



Product Data Sheet

Thy Speed – TSC-I Capacitor-duty Thyristor Switch



Thy Speed -TSC-I Capacitor-duty Thyristor Switch is a high-performance, solid-state switching device designed for dynamic power factor correction and harmonic filtering. It features zero-voltage switching for transient-free capacitor operation, robust inrush current handling, and long electrical life with no mechanical wear. With built-in protections, LED diagnostics, and compatibility with standard controllers, it offers a compact, reliable, and maintenance-free solution for modern APFC systems. Its modular design and broad voltage/current support make it ideal for industrial and commercial installations.

PRODUCT FEATURES

➤ **Fast and Reliable Switching**

Uses zero-crossing switching technology to connect/disconnect capacitor banks at the optimal point in the voltage waveform. Ensures virtually transient-free switching, preventing high inrush currents and extending capacitor life. Capacitor switching operations are performed within 0-10 ms for ON and 0-20 ms for OFF, ensuring real-time compensation.

➤ **High Duty Performance**

Rated for capacitor duty, meaning it can handle the high inrush and peak currents typically associated with capacitor switching. Supports frequent operations, ideal for dynamic power factor correction in rapidly changing loads.

➤ **Integrated Protection Features**

Equipped with RC snubber circuits and MOV-based surge protection. Inbuilt fuse or circuit breaker provision for overcurrent and fault protection.

➤ **Capacitor Current Monitoring**

Real-time measurement and display of current in each phase (R, Y, B) and average value.

➤ **Protection & Fault Monitoring**

Comprehensive protections including over-current, under-current, earth fault, dv/dt disturbances, SCR short, and over-temperature.

➤ **Auxiliary Outputs**

Provides two potential-free N.O. contacts for external fault signalling: one for heat-sink over-temp and one for SCR short.

➤ **Robust Design**

This thyristor switch is engineered for long-term performance in industrial APFC applications. Designed to handle rapid switching under varying load conditions, it supports multiple configuration options—including single-pole, 3-pole, and banked arrangements—making it adaptable to diverse system requirements. Its robust construction ensures high durability and dependable operation in challenging electrical environments, ideal for both new installations and retrofit projects.

- **LED Indication and Diagnostics**
Provides LED status indicators for each phase and fault conditions. Simple visual diagnostics help in maintenance and fault identification.
- **Low Power Loss and Heat Generation**
Utilizes efficient thyristors with low on-state voltage drop. Reduced power loss translates into minimal heat dissipation and lower cooling requirements.
- **High Electrical Life**
No mechanical contacts ensure millions of switching cycles without mechanical wear. Ideal for high-reliability applications in commercial and industrial installations.
- **Customization Options**
Current ratings and control voltage options can be customized based on application. Available in multiple voltage and current configurations.

TECHNICAL SPECIFICATIONS

Parameter	Specification
Input Voltage (AC Mains)	200 – 485 VAC (3-phase, Line-to-Line)
Auxiliary Input Voltage	90 – 300 VAC (47–63 Hz)
Operating Frequency	50 Hz \pm 3 Hz
Turn ON Response Time	0 – 10 ms (cold start)
Turn OFF Response Time	0 – 20 ms
Operating Temperature	+5°C to +50°C
Altitude	Up to 2000 meters above sea level
Humidity	10% to 90% RH (non-condensing)
Control CMD Input	0–1 VDC (OFF), 11–26 VDC (ON)
Fault Output Signal	PNP Transistor Output, max. 20 mA
Auxiliary Outputs	2 x N.O. relay contacts (SCR temp, SCR short)
Spike Detection	2.2x rated peak current
Power Loss	< 3.6 W/A (up to 80A), ~4.6 W/A (120/160A)
Aux Contact Ratings	1 A (resistive), 0.5 A (inductive) at 230 VAC / 24 VDC
Current Measurement Accuracy	Class 3
LED Indicators	Power ON, Step ON, SCR Short, Over Temp
Modes of Operation	Manual (Local), Auto, Program
Display	4-digit 7-segment red LED
Keypad	Soft-touch keys: Enter, Up, Down + Hidden Reset
Capacitor Ratings	Available from 25A to 160A (single or combi-pack)

All specifications are typical and subject to change without notice due to ongoing product development and improvement.