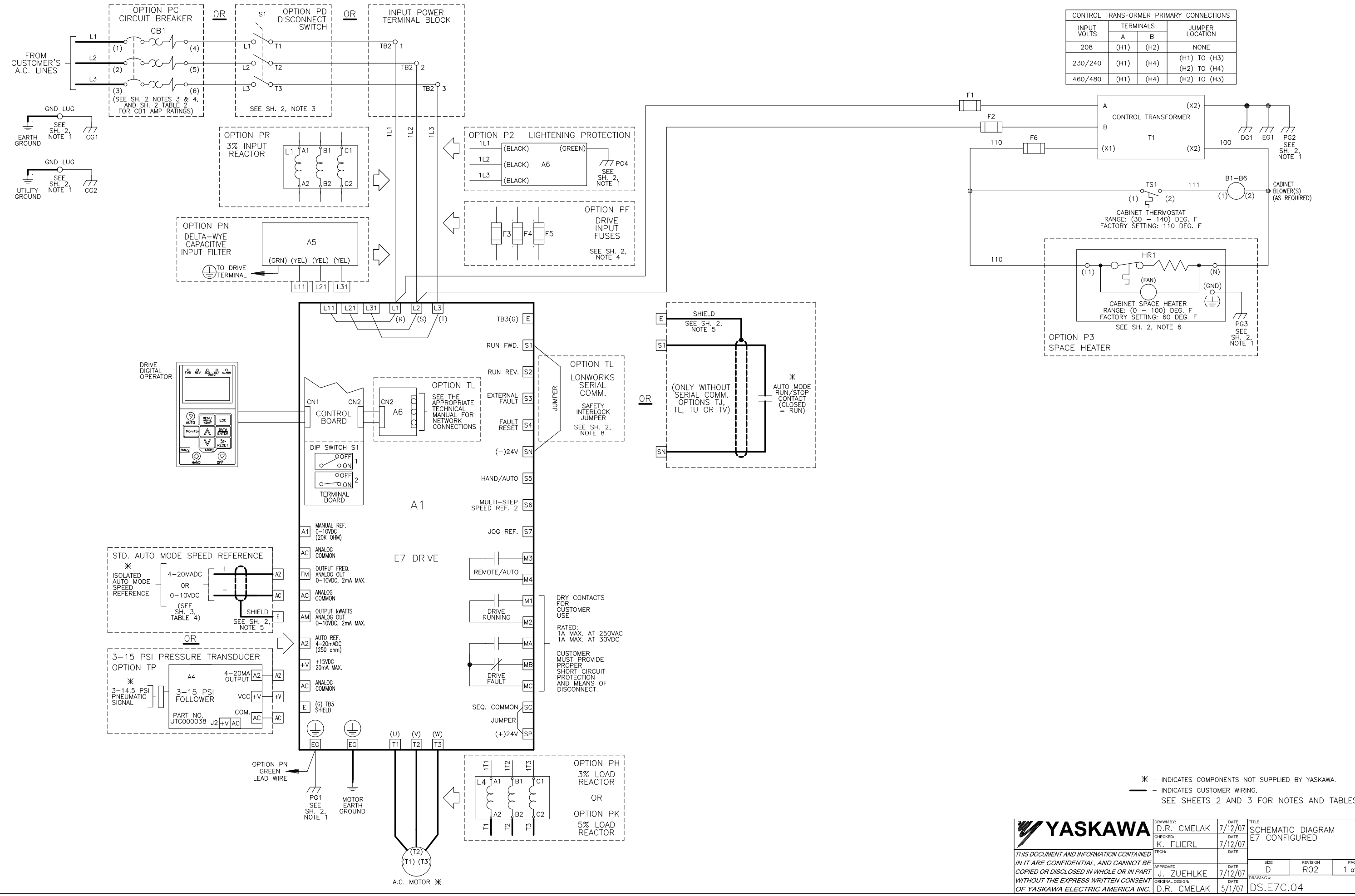


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| | CHECKED: K. FLIERL | DATE 7/12/07 | |
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NOTES:

1. CONNECTED TO THE CABINET. CUSTOMER TO CONNECT THE CABINET GROUND LUGS TO EARTH GROUND AND UTILITY GROUND.
2. THE CUSTOMER MUST USE TYPE 3R RATED HUBS OR FITTINGS (OR EQUIVALENT) TO MAINTAIN THE ENCLOSURE RATING.
3. WITHOUT THE CIRCUIT BREAKER (OPTION PC) OR DISCONNECT SWITCH (OPTION PD), THE DISCONNECT MEANS MUST BE SUPPLIED BY THE CUSTOMER.
4. IF THE CIRCUIT BREAKER (OPTION PC) OR DRIVE INPUT FUSES (OPTION PF) ARE NOT ADDED, THEN BRANCH CIRCUIT PROTECTION (CIRCUIT BREAKER OR AC INPUT FUSES) MUST BE SUPPLIED BY THE CUSTOMER.
5. INSULATED TWISTED SHIELDED WIRE IS REQUIRED. 2 CONDUCTOR #18GA. (BELDEN NO. 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.
6. 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 CABINET, AND IS THE TEMPERATURE AT WHICH THE SPACE HEATER HR1 WILL SHUT OFF.
7. SERIAL COMMUNICATIONS OPTIONS TJ, TU, TV, OR TL (SEE TABLE 4 ON SHEET 3):
   OPTION TJ = EMBEDDED METASYS N2, OPTION TU = EMBEDDED APOGEE FLN, OPTION TV = EMBEDDED MODBUS AND OPTION TL = LONWORKS OPTION CARD.
   THE DRIVE KEYPAD MUST BE IN "AUTO" MODE, IF SERIAL COMMUNICATIONS IS TO BE USED TO CONTROL THE DRIVE.
8. WHEN OPTION TL IS ORDERED, A JUMPER IS REQUIRED FROM DRIVE TERMINALS (S1) TO (SN), SO THAT THE LONWORKS SERIAL COMMUNICATIONS CAN CONTROL THE RUN, STOP AND SPEED OF THE AC MOTOR IN THE "AUTO" MODE. CUSTOMER TO REPLACE THE JUMPER WITH NORMALLY CLOSED SAFETY INTERLOCKS, IF APPLICABLE.

TABLE 1 FACTORY SET E7 CONFIGURED DRIVE PARAMETERS

| PARAMETER | DATA | UNIT | DESCRIPTION/REMARKS |
|---|---|---|---|
| b1-01 | SEE TABLE 4 | N/A | FREQUENCY REFERENCE SELECTION |
| b1-02 | SEE TABLE 4 | N/A | RUN COMMAND SELECTION |
| b1-08 | 1 | N/A | RUN COMMAND SELECTION DURING PROGRAMMING - ENABLED |
| b5-01 | SEE TABLE 4 | N/A | PI MODE SETTING |
| d1-01 | 10.0 | HZ. | FREQUENCY REFERENCE 1 - SEE TABLE 4 |
| 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___" |
| H1-03 | SEE TABLE 4 | N/A | TERMINAL S5 SELECTION |
| H3-08 | SEE TABLE 4 | N/A | TERMINAL A2 SIGNAL SELECTION |
| H3-09 | SEE TABLE 4 | N/A | TERMINAL A2 FUNCTION SELECTION |
| H3-13 | SEE TABLE 4 | N/A | TERMINALS A1 AND A2 MASTER FREQUENCY REFERENCE SELECTION |
| H5-02 | SEE TABLE 4 | N/A | SERIAL COMMUNICATIONS SPEED SELECTION BAUD RATE |
| H5-07 | SEE TABLE 4 | N/A | REQUEST TO SEND (RTS) CONTROL SELECTION |
| H5-08 | SEE TABLE 4 | 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 |
| o2-03 | 1 | N/A | USER INITIALIZATION FACTORY SET PARAMETER DEFAULT VALUES (FOUND IN A1-03="1110") |
| o3-02 | 1 | N/A | DIGITAL OPERATOR KEYPAD READ ALLOWED ENABLED |

## 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 A.C. LINE WIRING

| E7 CONFIG. MODEL NO. BASE NUMBER E7CRXXXX | | | WITH OPTION PC, TO CIRCUIT BREAKER CB1 | | | | OR, WITH OPTION PD, TO DISCONNECT SWITCH S1 | | | | OR, WITHOUT OPTIONS PC OR PD, TO TERMINAL BLOCK TB2 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 208V | 240V | 480V | 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.) |
| | | B052 | FAL36080 | 80 | 14 - 1/0 | 80 | BTEN10 | 100 | 3 - 1/0 | 45 | 12 - 1/0 | 50 |
| | | B065 | FAL36100 | 100 | 14 - 1/0 | 80 | | | | | | |
| | | B077 | KAL36125 | 125 | 4 - 350 kcmil | 250 | | | | | 6 - 250 kcmil | 375 |
| | A080 | | KAL36125 | 125 | 4 - 350 kcmil | 250 | TFB1 | 200 | 6 - 300 kcmil | 375 | | |
| D088 | A104 | B096 | KAL36150 | 150 | 4 - 350 kcmil | 250 | | | | | | |
| D114 | | | KAL36175 | 175 | 4 - 350 kcmil | 250 | | | | | | |
| | A130 | B124 | KAL36200 | 200 | 4 - 350 kcmil | 250 | | | | | | |
| D143 | | | KAL36225 | 225 | 4 - 350 kcmil | 250 | | | | | | |
| | A154 | B156 | KAL36250 | 250 | 4 - 350 kcmil | 250 | | | | | | |
| D169 | | B180 | LAL36300 | 300 | 1 x (1 - 600 kcmil)<br>2 x (1 - 250 kcmil) | 1 x 375<br>2 x 375 | KHL36000M | 250 | 4 - 350 kcmil | 250 | | |
| | A192 | | LAL36300 | 300 | 1 x (1 - 600 kcmil) | 1 x 375 | KHL36000M | 250 | 4 - 350 kcmil | 250 | 2 x (4 - 350 kcmil) | 2 x 275 |
| D211 | | | LAL36350 | 350 | 2 x (1 - 250 kcmil) | 2 x 375 | LHL36000M | 400 | 1 x (1 - 600 kcmil)<br>2 x (1 - 250 kcmil) | 1 x 375<br>2 x 375 | | |
| | A248 | B240 | LAL36400 | 400 | | | | | | | | |
| D273 | | B302 | MAL36450 | 450 | (1-3) x (3/0 - 500 kcmil) | (1-3) x 300 | | | | | | |

TABLE 3 A.C. MOTOR WIRING / GROUND WIRING

| E7 CONFIG. MODEL NO. BASE NUMBER E7CRXXXX | | | WITH OPTION PH, TO OUTPUT REACTOR L4 | | | OR, WITH OPTION PK, TO OUTPUT REACTOR L4 | | | OR, WITHOUT OPTIONS PH OR PK, TO STANDARD AC DRIVE | GROUND WIRING: GROUND LUGS | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 208V | 240V | 480V | MFG. PART NUMBER | WIRE SIZE RANGE (AWG) | TIGHTENING TORQUE (LB.-IN.) | MFG. PART NUMBER | WIRE SIZE RANGE (AWG) | TIGHTENING TORQUE (LB.-IN.) | | WIRE SIZE RANGE (AWG) | TIGHTENING TORQUE (LB.-IN.) |
| | | B052 | RL-0550X | 6 - 4 | 45 | RL-0550X | 6 - 4 | 45 | CUSTOMER TO SUPPLY A UL LISTED CLOSED-LOOP CONNECTOR, PER THE AC DRIVE TECHNICAL MANUAL<br><br>USE 75°C COPPER WIRE ONLY | 8 | 40 |
| | | B065 | RL-0800X | 2 - 1/0 | 50 | RL-0800X | 2 - 1/0 | 50 | | 14 - 2/0 | 120 |
| | A080 | | RL-1000X | 2 - 1/0 | 50 | | | | | | |
| | | B077 | RL-1000X | 2 - 1/0 | 50 | RL-1000X | 2 - 1/0 | 50 | | | |
| | | B096 | | | | | | | | | |
| D088 | | | RL-1000X | 2 - 1/0 | 50 | RL-1300X | 2 - 2/0 | 180 | | | |
| D114 | A104 | B124 | RL-1300X | 2 - 2/0 | 180 | | | | | | |
| | A130 | | | | | | | | | | |
| D143 | A154 | B156 | RL-1600X | 3/0 - 4/0 | 250 | RL-1600X | 3/0 - 4/0 | 250 | | | |
| D169 | | B180 | RL-2500X | CUSTOMER TO SUPPLY A UL LISTED CLOSED-LOOP CONNECTOR | | RL-2000X | 3/0 - 4/0 | 250 | | | |
| D211 | A192 | B240 | RL-2500X | | | RL-2500X | CUSTOMER TO SUPPLY A UL LISTED CLOSED-LOOP CONNECTOR | | | | |
| | A248 | | | | | | | | | | |
| D273 | | B302 | RL-3200X | | | RL-3200X | | | | | |

SEE SHEET 3 FOR TABLE 4.

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| ORIGINAL DESIGN: D.R. CMELAK | DATE 5/1/07 | DRAWING #: DS.E7C.04 |

TABLE 4 DRIVE OPERATION MODE SELECTION

| OPTION PRESENT | FACTORY SET E7C CONFIGURED DRIVE PARAMETERS | | | | | | | | | | DRIVE CONTROL BOARD SWITCH S1 SETTING | | DRIVE MODE SPEED COMMAND | | | | | | DRIVE MODE PI CONTROL | | | | | DRIVE RUN/STOP CONTROL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | HAND MODE | AUTO MODE | | | | | HAND MODE | AUTO MODE | | | | | |
| | | | | | | | | | | | | | DRIVE KEYPAD d1–01 | DRIVE TERMINAL A2 SIGNAL | | | | | SPEED CMD. | SETPOINT | | FEEDBACK | | | |
| | | | | | | | | | | | | | | | | | | | | | | DRIVE TERMINAL A2 SIGNAL | | | |
| | b1–01 | b1–02 | b5–01 | H1–03 (S5) | H3–08 | H3–09 | H3–13 | H5–02 | H5–07 | H5–08 | 1 | 2 | | 4–20 MADC | 0–10 VDC | 3–15 PSI | SERIAL COMM. | SEE SH. 2, NOTE | DRIVE KEYPAD d1–01 | DRIVE KEYPAD d1–01 | SERIAL COMM. | 4–20 MADC | 0–10 VDC | HAND MODE | AUTO MODE |
| NONE + | 1 ▪ | 1 ▪ | 0 ▪ | 3 ▪ | 2 ▪ | 2 ▪ | 1 | 3 ▪ | 1 ▪ | 0 ▪ | OFF ▪ | ON ▪ | YES | YES | | | | | | | | | | DRIVE KEYPAD IN THE "HAND" MODE | AUTO MODE RUN/STOP CONTACT AT DRIVE TERMINALS S1 & SN |
| NONE | 1 ▪ | 1 ▪ | 0 ▪ | 3 ▪ | 0 | 2 ▪ | 1 | 3 ▪ | 1 ▪ | 0 ▪ | OFF ▪ | OFF | YES | | YES | | | | | | | | | | |
| TP | 1 ▪ | 1 ▪ | 0 ▪ | 3 ▪ | 2 ▪ | 2 ▪ | 1 | 3 ▪ | 1 ▪ | 0 ▪ | OFF ▪ | ON ▪ | YES | | | YES | | | | | | | | | |
| TJ + | 2 | 2 | 0 ▪ | 3 ▪ | 2 ▪ | 2 ▪ | 0 ▪ | 3 ▪ | 1 ▪ | 1 | OFF ▪ | ON ▪ | YES | | | | YES | 8 | | | | | | | SERIAL COMMUNICATIONS |
| TJ | 1 ▪ | 2 | 0 ▪ | 3 ▪ | 0 | 2 ▪ | 1 | 3 ▪ | 1 ▪ | 1 | OFF ▪ | OFF | YES | | YES | | | 8 | | | | | | | |
| TJ AND TP | 1 ▪ | 2 | 0 ▪ | 3 ▪ | 2 ▪ | 2 ▪ | 1 | 3 ▪ | 1 ▪ | 1 | OFF ▪ | ON ▪ | YES | YES | | YES | | 8 | | | | | | | |
| TU + | 2 | 2 | 0 ▪ | 3 ▪ | 2 ▪ | 2 ▪ | 0 ▪ | 2 | 1 ▪ | 2 | OFF ▪ | ON ▪ | YES | | | | YES | 8 | | | | | | | |
| TU | 1 ▪ | 2 | 0 ▪ | 3 ▪ | 0 | 2 ▪ | 1 | 2 | 1 ▪ | 2 | OFF ▪ | OFF | YES | | YES | | | 8 | | | | | | | |
| TU AND TP | 1 ▪ | 2 | 0 ▪ | 3 ▪ | 2 ▪ | 2 ▪ | 1 | 2 | 1 ▪ | 2 | OFF ▪ | ON ▪ | YES | YES | | YES | | 8 | | | | | | | |
| TV + | 2 | 2 | 0 ▪ | 3 ▪ | 2 ▪ | 2 ▪ | 0 ▪ | 3 ▪ | 1 ▪ | 0 ▪ | OFF ▪ | ON ▪ | YES | | | | YES | 8 | | | | | | | |
| TV | 1 ▪ | 2 | 0 ▪ | 3 ▪ | 0 | 2 ▪ | 1 | 3 ▪ | 1 ▪ | 0 ▪ | OFF ▪ | OFF | YES | | YES | | | 8 | | | | | | | |
| TV AND TP | 1 ▪ | 2 | 0 ▪ | 3 ▪ | 2 ▪ | 2 ▪ | 1 | 3 ▪ | 1 ▪ | 0 ▪ | OFF ▪ | ON ▪ | YES | YES | | YES | | 8 | | | | | | | |
| TL + | 2 | 2 | 0 ▪ | 3 ▪ | 2 ▪ | 2 ▪ | 0 ▪ | 3 ▪ | 0 | 0 ▪ | ON | ON ▪ | YES | | | | YES | 8,9 | | | | | | | |
| TL | 1 ▪ | 2 | 0 ▪ | 3 ▪ | 0 | 2 ▪ | 1 | 3 ▪ | 0 | 0 ▪ | ON | OFF | YES | | YES | | | 8,9 | | | | | | | |
| TV AND TP | 1 ▪ | 2 | 0 ▪ | 3 ▪ | 2 ▪ | 2 ▪ | 1 | 3 ▪ | 0 | 0 ▪ | ON | ON ▪ | YES | YES | | YES | | 8,9 | | | | | | | |
| PI CONTROL | 1 ▪ | 1 ▪ | 1 | 19 | 2 ▪ | B | 0 ▪ | 3 ▪ | 1 ▪ | 0 ▪ | OFF ▪ | ON ▪ | | | | | | | YES | YES | | YES | | | AUTO MODE RUN/STOP CONTACT AT DRIVE TERMINALS S1 & SN |
| PI CONTROL | 1 ▪ | 1 ▪ | 1 | 19 | 0 | B | 0 ▪ | 3 ▪ | 1 ▪ | 0 ▪ | OFF ▪ | OFF | | | | | | | YES | YES | | | | | |
| TJ AND PI | 2 | 2 | 1 | 19 | 0 | B | 0 ▪ | 3 ▪ | 1 ▪ | 1 | OFF ▪ | OFF | | | | | | 8 | YES | | YES | | | | SERIAL COMMUNICATIONS |
| TU AND PI | 2 | 2 | 1 | 19 | 0 | B | 0 ▪ | 2 | 1 ▪ | 2 | OFF ▪ | OFF | | | | | | 8 | YES | | YES | | | | |
| TV AND PI | 2 | 2 | 1 | 19 | 0 | B | 0 ▪ | 3 ▪ | 1 ▪ | 0 ▪ | OFF ▪ | OFF | | | | | | 8 | YES | | YES | | | | |
| TL AND PI | 2 | 2 | 1 | 19 | 0 | B | 0 ▪ | 3 ▪ | 0 | 0 ▪ | ON | OFF | | | | | | 8,9 | YES | | YES | | | | |

+ = STANDARD E7C CONFIGURED SET UP

▪ = FACTORY 2–WIRE INITIALIZATION/DEFAULT SETTING

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



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