

SM-BASIC TERMINAL STRIP

RUN/STOP	1
SPEED POT COMMON	3
SPEED POT INPUT	5
10 VDC SUPPLY FOR SPEED POT	6
DIGITAL INPUT REFERENCE	11
TB-13A FUNCTION SELECT	13A
TB-13B FUNCTION SELECT	13B
TB-13C FUNCTION SELECT	13C
OPEN-COLLECTOR OUTPUT	14

WARNING!

Hazard of electrical shock! The SM-Basic control terminals are not isolated from line voltage! Do not touch!

Disconnect input power and wait three minutes before making connections to the control terminals.

Devices connected to the control terminals (such as switches, pushbuttons, speed pots, relays, etc.) are hot to ground and must have an insulation rating of at least 240 Vac or a dielectric rating of at least 1500 volts to prevent damage to equipment and/or injury to personnel.

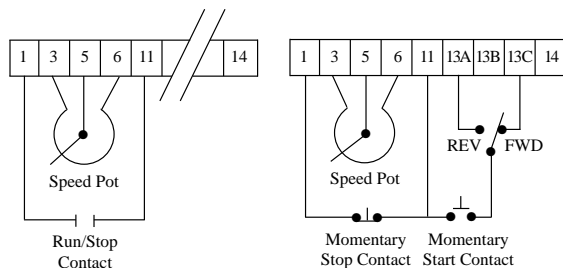
Connections:

Shown below are two sample wiring diagrams, both using a speed pot for speed control. The two-wire diagram on the left requires a maintained contact for start/stop control. The drive is ready for two-wire control out of the box with no parameter changes.

The three-wire diagram on the right requires momentary contacts for start and stop commands, and a switch is used to select direction. The following parameters must be changed for this diagram:

1. Set Parameter 12 (TB-13C) to Start Forward (05).
2. Set Parameter 10 (TB-13A) to Start Reverse (06).
3. Set Parameter 17 (Rotation) to Forward and Reverse (02).

NOTE: If Reverse is not required, steps 2 and 3 can be ignored and the Start pushbutton can be wired directly between TB-11 and TB-13C.



DIAGNOSTIC AND DISPLAY MESSAGES

DISPLAY	DESCRIPTION
Speed Reference Codes	
CP	CONTROL PAD: The drive speed is controlled by the and buttons on the front of the drive.
EU	EXTERNAL VOLTAGE: The drive speed is controlled by speed pot.
JG	JOG: The drive is in Jog mode and the speed is set by preset speed #2 (Parameter 32).
OP	MOP: Contacts wired to TB-13B and 13C are used to increase and decrease the drive speed.
Pr1-Pr7	PRESET SPEEDS #1-7: The drive speed is set by the selected Preset Speed (Parameters 31-37).
Status Indication	
br	DC BRAKING: The DC braking circuit is activated.
CL	CURRENT LIMIT: The output current has exceeded the CURRENT LIMIT setting (Parameter 25) and the drive is reducing the output frequency to reduce the output current. If the drive remains in CURRENT LIMIT for too long, it can trip into a CURRENT OVERLOAD fault (PF).
Er	ERROR: Invalid data has been entered.
GE	"GE" will be displayed if an attempt is made to change the OEM default settings when the drive is operating in the OEM mode (see Parameter 48).
LC	FAULT LOCKOUT: Failed three restart attempts. Requires a manual reset.
SP	START PENDING: This is displayed during the 15 second interval between restart attempts.
Diagnostic Codes	
AF	HIGH TEMPERATURE FAULT: Ambient temperature is too high.
CF	CONTROL FAULT: A blank EPM, or EPM with corrupted data has been installed. Perform a factory reset (Parameter 48).
cF	INCOMPATIBILITY FAULT: An EPM with a different parameter version has been installed.
dF	DYNAMIC BRAKING FAULT: The drive has sensed the dynamic braking resistors are overheating.
EF	EXTERNAL FAULT: TB-13A and/or TB13C is set as an external fault input and TB-13A and/or TB-13C is open with respect to TB-2.
GF	DATA FAULT: User data and OEM defaults in the EPM are corrupted.
HF	HIGH DC BUS VOLTAGE FAULT: Line voltage is too high; Deceleration rate is too fast; Overhauling load. Fast deceleration and overhauling loads may require dynamic braking.
JF	REMOTE KEYPAD FAULT: The communication between the SCN drive and the optical Remote Keypad has been lost. Check for proper wiring and/or noise.
LF	LOW DC BUS VOLTAGE FAULT: Line voltage is too low.
OF	OUTPUT TRANSISTOR FAULT: Phase to phase or phase to ground short circuit on the output: Failed output transistor: Boost settings are too high: Acceleration rate is too fast.
PF	CURRENT OVERLOAD FAULT: VFD is undersized for the application: Mechanical problem with the driven equipment.
SF	SINGLE-PHASE FAULT: Single-phase input power has been applied to a three-phase drive.
UF	START FAULT: Start command was present when the drive was powered up. Must wait 2 seconds after power-up to apply Start command if START METHOD is set to NORMAL.
F1	EPM FAULT: The EPM is missing or damaged.
F2-F9, F0	INTERNAL FAULTS: The control board has sensed a problem. Consult factory.



ELECTRIC MOTORS, GEARMOTORS AND DRIVES

Variable Speed AC Motor Drives



SM-Basic Quick Reference Guide

This guide is intended as an aid to configure the SM-Basic drive.

NOTE: Before installing and operating the SM-Basic drive, please read and become familiar with the SM-Basic Series installation and operation manual.

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CONFIGURING THE SM-BASIC DRIVE

Entering Program Mode:

To access the parameters, press the **Mode** button. This will activate the password prompt. The display will read “00” and the right-hand decimal point will be blinking. Use the **←** and **→** buttons to scroll to the password value (the factory default password is 25) and press **Mode** to enter.

Press **Mode**



Display reads “00”

Upper right decimal point blinks

Use **←** and **→** to scroll to the password value (factory default password is 25)



Press **Mode** to enter password

Parameter menu is accessed at the first parameter, indicated by “01”



Upper right decimal point turns on solid

Use **←** and **→** to scroll to the desired parameter number (the example is Parameter 19 – ACCELERATION TIME)



Press **Mode** to display present parameter setting (present example setting is 15)



Right decimal point blinks

Use **←** and **→** to change setting (example setting changed to 30)



Press **Mode** to store new setting

Pressing the **Mode** button will store the new setting and also exit the Program mode. To change another parameter, press the **Mode** button again to re-enter the Program mode (the parameter menu will be accessed at the parameter that was last viewed or changed before exiting). If the **Mode** key is pressed within two minutes of exiting the Program mode, the password is not required.

SM-BASIC PARAMETER MENU

NO.	Parameter Name	Range of Adjustment	Factory Default
01	Line Voltage	High (01), Low (02)	High (01)
02	Carrier Frequency	4 kHz (01), 6 kHz (02), 8 kHz (03), 10 kHz (04)	6 kHz (02)
03	Start Method	Normal (01), Start on Power-up (02), Start w/DC Brake (03), Auto Restart w/DC Brake (04), Flying Restart 1 (05), Flying Restart 2 (06), Flying Restart 3 (07)	Normal (01)
04	Stop Method	Coast (01), Coast with DC Brake (02), Ramp (03), Ramp with DC Brake (04)	Coast (01)
05	Speed Source	Keypad (01), Preset #1 (02), 0-10 VDC (03)	Keypad (01)
06	TB-14 Output	None (01), Run (02), Fault (03), Inverse Fault (04), Fault Lockout (05), At Set Speed (06), Above Preset #3 (07), Current Limit (08), Auto Speed (09), Reverse (10), DB Brake (11)	None (01)
10	TB-13A Select	None (01), Speed Pot (02), Preset Speed #1 (03), Start Forward (04), Run Reverse (05), Start Reverse (06), External Fault (07), DB Fault (08), Auxiliary Stop (09), Accel/Decel #2 (10)	None (01)
11	TB-13B Select	None (01), Speed Pot (02), Preset Speed #2 (03), Decrease Freq (04), Jog Forward (05), Jog Reverse (06), External Fault (07), DB Fault (08), Auxiliary Stop (09), Accel/Decel #2 (10)	None (01)
12	TB-13C Select	None (01), Speed Pot (02), Preset Speed #3 (03), Increase Freq (04), Start Forward (05), External Fault (06), DB Fault (07), Auxiliary Stop (08), Accel/Decel #2 (09)	None (01)
17	Rotation	Forward Only (01), Forward and Reverse (02)	Forward Only (01)
18	Time Range Select	x0.1 (01), x1.0 (02), x10.0 (03)	x1.0 (02)
19	Acceleration Time	0.1 - 990 sec	20 sec

NO.	Parameter Name	Range of Adjustment	Factory Default
20	Deceleration Time	0.1 - 990 sec	20 sec
21	DC Brake Time	0.0 - 990 sec	0 sec
22	DC Brake Voltage	0.0 - 30%	0%
23	Minimum Frequency	0-Maximum Frequency	0 Hz
24	Maximum Frequency	Minimum Frequency - 99 Hz	60 Hz
25	Current Limit	30 - 180%	180%
26	Motor Overload	30 - 100%	100%
27	Base Frequency	25 - 99 Hz	60 Hz
28	Fixed Boost	0 - 30%	1%
29	Accel Boost	0 - 20%	0%
30	Slip Compensation	0.0 - 5.0%	0%
31-37	Preset Speeds	0 - Maximum Frequency	0 Hz
38	Skip Bandwidth	0 - 10 Hz	0 Hz
42	Accel/Decel #2	0.1 - 990 sec	20 sec
44	Password	00-99	25
47	Clear History	Maintain (01), Clear (02)	Maintain (01)
48	Program Selection	User Settings (01), OEM Settings (02), Reset OEM (03), Reset 60 (04), Reset 50 (05), Translate (06)	User Settings (01)
50	Fault History	View Only	(N/A)
51	Software Code	View Only	(N/A)
52	DC Bus Voltage	View Only	(N/A)
53	Motor Voltage	View Only	(N/A)
54	Load	View Only	(N/A)
55	0-10 VDC Input	View Only	(N/A)
57	TB Strip Status	View Only	(N/A)
58	Keypad Status	View Only	(N/A)