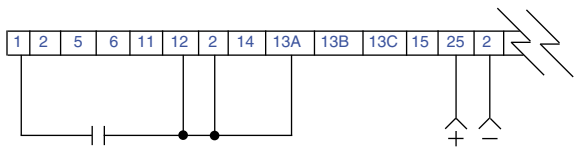
SCF TERMINAL STRIP

STOP	1
CIRCUIT COMMON	2
0-10 VDC SPEED REFERENCE INPUT	5
10 VDC SUPPLY FOR SPEED POT	6
12 VDC SUPPLY (50 mA MAX.)	11
START	12
CIRCUIT COMMON	2
OPEN COLLECTOR OUTPUT	14
TB-13A FUNCTION SELECT	13A
TB-13B FUNCTION SELECT	13B
TB-13C FUNCTION SELECT	13C
OPEN COLLECTOR OUTPUT	15
4-20 mA SPEED REFERENCE INPUT	25
CIRCUIT COMMON	2
0-10 OR 2-10 VDC OUTPUT: FREQ. OR LOAD	30
0-10 OR 2-10 VDC OUTPUT: LOAD	31
RS-485 SERIAL COMMUNICATIONS	TXA
RS-485 SERIAL COMMUNICATIONS	TXB

PI CONTROL WIRING EXAMPLE

Shown below is a wiring diagram for a typical PI control scheme with a 2-wire start/stop and 4-20 mA feedback. The PI setpoint is adjusted using the ▲ and ▼ butons on the front of the drive.

- Set Parameter 10 (TB-13A) to Keypad Setpoint (12).
- Set Parameter 61 (PI MODE) to Normal 4-20 mA (02) or Reverse 4-20 mA (04) depending on the type of system to be controlled.
- Set the other PI parameters as necessary (refer to the SCF manual).



Run/Stop Contact

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.
EI	**EXTERNAL CURRENT:** The drive speed is controlled by a 4-20 mA signal between TB-25 and TB-2.
EU	**EXTERNAL VOLTAGE:** The drive speed is controlled by a 0-10 VDC signal between TB-5 and TB-2.
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.
Pr 1-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.
SE	**SERIAL:** The optional remote keypad is active as the user interface instead of the buttons on the front of the drive.
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	**SERIAL FAULT:** The watchdog timer has timed out, indicating that the serial link has been lost.
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.

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SCF Series
Quick Reference Guide

This guide is intended as an aid to configure the SCF drive.

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

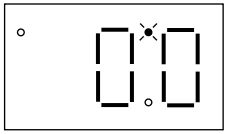
CONFIGURING THE SCF DRIVE

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 225) and press **MODE** to enter.

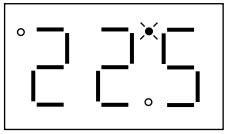
Press **Mode**

Display reads “00”



Upper right decimal point blinks

Use ▲ and ▼ to scroll to the password value (factory default password is 225)

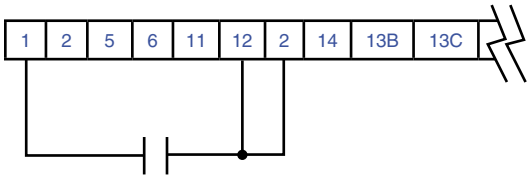


Press **Mode** to enter password

Once the PROGRAM mode is accessed, use the ▲ and ▼ buttons to scroll to the desired parameter number, and press the **Mode** button to see the parameter setting. Use the ▲ and ▼ buttons to change the parameter setting and press **Mode** to store the new setting.

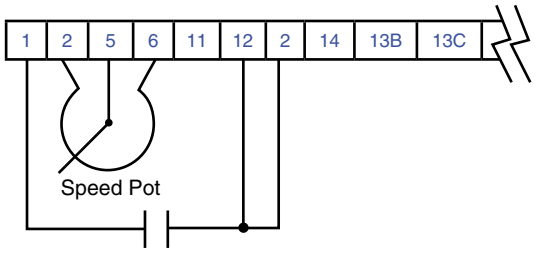
Connections:

Below is a sample wiring diagram for two-wire start/stop control. The drive is ready to use right out of the box, with these simple control wiring connections; no parameter adjustments are required. Speed is controlled from the ▲ and ▼ buttons on the front of the drive.



Run/Stop Contact

To add a potentiometer for speed control, change Parameter #5 (Standard Speed Source) to 0-10 VDC (03).



Run/Stop Contact

SCF 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), 4-20 mA (04)	Keypad (01)
06 13	TB-14 Output TB-15 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), Min Alarm (11), Max Alarm (12), Min/Max Alarm (13)	None (01) None (01)
8	TB-30 Analog Out	None (01), 0-10 VDC Freq (02), 2-10 VDC Freq (03), 0-10 VDC Load (04), 2-10 VDC Load (05)	None (01)
9	TB-31 Analog Out	None (01), 0-10 VDC Load (02), 2-10 VDC Load (03), Dynamic Braking (04)	None (01)
10	TB-13A Select	None (01), 0-10 VDC (02), 4-20 mA (03), Preset Speed #1 (04), Run Reverse (05), Start Reverse (06), External Fault (07), Remote Keypad (08), DB Fault (09), Auxiliary Stop (10), Accel/Decel #2 (11), Keypad Setpoint (12)	None (01)
11	TB-13B Select	None (01), 0-10 VDC (02), 4-20 mA (03), Preset Speed #2 (04), Decrease Freq (05), Jog Forward (06), Jog Reverse (07), Auxiliary Stop (08), Keypad Setpoint (09)	None (01)
12	TB-13C Select	None (01), 0-10 VDC (02), 4-20 mA (03), Preset Speed #3 (04), Increase Freq (05), External Fault (06), Remote Keypad (07), DB Fault (08), Accel/Decel #2 (09), Keypad Setpoint (10)	None (01)
14	Control	Terminal Strip Only (01), Remote Keypad Only (02), Terminal Strip or Remote Keypad (03)	Terminal Strip (01)
15	Serial Link	Disable (01), 9600, 8, N, 2 with Timer (02), 9600, 8, N, 2, without Timer (03), 9600, 8, E, 1 with Timer (04), 9600, 8, E, 1, without Timer (05), 9600, 8, O, 1 with Timer (06), 9600, 8, O, 1, without Timer (07),	9600, 8, N, 2 with Timer (02)
16	Units Editing	Tenths of Units (01), Whole Units (02)	Whole Units (02)
17	Rotation	Forward Only (01), Forward and Reverse (02)	Forward Only (01)
19	Acceleration Time	0.1 - 3600.0 sec	20.0 sec
20	Deceleration Time	0.1 - 3600.0 sec	20.0 sec
21	DC Brake Time	0.0 - 3600.0 sec	0.0 sec
22	DC Brake Voltage	0.0 - 30.0 %	0.0%
23	Min Frequency	0.0 - Max Frequency	0.0 Hz
24	Max Frequency	Min Frequency - 240.0 Hz	60.0 Hz
25	Current Limit	30 - 180%	180%

No.	Parameter Name	Range of Adjustment	Factory Default
26	Motor Overload	30 - 100%	100%
27	Base Frequency	25.0 - 500.0 Hz	60.0 Hz
28	Fixed Boost	0.0 - 30.0%	1.0%
29	Accel Boost	0.0 - 20.0%	0.0%
30	Slip Compensation	0.0 - 5.0%	0.0%
31-37	Preset Speeds	0.0 - Max Frequency	0.0 Hz
38	Skip Bandwidth	0.0 - 10.0 Hz	0.0 Hz
39	Speed Scaling	0.0 - 6500.0	0
40	Frequency Scaling	3.0 - 2000.0 Hz	60.0 Hz
41	Load Scaling	10 - 200%	200%
42	Accel / Decel #2	0.1 - 3600.0 sec	20.0 sec
43	Serial Address	1 - 247	1
44	Password	000 - 999	225
45	Spd at Min Signal	Min Frequency - 999.0 Hz	0.0 Hz
46	Spd at Max Signal	Min Frequency - 999.0 Hz	60.0 Hz
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)
56	4-20 mA Input	View Only	(N/A)
57	TB Strip Status	View Only	(N/A)
58	Keypad Status	View Only	(N/A)
59	TB-30 Output	View Only	(N/A)
60	TB-31 Output	View Only	(N/A)
61	PI Mode	Off (01), Normal 4-20 mA (02), Normal 0-10 VDC (03), Reverse 4-20 mA (04), Reverse 0-10 VDC (05)	Off (01)
62	Min Feedback	0.0 - 999.0	0
63	Max Feedback	0.0 - 999.0	100
64	Proportional Gain	0.0 - 99.9 %	5.0%
65	Integral Gain	0.0 - 99.9 sec	0.0 sec
66	PI Accel/Decel	0.0 - 999.0 sec	20.0 sec
67	Min Alarm	0.0 - 999.0	0
68	Max Alarm	0.0 - 999.0	0
69	0-10 VDC Feedback	View Only	(N/A)
70	4-20 mA Feedback	View Only	(N/A)
71	Actual Frequency	View Only	(N/A)

Items in **blue** are included with the PI option.