

TOSHIBA

Leading Innovation >>>

POWER APPARATUS AND COMPONENTS



**18 to
1250 A**

Solid State Starters

**TE
Series**

Compact Reduced Voltage Solid State Starters

Ratings from 18 to 1250 A (Up to 1200 HP)

There is no need to compromise on performance or features. The TE Series has it all. Expect the full benefits of reliable soft starting, unsurpassed motor/load protection, and control flexibility — all in a compact package.

Innovative Design Saves Space, Time & Money

- Integrated Bypass Contactor
- Advanced Motor Protection
- Narrow Width for Motor Control Center (MCC) Mounting
- Low Profile for Use in Pump Panels & Other Shallow Enclosures
- Remote Keypad Mounting
- Unique Built-In Features Eliminate Adding Discreet Devices: Process Control Timers, Metering, Decel Control, Communications, Etc.
- Pull-Apart Control Terminals for Easy Assembly & Wiring



Standard Features Uniquely Suited for Pump Applications

Process Control Timer

- Ideal for Irrigation Pumps when Specific Amount of Water Needs to be Pumped Even if Power Failure or Fault Trip Occurs During Operation
- 24/7 Time Clock Controller
 - Built-In Time Clock with Selectable Days-to-Minute Feature
- Batch Process Timer
 - Run for a Set Time After Starting, Even After Power Outage

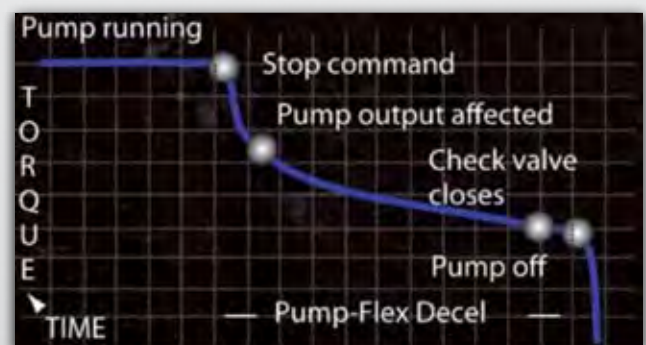


Process Control Timer for Irrigation Pumps

Metering

- Elapsed Time Meter, Run-Cycle Counter, Remaining Lock-Out Time, & Fault History for Maximum Monitoring & Controlling of Pump or Process

PumpFlex™ Decel Control



Eliminates Damaging Effects of "Water Hammer"

Soft Start Control w

Start & Run Protection

Two Programmable Overload Trip Curves Provide Thermal Capacity Required to Start Load While Providing Motor Overload Protection During Run Time

Start: Programmable for Class 5 to 30

Run: Programmable for Class 5 to 30, Enabled when Starter Detects Motor "At-Speed"

Reset: Manual or automatic, Selectable via Programming; Remote Reset Available

Real-Time Thermal Modeling

Continuously Calculates Motor Operating Temperature Even when Motor is Not Running

Retentive Thermal Memory

Remembers Thermal Condition of Motor Even After Power Brownout/Blackout

Extrapolates Motor Temperature Using Real-Time Clock

Dynamic Reset Capacity

Overload will Not Reset until Thermal Capacity in Motor is Sufficient for Successful Restart

TE Starter Learns & Retains Information from Previous Starts

Motor Temperature

PTC Thermistor Input can be Used for E-Stop or External Overload Relay

Equipment Ground Fault

Ground Fault Uses Residual Current Method with Adjustable Trip Delay

RS485 Modbus RTU Serial Communications

Offers Full Control and/or Status Monitoring Over Network or Direct to PC

Multiple Ramp Types to Start any Load

Closed Loop Current Ramp or Voltage Ramp With or Without Current Limit

Decel Control

Decel Time Adjustment 1 to 60 Seconds
Adjustable Beginning Decel Level & Shut-Off Voltage

Dual Ramp

Two Different Ramp Profiles can be Programmed (Ex. For Unloaded & Loaded Conveyor)

Kick Start

Adjustable Voltage & Time

Jog Mode

Voltage Jog: Selectable Voltage (5 to 100%) & Time Settings (1 to 20 Seconds)

Current Jog: Adjustable Between 100 to 500% Motor Current

Unit Overload Capacity (% FLA)

350% for 30 Seconds

600% for 10 Seconds

Control

120 VAC (Customer Supplied), 240 VAC (Optional)
24 VDC Dry Contact Inputs, No External DC Power Supply Required

Phase-Current Imbalance/Loss Protection

Trip Level: 5 to 30% Current Imbalance Between Any Two Phases with Trip Delay

Phase Loss

Trips on Phase Current or Voltage Loss

Electronic Shear Pin Protection

Trip Level: 100 to 300% of Motor FLA with Trip Delay

Load Loss (Under Current) Trip Protection

Trip Level: 10 to 90% of Motor FLA with Trip Delay

Phase Rotation

Phase-Rotation Trip can be set to A-B-C, A-C-B or Disabled

Motor Duty Cycle Protection

Back-Spin/Coast-Down, Starts-per-Hour, or Minimum Time Between Starts Lockouts

Restart Delay After Power Failure

Short Circuit

Trips at 10x Unit Current Rating During Run

Checks for Shorted Load Prior to Each Start

Shorted SCR

Locks Out on Any Single Shorted SCR (Defeatable) or can Provide Shunt Trip Function if Multiple SCRs Short or Bypass Contactor is Welded Closed

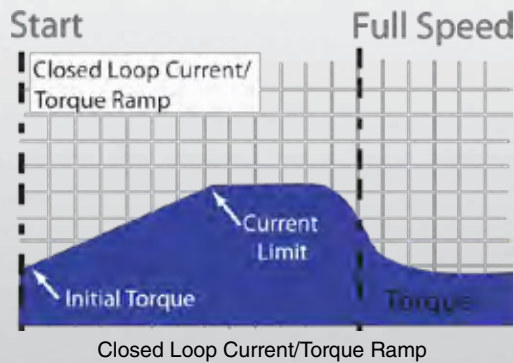
Metering

Monitors Phase Current, Ground Current & Motor Thermal Capacity

with Advanced Motor &

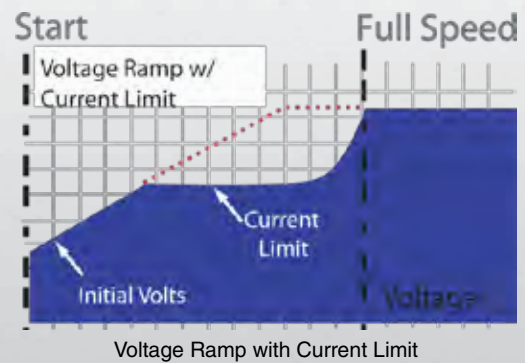
Pumps, Fans, Blowers & Conveyors

Closed loop torque/current ramping provides a linear increase in output torque during acceleration. It maximizes the available torque using an internal PID feedback loop, ensuring a smooth and linear ramp-up to full speed. It is ideal for low pressure pumps where slight surges at the end of the ramp may pose mechanical problems or on fans and mixers where blade warping can be an issue.



Compressors & Chillers

The TE Starter offers voltage ramping with current limit for applications that need the smoothness of voltage ramping while maintaining the ability to start in limited power environments. For maximum motor power where the available power supply is severely limited, a current limit/current step start can be used.



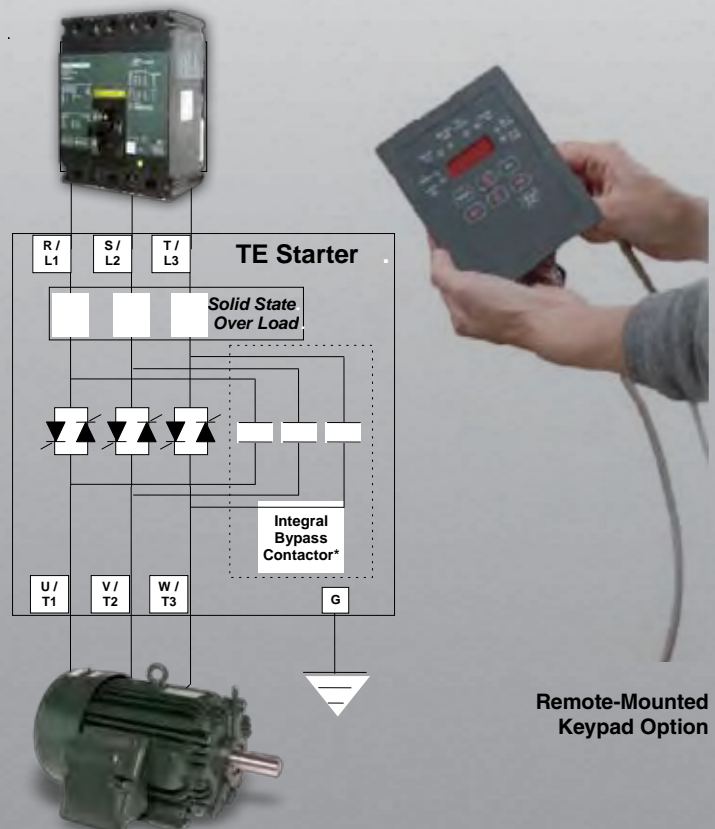
Easy to Install & Easy to Wire

Mount the keypad and display up to 10 feet remotely from the base unit with NEMA 1 or NEMA 4/12 bezels.

Dimensions (in.)

Model No.	H	W	D
TE-18-BP through TE-48-BP	8.75	7.95	6.66
TE-82-BP through TE-112-BP	14.00	8.00	6.68
TE-150-BP through TE-160-BP	19.21	8.00	6.68
TE-210-BP through TE-600-BP	28.50	12.50	9.04
TE-862-BP through TE-900-BP	44.13	25.50	11.86
TE-1006-BP through TE-1250-BP	46.56	28.20	13.00

Dimensions are for reference only and are subject to change without notice. Consult factory for exact dimensions.



System Protection

TE Series Soft Starter with Integral Bypass Contactor – NEMA Ratings

- Data Based on NEC Table 430-150, Full-Load Current Three-Phase Motors
- Size Soft Starter Based on Actual Motor Nameplate FLA.
- Heavy Duty Rating (HD): 500% Overload Capacity for 30 Seconds, 1.15 SF, Line Start (A-T-L) Full Voltage Bypass (Except TE-1250-BP Shunt-Duty Rated Only)
- Standard Duty Rating (SD): 350% Capacity for 30 Seconds, 1.0 SF, Shunt-Rated Bypass

Model No.	Current Range (Min. to Max.)	Max. Motor FLA		Nominal Motor Rating 50/60 Hz							
				Maximum HP							
				208 V		230 V		460 V		575 V	
		HD	SD	HD	SD	HD	SD	HD	SD	HD	SD
TE-18-BP	9 to 18	11	18	3	5	3	5	7.5	10	7.5	15
TE-28-BP	14 to 28	21	28	5	7.5	5	7.5	15	20	15	25
TE-39-BP	20 to 39	27	39	7.5	10	7.5	10	20	25	20	30
TE-48-BP	24 to 48	40	48	10	10	10	15	25	30	25	40
TE-62-BP	31 to 62	45	62	10	15	15	20	30	40	30	60
TE-78-BP	39 to 78	55	78	15	20	20	25	40	50	40	75
TE-92-BP	46 to 92	68	92	20	25	25	30	50	60	50	75
TE-112-BP	56 to 112	80	112	25	30	30	40	50	75	50	100
TE-150-BP	75 to 150	96	150	30	40	30	50	60	100	60	125
TE-160-BP	80 to 160	125	160	40	50	40	60	75	125	75	150
TE-210-BP	105 to 210	156	210	50	60	60	75	125	150	125	200
TE-275-BP	138 to 275	220	275	60	75	75	100	150	200	150	250
TE-361-BP	181 to 361	248	361	75	125	100	125	200	300	200	350
TE-450-BP	225 to 450	400	450	125	150	150	150	300	350	300	450
TE-550-BP	275 to 550	480	550	150	150	200	200	400	450	500	500
TE-600-BP	300 to 600	600	600	200	200	250	250	500	500	600	600
TE-862-BP	431 to 862	690	862	250	250	250	300	500	600	600	700
TE-900-BP	450 to 1006	800	900	250	300	300	350	600	700	600	900
TE-1006-BP	503 to 1006	960	1006	300	350	400	400	800	800	900	1000
TE-1250-BP	625 to 1250	1080	1250	350	450	450	500	900	1000	1000	1200

TE Series Soft Starter with Integral Bypass Contactor – IEC Ratings

- Data Based on NEC Table 430-150, Full-Load Current Three-Phase Motors
- Size Soft Starter Based on Actual Motor Nameplate FLA.
- Heavy Duty Rating (HD): 500% Overload Capacity for 30 Seconds, 1.15 SF, Line Start (A-T-L) Full Voltage Bypass (Except TE-1250-BP Shunt-Duty Rated Only)
- Standard Duty Rating (SD): 350% Capacity for 30 Seconds, 1.0 SF, Shunt-Rated Bypass

Model No.	Current Range (Min. to Max.)	Max. Motor FLA		Nominal Motor Rating 50/60 Hz					
				Maximum KW					
				220 V		380 V		415 V	
		HD	SD	HD	SD	HD	SD	HD	SD
TE-18-BP	9 to 18	11	18	2.2	3.7	3.7	7.5	5.5	7.5
TE-28-BP	14 to 28	21	28	5.5	7.5	7.5	11	7.5	11
TE-39-BP	20 to 39	27	39	7.5	11	11	18.5	22	18.5
TE-48-BP	24 to 48	40	48	11	11	18.5	22	18.5	22
TE-62-BP	31 to 62	45	62	11	15	22	30	22	30
TE-78-BP	39 to 78	55	78	15	18.5	22	37	30	37
TE-92-BP	46 to 92	68	92	18.5	22	30	45	37	45
TE-112-BP	56 to 112	80	112	22	30	37	55	45	55
TE-150-BP	75 to 150	96	150	22	45	45	75	55	75
TE-160-BP	80 to 160	125	160	30	45	55	75	55	75
TE-210-BP	105 to 210	156	210	45	55	75	110	75	110
TE-275-BP	138 to 276	220	275	55	75	110	132	110	150
TE-361-BP	181 to 361	248	361	75	110	132	185	132	200
TE-450-BP	225 to 450	400	450	110	132	200	220	220	250
TE-550-BP	275 to 550	480	550	132	160	250	285	265	305
TE-600-BP	300 to 600	600	600	185	185	300	315	330	330
TE-862-BP	431 to 862	690	862	200	250	360	450	380	475
TE-900-BP	450 to 1006	800	900	220	275	420	470	440	500
TE-1006-BP	503 to 1006	960	1006	255	310	475	525	500	555
TE-1250-BP	625 to 1250	1080	1250	330	385	565	655	600	695

TOSHIBA INTERNATIONAL CORPORATION



North American Headquarters & Manufacturing Facility (Houston, TX)

TOSHIBA – Quality by Design

Toshiba's culture and history are strongly rooted in quality. Our designs are technologically innovative, and our products are manufactured from start to end using only the highest quality domestic and foreign parts.

Product Warranty

Toshiba offers a comprehensive warranty program on its full line of industrial products. Consult your salesperson or the factory for specific information.

Need to Know More?

Be sure to visit our website located at www.toshiba.com/ind for the latest information on Toshiba products and services.

Customer Support Services

Toshiba offers 24-hour service nationwide.
800-894-0412



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