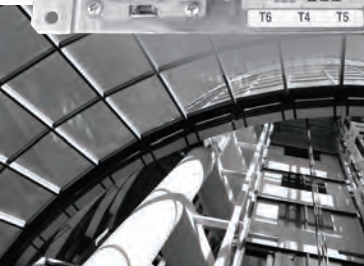
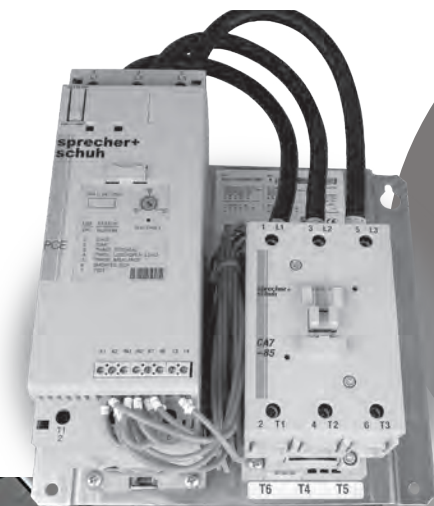




Series PCEC Elevator Softstarter *Troubleshooting and Evaluation Guide*



- **This form must be completed and submitted with returned product**
- For Technical support, call Customer Service at **1-877-721-5913**
- Fill this form and fax to 1-800-793-7370

Diagnostics Indication

The LED on the front of the product provides limited status information regarding the condition of the controller. The conditions are as follows:

- LED Off - No control power or start command given
- LED On - The device is active with starting, running or stopping
- LED Flashes - A fault has been experienced, see Table 1 for additional explanation

Table 1 - Led Fault Indication and Diagnostics

Flashes	Fault Type	Possible Fault Explanations	Possible Solutions
1	Overload	• Motor Overload condition present • FLA dial adjustment not matched to motor	• Check for motor overload condition • Verify actual motor current does not exceed FLA • Verify/Reset FLA Dial adjustment • Program/modify Overload setting for load or duty cycle required
2	Over Temperature	• Controller ventilation blocked • Controller duty cycle exceeded • Cooling fan not working • Ambient temperature exceeded • Failed control module • Over-current condition with Overload disabled	• Check for proper ventilation • Verify duty cycle • Connect or replace cooling fan • Wait for controller to cool or provide external cooling • Replace control module
3	Phase Reversal	• Incoming supply voltage is not the expected sequence of either ABC or CBA	• Check power wiring • Change two of the incoming phases and verify that the motor is spinning in the correct direction. If the motor does not turn in the correct direction, change the incoming phases back to their original connections and change dip switch #9 to the desired Line Rotation sequence setting.
4	Phase Loss/ Open Load	• Missing Supply Phase • Missing or unable to detect motor connection	• Check for open line (i.e. open fuse) • Check for incorrect wiring to load • Verify proper operation of the fault contactor • Verify connection type to motor (LINE or DELTA) • Ensure product is sized correctly for motor
5	Phase Imbalance	• Unbalanced Phase Currents (> 65% differential) • Incoming Line voltage problem	• Check motor current in each phase to verify imbalance. Motor current imbalance can indicate potential motor problems
6	Shorted SCR	• Shorted SCR • Welded or latched Bypass contactor	• Verify connection type (LINE or DELTA) and verify setting • Perform continuity check across power poles (L1 – T1, L2 – T2, L3 – T3). Measurements should exceed 10 k ohms. For best results remove line and load motor connections. • Cycle power to device and attempt to restart, if fault persists replace device
7	Test	• Intended operation	• Reset Fault
12	Checksum	• Internal Software corruption	• Replace Device

Troubleshooting Steps

Table 2 - Troubleshooting Steps

Control	Device Status	Solution
Pre-start - no start command given but device is faulted	LED Flashing	- Reset Fault - Allow device to cool (overload or SCR over temp), Reset Fault - Cycle power to device
Motor fails to start after start command given	LED Off	- Check Control Power - Check control circuit connections
	LED ON	- Verify proper operation of fault contactor or isolation devices - Check connections to the motor - Verify line power and frequency are within specifications
	LED Flashing	Reference Table 16 for information related to specific fault codes
Motor Attempts to start after start command is given but fails to reach an up to speed condition	LED ON	- Verify proper operation of fault contactor or isolation devices - Verify line power and frequency are within specifications - Try increasing the initial torque or current limit setting
	LED Flashing	Reference Table 16 for information related to specific fault codes
Motor Stops abruptly and fails to restart	LED Off	- Check for blown fuse or tripped circuit breaker - Insure control power and start command are present - Verify proper operation of fault contactor or isolation devices
	LED ON	Verify proper operation of fault contactor or isolation devices
	LED Flashing	Reference Table 16 for information related to specific fault codes
Fault Contactor Fails to close when power is applied	All Conditions	- Verify wiring to coil (the contactor should close when power is applied to the controller) - Verify voltage across coil (A1 to A2) - Check resistance of coil, replace if measured open - Verify internal contact of controller (terminals 97/98) are properly changing state, replace controller if contact does not operate correctly

New Installation Start-Up: Application Information Form

Introduction

ATTENTION!

For safety of maintenance personnel as well as others who might be exposed to electrical hazards associated with maintenance activities, follow the local safety-related work practices (for example, the NFPA 70E, Part II in the United States). Maintenance personnel must be trained in the safety practices, procedures, and requirements that pertain to their respective job assignments.

Application Information

The following information will be helpful when reviewing and providing application assistance from the factory.

PCEC Softstarter Catalog No.:				
Load Type (i.e. Hydro Elevator, Escalator, other):				
Nature Of Load (i.e. cyclic):				
Motor Nameplate Data:	HP:	FLA:	Volt:	
	Design:	Eff:	Code:	
	PF:	RPM:	SF:	
	Manf:		Age:	
PCEC Softstarter Status Prior To Fault: ❶	X	X	X	X
(circle the appropriate X)	Stopped	Starting	At Speed	Stopping
Starting Current Draw:	Amps			
Up-to-Speed Current Draw:	Amps			
Time to reach Up-to-Speed:	Secs			
Line Voltage:	Volts			
Control Voltage:	Volts			
Common Control Voltage Y/N:				
PCEC Fault (fault number or LED Blinks):				
PCE Software Firmware FRN (on side PCE label):				
Starting Mode/Time/Level:				
Kickstart Time/Level:				
Stopping Mode/Time/Level:				
Number Of Fault Occurrences:				
Fault Frequency:				
Power System (i.e. open delta, ungrnd delta):				
Power Source (utility or generator):				
Other Loads On The Power Bus:				
ie.) Power Correction Caps, Disconnect, Isolation Contactor, VFD, etc.				

❶ This may require a re-start of the controller to determine.

Note: Control and Power Schematics would greatly increase application knowledge if available.

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PCEC Softstarter Troubleshooting Questions

1. Is the application of this controller new or old?

☐ New → Question should revolve around the installation and set-up? (circle one answer that applies)

- a. proper wiring and proper settings
- b. motor connected and line and control power present
- c. is the motor FLA in range of the controller

☐ Old → Has anything changed recently? (circle one answer that applies)

- a. Resistance checks from troubleshooting section.(power poles)
- b. Has the motor been checked out? Meggered?
- c. Have any new products been added in the area
- d. Lightening Strikes... etc.
- e. Motor failure/Motor leads shorting

2. Description of problem.

- If intermittent... How often does it occur? _____
- Is the problem coincidental with another activity at the site? _____
- What faults codes/LED Blinks are displaying? _____

3. Are the control/power schematics and device settings available? _____

- What schematic in the user manual is most like what they have? _____
- Dip switch settings / parameter programmed values _____

4. What type of upstream protection is provided (breakers, fuses)?

5. Describe the power quality (generator, utility)? _____

- Is line voltage consistent or dropping during starting? If so, by how much? _____
- Is control voltage consistent or dropping during starting? If so, by how much? _____

6. Have you followed the troubleshooting procedures and suggested remedies listed on the following pages of this document?



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Series PCEC
Elevator Softstarter
Product Evaluation Form

EVALGUIDE-PCEC-111 6/2011

Sprecher + Schuh has provided reliable control and protection solutions for its customers since 1903.

Today, Sprecher + Schuh offers a wide range of low-voltage industrial control products, including contactors, a variety of relays, starters, push buttons, switches, terminals and controllers, to name a few. All of our products are crafted with precision and tested rigorously for performance — far exceeding industry standards. Moving forward, we continue along the path of constantly seeking innovative ways to provide solutions for our customers. It is by this philosophy that Sprecher + Schuh has come to be the industrial control manufacturer of choice for many customers around the globe seeking quality, reliability, and a name they can trust.