

Ultra-Fast Reactive
Power Control
Zero Compromise



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Actual product specifications may vary

Thyristor switching module



About

Indtech SmartSwitch

Thyristor-Based Switching Module Indtech SmartSwitch is a high-speed thyristor switching module designed for reactive power compensation in industrial electrical systems. It enables fast, wear-free, and transient-free switching of low-voltage capacitor banks, making it ideal for dynamic loads such as welding machines, cranes, elevators, and industrial equipment.

Key Features:

- ⑩ Ultra-Fast Response – Capacitor switching in milliseconds.
- ⑩ Surge-Free Operation – Eliminates transients and inrush currents.
- ⑩ Smart Control – Operates via APFC relay, PLC, or solid-state relay.
- ⑩ Modular & Scalable – Multiple modules can be used together for higher capacity.
- ⑩ Energy Efficient – Enhances power factor and reduces energy losses.
- ⑩ Low Maintenance – No mechanical wear, ensuring long lifespan.
- ⑩ RoHS & Safety Compliant – Meets global safety and environmental standards.

Indtech SmartSwitch is a reliable, efficient, and intelligent solution that optimizes power factor correction, ensuring stable and cost-effective power management.

Typical applications:

Indtech SmartSwitch serves as a high-speed switching device in power quality solutions for networks connected to:

- ⑩ Heavy industrial loads, such as
- ⑩ welding machines and distribution panels
- ⑩ Material handling systems, including elevators and cranes
- ⑩ Renewable energy applications, such as wind turbines
- ⑩ High-frequency switching machinery, including sawmills, tunnel drills, and CNC equipment
- ⑩ Other dynamic loads requiring rapid and precise reactive power compensation

Benefits of Indtech SmartSwitch

1. Ultra-Fast Switching – Zero differential voltage operation for seamless capacitor switching.
2. Zero-Crossover Technology – Prevents voltage transients, ensuring system stability.
3. Real-Time Power Factor Correction – Rapid 100ms switching maintains unity power factor under fluctuating loads.
4. Wear-Free & Silent Operation – No mechanical parts, eliminating arcing, sparking, and noise.
5. Unlimited Switching Cycles – Unlike contactors, it offers long-lasting, maintenance-free performance.
6. Advanced Protection & Monitoring – Built-in fault indicators and safety circuits for fail-safe operation.
7. Versatile & Easy Installation – Compatible with capacitors with or without detuning reactors and supports direct busbar termination.
8. Reliable in Harsh Environments – Operates safely at up to 70°C and 90% RH (non-condensing).
9. Energy Efficient & Low Maintenance – Prevents cable heating, features self-cooling, and requires minimal servicing.

Technical Specification

Technical Data & Specifications	Values
Dimensions (W x H x D)	250 x 150 x 140 mm (excluding connection terminals)
Weight	Approx. 5.5 kg
Operating Voltage	220 ... 480 V AC
Nominal Voltage (Phase Voltage)	230 V, 400 V, 440 V, 480 V
Switching Capacity	5.0 to 200 kVAr
Current per Phase	~38 A (for 20-30 kvar), ~75 A (for 50-60 kvar)
Electronic Protection	Super-fast fuse
Fuse Ratings	3 x 70 A/700 V (for 20-30 kvar), 3 x 130 A/700 V (for 50-60 kvar)
Frequency	50/60 Hz
Auxiliary Supply	24 V DC/0.1 A (via control bus)
Triggering	Digital system bus (shielded cable)
Switching Time	Less than 5 ms
Re-switching Time	Adjustable based on detuning factor and capacitor discharge time
Display Type	High-resolution OLED display, 2 x 16 characters
Monitoring Parameters	Voltage, capacitor status, current flow, temperature, switching stage
User Interface	4 control buttons for settings and diagnostics
Power Circuit Connection	Direct connection via plug-in terminals
Conductor Cross Section	Flexible or rigid cables up to 2 x 35 mm ²
Power Loss (Pv in W)	$P_v = 2.2 \cdot I \text{ (A)}$; At 50 kvar/400 V: ~160 W thermal dissipation
Ambient Operating Temperature	-15 to +60 °C
Error Detection & Protection	Over/under voltage detection, overcurrent monitoring, capacitor failure alert
Connectivity	2 x RJ45 (digital bus), 2 x high-current power terminals (35 mm ²)

Understanding Thyristor

Controllers: Thyristor controllers are solid-state devices that regulate power by adjusting voltage and current waveforms. Unlike mechanical switches, they offer precise, seamless control, improving efficiency and reducing wear.



Improving Reliability:

Thyristor controllers ensure reliable power output, minimizing voltage surges and disruptions in industrial settings. Automation's controllers meet strict quality standards, guaranteeing durability in demanding environments.



Enhancing Performance:

Thyristor controllers enhance industrial performance with rapid response times, enabling real-time power adjustments. They ensure stable power levels, preventing fluctuations that could cause equipment failures or production inconsistencies.



Indtech Capacitors Pvt. Ltd. – Precision in Thyristor Switching Established in 1998, Indtech Capacitors India is a leader in high-performance electrical components. Expanding our expertise, we now manufacture precision-engineered thyristor switching solutions for rapid and reliable power factor correction, harmonic mitigation, and voltage stability. Our 7,500 sq.m. facility houses 500+ skilled professionals, advanced production lines, and Rs. 500 million in fixed assets. Utilizing cutting-edge automation and imported technology, we ensure superior quality and cost efficiency. Certified with RoHS, CE, ISI, and ISO 9001, our thyristor switching solutions undergo stringent quality control from raw materials to final testing. With innovation and excellence at our core, we deliver high-performance thyristor switching systems for seamless and efficient power management.



Ready to Lead !

Comprehensive Power Quality Solutions

We provide a complete range of advanced solutions for efficient power management:




- ✓ PFC Capacitors – Enhancing power factor and reducing energy losses
- ✓ PF Relays – Intelligent monitoring for precise power factor correction
- ✓ Reactors – Effective harmonic filtering and voltage stability
- ✓ Duty Contactors – Reliable switching for capacitor banks
- ✓ Thyristor Switching – Fast and seamless power factor correction

Optimize performance, improve efficiency, and ensure a stable power supply with our cutting-edge solutions.



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