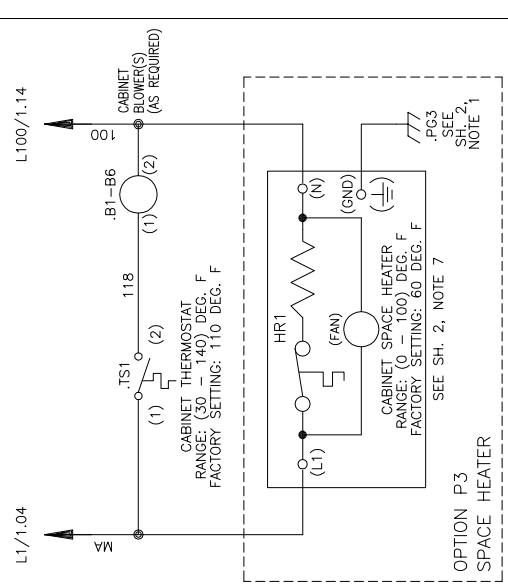
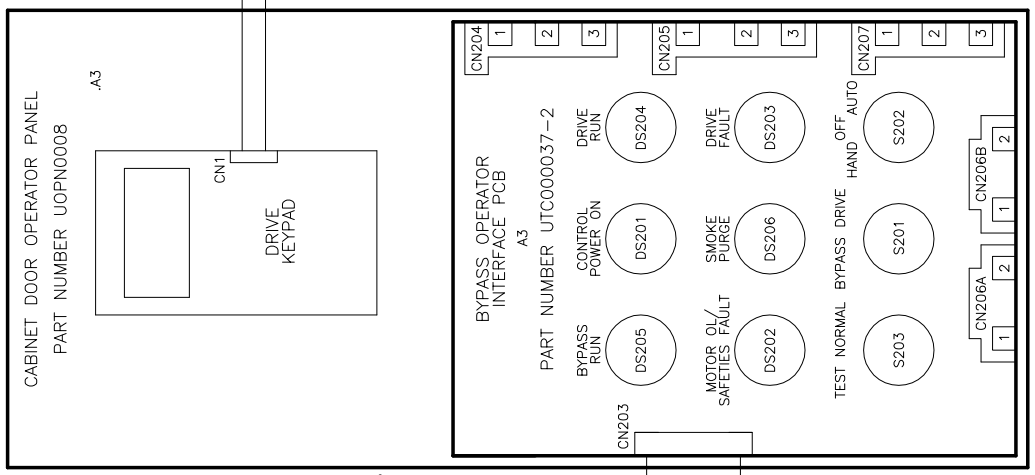


CONTROL TRANSFORMER PRIMARY CONNECTIONS

INPUT VOLTS	TERMINALS	JUMPER LOCATION
208	A (H1)	B (H2)
230/240	(H1)	(H4)
460/480	(H1)	(H4)



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\* - INDICATES COMPONENTS NOT SUPPLIED BY YASKAWA.  
- - - INDICATES CUSTOMER WIRING.  
SEE SHEETS 2 AND 3 FOR NOTES AND TABLES.

DATE	REVISION	PAGE
5/7/07	D	1 of 3

DRIVER: D.R. CMELAK  
DATE: 5/7/07  
TITLE: SCHEMATIC DIAGRAM P7B BYPASS

ORDERED: K. FLIERL  
DATE: 5/7/07

APPROVED: J. ZUEHLKE  
DATE: 5/7/07

DESIGNED BY: D.R. CMELAK  
DRAWING NO.: DS.P7B.03

**NOTES:**

- CONNECTED TO THE CABINET. CUSTOMER TO CONNECT THE CABINET GROUND LUGS TO EARTH GROUND AND UTILITY GROUND.
- THE CUSTOMER MUST USE TYPE 3R HUBS AND FITTINGS (OR EQUIVALENT) TO MAINTAIN THE ENCLOSURE RATING.
- THE MOTOR OVERLOAD RELAY IS FACTORY SET FOR MANUAL RESET. CUSTOMER TO ADJUST THE MOTOR OVERLOAD RELAY TRIP SETTING FOR THE ACTUAL AC MOTOR'S FULL LOAD AMPS.
- TERMINALS TB1(1) AND TB1(2) ARE SUPPLIED FOR INSERTION OF CUSTOMER SUPPLIED NORMALLY CLOSED SAFETY CONTACTS (I.E., FIRESTAT, FREEZE/STAT, WINDING OR BEARING TEMPERATURE ACTIVATED SWITCHES). IF APPLICABLE, REMOVE FACTORY INSTALLED JUMPER J1.
- TERMINALS TB1(5) AND TB1(6) ARE SUPPLIED FOR INSERTION OF A CUSTOMER SUPPLIED NORMALLY OPEN DAMPER END SWITCH (OPEN = DAMPER CLOSED, AND CLOSED = DAMPER FULLY OPEN), OR A NORMALLY OPEN BUILDING AUTOMATION SYSTEM (BAS) INTERLOCK. IF APPLICABLE, REMOVE THE FACTORY INSTALLED JUMPER J2.
- INSULATED TWISTED SHIELDED WIRE IS REQUIRED. 2 CONDUCTOR #18GA. (BELDEN #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.
- CUSTOMER TO ADJUST THE THERMOSTAT ON THE SPACE HEATER HR1 FOR THE MINIMUM DESIRED TEMPERATURE INSIDE THE DRIVE CABINET. THIS SET TEMPERATURE IS NORMALLY SELECTED TO BE SLIGHTLY HIGHER THAN THE MINIMUM AMBIENT TEMPERATURE OF THE AIR SURROUNDING THE DRIVE CABINET, AND IS THE TEMPERATURE AT WHICH THE SPACE HEATER HR1 WILL SHUT OFF.
- SERIAL COMMUNICATIONS OPTIONS T2, TG, TH, TJ, TL, TQ, TU, OR TV (SEE TABLE 5 ON SHEET 3):  
 OPTION T2 = ETHERNET/IP, OPTION TG = PROFINET, OPTION TH = MODBUS, OPTION TJ = METASYS N2, OPTION TL = ETHERNET MODBUS TCP/IP, OPTION TU = APOGEE FLN AND OPTION TV = DRIVE EMBEDDED MODBUS PROTOCOL.  
 A. THE HAND/OFF/AUTO SWITCH MUST BE IN THE "AUTO" POSITION, IF SERIAL COMMUNICATION IS TO BE USED TO CONTROL THE DRIVE.  
 B. TO OBTAIN AN ANALOG REFERENCE AT DRIVE TERMINAL A2 WHEN IN THE "AUTO" MODE, THERE MUST BE JUMPERS ADDED TO THE DRIVE, FROM TERMINAL S4 TO TERMINAL SN, AND FROM TERMINAL S5 TO TERMINAL S6.  
 C. THERE MUST BE A JUMPER ADDED TO THE DRIVE, FROM TERMINAL S5 TO TERMINAL S6.

**TABLE 1 FACTORY SET DRIVE PARAMETERS**

PARAMETER	DATA	UNIT	DESCRIPTION/REMARKS
b1-01	SEE TABLE 5	N/A	FREQUENCY REFERENCE SELECTION
b1-08	1	N/A	RUN COMMAND SELECTION DURING PROGRAMMING - ENABLED
b2-03	0.0	SEC.	DC INJECTION BRAKING TIME AT START
b5-01	SEE TABLE 5	N/A	PI MODE SETTING
d1-01	10.0	HZ.	FREQUENCY REFERENCE 1 - SEE TABLE 5
d1-02	6.0	HZ.	FREQUENCY REFERENCE 2 - SEE TABLE 5
E1-01	240(480)	VOLTS	STANDARD INPUT VOLTAGE SETTING
	208		INPUT VOLTAGE SETTING FOR BASE NUMBER "D_----"
E1-05	230(460)	VOLTS	STANDARD MAXIMUM OUTPUT VOLTAGE SETTING
	208		MAXIMUM OUTPUT VOLTAGE SETTING FOR BASE NUMBER "D_----"
H1-01	70	N/A	TERMINAL S3 SET FOR BYPASS DRIVE ENABLE
H1-02	SEE TABLE 5	N/A	TERMINAL S4 SELECTION
H1-03	SEE TABLE 5	N/A	TERMINAL S5 SELECTION
H1-04	SEE TABLE 5	N/A	TERMINAL S6 SELECTION
H2-02	3B	N/A	TERMINALS M3-M4 SET FOR SERIAL COMM. RUN COMMAND
H3-08	SEE TABLE 5	N/A	TERMINAL A2 SIGNAL SELECTION
H3-09	SEE TABLE 5	N/A	TERMINAL A2 FUNCTION SELECTION
H5-02	SEE TABLE 5	N/A	SERIAL COMMUNICATIONS SPEED SELECTION BAUD RATE
H5-07	SEE TABLE 5	N/A	REQUEST TO SEND (RTS) CONTROL SELECTION
H5-08	SEE TABLE 5	N/A	SERIAL COMMUNICATIONS PROTOCOL SELECTION
H5-09	10.0	SEC.	SERIAL COMMUNICATIONS ERROR DETECTION TIME
L4-05	0	N/A	FREQUENCY REFERENCE LOSS DETECTION DISABLED
L5-01	10	N/A	NUMBER OF AUTO RESTART ATTEMPTS
L5-03	10.0	SEC.	MAXIMUM RESTART TIME AFTER FAULT
o2-02	0	N/A	DIGITAL OPERATOR KEYPAD "OFF" KEY DISABLED
o2-03	1	N/A	USER INITIALIZATION FACTORY SET PARAMETER DEFAULT VALUES (FOUND IN A1-03="1110")
o2-15	0	N/A	DIGITAL OPERATOR KEYPAD "HAND" KEY DISABLED
o3-02	1	N/A	DIGITAL OPERATOR KEYPAD READ ALLOWED ENABLED

SEE SHEET 3 FOR TABLE 5.

**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.

TABLE 2 P7 BYPASS MODEL NO. BASE NUMBER P7BRXXXX			TABLE 3 E7 BYPASS PART NUMBER E7BRXXXX		
208V	240V	480V	208V	240V	480V
D002	A002	B001	D002	A002	B001
D003	A003	B002	D003	A003	B002
D004	A004	B003	D004	A004	B003
D007	A006	B004	D007	A006	B004
D010	A009	B007	D010	A009	B007
D016	A015	B011	D016	A015	B011
D024	A028	B021	D024	A028	B021
D030	A022	B021	D030	A028	B021
D046	A042	B040	D046	A042	B040
D059	A054	B052	D059	A054	B052
D074	A068	B065	D074	A068	B065
D088	A104	B096	D088	A068	B077
D114	A130	B124	D088	A080	B096
D143	A154	B156	D114	A104	B124
D169	A192	B180	D143	A130	B156
D211	A248	B240	D169	A154	B180
D273	A248	B302	D211	A192	B240
			D273	A248	B302

TABLE 2 P7 BYPASS MODEL NO. BASE NUMBER P7BRXXXX			TABLE 3 E7 BYPASS PART NUMBER E7BRXXXX		
208V	240V	480V	208V	240V	480V
D002	A002	B001	D002	A002	B001
D003	A003	B002	D003	A003	B002
D004	A004	B003	D004	A004	B003
D007	A006	B004	D007	A006	B004
D010	A009	B007	D010	A009	B007
D016	A015	B011	D016	A015	B011
D024	A028	B021	D024	A022	B014
D030	A022	B021	D030	A028	B021
D046	A042	B040	D046	A042	B040
D059	A054	B052	D059	A054	B052
D074	A068	B065	D074	A068	B077
D088	A104	B096	D088	A080	B096
D114	A130	B124	D114	A104	B124
D143	A154	B156	D143	A130	B156
D169	A192	B180	D169	A154	B180
D211	A248	B240	D211	A192	B240
D273	A248	B302	D273	A248	B302

**TABLE 4**

TABLE 4 P7 BYPASS MODEL NO. BASE NUMBER P7BRXXXX			TABLE 3 E7 BYPASS PART NUMBER E7BRXXXX		
208V	240V	480V	208V	240V	480V
D002	A002	B001	D002	A002	B001
D003	A003	B002	D003	A003	B002
D004	A004	B003	D004	A004	B003
D007	A006	B004	D007	A006	B004
D010	A009	B007	D010	A009	B007
D016	A015	B011	D016	A015	B011
D024	A028	B021	D024	A022	B014
D030	A022	B021	D030	A028	B021
D046	A042	B040	D046	A042	B040
D059	A054	B052	D059	A054	B052
D074	A068	B065	D074	A068	B077
D088	A104	B096	D088	A080	B096
D114	A130	B124	D114	A104	B124
D143	A154	B156	D143	A130	B156
D169	A192	B180	D169	A154	B180
D211	A248	B240	D211	A192	B240
D273	A248	B302	D273	A248	B302

TABLE 4 P7 BYPASS MODEL NO. BASE NUMBER P7BRXXXX			TABLE 3 E7 BYPASS PART NUMBER E7BRXXXX		
208V	240V	480V	208V	240V	480V
D002	A002	B001	D002	A002	B001
D003	A003	B002	D003	A003	B002
D004	A004	B003	D004	A004	B003
D007	A006	B004	D007	A006	B004
D010	A009	B007	D010	A009	B007
D016	A015	B011	D016	A015	B011
D024	A028	B021	D024	A022	B014
D030	A022	B021	D030	A028	B021
D046	A042	B040	D046	A042	B040
D059	A054	B052	D059	A054	B052
D074	A068	B065	D074	A068	B077
D088	A104	B096	D088	A080	B096
D114	A130	B124	D114	A104	B124
D143	A154	B156	D143	A130	B156
D169	A192	B180	D169	A154	B180
D211	A248	B240	D211	A192	B240
D273	A248	B302	D273	A248	B302



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DRAWN BY: D.R. CMELAK	DATE: 5/1/07	TITLE: SCHEMATIC DIAGRAM
CHECKED BY: K. FLIERL	DATE: 5/1/07	P7B BYPASS
APPROVED BY: J. ZUEHLKE	DATE: 5/1/07	REVISION D
ORIGINAL DESIGNER: D.R. CMELAK	DATE: 5/1/07	SIZE D
		PAGE ROO
		2 of 3

DS.P7B.03

OPTION	DRIVE OPERATION MODE SELECTION												DRIVE MODE SPEED COMMAND				DRIVE MODE PI CONTROL				RUN/STOP CONTROL (SEE SHEET 2, NOTE 5)			
	FACTORY SET P7B BYPASS DRIVE PARAMETERS												HAND MODE		AUTO MODE		HAND MODE		AUTO MODE		DRIVE	BYPASS	DRIVE	BYPASS
	b1-01	H1-02 (S4)	H1-03 (S5)	H1-04 (S6)	H3-08	H3-09	H5-02	H5-07	H5-08	DRIVE KEYPAD d1-01	DRIVE KEYPAD d1-02	DRIVE TERMINAL A2 SIGNAL	DRIVE TERMINAL A2 SIGNAL	DRIVE KEYPAD d1-01	DRIVE KEYPAD d1-01	DRIVE TERMINAL A2 SIGNAL	DRIVE TERMINAL A2 SIGNAL							
PRESENT	1	0	14	3	4	4	2	0	3	1	0	0	0	OFF	ON	1	2	SEE SERIAL SH. 2, COMM.	0-10 VDC	0-10 VDC				
NONE +	1	0	14	3	4	4	2	0	3	1	0	0	0	OFF	ON	1	2							
TP	1	0	14	3	4	4	2	0	3	1	0	0	0	OFF	ON	1	2							
T2, TG, TH OR TQ +	0	0	14	2	4	4	2	2	3	1	0	0	0	OFF	ON	1	2	YES	YES	8A				
T2, TG, TH OR TQ	0	0	3	2	4	4	0	2	3	1	0	0	0	OFF	OFF	1	2			8A,8B				
(T2, TG, TH OR TQ) AND TP	0	0	3	2	4	4	2	2	3	1	0	0	0	OFF	ON	1	2	YES	YES	8A,8B				
TJ +	0	0	14	6C	4	4	2	2	3	1	1	1	1	OFF	ON	1	2			8A				
TJ	0	0	3	6C	4	4	0	2	3	1	1	1	1	OFF	OFF	1	2			8A,8B				
TJ AND TP	0	0	3	6C	4	4	2	2	3	1	1	1	1	OFF	ON	1	2			8A,8B				
TU +	0	0	14	6C	4	4	2	2	3	1	2	2	2	OFF	ON	1	2	YES	YES	8A				
TU	0	0	3	6C	4	4	2	2	3	1	2	2	2	OFF	ON	1	2			8A,8B				
TU AND TP	0	0	3	6C	4	4	2	2	3	1	2	2	2	OFF	ON	1	2	YES	YES	8A,8B				
TV +	0	0	14	6C	4	4	2	2	3	1	0	0	0	OFF	ON	1	2			8A				
TV	0	0	3	6C	4	4	0	2	3	1	0	0	0	OFF	OFF	1	2			8A,8B				
TV AND TP	0	0	3	6C	4	4	2	2	3	1	0	0	0	OFF	ON	1	2	YES	YES	8A,8B				
TL +	0	0	14	6C	4	4	2	2	3	0	0	0	0	ON	ON	1	2			8A				
TL	0	0	3	6C	4	4	0	2	3	0	0	0	0	ON	OFF	1	2			8A,8B				
TL AND TP	0	0	3	6C	4	4	2	2	3	0	0	0	0	ON	ON	1	2	YES	YES	8A,8B				
PI CONTROL	0	1	14	19	4	4	2	2	B	3	1	0	0	OFF	ON	1	2							
PI CONTROL	0	1	14	19	4	4	0	B	3	1	0	0	0	OFF	OFF	1	2							
(T2, TG, TH OR TQ) AND PI	3	1	14	19	6E	0	B	3	1	0	0	0	0	OFF	OFF	1	2			8C				
TJ AND PI	2	1	14	19	6E	0	B	3	1	1	1	1	1	OFF	OFF	1	2			8C				
TU AND PI	2	1	14	19	6E	0	B	2	1	2	2	2	2	OFF	OFF	1	2			8C				
TV AND PI	2	1	14	19	6E	0	B	3	1	0	0	0	0	OFF	OFF	1	2			8C				
TL AND PI	2	1	14	19	6E	0	B	3	0	0	0	0	0	ON	OFF	1	2			8C				
(T2, TG, TH OR TQ) AND PI	0	1	14	19	2	0	B	3	1	0	0	0	0	OFF	OFF	1	2			8A,8C				
TJ AND PI	0	1	14	19	6C	0	B	3	1	1	1	1	1	OFF	OFF	1	2			8A,8C				
TU AND PI	0	1	14	19	6C	0	B	2	1	2	2	2	2	OFF	OFF	1	2			8A,8C				
TV AND PI	0	1	14	19	6C	0	B	3	1	0	0	0	0	OFF	OFF	1	2			8A,8C				
TL AND PI	0	1	14	6C	19	0	B	3	0	0	0	0	0	ON	OFF	1	2			8A,8C				

- + = STANDARD P7B BYPASS SET UP
- = FACTORY 2-WIRE INITIALIZATION/DEFAULT SETTING

SEE SHEET 2 FOR NOTES, AND TABLES 1, 2, 3 AND 4.



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