



Inspector™ Application note

Using Inspector™ Smart Busway Monitoring Solution

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Modern facilities such as:

- Data Centers
- Commercial Buildings
- Hospitals
- Industrial Plants
- Airports
- Energy Infrastructure

depend on Busway systems for reliable and uninterrupted power distribution.

INSPECTOR® provides a complete intelligent monitoring platform designed to continuously supervise electrical and thermal conditions across the entire Busway network — enabling predictive maintenance, enhanced safety, and maximum uptime.

KEY FEATURES

Real-Time Monitoring

Continuous supervision of:

- Voltage
- Busbar Joint Temperature
- Alarm Conditions

- Current
- Thermal Abnormalities

Predictive Maintenance

Detect failures before they become critical.

Scalable Architecture

Modular system suitable for:

- New Installations

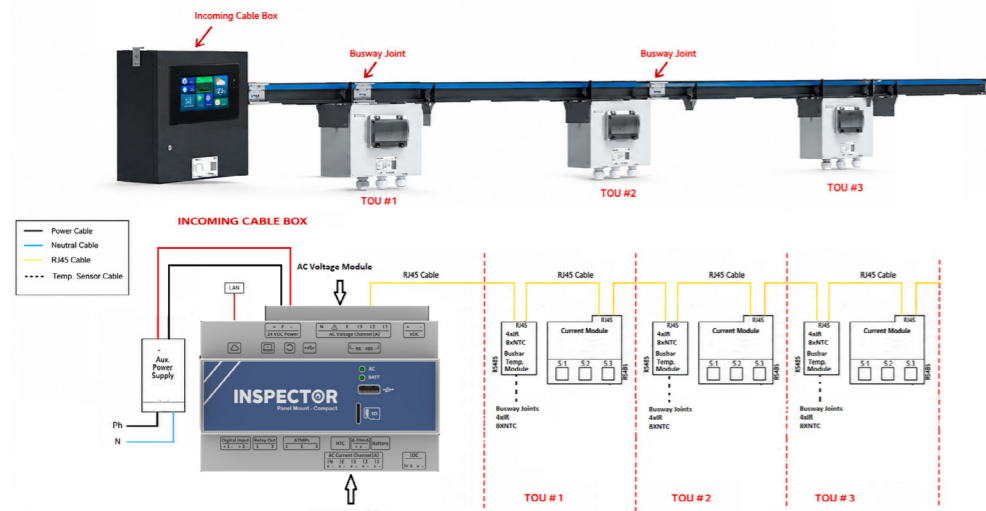
- Retrofit Projects

Seamless Integration

Supports:

- SCADA
- Modbus Communication

- BMS



INSPECTOR Distributed Busway Monitoring Architecture

SYSTEM ARCHITECTURE & ELECTRICAL MONITORING

Complete Busway Monitoring Architecture

The INSPECTOR® platform uses a distributed monitoring architecture that provides full visibility across the complete Busway system.

The system continuously collects, analyzes, and transmits electrical and thermal data in real time.

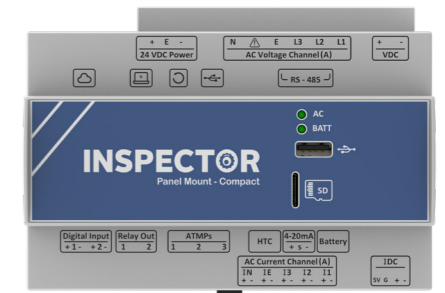
SYSTEM COMPONENTS

1. INSPECTOR Main Controller

The INSPECTOR® Controller acts as the central intelligence unit of the monitoring system.

Main Functions

- Real-time data acquisition
- Voltage monitoring
- Current monitoring
- Temperature supervision
- Alarm management
- Event logging
- Predictive analytics
- Remote monitoring
- SCADA/BMS integration



Installed inside the Incoming Cable Box, the controller communicates continuously with all distributed monitoring modules.

2. ADVANCED ELECTRICAL MONITORING

AC Voltage Monitoring

The AC Voltage Module continuously supervises:

- L1
- L2
- L3
- Neutral



Benefits

- Voltage stability monitoring
- Phase loss detection
- Voltage imbalance analysis
- Power quality supervision
- Early abnormality detection

This enables operators to maintain stable operating conditions while minimizing downtime risks.

3. Current Monitoring per TOU

Dedicated Current Modules installed at each Tap-Off Unit (TOU) provide accurate load monitoring throughout the Busway system.

Features

- Real-time current measurement
- Overload detection
- Capacity optimization
- Load distribution analysis
- Energy monitoring

The modular architecture allows easy future expansion.

SMART COMMUNICATION ARCHITECTURE

All monitoring modules communicate with the INSPECTOR® Controller using RJ45 connectivity.

Advantages

- Fast installation
- Simplified maintenance
- Lower installation cost
- Reduced wiring complexity
- Reliable communication
- Scalable deployment

TEMPERATURE MONITORING SOLUTIONS

Intelligent Thermal Monitoring

Busbar joints are among the most critical points in any Busway system.

Poor connections, overloads, vibration, or aging components can generate localized heating, leading to:

- Hot spots
- Insulation damage
- Arc faults
- Equipment failure
- Fire hazards

INSPECTOR provides advanced thermal monitoring technologies for early fault detection and safer operation.

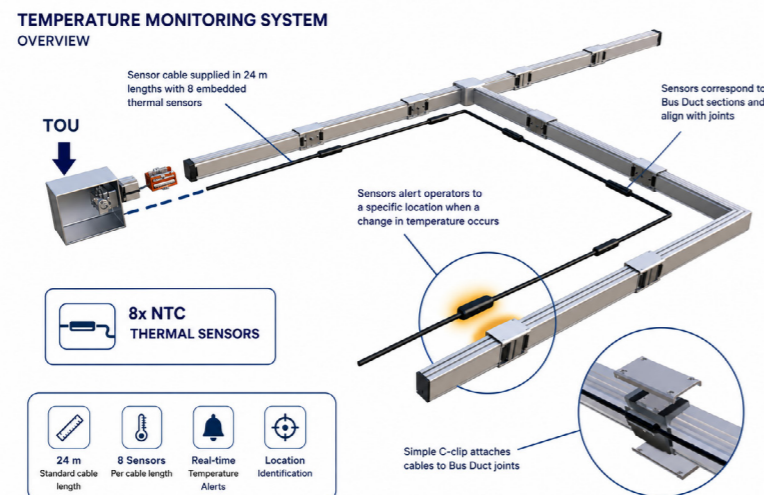
8x NTC Temperature Monitoring Solution

The INSPECTOR thermal monitoring cable is specifically designed for Busway applications.

Key Features

- 24-meter standard cable length
- Real-time temperature monitoring
- Simple C-Clip installation
- 8 embedded NTC thermal sensors
- Exact fault location identification

Each sensor aligns directly with Busbar joints for accurate thermal supervision.



8x NTC Thermal Monitoring System for Busway Joints

How the NTC Monitoring System Works

Step 1

NTC sensor detects temperature variation.

Step 2

Data is transmitted instantly to INSPECTOR® Controller.

Step 3

System analyzes temperature trends.

Step 4

Warning and alarm thresholds are activated.

Step 5

Operators receive immediate notifications with exact fault location.

Benefits

- Prevent catastrophic failures
- Improve operational reliability
- Increase system safety
- Reduce maintenance costs
- Enable predictive maintenance

IR Temperature Monitoring Solution

INSPECTOR also supports advanced IR thermal monitoring for non-contact temperature measurement.

IR Monitoring Advantages

- Non-contact thermal detection
- Real-time monitoring
- Industrial-grade reliability
- High accuracy measurement
- Maintenance-free operation

Ideal for detecting abnormal heating on Busbar joints and critical power connections.



4 x IR Thermal Sensors

- Non-contact Temperature Detection**
Safe and maintenance-free
- Precise & Reliable**
High accuracy measurements
- Real-time Monitoring**
Instant temperature detection and alerts
- Robust & Durable**
Built for industrial environments

INSPECTOR® IR Thermal Monitoring for Busbar Joints

ALARMS, BENEFITS & APPLICATIONS

Real-Time Alarm & Notification System

INSPECTOR® continuously analyzes system conditions and generates intelligent alarms based on configurable thresholds.

Alarm Levels

Status	Description
Normal	Standard operating condition
Warning	Temperature or load approaching limit
Alarm	Critical abnormal condition detected
Critical	Immediate action required

Alarm Transmission Options

- Local HMI Display
- BMS Integration
- Remote Notifications
- SCADA Integration
- Modbus Communication
- Email / SMS Alerts

Key Benefits of INSPECTOR®

Improved Reliability

Continuous monitoring minimizes unexpected failures and maximizes uptime.

Enhanced Safety

Early thermal abnormality detection reduces risk of:

- Fire incidents
- Arc flash events
- Busbar damage
- Equipment failure

Predictive Maintenance

Identify problems before they become costly shutdowns.

Reduced Operational Costs

Preventive monitoring reduces emergency maintenance and downtime.

Full System Visibility

All electrical and thermal parameters centralized into one intelligent platform.

Flexible & Scalable

Suitable for both small and large Busway installations.

Typical Applications

INSPECTOR® Busway Monitoring is ideal for:

- Data Centers
- Industrial Facilities
- Hospitals
- Manufacturing Plants
- Critical Power Applications
- Commercial Buildings
- Airports
- Energy Infrastructure

Why Choose INSPECTOR®?

INSPECTOR® delivers a next-generation Busway Monitoring solution combining:

- Intelligent thermal supervision
- Real-time electrical analytics
- High-reliability communication
- Advanced alarm management
- Predictive maintenance
- Scalable monitoring architecture