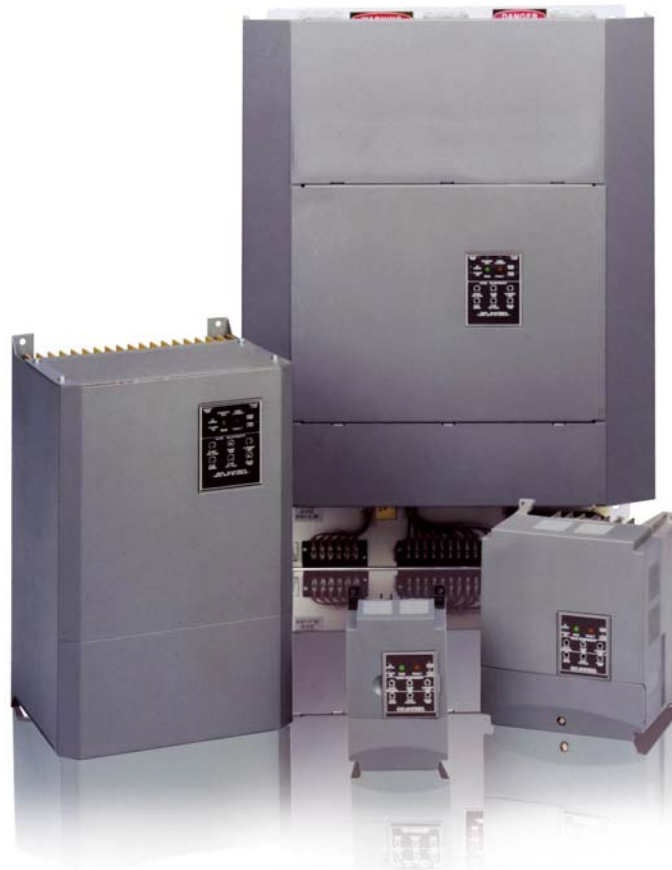


TS/TD/TX Series Solid State Starters

Smooth Stepless
Starting and
Stopping

Reduces Motor
Inrush
Current

Eliminates Line
Voltage Drops
During Starting



Reduces Wear
and
Mechanical
Shock

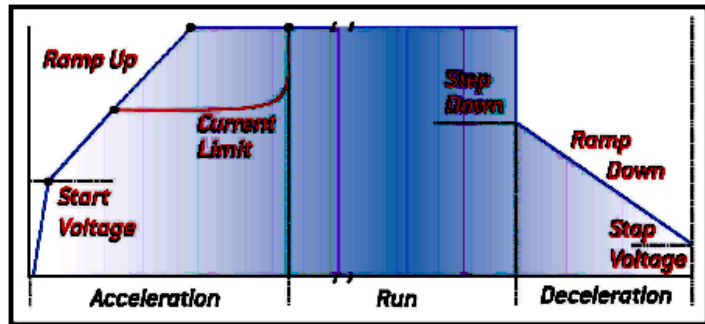
Eliminates
Water
Hammer

RELIABLE AND TOUGH

ANALOG (TS Series) & DIGITAL (TD & TX Series) MODELS
REDUCED VOLTAGE STARTERS - 1 to 1125HP
HEAVY DUTY DESIGN - 500% starting current for 60 seconds.
CURRENT LIMIT & VOLTAGE RAMP - Combines both
to offer the best starting method for any application.
DECEL/PUMP CONTROL - Controlled stopping allows check valves
to close slowly, eliminating water hammer.

Standard Features

Soft Start - Voltage Ramp/Current Limit
 Soft Stop - Decel/Pump Control
 Current Ratings: 6 - 1250A
 Voltage Ratings: 208 - 600V
 Continuous Rating - 125%
 Overload Capacity - 500% for 60 seconds
 Overload Capacity - 600% for 30 seconds
 120Vac Control Voltage (240Vac Optional)
 UL & cUL Listed



Protective Features

TS Series (6 - 32A): Overtemperature & Overload
TD Series (48 - 1250A): Overtemperature, Electronic Overload (Class 5 - 30), Undercurrent (10 - 90% of motor FLA), Shorted Load, Shorted SCR (Shunt trip - separate trip relay), Overcurrent (50 - 300% of motor FLA), Phase Loss/Imbalance (5 - 30%), Repetitive Starting
TX Series (48 - 1250A): Overtemperature, Electronic Overload (Class 5 - 30), Undercurrent (10 - 90% of motor FLA), Shorted Load, Shorted SCR (Shunt trip - separate trip relay), Overcurrent (50 - 300% of motor FLA), Line Frequency, Phase Loss, Current Imbalance (5 - 30%), Phase Reversal, Repetitive Starting, Ground Fault, Overvoltage, Undervoltage, and optional Stator & Bearing RTD inputs

Adjustments

TS Series:
 Voltage Ramp Start (0 - 60 seconds)
 Initial Voltage Adjustment (0 - 80%)
 Current Limit Start (200 - 500%)
 Soft Stop - Adjustable Deceleration (0 - 30 sec.)
 Stop Voltage Adjustment (0 - 100%)

TD & TX Series:
 Voltage Ramp Start (1 - 120 seconds)
 Initial Voltage Adjustment (0 - 100%)
 Current Limit Start (200 - 600%)
 Soft Stop - Adjustable Deceleration (1 - 60 sec.)
 Stop Voltage Adjustment (0 - 100%)
 Beginning Decel Voltage Level (0 - 100%)
 Voltage Jog (5-100% Voltage, 1 - 20 sec.)
 Current Jog (100 - 500%)
 Kick Start (10 - 100% Voltage, 0.1 - 2 sec.)
 Starts per Hour (1 - 10 Starts/hr, 1 - 60 min. between start attempts)
 Coast Down Lockout Timer (1 - 60 min.)
 Overload Reset (Manual or Automatic)

Metering/Communications

TD Series:
 Phase Currents, Remaining Thermal Capacity, Elapsed Time (ETM), Run Counter, Fault Codes, Fault History, Lockout Time Remaining, Real Time Clock.
 Communications: Modbus RTU, RS485

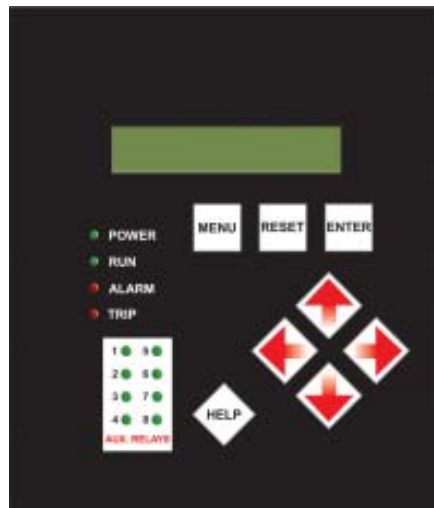
TX Series:
 Phase Currents (A, B, C), Ground Current, Avg. Current, Unbalance %, RPM, Line Freq., Power Factor, kVAR, kW, kVA, kW Demand, kVAR Demand, kWh, Remaining Thermal Capacity, Required Thermal Capacity to Start, RTD Data (12 RTDs), Elapsed Time (ETM), Run Counter, Fault History, Lockout Time Remaining, Real Time Clock, plus more.
 Communications: Modbus RTU, RS485 or RS422



Status Indicators

Control "Power On"
 Full Voltage "At Speed"
 Shunt Trip
 Shorted SCR
 Over Current
 Phase Loss
 Over Temperature
 Overload

Digital TD Series Operator Interface Panel with 4 Digit Display & 8 Function Keys



TX Series Operator Interface Panel with LCD Display (2 Lines x 20 characters), 8 Function Keys, 12 LED Status Indicators

Available Options

Construction - Open chassis type or enclosed (Type 1, 12, 3R, 4 & 4X).

Non-combination or Combination (with circuit breaker, fusible or non-fusible disconnect switch).

Bypass - Air and Vacuum bypass contactors are available.

Electronic DC Injection Braking

TOSHIBA

TOSHIBA INTERNATIONAL CORPORATION

INDUSTRIAL DIVISION

13131 West Little York Rd., Houston, Texas 77041

Tel 713-466-0277 Fax 713-466-8773

US 800-231-1412 Can 800-872-2192

Mex 001-800-527-1204

World Wide Web <http://www.tic.toshiba.com>