

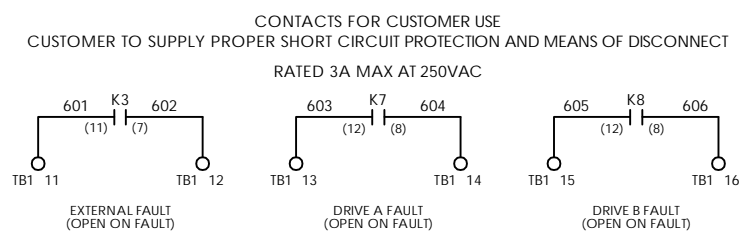
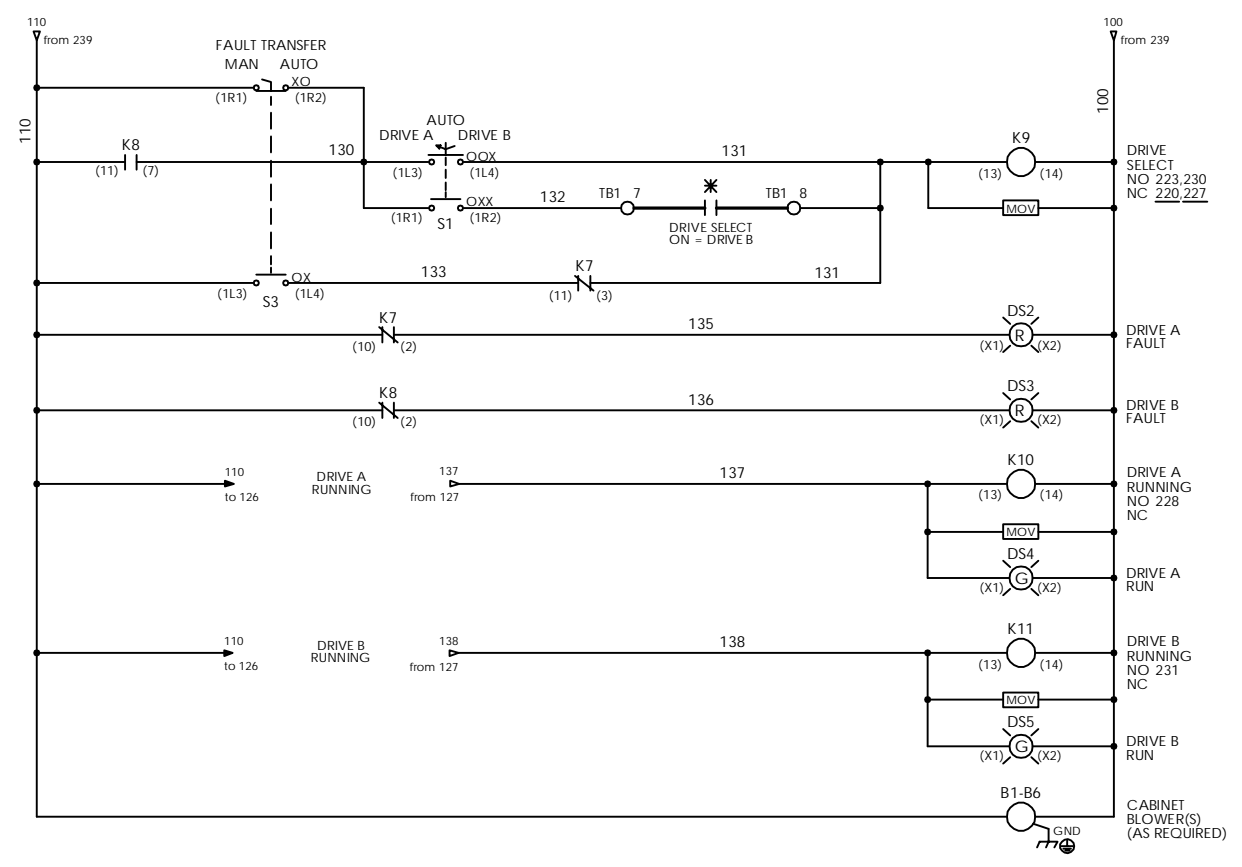
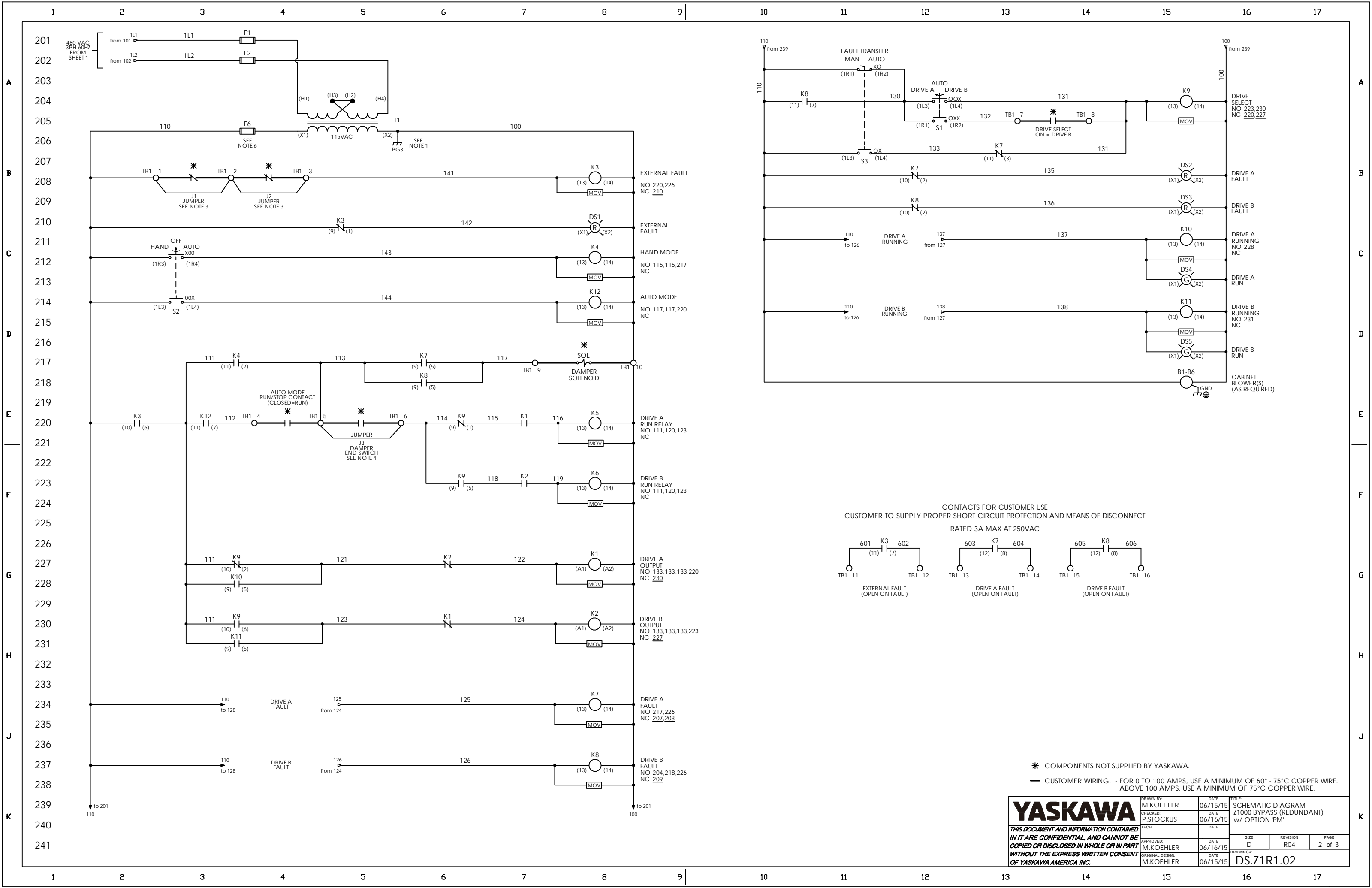
REV.	DESCRIPTION	ECO #	DRAWN BY	DATE
04	UPDATED TB2 TERMINAL BLOCK	12994	JZ	5/3/23
03	REPLACE RC PADS WITH MOV'S	12854	K. LEIN	1/30/23

YASKAWA

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DRAWN BY: M.KOEHLER	DATE: 06/15/15	TITLE: SCHEMATIC DIAGRAM Z1000 BYPASS (REDUNDANT) w/ OPTION 'PM'
CHECKED: P.STOCKUS	DATE: 06/16/15	
APPROVED: M.KOEHLER	DATE: 06/16/15	
ORIGINAL DESIGN: M.KOEHLER	DATE: 06/15/15	

SIZE: D	REVISION: R04	PAGE: 1 of 3
DRAWING #: DS.Z1R1.02		



* COMPONENTS NOT SUPPLIED BY YASKAWA.
— CUSTOMER WIRING. - FOR 0 TO 100 AMPS, USE A MINIMUM OF 60° - 75°C COPPER WIRE. ABOVE 100 AMPS, USE A MINIMUM OF 75°C COPPER WIRE.

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NOTES:

- CONNECTED TO THE CABINET. CUSTOMER TO CONNECT THE CABINET GROUND LUG TO EARTH GROUND.
- BRANCH CIRCUIT PROTECTION (CIRCUIT BREAKER OR FUSES) MUST BE SUPPLIED BY CUSTOMER.
- TERMINALS SUPPLIED FOR INSERTION OF NORMALLY CLOSED CUSTOMER SAFETY CONTACTS (I.E., FIRESTAT, FREEZESTAT, WINDING OR BEARING TEMPERATURE ACTIVATED SWITCHES). IF APPLICABLE, REMOVE FACTORY INSTALLED JUMPER J1 OR J2.
- TERMINALS SUPPLIED FOR INSERTION OF CUSTOMER SUPPLIED, NORMALLY OPEN DAMPER END SWITCH (OPEN = DAMPER CLOSED, CLOSED = DAMPER FULLY OPEN), OR BUILDING AUTOMATION SYSTEM (BAS) INTERLOCK. IF APPLICABLE, REMOVE FACTORY INSTALLED JUMPER J3.
- INSULATED TWISTED SHIELDED WIRE IS REQUIRED. 2 CONDUCTOR #18GA. (BELDON #8760, OR EQUIVALENT). SHIELD TO CONNECT TO PROPER TERMINAL AS SHOWN. CONNECT THE SHIELD ONLY AT THIS END. STUB AND ISOLATE THE OTHER END. DO NOT RUN THESE WIRES IN THE SAME CONDUIT AS THE AC POWER AND AC CONTROL WIRES.
- FOR DRIVE CABINETS WITH A CONTROL TRANSFORMER, T1, POWER RATING OF 350VA OR GREATER, SECONDARY FUSE F6 IS ADDED.
- HAND/OFF/AUTO SWITCH OPERATION:**
THE FUNCTION OF THE HAND/OFF/AUTO SWITCH IS TO SELECT SPEED AND RUN/STOP CONTROL. THE AUTO POSITION SELECTS THE AUTO SIGNAL INPUT FOR SPEED AND A CUSTOMER SUPPLIED CONTACT FOR A RUN COMMAND. THE HAND POSITION SELECTS THE DRIVE KEYPAD FOR SPEED AND RUN COMMAND.
- DRIVE A/AUTO/DRIVE B SWITCH OPERATION:**
THE FUNCTION OF THIS SWITCH IS TO SELECT THE DRIVE THAT RUNS IN THE "AUTO" POSITION. A CUSTOMER CONTACT SELECTS THE DRIVE. DRIVE B IS SELECTED WHEN THE CONTACT IS CLOSED.
- MANUAL/AUTO FAULT TRANSFER SWITCH OPERATION:**
THE FUNCTION OF THIS SWITCH IS TO SELECT THE METHOD OF TRANSFERRING TO THE SECOND DRIVE WHEN THE FIRST DRIVE FAILS. IN THE AUTO TRANSFER POSITION, THE LOGIC WILL AUTOMATICALLY TRANSFER FROM THE DRIVE RUNNING TO THE SECOND DRIVE WHEN THE FIRST DRIVE FAILS. IN THE MANUAL POSITION, THE OPERATOR MUST SELECT THE SECOND DRIVE TO RUN VIA THE DRIVE A/AUTO/DRIVE B SELECTOR SWITCH.

CUSTOMER WIRING REQUIREMENTS
 • FOR 0 TO 100 AMPS, USE A MINIMUM OF 60° - 75°C COPPER WIRE.
 • FOR ABOVE 100 AMPS, USE A MINIMUM OF 75°C COPPER WIRE.
 (UNLESS SPECIFIED OTHERWISE)

TABLE 2

BASE PART NUMBER	HP	OUTPUT CURRENT (AMPS)	A.C. LINE WIRING CIRCUIT BREAKER (CB1)			INPUT FUSES F3-F5, F7-F9		A.C. MOTOR WIRING TERMINAL BLOCK (TB2)		CONTROL WIRING TERMINAL BOARD (TB1)		EARTH GROUND WIRING GROUND LUG		
			MFG. PART NUMBER	CURRENT RATING (AMPS)	WIRE SIZE RANGE (AWG)	TIGHTENING TORQUE (LB-IN)	MFG. PART NUMBER	CURRENT RATING (AMPS)	WIRE SIZE RANGE (AWG)	TIGHTENING TORQUE (LB-IN)	WIRE SIZE RANGE (AWG)	TIGHTENING TORQUE (LB-IN)	WIRE SIZE RANGE (AWG)	TIGHTENING TORQUE (LB-IN)
Z1R1B005	3	4.8	HLL36015	15	14 - 10	50	FWH-40B	40	14 - 10	35	26 - 10	5.3 - 7.1	14 - 10	35
Z1R1B008	5	7.6	HLL36015	15	14 - 10	50	FWH-40B	40	8	40	26 - 10	5.3 - 7.1	14 - 10	35
Z1R1B011	7.5	11	HLL36020	20	14 - 10	50	FWH-45B	45	6 - 4	45	26 - 10	5.3 - 7.1	14 - 10	35
Z1R1B014	10	14	HLL36025	25	14 - 10	50	FWH-45B	45	2	50	26 - 10	5.3 - 7.1	14 - 10	35
Z1R1B021	15	21	HLL36035	35	14 - 10	50	FWH-60B	60			26 - 10	5.3 - 7.1	14 - 10	35
Z1R1B027	20	27	HLL36040	40	8 - 3/0	120	FWH-80B	80			26 - 10	5.3 - 7.1	14 - 10	35
Z1R1B034	25	34	HLL36050	50	8 - 3/0	120	FWH-125B	125			26 - 10	5.3 - 7.1	8	40
Z1R1B040	30	40	HLL36060	60	8 - 3/0	120	FWH-150B	150			26 - 10	5.3 - 7.1	8	40
Z1R1B052	40	52	HLL36080	80	8 - 3/0	120	FWH-200B	200	6 - 2/0	120	26 - 10	5.3 - 7.1	6 - 4	45
Z1R1B065	50	65	HLL36100	100	8 - 3/0	120	FWH-225A	225	6 - 2/0	120	26 - 10	5.3 - 7.1	6 - 4	45
Z1R1B077	60	77	HLL36110	110	8 - 3/0	120	FWH-225A	225	6 - 2/0	120	26 - 10	5.3 - 7.1	6 - 4	45
Z1R1B096	75	96	HLL36150	150	8 - 3/0	120	FWH-225A	225	6 - 2/0	120	26 - 10	5.3 - 7.1	6 - 4	45
Z1R1B124	100	124	JLL36175	175	4 - 4/0	225	FWH-250A	250	6 - 350 kcmil	275	26 - 10	5.3 - 7.1	6 - 4	45
Z1R1B156	125	156	JLM36250	250	3/0 - 350 kcmil	225	FWH-300A	300	6 - 350 kcmil	275	26 - 10	5.3 - 7.1	14 - 2/0	120
Z1R1B180	150	180	JLL36250	250	3/0 - 350 kcmil	225	FWH-350A	350	6 - 350 kcmil	275	26 - 10	5.3 - 7.1	14 - 2/0	120
Z1R1B240	200	240	LLM36400U31X	400	(1-2) x (2/0 - 500 kcmil)	442	FWH-400A	400	(1-2) x (4 - 350 kcmil)	(1-2) x 275	26 - 10	5.3 - 7.1	14 - 2/0	120
Z1R1B302	250	302	LLM36400U31X	400	(1-2) x (2/0 - 500 kcmil)	442	FWH-600A	600	(1-2) x (4 - 350 kcmil)	(1-2) x 275	26 - 10	5.3 - 7.1	14 - 2/0	120

TABLE 1 - FACTORY SET Z1000 BYPASS (REDUNDANT DRIVE) PARAMETERS

PARAMETER	DATA	UNIT	DESCRIPTION/REMARKS
b1-08	1	N/A	RUN COMMAND SELECTION IN PROGRAMMING MODE = ENABLED
b3-01	1	N/A	SPEED SEARCH SELECTION AT START = ENABLED
b3-05	3.0	SEC.	SPEED SEARCH DELAY TIME
d1-01	10.0	HZ	FREQUENCY REFERENCE 1 (HAND MODE)
d2-01	----	%	FREQUENCY REFERENCE UPPER LIMIT (MUST BE SET BY USER)
d2-02	----	%	FREQUENCY REFERENCE LOWER LIMIT (MUST BE SET BY USER)
E1-01	480	V	INPUT VOLTAGE SETTING (MUST BE SET BY USER)
E1-04	----	HZ	MAXIMUM OUTPUT FREQUENCY (MUST BE SET BY USER)
E1-05	460	V	MAXIMUM OUTPUT VOLTAGE SETTING
E2-01	----	AMPS	MOTOR RATED FLA CURRENT (MUST BE SET BY USER)
H1-05	6E	N/A	DIGITAL INPUT TERMINAL S5 FUNCTION SELECTION = HAND MODE SELECT
H1-06	18	N/A	DIGITAL INPUT TERMINAL S6 FUNCTION SELECTION = TIMER FUNCTION INPUT (POWER ON)
H1-07	6D	N/A	DIGITAL INPUT TERMINAL S7 FUNCTION SELECTION = AUTO MODE SELECT
H2-01	0	N/A	TERMINAL M1-M2 FUNCTION SELECTION = DURING RUN
H2-02	12	N/A	TERMINAL M3-M4 FUNCTION SELECTION = TIMER OUTPUT (POWER ON)
H3-03	0.0	%	TERMINAL A1 GAIN SETTING
H3-09	2	N/A	TERMINAL A2 SIGNAL LEVEL SELECTION = 4-20mA
L4-05	0	N/A	FREQUENCY REFERENCE LOSS DETECTION SELECTION = STOP
L5-01	10	N/A	NUMBER OF AUTO RESTART ATTEMPTS
L5-03	5.0	SEC.	TIME TO CONTINUE MAKING FAULT RESTARTS (TIME BETWEEN AUTO RESTART ATTEMPTS)
o3-02	1	N/A	COPY ALLOWED SELECTION = ENABLED
S5-01	3	N/A	HAND FREQUENCY REFERENCE SELECTION = S5-05
S5-04	1	N/A	HAND MODE BEHAVIOR SELECTION = NORMAL (STANDARD)
S5-05	10	HZ	HAND FREQUENCY REFERENCE 1
S5-07	0	N/A	HAND KEY FUNCTION SELECTION = DISABLED

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