SCM-TP1000 TEMP&PD MONITORING SYSTEM

BUSBAR PROTECTION RELAY

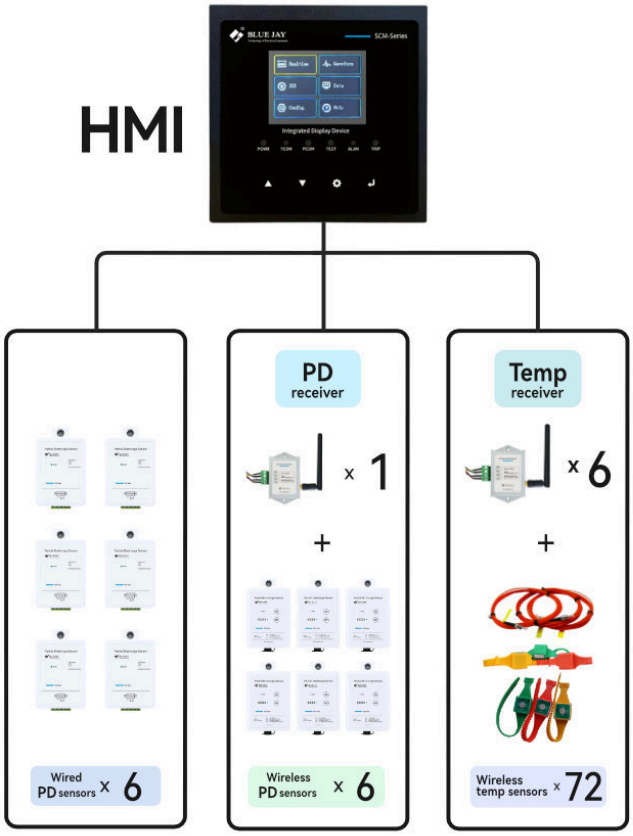


Introduction

The SCM-TP1000 is an integrated monitoring device for medium and high voltage switchgear, combining partial discharge detection and wireless temperature sensing. It provides real-time monitoring of PD, ambient temperature, humidity, noise, and busbar thermal conditions to improve reliability and safety. High-precision sensors and advanced algorithms ensure accurate detection, with support for historical data logging, SOE records, and waveform analysis.

The modular design supports display by switchgear or sensor group. Built-in alarms and relay outputs enable flexible deployment. RS485 with Modbus RTU ensures reliable communication and easy SCADA integration.

System Configuration Diagram



Main Features

- Integrated wired/ wireless PD and busbar temperature monitoring;
- Supports RS485 Modbus-RTU communication;
- Switchgear or sensor group display modes;
- Real-time and historical waveform display;
- Max 99 lists fault SOE recording with waveforms;
- Switchgear ambient condition monitoring
- Up to 24 groups temperature sensor;
- Up to 6 groups PD sensor (AA, TEV, UHF);
- Up to 6 switchgear busbar temp & PD status monitoring
- Configurable alarm logic and thresholds;

Application

- Medium-voltage switchgear monitoring;
- Distribution transformer compartments;
- Industrial power distribution systems;
- Smart substation environments;
- New energy power stations;
- Remote or unmanned substations;
- Commercial building power distribution;

Technical Characteristics

HMI	
Auxiliary power	85-265Vac/dc, optional 20-60Vdc, 45-65Hz, consumption: max<6W
Digital output	2* relay for alarm/trip, 5A@250VAC, passive node
Dimensions (W × H × D)	148*148*78mm, open install hole: 139±0.5 x 139±0.5mm
Working environment	-10 ~ +60°C; 20% ~ 95% RH (No condensation)
Communication	RS485, MODBUS-RTU
Temperature receiver	
Power supply	5Vdc
Wireless communication frequency	433MHz
Wireless temperature sensor unit	Standard type 3-12
Sampling period	5min
Distance of receiver and HMI	Up to 80m (260 feet)
Wireless temperature sensor	
Power supply	Battery powered, 1200mAh for 2-4 years
Temperature monitor range	-40°C~125°C, (at 125°C for short-term only); continuous measurement: -20°C~65°C
Transmit power	Less than 10mW
Environment	Working: -10°C ~ +60°C; 20%~95%, RH (No condensation) Storage: -25°C ~ +70°C; 20%~95%, RH (No condensation)
Wired PD sensor	
Power supply	12VDC
Static power consumption	<10mW
Installation method	4* strong magnet, wall mount
Sampling period	5s
Dimension	134mm*100*42mm
Communication	RS485/ Modbus RTU
Wireless PD receiver	
Power supply	7.2V 3000mAh build in battery
Wireless band	433MHz ~2.4GHz optional
Signal transmission distance	Up to 80m (260 feet)
Static power consumption	<10mW
Installation method	4* strong magnet, wall mount
Sampling period and data upload cycle	2 hours
Wired and wireless PD sensor common parameters	
Ultrasonic (AA)	Detect range: 0 ~ 60dBμV; Pass band: Center frequency 40 kHz ±1 kHz
TEV	Detect range: 0~60dBmV Pass band: 3~100MHz
UHF	Detect range: -70~10dBm Pass band: 300~1500MHz Average effective height: ≥10mm
Ambient data	Noise detection range: 30~80dB (Class C) Temp. measurement rang: -40~85°C; Accuracy±0.5°C Humidity measurement range: 5~95%RH; Accuracy ±2%RH