FASTER, BUT THE ECCENTRIC PLATES ARE PRE-SET TO AN ECCENTRICITY WHICH WILL NOT EXCEED THE OPERATING PARAMETERS OF THE MOTOR BEARINGS AND OTHER COMPONENTS.

AS THESE MOTORS DO NOT OPERATE CONTINUOUSLY, THERE IS NO RISK OF HEAT DAMAGE TO THE WINDINGS IF 460V LINE VOLTAGE IS SUPPLIED TO THE MOTORS.

THE ITALVIBRAS SHAKER MOTORS ARE ROBUST, AND WILL PERFORM WELL FOR MANY YEARS WITH PROPER INSTALLATION AND MAINTENANCE.

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SHK SERIES SETUP & WIRING GUIDE
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MOTOR CONNECTION DETAILS

REV	DATE	DESCRIPTION
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RECOMMENDATIONS & BEST PRACTICES

+ ONLY PLACE **CABLE PENETRATIONS AT BOTTOM OF ENCLOSURE** TO KEEP DUST, DEBRIS & WATER OUT OF CONTROL PANEL

+ **USE SERVICE DISCONNECTS (NOT FUSED)** IF CONTROL PANEL IS LOCATED FAR FROM DUST COLLECTOR FOR SAFE MAINTENANCE OPERATIONS

+ **MEASURE AMPERAGE DRAW** TO CONFIRM MOTORS ARE WITHIN SPECIFICATION: **INRUSH CURRENT MAY BE UP TO 6X FLA** FOR 2-3 SECONDS AFTER MOTOR START

+ **USE BLAST GATES** TO CONTROL AIRFLOW: **LESS AIR = LOWER CURRENT DRAW**

+ **TIGHTEN FILTERS** USING 19MM DEEP SOCKET & IMPACT DRIVER TO RAISE UPPER TUBE SHEET (AKA TRAPEZE) UNTIL NUT IS HALF-WAY OUT OF SOCKET

+ **CLEAN FILTERS OFTEN / EVERY DAY** FOR BEST PERFORMANCE: WAIT AT LEAST 15 SECONDS AFTER FAN MOTOR HAS STOPPED BEFORE ACTIVATING SHAKER MOTOR

+ **EMPTY WASTE BAGS REGULARLY** TO AVOID SPILLAGE WHEN CHANGING

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CONTROL PANEL WIRING

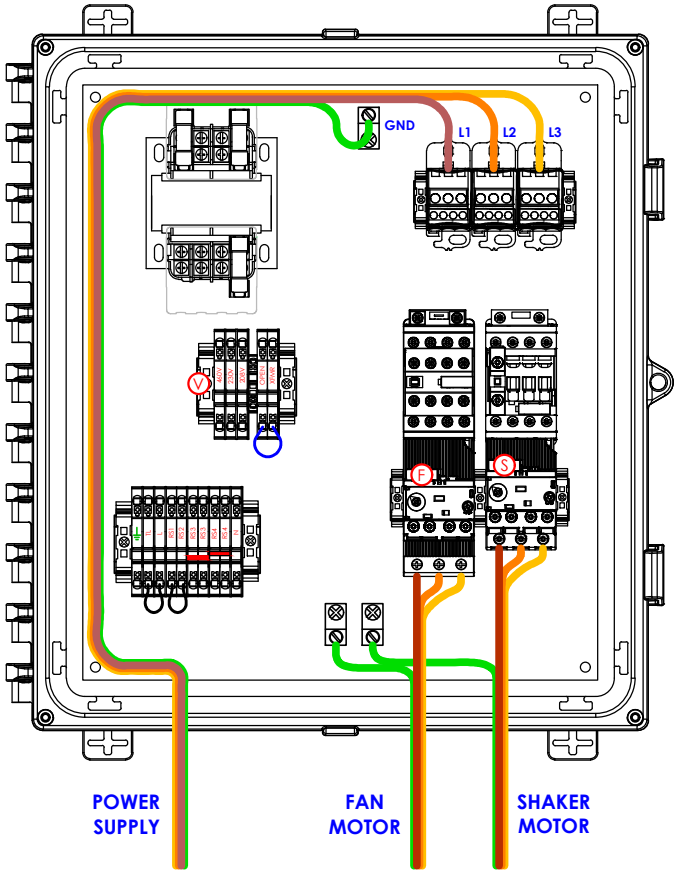


TABLE 4: MOTOR OVERLOAD SETTINGS

		208 VAC			220 - 240 VAC			460 - 480 VAC		
MODEL	FAN MOTOR	PANEL MODEL	FAN MOTOR (F)	SHAKER MOTOR (S)	PANEL MODEL	FAN MOTOR (F)	SHAKER MOTOR (S)	PANEL MODEL	FAN MOTOR (F)	SHAKER MOTOR (S)
SHK-1	5 HP	A	19 A	1.9 A	A	18 A	1.9 A	A	9 A	1.9 A
SHK-2	7.5 HP	A	28 A	1.9 A	A	26 A	1.9 A	A	13 A	1.9 A
SHK-2 PLUS	10 HP	B	35 A	1.9 A	B	33 A	1.9 A	B	17 A	1.9 A
SHK-3	10 HP	B	35 A	1.9 A	B	33 A	1.9 A	B	17 A	1.9 A
SHK-3 PLUS	15 HP	C	53 A	1.9 A	C	48 A	1.9 A	B	24 A	1.9 A
SHK-4	15 HP	C	53 A	1.9 A	C	48 A	1.9 A	B	24 A	1.9 A
SHK-4 HS	15 HP	C	53 A	1.9 A	C	48 A	1.9 A	B	24 A	1.9 A
SHK-5	20 HP	C	68 A	1.9 A	C	62 A	1.9 A	B	31 A	1.9 A

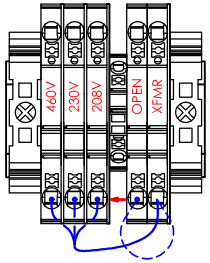
* VALUES LISTED ABOVE ARE RECOMMENDED FOR EACH THERMAL OVERLOAD PROTECTION DEVICE. ACTUAL SUPPLY VOLTAGE WILL AFFECT PROPER OVERLOAD PROTECTION LEVEL. VOLTAGE MAY VARY DEPENDING ON UTILITY PROVIDER, DISTANCE FROM SUBSTATION, LENGTH OF WIRE BETWEEN COMPONENTS, OTHER EQUIPMENT USED ON THE SAME SERVICE, AND OTHER FACTORS.

** TO ADJUST PROTECTION LEVEL ON THERMAL OVERLOAD, OPEN CLEAR PLASTIC DOOR ON FACE OF UNIT. LOCATE THE ADJUSTMENT DIAL (SHOWN IN RED ON EXAMPLE BELOW). USE A SMALL PHILIPS SCREWDRIVER TURN THE DIAL CLOCKWISE TO INCREASE PROTECTION LEVEL, OR COUNTER-CLOCKWISE TO REDUCE. DO NOT TURN DIAL PAST MAXIMUM OR MINIMUM SETTINGS.

** **ELECTRIC SHOCK HAZARD: DO NOT ADJUST THERMAL OVERLOAD WHILE CONTROLLER IS ENERGIZED!!**

+ SHAKER MOTOR THERMAL OVERLOAD MUST BE SET TO LOWEST SETTING (1.9 AMPS) AS INDICATED ABOVE.

VOLTAGE SELECTION



LINE VOLTAGE MUST BE SET ON VOLTAGE SELECTION TERMINAL BLOCK (V) FOR SYSTEM TO OPERATE

TO SELECT VOLTAGE:

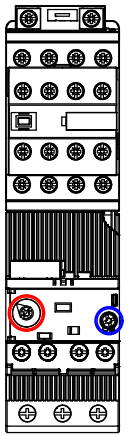
1) DETERMINE LINE VOLTAGE / UTILITY SERVICE PROVIDED TO CONTROL PANEL
2) REMOVE WIRE FROM "OPEN" TERMINAL BY DEPRESSING ORANGE SQUARE ABOVE WIRE AND PULL THAT WIRE OUT OF TERMINAL BLOCK
3) DEPRESS ORANGE SQUARE ON TERMINAL MARKED FOR LINE VOLTAGE AND INSERT WIRE

CONTACTOR & OVERLOAD

CURRENT OVERLOAD PROTECTION MUST BE SET ON OVERLOAD RELAY PRIOR TO RUNNING FAN MOTOR

TO ADJUST OVERLOAD RELAY:

1) DETERMINE OVERLOAD CURRENT PROTECTION REQUIRED FROM TABLE 4 (ABOVE)
2) OPEN CLEAR PLASTIC DOOR ON FACE OF OVERLOAD RELAY
3) LOCATE THE ADJUSTMENT DIAL (RED CIRCLE AT RIGHT)
4) USE SMALL PHILIPS SCREWDRIVER TO TURN THE DIAL TO THE VALUE DETERMINED IN STEP 1
5) PRESS TRIP RESET BUTTON TO CONFIRM OVERLOAD IS NOT TRIPPED (BLUE CIRCLE)
6) CLOSE CLEAR PLASTIC DOOR



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CONTROL PANEL CONNECTIONS, SETTINGS & WIRING DIAGRAM

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