YASKAWA
A World of Automation Solutions™

Job Name:
Contractor:

**Document: C21-ST-F**
**Sheet 2 of 2**

PRODUCT DESCRIPTION ⇨ _ _ 0 _ _ _ _ _ _ S T _ _ _

RATING (SELECT ONLY ONE)

| RATED INPUT | DRIVE MODEL NO. GP5506V– | 120% OL APPLICATIONS 100% CONTINUOUS OUTPUT CURRENT(A) | NOMINAL HP | BASE NO. |
|---|---|---|---|---|
| 208V | A130 | 130 | 40 | DB0 |
| | A160 | 160 | 50 | DC0 |
| | A192 | 192 | 60 | DD0 |
| | A248 | 248 | 75 | DE0 |
| | A312 | 300 | 100 | DF0 |
| 230V | A130 | 130 | 50 | AC0 |
| | A160 | 160 | 60 | AD0 |
| | A192 | 192 | 75 | AE0 |
| | A248 | 248 | 100 | AF0 |
| | A312 | 312 | 125 | AG0 |
| 460V | B128 | 128 | 100 | BF0 |
| | B180 | 156 | 125 | BG0 |
| | B180 | 180 | 150 | BH0 |
| | B240 | 240 | 200 | BJ0 |
| | B302 | 300 | 250 | BK0 |
| | B380 | 380 | 300 | BL0 |
| | B506 | 414 | 350 | BM0 |
| | B506 | 506 | 400 | BN0 |
| | B675 | 515 | 450 | BP0 |
| | B675 | 675 | 500 | BR0 |

OPTION TABLE 1

| ENCLOSURE TYPE | OPTION DESIG. |
|---|---|
| NEMA 1 VENTED | V |
| BLOWERED | B |

OPTION TABLE 2

| OPTION DESIGNATOR | DESCRIPTION |
|---|---|
| Y1 | 2CN OPTION – CM043 METASYS N2 COMMUNICATIONS |
| Y2 | 2CN OPTION – CM045 FLN COMMUNICATIONS |
| Y3 | 2CN OPTION – CM047 ECHELON COMMUNICATIONS |
| Y4 | 2CN OPTION – CM086 RS–232 TO RS–485 INTERFACE |
| Y5 | 2CN OPTION – DS006 ANALOG MONITOR – V/I |
| SEE TABLE 3 FOR OPTION DESIG. | "RUNNING ON BYPASS" AND "RUNNING ON DRIVE" PILOT LIGHTS |
| | RFI NOISE SUPPRESSION NETWORK |
| | ENGRAVED DRIVE CABINET NAMEPLATE |
| T | AUTO TRANSFER TO BYPASS UPON DRIVE FAULT |
| S | SMOKE PURGE |
| R | INPUT REACTOR |
| P | PRESSURE TRANSDUCER (3–15 PSI) |
| F | INPUT FUSING |
| E | INPUT RFI FILTER |

OPTION COMBINATION TABLE 3

| OPTION | OPTION DESIGNATION | | | | | | |
|---|---|---|---|---|---|---|---|
| | 2 | 4 | 6 | G | J | L | U |
| PILOT LIGHTS | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| RFI NOISE SUPPRESSION NETWORK | 0 | 1 | 1 | 0 | 0 | 1 | 1 |
| ENGRAVED DRIVE CABINET NAMEPLATE | 1 | 0 | 1 | 0 | 1 | 0 | 1 |

1 = OPTION IS PRESENT

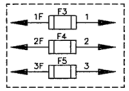
DRIVE OPERATION MODE SELECTION TABLE 5

| n002 SETTINGS | RUN/STOP COMMAND | FREQUENCY REFERENCE | SEE NOTE |
|---|---|---|---|
| 0 | KEYPAD | KEYPAD | 9 |
| 1 | EXT. TERMINALS | KEYPAD | |
| 2 | KEYPAD | EXT. TERMINALS | 9 |
| 3 FACTORY SETTING | EXT. TERMINALS | EXT. TERMINALS | |
| 4 | KEYPAD | SERIAL COMM. | 9 |
| 5 | EXT. TERMINALS | SERIAL COMM. | |
| 6 | SERIAL COMM. | SERIAL COMM. | 10 |
| 7 | SERIAL COMM. | KEYPAD | 10 |
| 8 | SERIAL COMM. | EXT. TERMINALS | 10 |

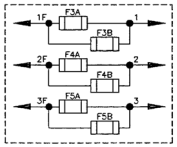
SPECIAL PARAMETER SETTINGS TABLE 4 (SEE NOTE 8)

| PARAMETER | DATA | UNIT | DESCRIPTION/REMARKS |
|---|---|---|---|
| n001 | 3 | N/A | READ/WRITE TO ALL PARAMETERS |
| n002 | SEE TABLE 5 | N/A | DRIVE OPERATION MODE SELECTION |
| n003 | 460(230) | V | STANDARD MAX VOLTAGE SETTING |
| | 208 | V | MAX VOLTAGE SETTING FOR BASE NO. "D_" |
| n006 | 1 | N/A | REVERSE RUN DISABLED |
| n007 | 0 | N/A | LOCAL/REMOTE KEY DISABLED |
| n018 | 60.0 | S | ACCELERATION TIME |
| n019 | 60.0 | S | DECELERATION TIME |
| n024 | 10.0 | HZ | KEYPAD SPEED REFERENCE |
| n025 | 6.0 | HZ | HAND MODE SPEED REFERENCE |
| n033 | --- | AMPS | MOTOR FULL LOAD AMPS– (MUST BE SET BY CUSTOMER) |
| n038 | 5 | N/A | REMOTE/LOCAL (USED FOR NORMAL/TEST) |
| n040 | 21 | N/A | PID CONTROL DISABLE |
| n043 | 0 | N/A | 0–10VDC AUTO MODE SIGNAL (FACTORY SETTING) |
| | 1 | N/A | 4–20 MADC AUTO MODE SIGNAL |
| n055 | 1 | N/A | MOMENTARY POWER LOSS RIDE THROUGH ENABLED |
| n056 | 20 | % | SPEED SEARCH OPERATION LEVEL |
| n057 | 1.0 | S | MINIMUM BASE BLOCK TIME |
| n058 | 25 | % | V/F DURING SPEED SEARCH |
| n061 | 1 | N/A | DRIVE FAULT RELAY DE–ENERGIZED DURING AUTO RESTART ATTEMPTS |
| n068 | 50 | % | DC INJECTION BRAKING CURRENT LEVEL |
| n070 | 5.0 | S | DC INJECTION BRAKING TIME AT START |

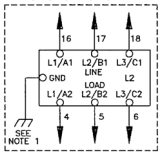
INPUT FUSE OPTION F
BASE NO'S: DB–DF, AC–AG, BF–BL



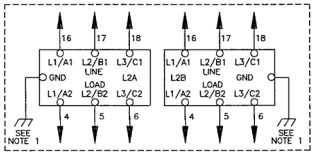

INPUT FUSE OPTION F
BASE NO'S: BM–BR



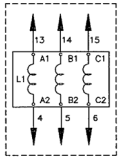

INPUT RFI FILTER OPTION E
BASE NO'S: DB,DC,DF, AC,AD,AG, BF,BG,BJ–BR



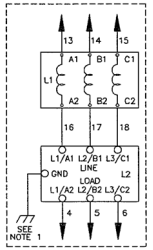

INPUT RFI FILTER OPTION E
BASE NO'S: DD,DE, AE,AF, BH



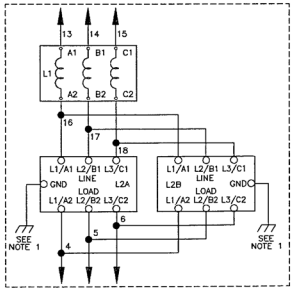

INPUT REACTOR OPTION R
BASE NO'S: DB–DF, AC–AG, BF–BP




INPUT REACTOR, OPTION R AND INPUT RFI FILTER OPTION E
BASE NO'S: DB,DC,DF, AC,AD,AG, BF,BG,BJ–BP




INPUT REACTOR, OPTION R AND INPUT RFI FILTER OPTION E
BASE NO'S: DD,DE, AE,AF, BH




CONTACT SEQUENCE CHART FOR S1
X – INDICATES CONTACT CLOSED

| CONTACT | POSITION | | | MANUF. LOCATION /TYPE |
|---|---|---|---|---|
| | BYPASS | OFF | DRIVE | |
| 1 | X | | | 1RO |
| 2 | | | X | 1LO |
| 3 | | | X | 2LO |
| 4 | | | X | 3LO |
| 5 | | | X | 4LO |

• SCHEMATIC SHOWS THIS POSITION.

CONTACT SEQUENCE CHART FOR S2
X – INDICATES CONTACT CLOSED

| CONTACT | POSITION | | | MANUF. LOCATION /TYPE |
|---|---|---|---|---|
| | HAND | STOP | AUTO | |
| 1 | X | | | 1RO |
| 2 | | | X | 1LO |
| 3 | X | | | 2RO |

• SCHEMATIC SHOWS THIS POSITION.

CONTACT SEQUENCE CHART FOR S3
X – INDICATES CONTACT CLOSED

| CONTACT | POSITION | | MANUF. LOCATION /TYPE |
|---|---|---|---|
| | TEST | NORMAL | |
| 1 | | X | 1RO |
| 2 | X | | 1LC |
| 3 | X | | 2RC |
| 4 | X | | 2LC |
| 5 | | X | 3RO |

• SCHEMATIC SHOWS THIS POSITION.

NOTES:

✱ COMPONENTS NOT SUPPLIED BY YASKAWA.

▬ CUSTOMER WIRING. – FOR 0 TO 100 AMPS, USE 60 –75° C COPPER WIRE. ABOVE 100 AMPS, USE 75°C COPPER WIRE.

○ CUSTOMER CONNECTION POINT ON PANEL MOUNTED TERMINAL BLOCK TB1. TORQUE WIRE CONNECTIONS TO 16–20 LB. IN.

□ FACTORY CONNECTION POINT ON DRIVE A1.

REFER TO THE PRODUCT DESCRIPTION AND ASSOCIATED OPTION TABLES TO DETERMINE WHICH OPTIONS ARE PRESENT.

1. CONNECTED TO CABINET. CUSTOMER TO CONNECT CABINET GROUND LUG TO EARTH GROUND.
2. MOTOR OVERLOAD RELAY, S12, IS FACTORY SET FOR MANUAL RESET. CUSTOMER TO ADJUST S12 TRIP SETTING FOR THE AC MOTOR'S FULL LOAD AMPS.
3. TERMINALS SUPPLIED FOR INSERTION OF NORMALLY CLOSED CUSTOMER SAFETY CONTACTS I.E. FIRESTAT, FREEZESTAT, WINDING OR BEARING TEMPERATURE ACTIVATED SWITCHES. IF APPLICABLE, REMOVE THE FACTORY INSTALLED JUMPER J1.
4. A. TERMINALS SUPPLIED FOR INSERTION OF CUSTOMER SUPPLIED DAMPER ELECTRIC PNEUMATIC VALVE (SOLENOID), WITH A MAXIMUM POWER RATING OF 100VA SEALED AND 170VA INRUSH, USED TO CONTROL THE OPENING AND CLOSING OF A SYSTEM DAMPER. IF APPLICABLE, CHANGE DRIVE PARAMETER n004 TO 1.
   B. TERMINALS SUPPLIED FOR INSERTION OF CUSTOMER SUPPLIED, NORMALLY OPEN DAMPER END SWITCH (OPEN=DAMPER CLOSED, CLOSED=DAMPER FULLY OPEN). IF APPLICABLE, REMOVE THE FACTORY INSTALLED JUMPER J2.
5. 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.
6. DRIVE PARAMETER n070 IS PROVIDED TO PREVENT THE DRIVE FROM STARTING INTO A SPINNING MOTOR FOLLOWING A TRANSITION FROM THE BYPASS MODE TO THE DRIVE MODE OF OPERATION. CUSTOMER TO FIELD ADJUST n070 FOR THE DECELERATION TO STOP TIME (IN SECONDS) OF THE AC MOTOR FROM MAXIMUM SPEED, WHEN SWITCHING FROM THE BYPASS TO THE DRIVE MODE OF OPERATION.
7. WHEN PRESSURE TRANSDUCER (OPTION P) IS PRESENT (SEE OPTION TABLE 2), CONNECT THE PNEUMATIC SIGNAL AS SHOWN ON PAGE 1.
8. IF A "2 WIRE" OR "3 WIRE" INITIALIZATION IS PERFORMED ON THE DRIVE, THEN THE DRIVE PARAMETERS NEED TO BE RE–ENTERED, AS SHOWN IN THE SPECIAL PARAMETER SETTINGS TABLES 4 AND 5.
9. IF RUN/STOP IS TO BE PERFORMED VIA THE DRIVE KEYPAD, THEN THE CUSTOMER SAFETY INTERLOCK, THE DAMPER CONTROL AND THE DAMPER END SWITCH WILL NO LONGER FUNCTION. CONTACT THE FACTORY, IF THESE FUNCTIONS ARE REQUIRED.
10. SERIAL COMMUNICATIONS RUN/STOP CONTROL:
    THE CUSTOMER MUST ADD A JUMPER J4 BETWEEN POINTS 3 AND 4 ON THE PANEL MOUNTED TERMINAL BLOCK TB1, AND THE HAND/STOP/AUTO SWITCH, S2 MUST BE IN THE "AUTO" POSITION. IF SERIAL COMMUNICATIONS IS TO BE USED TO CONTROL THE RUN/STOP OF THE DRIVE.
11. HAND/STOP/AUTO SWITCH OPERATION:
    THE FUNCTION OF THE HAND/STOP/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 A RUN COMMAND ACTIVATED BY THE BYPASS/OFF/DRIVE SWITCH.
12. TEST/NORMAL SWITCH OPERATION:
    THE FUNCTION OF THE TEST/NORMAL SWITCH IS TO TEST THE DRIVE WHILE IN EITHER THE OFF OR BYPASS MODE. IF THE TEST/NORMAL SWITCH IS IN THE TEST POSITION WHILE OPERATING IN THE DRIVE MODE, THEN THE DRIVE WILL FAULT ON AN "EF3". THIS FAULT MAY BE RESET BY FIRST SWITCHING TO EITHER "BYPASS" OR "OFF", AND THEN PRESSING RESET ON THE DRIVE KEYPAD.
13. SMOKE PURGE, OPTION S, OPERATION:
    THE FUNCTION OF THE SMOKE PURGE OPTION IS TO CAUSE THE MOTOR TO RUN AT FULL SPEED, ACROSS THE LINE, REGARDLESS OF ANY DRIVE, MOTOR OR CUSTOMER SAFETY FAULTS, WHEN THE CUSTOMER SUPPLIED NORMAL/PURGE SWITCH IS IN THE "PURGE" POSITION.
    IF THIS OPTION IS USED WITH THE PILOT LIGHTS OPTION, THEN BOTH THE "RUNNING ON DRIVE" AND "RUNNING ON BYPASS" PILOT LIGHTS WILL BE LIT IN THE "PURGE" AND "DRIVE" MODES.
14. AUTO TRANSFER, OPTION T, OPERATION:
    THE AUTO TRANSFER OPTION IS DESIGNED TO AUTOMATICALLY TRANSFER FROM THE DRIVE MODE OF OPERATION TO THE BYPASS MODE OF OPERATION, UPON A DRIVE FAULT CONDITION, WHEN THE BYPASS/OFF/DRIVE SWITCH IS IN THE "DRIVE" POSITION. THIS TRANSFER MAY BE RESET BY SWITCHING THE BYPASS/OFF/DRIVE SWITCH FROM "DRIVE" TO "OFF", WAITING A FEW SECONDS FOR THE KEYPAD LED DISPLAY TO GO BLANK, AND THEN SWITCHING BACK TO "DRIVE", ASSUMING THAT THE CONDITION WHICH CAUSED THE DRIVE TO FAULT HAS DISAPPEARED.