SOFT STARTERS

AUTOMATION

- Wide family of Soft Starters
- Full digital technology
- RS485 communication
- Remote service
- EMC and CE marked

We are delivering Real Cost Benefits

CD AUTOMATION SOFT STARTERS FAMILY

STB SOFT STARTERS

STB BASIC MODEL OF CD AUTOMATION PRODUCT RANGE

- Soft Start and Soft Stop are adjustable on front unit
- Voltage Start value adjustable on front unit
- Internal By Pass Relay mounted on control board up to 44A over this value commandfor external Bypass
- Current Limit adjustable on front unit
- Isolated Stop Start command
- It's also possible to don't use bypass contactor and to work in continuos mode using just thyristors

STM SOFT STARTER

STM MEDIUM PERFORMANCE MODEL OF PRODUCT RANGE

- Soft Start and Soft Stop Ramp adjustable on front unit
- Voltage Start value adjustable on front unit
- Current Limit setting available on front unit
- Software to eliminate the motor speed oscillations
- Electronic Overload relay for Normal or Heavy Start
- Internal By Pass Relay on control board up to 100A. Over 100 A relay output to energize Bypass contactor
- It's also possible to don't use bypass contactor and to work in continuos mode using just thyristors

STE SOFT STARTER

STE ENHANCED PERFORMANCE MODEL OF SOFT STARTER

- Internal or External By-Pass Contactor
- No By-Pass using Thyristors in continuos mode
- Adjustable Voltage Output in continuos mode
- Torque control
- Constant current start
- Current Start Ramp
- Kick function to start for 200 m Sec at 80% of full voltage
- Adjustable Soft Start Stop Ramp via Key Pad
- Voltage Start adjustable via frontal Key Pad
- Current Limit setting available via Key Pad
- Electronic Overload relay for Normal or Heavy Start
- Analog output proportional to Current or Power
- 3 or 6 wires connection to reduce the current
- Communication RS485 Modbus Standard

Options

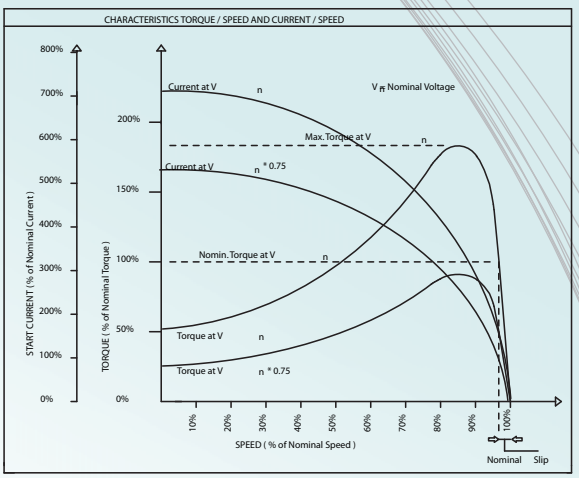
- Dynamic Braking and the most important field bus are available (Profibus DP, Ethernet ,Can Open)

DYNAMIC BRAKING

- This feature is used on squirrel cage motor by injecting dc current into the motor windings.
  This happens automatically when main contactor hase been opened.
  When the adjustable dc current is circulating a stationary magnetic field is applied and a braking torque is generated up to when the motor is rotating.
  The injected dc current is adjustable via frontal Key Pad
- Soft stop to avoid mechanical shock and low maintenance compared with mechanical braking.

GENERAL FEATURES

- CD Automation Soft Starters has been designed to drive three phase three wire squirrel cage induction motors It's also possible on STE family to drive motor with 6 wire connection to reduce the circulating current inside STE.
- On left side is rapresented a diagram for Torque / Speed and Current / Speed



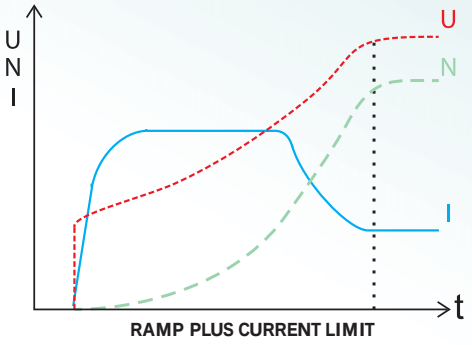
CHARACTERISTICS TORQUE / SPEED AND CURRENT / SPEED

CONTROL TYPES AVAILABLE

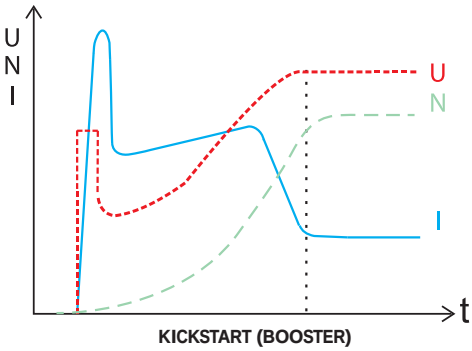
VOLTAGE RAMP (TORQUE RAMP)

- Soft Starter starts from a setted initial voltage and ramp up to the nominal one in a setted time. In addition on STE family is possible to start high friction load with kickstart that gives to the motor for 200 msec 80% of full voltage without to limit the current. When is started the motor reach the full speed and remain there up to when is stopped and it can reach zero speed by inerthia or via a setted ramp down.

- As an option is also available the dynamic braking (see the description on left page).



RAMP PLUS CURRENT LIMIT



KICKSTART (BOOSTER)

CURRENT RAMP

- Soft Starter start from a setted initial current and ramp up to the nominal value in a setted time. This type of control is available on STE family.

CURRENT LIMIT

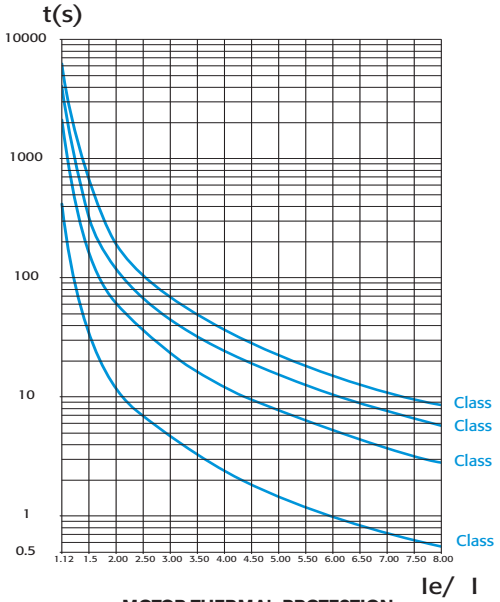
- This parameter sets the current at which to start. This value depend on the application and must not excede the Soft Starter sizing (see on next two pages).

INITIAL CURRENT LIMIT

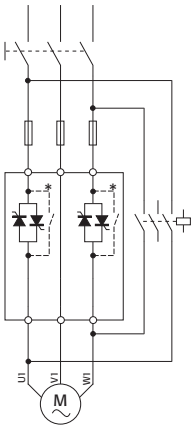
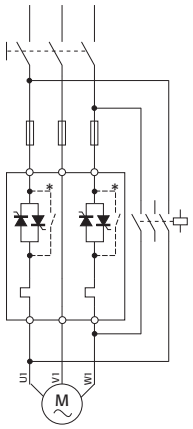
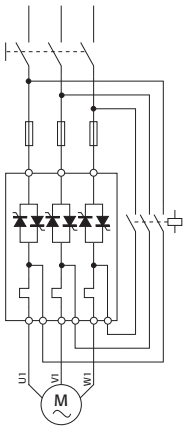
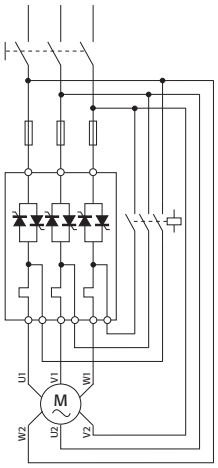
- This parameter sets the initial Start Current for the current ramp mode.

MOTOR PROTECTION

- Inside STM and STE soft starters families has been implemented electronic thermal protection for motors. The curves are rapresented on right side and basically one is for normal service and the other one for severe service.



MOTOR THERMAL PROTECTION

MODEL	STB (BASIC)	STM - MEDIUM	STE (ENHANCED) 3 WIRE	STE (ENHANCED) 6 WIRE
				
NUMBER OF PHASES CONTROLLED	2PH	2PH	3PH	3PH
3 WIRE CONNECTION	■	■	■	
INTERNAL BY PASS RELAY	≤ 44A ■	≤ 100A ■		
EXTERNAL BY PASS RELAY	> 44A ■	> 100A ■	■	■
CONTINUOS SERVICE VIA SCR (NO BY PASS)	■	■	■	■
RAMP UP	■	■	■	■
RAMP DOWN	■	■	■	■
TORQUE CONTROL	■	■	■	■
CONSTANT CURRENT CONTROL			■	■
RAMP UP CURRENT CONTROL			■	■
KICKSTART 80% VOLTAGE 200 msec			■	■
PHASE LOST / UMBALANCED LOAD			■	■
SHORT CIRCUIT ON THYRISTOR	■	■	■	■
OVERVOLTAGE			■	■
UNDERVOLTAGE			■	■
UNDERCURRENT PROTECTION (PUMP)			■	■
OVERTEMPERATURE ON HEATHINK		■	■	■
OVERLOAD WITH CURVE SELECTION		■	■	■
PTC MOTOR THERMISTOR INPUT / CLIXON			■	■
LONG START TIME (STALL PROTECTION)			■	■
START / STOP DIGITAL INPUT	■	■	■	■
4:20mA/0:10V/POT SET FOR CONT. SERVICE			■	■
FRONTAL DIGITAL CONTROL PANEL			■	■
INTEGRATED MULTIMETER			■	■
RELAY TO ENERGIZE LINE CONTACTOR		■	■	■
RELAY FOR EXTERNAL BY PASS	■	■	■	■
TWO CONFIGURABLE NPN OUTPUT			■	■
ONE ANALOG OUTPUT (POWER VALUE)			■	■
DYNAMIC BRAKING			●	●
IP20 PROTECTION	■	■	■	■
RS485 MODBUS COMMUNICATION			■	■
PROFIBUS , CAN OPEN AND ETHERNET			●	●

Nom. Amps 3 In pick	Nom. Amps 3,5 In pick	Nom. Amps 4 In pick	Nom. Amps 4,5 In pick	3 wire connection STB SIZE	3 wire connection STM SIZE	3 wire connection STE SIZE
12	10	9	8	SIZE 7		
16	14	12	11	SIZE 7		
20	18	15	13	SIZE 7		
22	19	16	14		SIZE 9	SIZE 9
34	30	26	24	SIZE 7	SIZE 9	SIZE 9
44	38	33	30	SIZE 7		SIZE 9
75	65	58	50	SIZE 7	SIZE 9	SIZE 9
80	70	60	52	SIZE 7	SIZE 9	SIZE 9
130	110	95	90			SIZE 9
150	140	120	110		SIZE 9	SIZE 11
165	150	130	120		SIZE 9	SIZE 11
230	200	170	150			SIZE 13
450	450	450	450			SIZE 14
500	500	500	500			SIZE 14

Nom. Amps 3 In pick	Nom. Amps 3,5 In pick	Nom. Amps 4 In pick	Nom. Amps 4,5 In pick	Below tab is for 6 wire connection only	6 wire connection STE SIZE
38	33	28	24	This solution uses a connection in open delta. See the wiring on right side STE 6 wire In this case the sizing of the unit is done using Line current (motor current) devided 1,73. For this reason it's possible to select a smaller Soft Starter	SIZE 9
59	52	45	42		SIZE 9
76	66	57	52		SIZE 9
130	112	100	87		SIZE 9
138	121	104	90		SIZE 9
225	190	164	156		SIZE 9
260	242	208	190		SIZE 11
285	260	225	208		SIZE 11
398	346	294	260		SIZE 13
779	779	779	779		SIZE 14
865	865	865	865		SIZE 14

CODING	MODEL	In A	I START	SUPPLY VOLT.	AUX. VOLT.	WIRING	START SEC	OFF SEC	OPTION 1
	STE	150A	3 In	400V	230V or 110	3W	20	360	NO

■ Standard features ● Optional features

APPLICATIONS SELECTION

SIZE 7

SIZE 9

SIZE 11

SIZE 13 - 14

APPLICATION	3 In	3,5 In	4 In	4,5 In
AGITATOR			■	
ATOMIZER			■	
BANDSAW				■
BOTTLE WASHER	■			
CENTRIFUGAL PUMP		■		
CENTRIFUGE				■
CHIPPER				■
CIRCULAR SAW		■		
CONVEYOR BELT				■
CONVEYOR SCREW			■	
CRANE TRANSLATION			■	
CRUSHER CONE		■		
CRUSHER JAW				■
CRUSHER ROTARY		■		
CRUSHER VERTICAL IMPACT		■		
DEBARKER		■		
DRYER				■
DUST COLLECTOR		■		
EDGER		■		
ELEVATOR	■			
FAN AXIAL CLAMPED		■		
FAN AXIAL UNCLAMPED				■
FAN CENTRIFUGAL CLAMPED		■		
FAN CENTRIFUGAL UNDAMPED				■
FAN HIGH PRESSURE				■
GRINDER		■		
HYDRAULIC POWER PACK		■		
LOADED PISTON COMPRESSOR				■
MILL				■
MILL BALL				■
MILL HAMMER				■
MILL ROLLER				■
MIXER				■
MONORAILS			■	
PALLETISER				■
PLANER		■		
POSITIVE DISPLACEMENT PUMP			■	
PRESS		■		
PUMPS BORE	■			
REPULPER				■
ROLLER CONVEYOR		■		
ROTARY TABLE			■	
SANDER			■	
SCREW COMPRESSOR			■	
SCREW CONVEYOR			■	
SEPARATOR				■
SHREDDER				■
SLICER	■			
SLURRY PUMP				■
TUMBLER			■	
UNLOADED PISTON COMPRESSOR			■	
HYDRAULIC PUMP		■		

DIMENSIONS	WIDTH (mm)	HEIGHT (mm)	DEPTH (mm)	WEIGHT (Kg)
SIZE 7	117	120	159	1,65
SIZE 9	117	316	187	5
SIZE 11	137	440	270	10,5
SIZE 13	262	440	270	18
SIZE 14	262	520	270	22,5

Nom.Amps 3 In pick	Nom.Amps 3,5 In pick	Nom.Amps 4 In pick	Nom.Amps 4,5 In pick	3 wire connection		3 wire connection		3 wire connection	
				Max Fuse I^2t	MODEL	Max Fuse I^2t	MODEL	Max Fuse I^2t	MODEL
12	10	9	8	840	STB				
16	14	12	11	840	STB				
20	18	15	13	840	STB				
22	19	16	14			3800	STM	3800	STE
34	30	26	24	3800	STB	3800	STM	3800	STE
44	38	33	30	7350	STB			7350	STE
75	65	58	50	9050	STB	9050	STM	9050	STE
80	70	60	52	15300	STB	15300	STM	15300	STE
130	110	95	90					69000	STE
150	140	120	110			102500	STM	102500	STE
165	150	130	120			188800	STM	188000	STE
230	200	170	150					245000	STE
450	450	450	450					1050000	STE
500	500	500	500					1050000	STE

For open delta 6 wire connection , the winding current is in above table ,to have line current multiply by 1,73 all value

AUXILIARY UNITS

CD-RS

Compact and smart fully isolated communication converter.
Input RS232. Output RS485 or 422
RS232 connection via 9 pin connector on front unit.
RS485 or 422 via screw terminals.This converter can be used to interface a computer with CD Automation Soft Starters.

FIELD BUS MODULES

TU-PB can be used to convert RS485 in PROFIBUS DP
TU-DN can be used to convert RS485 in DEVICENET
TU-ETH can be used to convert RS485 in Ethernet
TU-CAN can be used to convert RS485 in CAN OPEN

INDICATOR

CD Automation have a range of indicators with or without communication RS485 with Modbus protocol
CD1800 - It's a 48x96 indicator 3 1/2 digit
W 6100 - It's a 48x48 indicator 4 digits with RS485 as option
W 8010 - It's a 48x96 indicator 4 digits with RS485 as option
Microprocessor based indicators fully configurable
These indicators can be wired to Soft Starter analog output on STE

KEY-PAD

This is the entry level Operator Interface and can be connected to CD Automation Soft Starters with communication port.
Push Button: Start - Stop
Up - Down: To increase or decrease the selected parameter
Scroll: Pushing this command is possible to read in sequence Voltage Current and Power
Diagnostic: All alarm are displayed on front unit
Socket: This port can be used to program the Soft Starter via portable Computer or to plug in a CD-EASY.

CD-EASY

It's a memory support used by maintenance personnel in the shop floor
The clone facility makes it possible to copy the configuration of one Soft Starter and paste it into another one in a metter of seconds.
This clone facility is done by pressing Read Push Button to copy and Write Push Button to paste.

KEY-PAD-E

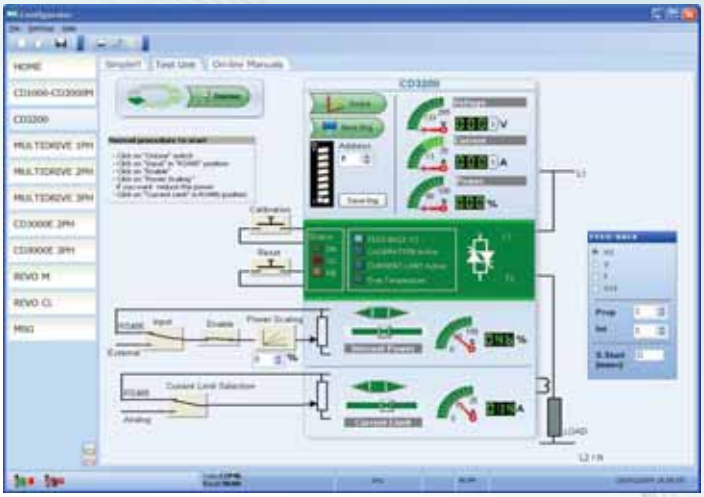
This operator panel can be used to connect one or more STE Soft Starters.
Display: monochrome/ color LCD 3.8 or 5.7" touch screen.
For more details contact CD Automation.

3TA MODULE

This module is used in STM and STE with external Bypass contactor to allow to the units to have thermal overload motor protection active also when the soft starter's Thyristors has been bypassed.
This module is used in size 9 and 10 while for size 11,13 and 14 with or without external bypass the current transformer are inside the units and there are 9 terminal blocks for the wiring keeping in this mode an active thermal protection also when the soft starter has been bypassed.

STE SOFTWARE CONFIGURATOR

Windows based
Easy to be used with recipe facility.
Each Soft Starter can be configured in a metter of seconds via frontal socket.
Possibility to configure more soft starters at same time using the broad cast mode.
Three access level to the soft starter parameters are available.
Usefull software internal utility to be able to show recent trend of current, voltage and Power.



REMOTE SERVICE

If you have a doubt about the configuration of your SOFT STARTER, contact our Help and Support center that can help you in writing a correct configuration for your application. This recipe will be available on our web-site.

CUSTOMER NEEDS

Send an e-mail with your apllication problem

Our Help and Support Center put the configuration recipe on the web site

Go to our WEB SITE

Upload in your PC the configuration recipe

Program CD-EASY in your office

Go in shop floor to download the recipe in your SOFT STARTER

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