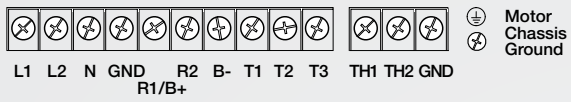
BALDOR®

VS1SP

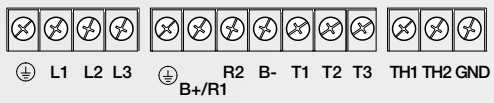
Please consult the VS1SP Installation and Operation Manual, MN764, before operating the drive.
Also, please read the precautionary and warning statements in the Safety Notice, Paragraph 1.2, in MN764.

Frame Size AA 1-Phase Input Drives

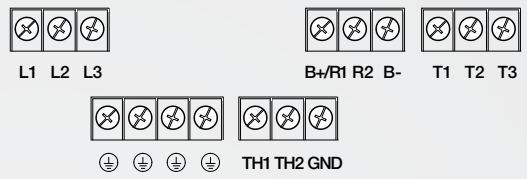


Frame Size AA 3-Phase Input Drives

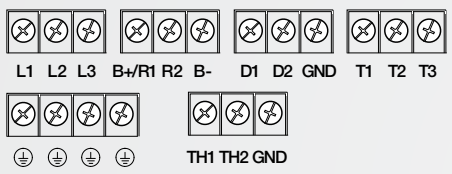
Frame Size B and C Drives



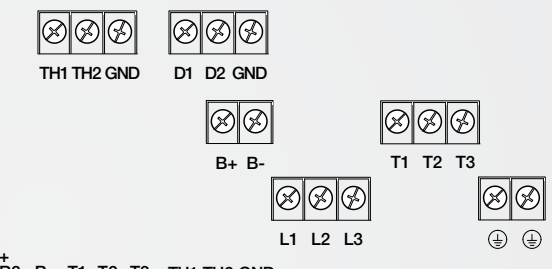
Frame Size D Drives



Frame Size E Drives

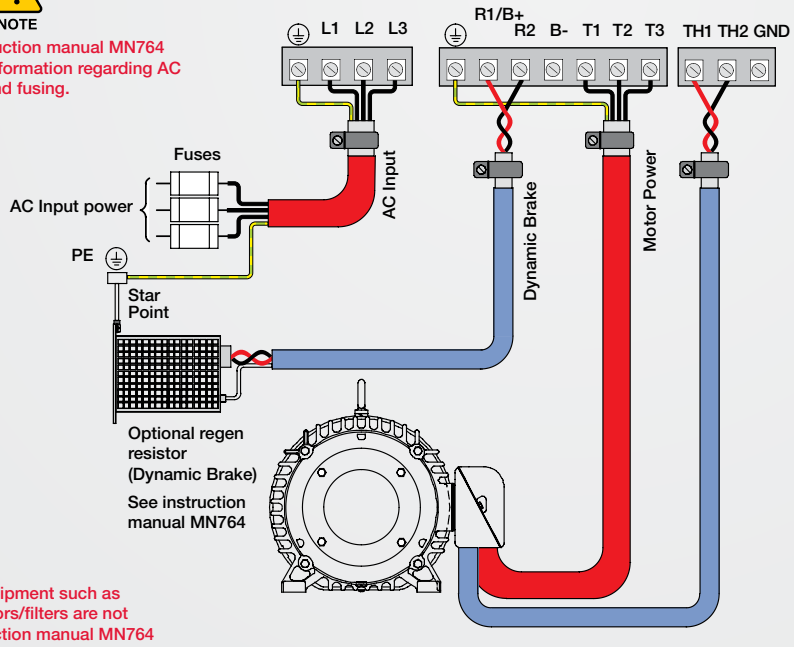


Frame Size F Drives



NOTE

Note: See instruction manual MN764 for important information regarding AC power wiring and fusing.



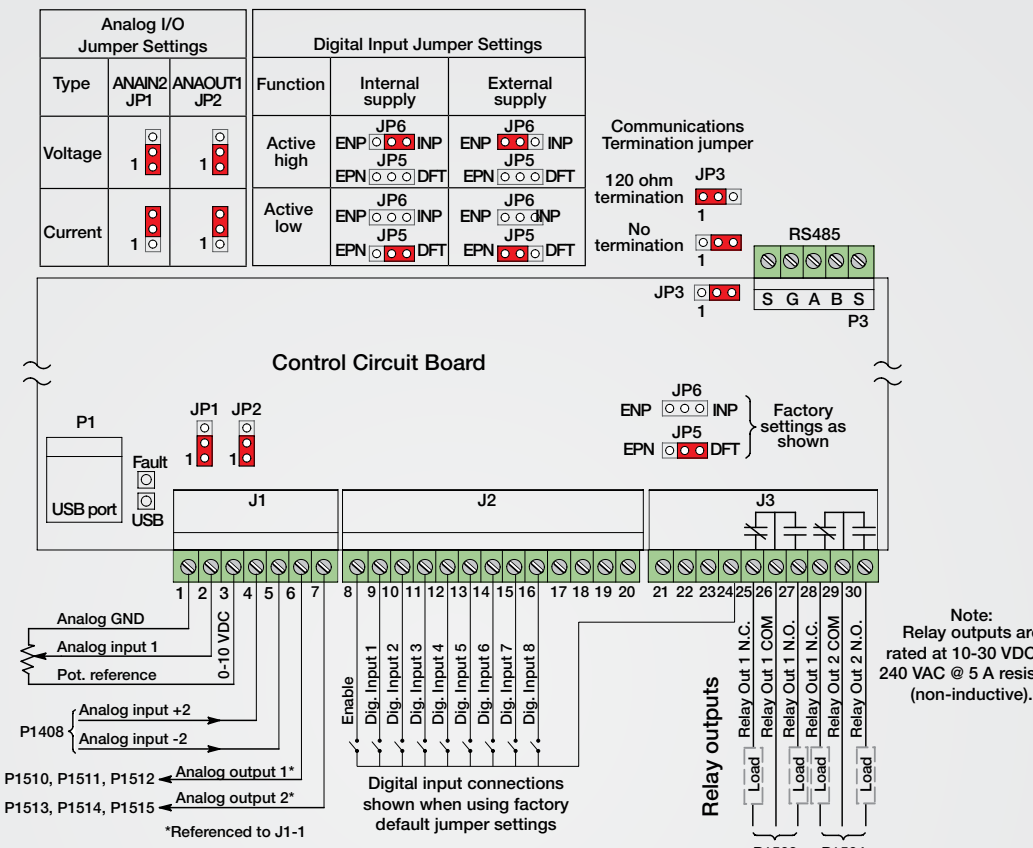
NOTE

Note: See instruction manual MN764 for important information regarding motor and output reactors.

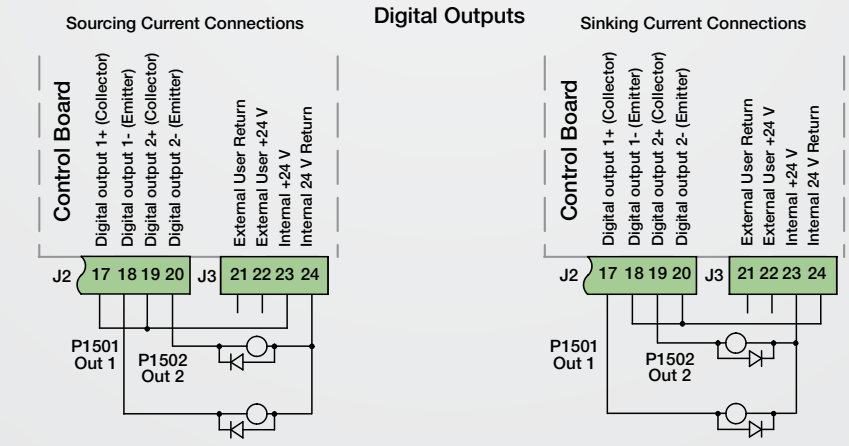
Thermostat and control leads must be in separate conduits.

Note: Optional equipment such as input/output reactors/filters are not shown. See instruction manual MN764

Analog I/O Jumper Settings			Digital Input Jumper Settings		
Type	ANAIN2 JP1	ANAOUT1 JP2	Function	Internal supply	External supply
Voltage	1	1	Active high	JP6 ENP INP, JP5 EPN DFT	JP6 ENP INP, JP5 EPN DFT
Current	1	1	Active low	JP6 ENP INP, JP5 EPN DFT	JP6 ENP INP, JP5 EPN DFT



Digital Outputs

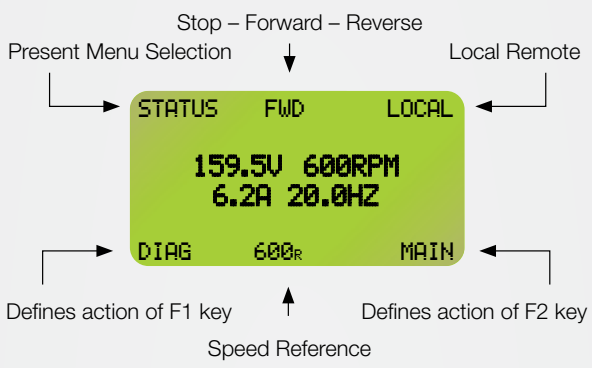


Note: Digital outputs are rated at 24 VDC @ 60 mA resistive (non-inductive).

Keypad Components

The keypad is used to program the control parameters, to operate the motor and to monitor the status and outputs of the control by accessing the display options, the diagnostic menus and the fault log. Additionally, drive parameters can be stored in the keypad for future retrieval.

Display Features



Indicator Lights:
(On when indicated Key is active)

FWD & REV: Green light indicator.

STOP: Red light indicator

JOG: Jog Speed Selected Green light indicator

Display Diagnostics –
I/O Status
I/O Function configuration
Modified Parameters
Control Operation Data
Custom Units
Fault Display – 10 Faults with Time Stamp

F2 – Clears faults or undo parameter edit changes or function indicated by text displayed directly above key.

▲ Up Arrow ◀ Left Arrow
▼ Down Arrow ▶ Right Arrow

Moves cursor to select menu choices.

LOCAL/REMOTE – Switches between local and remote modes.

HELP – Provides help at each display screen, setup parameter and fault. Press to view/close help information.

JOG – Initiates Jog mode. Press FWD or REV for motion. Only in local mode.

FWD – When pressed, initiates a forward direction run command.

Indicator Lights – (on indicated key)
STOP key with red light indicator.
FWD key with green light indicator.
REV key with green light indicator.
JOG key with green light indicator.

Keypad Display – Displays status Information during Local or Remote operation. It also displays information during parameter setup and fault or Diagnostic information.

F1 – Alternates or "toggles" between the last two menu choices or function indicated by text displayed directly above key.

ENTER – Press ENTER to save parameter value changes. In the display mode the ENTER key is used to directly set the local speed reference. It is also used to select other operations when prompted by the keypad display.

MENU/ESC – Selects the menu display when viewing status. The following menu items are shown: Status, Basic Params, Advanced Prog, Event Log, Diagnostics and Display Options. Backs up one level for other screens.

REV – When pressed, initiates a reverse direction run command.

STOP – Initates a stop command. Note: Pressing the stop key twice in succession will immediately disable the drive placing the motor in a coast stop condition.

Auto Tuning Procedures for Open Vector and V/F Control

(Note: All procedures require that load be decoupled from motor shaft. See details below if this is not possible.

For Open Vector Control Type:

1) Press MENU.
Scroll to BASIC PARAMS.
Press ENTER.

At this point the display shows CONTROL TYPE F1601, – the default value is "V/F Control" – press ENTER to change the setting to Open Vector C1601, – press ENTER.

2) Press the DOWN Arrow key and enter values from the motor nameplate for each of the following "MOTOR DATA" parameters. Press ENTER to begin editing – after each value is programmed, press ENTER then DOWN arrow for the next item.

- MOTOR RATED HP
- MOTOR RATED VOLT
- MOTOR RATED AMPS
- MOTOR MAG AMPS*
- MOTOR RATED SPD
- MOTOR RATED FREQ

*If this is not shown on the motor nameplate, use the formula:

MOTOR MAG AMPS = 0.4 X MOTOR RATED AMPS.

3) CALC MOTOR MODEL – press ENTER – select "Yes" – press ENTER

4) After CALC MOTOR MODEL is complete, Press F2 to exit MOTOR DATA and BASIC PARAMS to return to the MENU.

5) ENABLE DRIVE, (close J2-8 – J3-24 circuit).

6) Scroll to ADVANCED PROG – press ENTER.

7) Scroll to LEVEL 2 BLOCKS – press ENTER

8) Scroll to AUTO TUNE – press ENTER.

9) Skip ANA OFFSET TRIM – Scroll to ONE-STEP TUNING – press ENTER – select "Yes" – press ENTER. The ONE-STEP TUNING will take approx. 3-4 minutes to complete.

10) After the static portion of AUTO TUNE is complete, the display will alternately show STATIC TEST DONE – ROTARY FOLLOW and PRESS ENTER FOR FLUX CUR TUNE. Select one of the following:

a) if the motor is coupled to the load, press F2 to exit AUTO TUNING

b) If the motor is not coupled to the load, press ENTER to begin rotation tuning. The first test is "FOR FLUX CUR TUNE" – press ENTER.

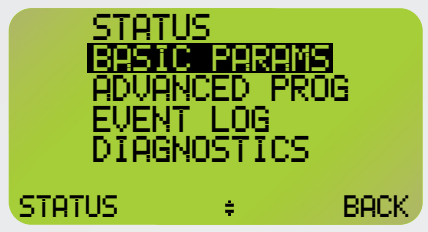
11) After "FLUX CUR TUNE" TEST PASSED – press ENTER for "MEASURE Xm(ROT)"

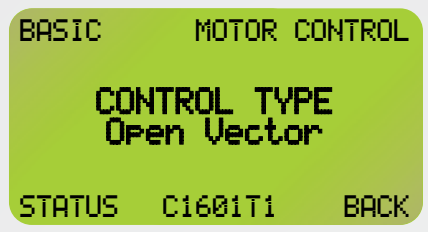
12) After "MEASURE Xm(ROT)" TEST PASSED – press ENTER for "END OF TEST".

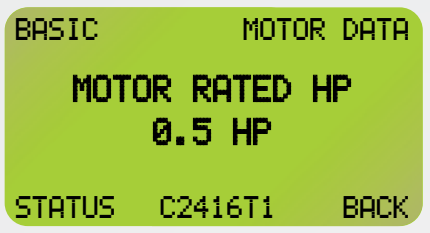
13) PRESS F2 three times to return to MENU – press F1 to show STATUS display.

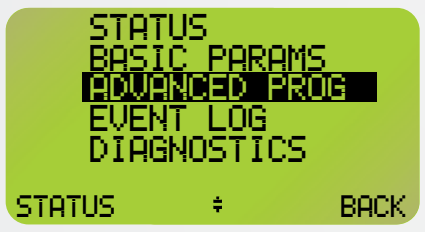
14) Couple motor to load and run " SPEED LOOP TUNE" to get a better response or manually tune the speed loop using Speed Prop Gain (P1635), Speed Int Gain (P1636) and Speed Diff Gain (P1637)

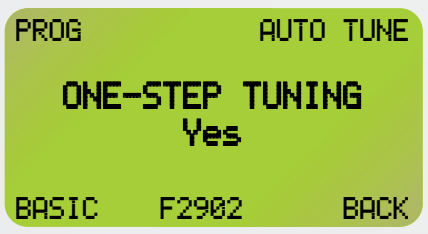
OPEN VECTOR AUTO TUNE COMPLETE











For V/F Control Type:

1) Press MENU.
Scroll to BASIC PARAMS.
Press ENTER.

At this point the display shows CONTROL TYPE F1601, – the default value is "V/F Control" – If needed, press ENTER to change the setting to V/F Control C1601, – press ENTER.

2) Press the DOWN Arrow key and enter values from the motor nameplate for each of the following "MOTOR DATA" parameters. Press ENTER to begin editing – after each value is programmed, press ENTER then DOWN arrow for the next item.

- MOTOR RATED HP
- MOTOR RATED VOLT
- MOTOR RATED AMPS
- MOTOR MAG AMPS*
- MOTOR RATED SPD
- MOTOR RATED FREQ

*If this is not shown on the motor nameplate, use the formula:

MOTOR MAG AMPS = 0.4 X MOTOR RATED AMPS.

3) CALC MOTOR MODEL – press ENTER – select YES – press ENTER

4) After CALC MOTOR MODEL is complete, Press F2 to exit MOTOR DATA and BASIC PARAMS to return to the MENU.

5) ENABLE DRIVE, (close J2-8 – J3-24 circuit).

6) Scroll to ADVANCED PROG – press ENTER.

7) Scroll to LEVEL 2 BLOCKS – press ENTER

8) Scroll to AUTO TUNE – press ENTER.

9) Skip ANA OFFSET TRIM – Scroll to STATOR R1 TUNE – press ENTER – select "Yes" – Press ENTER. After STATOR R1 TUNE is complete – (TEST PASSED), press ENTER to END (This is a static tune, motor will not rotate).

10) PRESS F2 three times to return to MENU – press F1 to show STATUS display.

V/F CONTROL AUTO TUNE COMPLETE