

EAT•N

Cutler-Hammer

S701 Soft Start Controllers and TL Torque Limiters for Intelligent Technologies (IT.)

Product Focus

Solid-State Reduced
Voltage Control



A Complete Range of Soft Starters

We Have *IT* for Every Application

We offer a complete

range of solid-state reduced voltage starters optimized to satisfy applications from

simple soft starting to advanced starting and stopping control with

protective functions and communications.

Cutler-Hammer Soft Starters

	TL Torque Limiter	S701 Soft Start Controller	S751 Micro Soft Starter	S801 Soft Starter
Motor Type	1- or 3-Phase	3-Phase	3-Phase	3-Phase
Operating Voltage (Ue)	600V AC	600V AC	600V AC	600V AC (5)
Max. Operating Current (Ie)	25A	25A, 30A(4)	27A	1000A
Max. 3-Phase Operating Power @ 480V AC @ 400V AC	10HP 7.5kW	15HP, 20HP(4) 11kW, 15kW(4)	15HP 11kW	700HP 560kW
Control Voltage	(1)	24-480V AC/DC	24V DC	24V DC
Internal Run Bypass		O	S	S
Control Functions				
Initial Torque Control	S	S	S	S
Soft Start	S	S	S	S
Soft Stop		S	S	S
Kick-Start		S		S
Current Limit				S
Pump Control				O
Extended Ramp Time				O
Dynamic Brake		O		
Protective Functions				
Overload			S	S
Overtemperature	O (2)	O (2)	S	S
Jam				S
Stall				S
Phase Loss			S	S
Phase Reversal				S
Shorted SCR				S
Communications			O (3)	O (4)

Key:

O = Optional
S = Standard

(1) Separate control voltage not required for operation.

(2) Separate field installable thermostat required.

(3) DeviceNet™ or QCPort SNAP module required.

(4) Option for Enclosed and MCC applications.

(5) Consult factory for 690V applications

Cutler-Hammer Soft Start Controllers and Torque Limiters: Part of *IT*.



With a direct focus on speed, control system design, and customer profitability, Eaton is proud to offer Cutler-Hammer Intelligent Technologies (*IT*) – a complete line of forward-thinking motor control devices.

Our S701 Soft Start Controllers and TL Torque Limiters provide solid-state reduced voltage control of three-phase and single-phase motors. These easy-to-install, compact devices are rated up to 25A, providing controlled acceleration and deceleration of fractional to 15HP/11kW motors at 480/400V AC. Torque control, soft start, kick-start, and soft stop functions of the S701 and TL products are commonly required in conveyor, compressor, fan, and pump applications.

Small size and easy configuration make them ideal for use in the most cost-sensitive applications. Specify and use the S701 and TL devices to help you:

Lower maintenance and repair costs

- Reduced wear on belts, gears, chains, clutches, shafts, and bearings

(Above)

- **DIN rail or panel mounting for fast, easy installation**
- **Efficient die cast aluminum heat sink enables devices to be mounted side-by-side and allows unlimited starts and stops per hour**
- **Easy access to rotary switches for adjustable control function time and torque settings**
- **UL, CSA, and CE approved for global acceptance**

Come and get *IT*. S701 Soft Start Controllers and TL Torque Limiters for solid-state reduced voltage control.



(Left) Pumps – eliminate water hammer that damages pipes, brackets, and valves

(Right) Conveyors – smooth starts and stops eliminate sliding and tilting of materials

- Reduced water hammer in pumping applications

Reduce costs associated with damage to manufactured/handled products

- Less shock to products on conveyors and material handling equipment

Reduce electrical system disturbances, brownouts, and noise

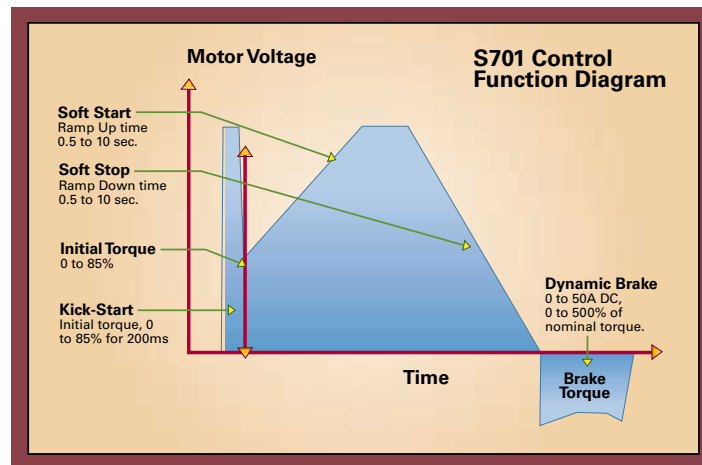
- Control the inrush current to motors

Lower installed costs

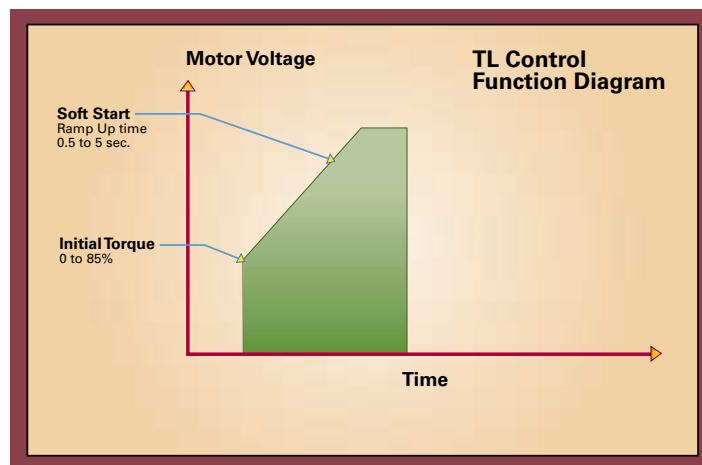
- Maximize the S701 operating current by using a bypass contactor with the auxiliary contact option
- Eliminate mechanical system components (brakes) with the S701 braking option

Maximize productivity and enhance safety

- Quick stopping of loads with the S701 braking option



Initial Torque Control, Soft Start, Soft Stop, and Kick-Start



Initial Torque Control and Soft Start



Options:

DC Dynamic Brake – for quick stopping of high inertia loads. Slow speed stopping, 7.5% or 10% of nominal speed.

Auxiliary Contact – for actuating an external bypass contactor. Controller operating current is maximized because heat generated is reduced.



Compressors – fast starts, reduce starting currents by 40-50% compared to across-the-line starting




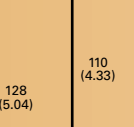


(Left) Automatic Door – frequent starts and stops


(Right) Cranes – quickly stop high inertia loads

Technical Specifications

IT. S701 Products

	22.5 (.89)	45 (1.77)	90 (3.54)	90 (3.54)
				
	109 (4.29)	110 (4.33)	110 (4.33)	110 (4.33)
	127.3 (5.01)	128 (5.04)	128 (5.04)	128 (5.04)
	.27 kg (.6 lbs)	.69 kg (1.52 lbs)	1.15 kg (2.53 lbs)	1.15 kg (2.53 lbs)
Control Functions				
Soft Start, Soft Stop, Kick-Start, Initial Torque Control	X	X	X	X
Auxiliary Contact or Brake				X
Electrical Ratings				
Operating Voltage (Ue)	200-600V AC			
Max. Operating Current (Ie)	3.5A	15A	25A	25A, 30A(1)
Max. Power @ 480V AC @ 400V AC	2HP 0.5kW	10HP 7.5kW	15HP 11kW	15HP, 20HP(1) 11kW, 15kW(1)
Operating Frequency	50/60 Hz			
Environmental Ratings				
Operating Temperature ②	-30 to 40°C (-22 to 104°F)			
Storage Temperature	-30 to 80°C (-22 to 176°F)			
Altitude	2000m			
Vibration	IEC 68-2-6 5g 10 to 150Hz			
Standards and Certifications		Adjustments		
UL 508	UL Listed	Kick-Start	200m sec, 0-85% Torque	
CSA C22.2 No. 14	CSA Certified	Initial Torque	0-85%	
IEC 60947-4-2	CE Marked	Ramp Time	0.5-10 sec	
EN 60947-4-2		Soft Stop	0.5-10 sec	

IT. TL Products

	45 (1.77)
	
	110 (4.33)
	128 (5.04)
	.69 kg (1.52 lbs)
Control Functions	
Initial Torque Control	0-85%
Soft Start	0.5-5 secs
Electrical Ratings	
Operating Voltage (Ue)	110-600V AC
Max. Operating Current (Ie)	25A
Max. 3-Phase Power @ 480V AC @ 400V AC	10HP 7.5kW
Max. 1-Phase Power @ 240V AC @ 220V AC	3HP 2.2kW
Operating Frequency	50/60 Hz
Environmental Ratings	
Operating Temperature ②	-30 to 40°C (-22 to 104°F)
Storage Temperature	-30 to 80°C (-22 to 176°F)
Altitude	2000m
Vibration	IEC 68-2-6 5g 10 to 150Hz
Standards and Certifications	
UL 508	UL Listed
CSA C22.2 No. 14	CSA Certified
IEC 60947-4-2	CE Marked
EN 60947-4-2	

(1) With bypass contactor.



With the TL Series no control wiring is required for quick and easy installation.

② Derate Product from 40° - 60°C

Eaton's Cutler-Hammer business is a worldwide leader providing customer-driven solutions. From power distribution and electrical control products to industrial automation, the Cutler-Hammer business utilizes advanced product development, world-class manufacturing, and offers global engineering services and support. To learn more about Eaton's innovative Cutler-Hammer products and solutions call 1-800-525-2000, for engineering services call 1-800-498-2678, or visit www.cutler-hammer.eaton.com.

Eaton Corporation is a global \$7.3 billion diversified industrial manufacturer that is a leader in fluid power systems; electrical power quality, distribution and control; automotive engine air management and fuel economy; and intelligent truck systems for fuel economy and safety. Eaton has 49,000 employees and sells products in more than 50 countries. For more information, visit www.eaton.com.

Eaton Corporation
Cutler-Hammer business unit
1000 Cherrington Parkway
Moon Township, PA 15108
United States
tel: 1-800-525-2000
www.cutler-hammer.eaton.com

EATON

Cutler-Hammer

© 2002 Eaton Corporation
All Rights Reserved
Printed in USA
Form No. BR03902001E / CSS 2004
March 2002