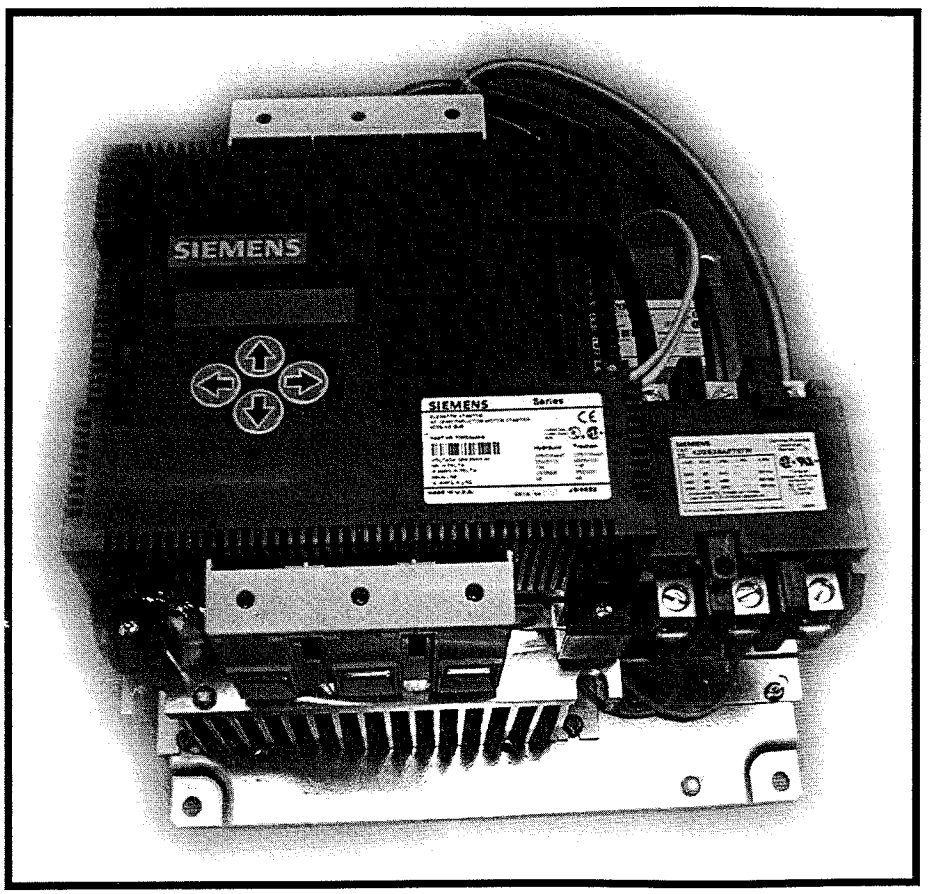
SIEMENS

SFIS-72G000-0203
February, 2003

Class 72G Starter Quick Set-up Guide for Hydraulic Elevator Pump Motors



2/18/2005

Solid-State Starter

Three phase solid-state reduced voltage elevator starter for use with Delta Wound Motors only.

VMI offers competitive pricing on solid-state motor starters to replace existing X-Line or Wye-Delta starters.

Applications

The Siemens Solid-State Starter is for 6 or 12 lead delta wound motors and has been specifically designed for hydraulic elevator use. The starter requires an area approximately 12" wide by 12" high with a 9" deep enclosure. If an enclosure is required please call VMI for pricing.

Benefits

Reduced Maintenance Cost – no moving parts eliminates the need for service inspections.

Reduced Power Consumption – a motor started in a wye-delta configuration can draw up 600% of the motor full load amps when starting. The Siemens Solid-State starter limits the starting current to 300% of the motor full load amps.

Quieter Operation – eliminates the annoying banging of the contactor pulling in every time the motor starts.

Motor Protection – by monitoring the building voltage and phasing of the power, the solid-state starter can protect the motor against phase reversal and brown out conditions.

Voltage Rating	HP@Operating Voltage			VMI Stock#	Siemens Part#	Operational Current Rating Amps
	200V	230V	460V			
Operating Voltage 200-240V 460-480V 50/60 Hz	10	15	30	300-7234-042	72HG34AFP	42
	20	25	40,50	300-7234-068	72KG34AFP	68
	25	30	60	300-7234-080	72LG34AFP	80
	30	40		300-7234-105	72MG34AFP	105
	40	50	100	300-7234-130	72NG34AFP	130
	50	60	125	300-7234-157	72PG34AFP	156

To place an order for a solid state starter call 507-245-4207 and ask for Denny or Steve, or you can fax a purchase order to 507-245-3799.

Class 72G Starter Quick Set-up Guide **SFIS-72G000-0203**

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Congratulations, you have just purchased the most advanced, full-featured Elevator Starter available. While this product contains several features to aid in set up, it is important to read and understand this manual before attempting to install. As the set up and wiring of this version is quite different from previous versions of Siemens Elevator Starters, it is equally important to read even if you have a good working knowledge of the 72E version. If questions arise, additional help is available by calling Siemens Technical Support at 800-323-5450. Visit us on the web at www.siemens.com/controlsusa

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Special Features:

16 Character by 2 Line Liquid Crystal Display
-------Displays RMS Currents for motor and line amps
-------Displays RMS Voltages for the incoming line power.
Dynamic Stall Prevention
-------Automatically increases current to motor under stall conditions.
Digital Current Limit
-------Allows precise control and monitoring of currents during starting and run modes.

IMPORTANT

These instructions do not purport to cover all details or variations in equipment, nor to provide for every possible contingency to be met in connection with installation, operation, or maintenance. Should further information be desired or should particular problems arise which are not covered sufficiently for the purchaser's purposes, the matter should be referred to the local Siemens sales office. The contents of this manual shall not become part of or modify any prior or existing agreement, commitment, or relationship. The sales contract contains the entire obligation of Siemens. The warranty contained in the contract between the parties is the sole warranty of Siemens. Any statements contained herein do not create new warranties or modify the existing warranty.

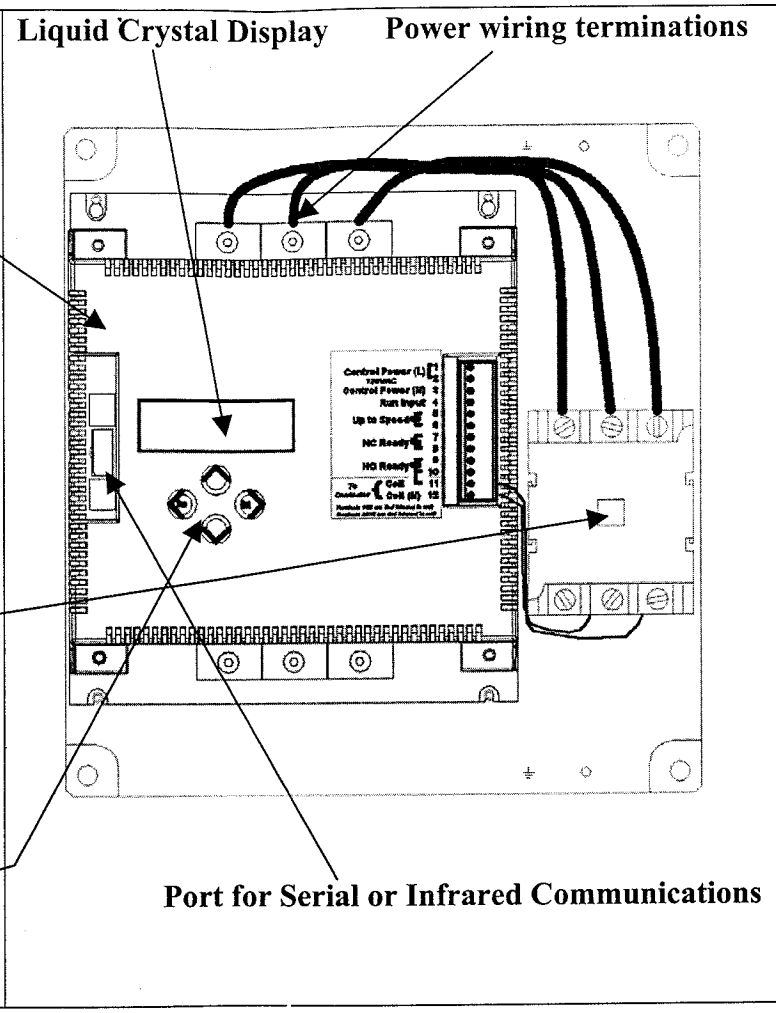
Overview:

The 72G series of elevator starters consists of two main components.

The Solid State Starter controls the current during the start and provides overload, current imbalance, reverse phase, single phase and shorted SCR protection. In addition to those faults, on power up the starter will check the motor configuration.

The Fault Contactor provides a means for interrupting current during shorted SCR conditions. It DOES NOT provide electrical isolation when opened if wired in delta.

Keypad for easy setup and operation.

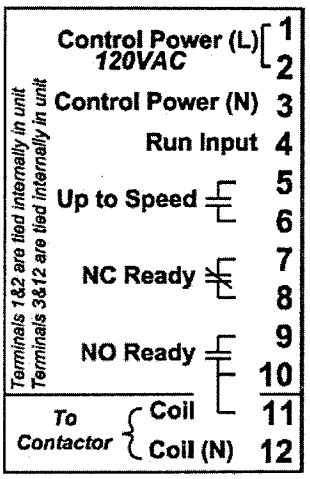


Control Power Connections:

CAUTION

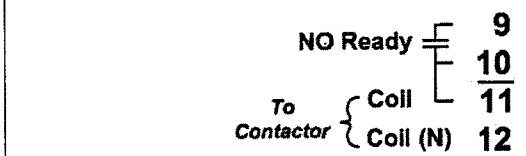
Wrong voltage or power rating, may cause property damage.

To avoid possible starter and/or motor damage, be sure the line and control voltage sources are as specified on starter label, and motor rating corresponds to the type of wiring used (Inside Delta or In Line).



The customer control connections on the 72G Solid State Elevator Starter feature a removable terminal block. Depending on the style of controller ordered, one or two terminal strips would be used to make the connections. The layout is shown to the left. If two terminal blocks are used, terminals 1 through 10 will be on the first block, while terminals 11 and 12 will be on the second.

Terminal	Connection
Control Power (L) 120VAC 1, 2 Control Power (N) 3	A constant 120 VAC 500VA supply should be connected between the (L) 1, Line and (N) 3, Neutral terminals. This supply also powers the fault contactor. Terminal 1 and 2 are internally connected. An external jumper wire is required to connect terminal 1 to terminal 9.
Control Power (N) 3 Run Input 4	The 120 VAC motor run input is connected to terminal 4. The neutral for the motor run input must be referenced to the neutral of the Control Power input.

	This output is used to either directly supply power to the Up valves or supply a signal to a control board to indicate the motor is up to speed. This output utilizes a triac rated for 120 VAC.
	This contact may be used to signal a control board that the unit is in a fault condition.
	Terminal 9 should be connected via a jumper wire to either terminal 1 or 2 (L). This provides a hot feed to the fault contactor coil when the **NO Ready** contact is closed. Terminals 10 and 11 are the switched side of the **NO Ready** contact. This configuration allows terminal 10 to be used to signal that the starter is ready to run while terminals 11 and 12, the neutral for the fault contactor coil, control the fault contactor.

Note: The load on terminals 5 and 6 must not be greater than 1 amp at 120V. The load on terminals 7 – 11 must not be greater than 3 amps at 240V. All terminals are rated for AC voltage only.

Inside Delta Motor Wiring

The motor wiring on the next pages should be connected exactly as shown. If it is not, the starter will detect a motor wiring error. If you have elected to cycle the fault contactor on each start, you must contact technical support for directions on configuring the starter and wiring in a required off delay timer.

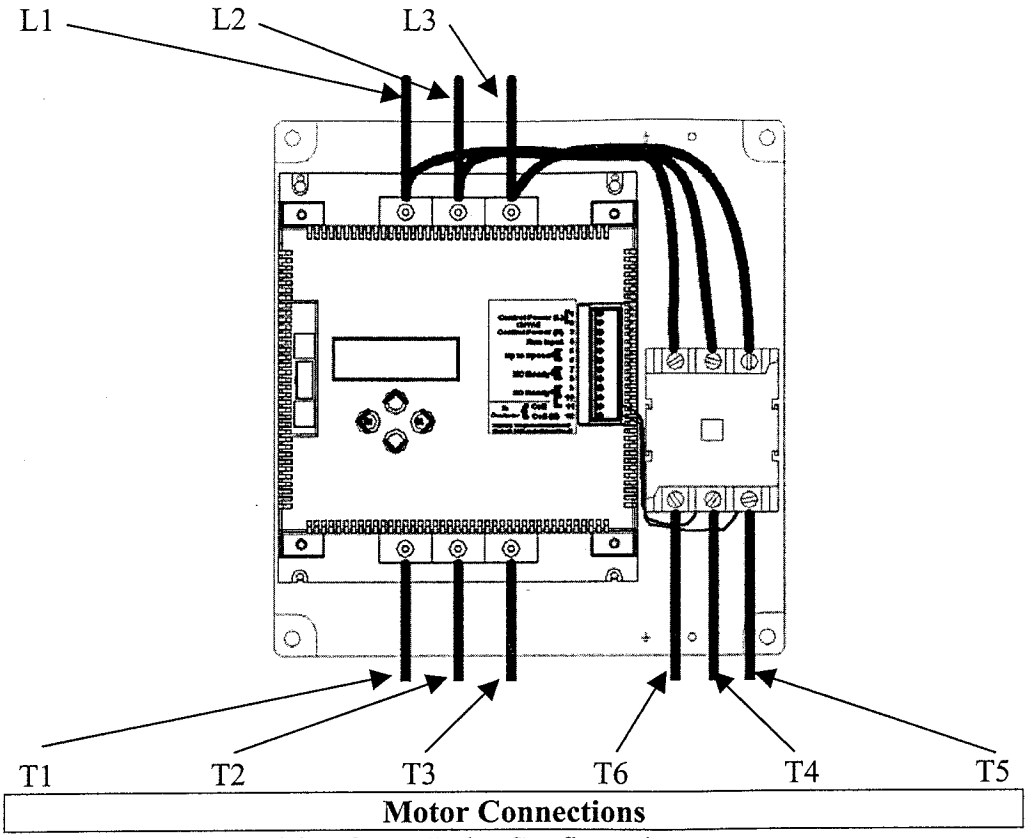
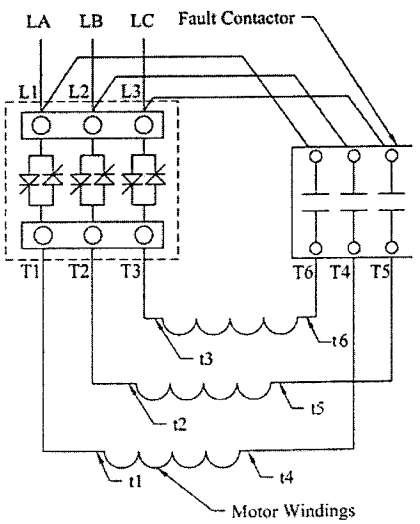


Figure 1 – Power Wiring for In-Delta Configuration

Wiring Diagram



⚠ DANGER

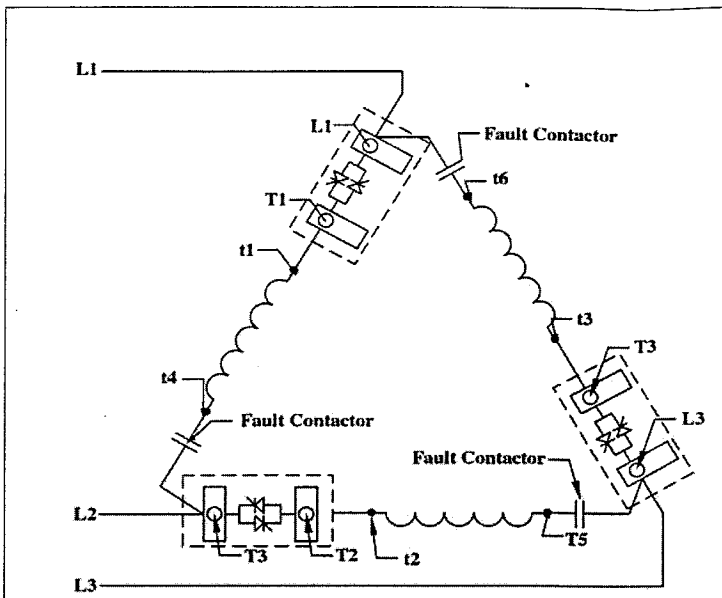
Hazardous voltage.
Will cause death or serious injury.

To avoid electrical shock or burn, do not touch starter output terminals when power is applied to the starter.

CAUTION

Hazardous voltage.
May cause property damage.

To avoid damaging solid-state power devices, do not connect power-factor-correcting capacitors to the load side of the starter.



Low Voltage Connections					
T1 1,7	T2 2,8	T3 3,9	T4 4,10	T5 5,11	T6 6,12

High Voltage Connections					
T1 1	T2 2	T3 3	T4 10	T5 11	T6 12
Join 4&7,		5&8,		6&9	

Figure 2 – Motor Wiring for In Delta Applications

Current ->	22	42	55	68	80	105	130	156	252
L1, 2,3 Terminals	36-53	36-53	36-53	36-53	36-53	89-110	89-110	89-110	89-110
T1,2,3 Terminals	36-53	36-53	36-53	36-53	36-53	89-110	89-110	89-110	89-110

Table 1 - Solid State Starter Torque Requirements in Lb.-In. for Power Connections.

Contactor Catalog Number	Top Connection	Bottom Connection	Coil Connection
42EF35AFN (60A)	40	40	9
42FE35AF757R (75A)	50	50	9
42GE35AF757R (90A)	50	50	9
42HF35AAA (120A)	120	120	9
42IF35AAA (150A)	120	120	9

Table 2 - Fault Contactor Torque Requirements in Lb.-In. for Power Connections.

Note: The Siemens Solid State starter is intended for in Delta operation on 6 and 12 lead Delta motors only! If you have a 9 lead delta motor, you must run it in the "In Line" application. If you have a submersible application where only 3 motor leads are brought to the starter, you may elect to run the starter "in line" also. When running "in line", the correct size starter must be used. The following pages show how to connect the starter in the "In Line" configuration. If needed, consult Siemens Technical Support at 800-323-5450 for additional information or see website for additional information.

Inline Motor Connections

Line Connections	Motor Connections

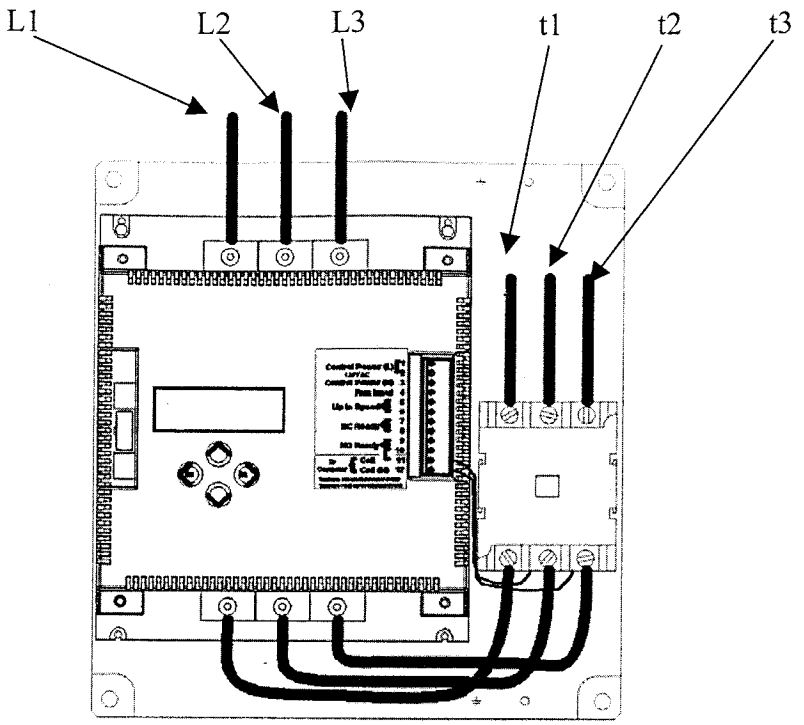


Figure 3 - Conversion for In Line Applications

It is up to the end user to reconfigure the leads from the starter to the fault contactor for In-Line operation

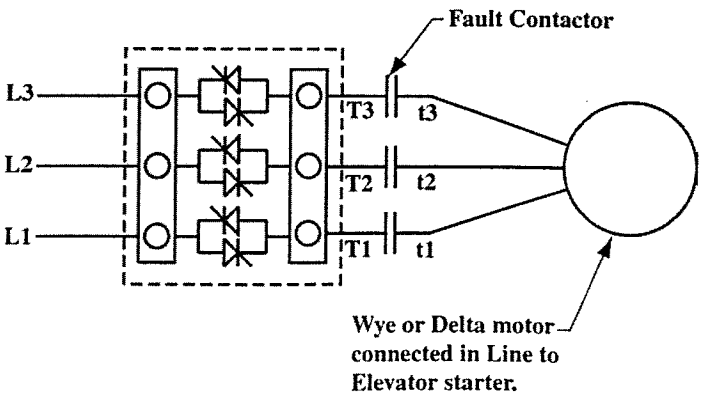
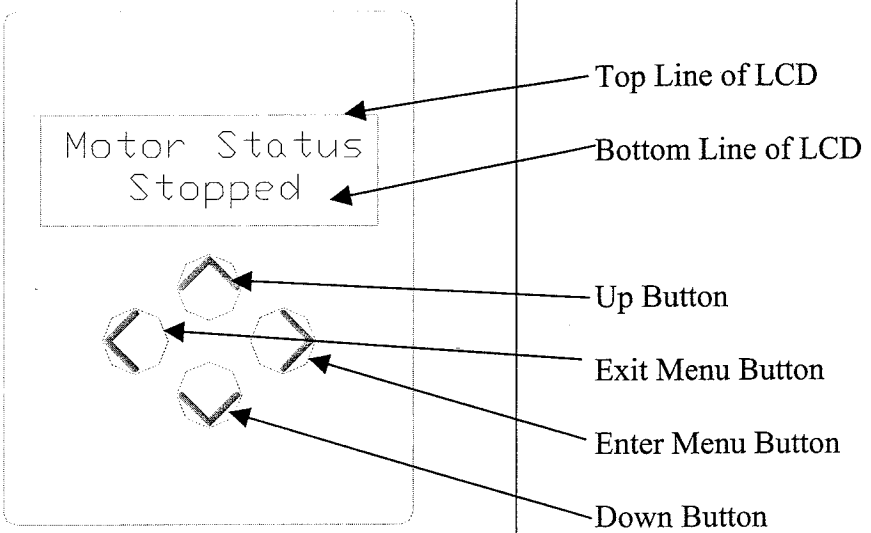


Figure 4 - Motor wiring for in line Applications.

Any motor may be run In Line. When sizing the starter use the In Line rating as opposed to the Inside Delta rating. The conversion is done by removing the wires between the L1, L2, and L3 inputs on the top of the starter and top of the fault contactor from the top of the starter and moving them to the bottom, as shown in the diagram.

LCD Menu

Upon power up the LCD will display the status of the starter. If a fault is present, it will be displayed.



Up Button	This key is used to move up in all of the menu structures. It also is used to increase or select different parameters in the parameter adjust mode.
Exit Button	This key is used to exit menus and to exit the parameter adjustment menus after selections have been made.
Enter Button	This key is used to enter menus and to enter the parameter adjustment menus.
Down Button	This key is used to move down in all of the menu structures. It also is used to decrease or select different parameters in the parameter adjust mode.

LCD Menu (Cont.)

Main Menu →	Sub Menus
Status Menu	The submenus for the Status menu show line voltages, minimum line voltages, actual and peak motor and line currents, control power status, Motor configuration, operating frequency and line rotation.
Configuration Menu	The sub-menus for the Configuration menu display the unit's catalog number, rated current, rated volts, software revision, serial number, and final test date.
Parameter Menu	The submenus for the Parameter menu control the following adjustments of the elevator starter: Starting Current Overload Current Line Rotation Off Delay in milliseconds On Delay in milliseconds To edit any of the above parameters, select the parameter and press the right arrow key. If the parameter is a numerical field, the flashing digit is the only digit currently being changed. Use either the Up or Down keys to adjust each digit to the desired setting. Using the right key will move you to the next digit. If you are at the last digit, the right key will move you to the first. Once the adjustment is finished, the left arrow key will take you back and display the present setting. If a value outside of the range for a particular unit was entered, either the lowest or highest setting will be displayed.
Diagnostics Menu	The submenus for the Diagnostic menu display the following: Power on time Running time Starting time Number of Starts Power Ups Total Faults This information cannot be changed.
Faults Menu	The submenus for the Faults Menu show the following information for the last four faults: Type of fault Run Status when the fault occurred Time that the fault occurred Amount of time in the run that the fault occurred The motor currents when the fault occurred This information cannot be changed.
System Menu	This menu allows users to reset the starter, reset the settings to the default values. A password is required for further setup adjustment.

Basic Configuration of Your Siemens Elevator Starter using the Parameter Menu.

Configuring the starter to operate is very simple. Simply enter the desired settings in the Parameter Menu. The factory default settings are shown in the default setting.

Menu Choice		Default Setting
Starting Current	This is the level that the elevator starter will hold the current limit to during the start. Keep in mind that while lower settings reduce the inrush currents, they increase the starting time. This setting should not be less than twice the motor's FLA.	
Overload Current	This setting should be set at or below the FLA of the hydraulic pump motor.	
Line Rotation	The choices for this are either ABC or CBA. To change the setting from the factory default of ABC rotation, select the right key, which causes the ABC to flash and select the up key. To exit select the left key.	ABC Rotation
Off Delay	This is the time the starter continues to run after the run signal has been removed. This value is adjustable from 0 to 1250 milliseconds. To change from the factory default of 500 milliseconds, press the right key then select the desired setting the same using the up, down and right keys. Once the desired value is reached, press the left key to exit.	500 milliseconds
On Delay	This is the time the starter waits before running after receiving a run signal. The factory default is 0 milliseconds. This value is adjustable from 0 to 5000 milliseconds. It is adjusted the same way the Off delay is adjusted.	0 milliseconds

Resetting

Menu Choice	
Reset Fault	This is one way to reset the starter after it has tripped on a fault. To reset the starter, press the right key followed by the up key and the left key. The starter may also be reset by pressing both the Up and Down keys at the same time or by cycling the control power.
Password	The menu allows the user to enter a password, which allows advanced setup. Depending on the style ordered the password may or not be available. If you were given a password, enter it here: _____ to ensure it is not lost or forgotten.