DT-300/RJ Pyrolysis Sensing Electrical Fire Monitoring Detector

GENERAL

The DT-300/RJ is primarily designed for the ultra-early stage before the occurrence of fire or electrical safety incidents. It enables real-time monitoring of concentration changes in particles and gases released due to the thermal depolymerization of insulating materials in electrical equipment within protected areas, such as cables, load switches, and protective devices in high and low-voltage distribution cabinets, as well as electrolyte vapors including VOCs released by lithium batteries prior to thermal runaway. This allows for timely detection of potential hazards such as loose connections and short-circuit heating, which are highly prone to cause electrical safety accidents.

The detector integrates multiple sensing technologies, including electrochemical gas sensors (Hydrocarbon chain compounds), laser particle sensors, temperature sensors, and hydrogen sensors. It accurately monitors nine parameters and effectively suppresses false alarms caused by various interference factors. By adopting a multi-parameter dynamic weight fusion algorithm, a whitelist and blacklist mode separation algorithm, and an internal sensor self-diagnosis algorithm, it ensures high sensitivity and stability while precisely reporting the location of fault points.

The detector is suitable for ultra-early fault monitoring in a wide range of high and low-voltage electrical equipment across multiple sectors, including rail transit, high-speed trains, substations, nuclear power plants, petrochemical facilities, data centers, energy storage power stations, and industrial plants. Applicable scenarios include power distribution cabinets, server cabinets, terminal cabinets, battery cabinets, UPS/EPS/BESS cabinets, DC power supply cabinets, electrical instrument cabinets, cable interlayers, cable trays, and cable trenches, covering both high-voltage and low-voltage electrical systems.

FEATURES

- Four sensor types with nine-parameter simultaneous acquisition.
- Broad coverage of dozens of insulation materials and lithium-battery electrolytes.
- Multi-parameter Dynamic Weight Fusion Algorithm with strong anti-false-alarm capability.
- Adaptive compensation and fault self-diagnosis ensuring long-term stable operation.
- Standardized communication protocol support with flexible networking options.
- Run, Communication, Fault, Primary Alarm, Secondary Alarm function.
- Non-contact ultra-early fire hazard detection capability.
- Easy docking with other third-party systems.
- Filter and shield odor, dust, water vapor, haze and other interference factors.

DT-300/RJ

TECHNICAL SPECIFICATIONS

- **Dimensions (L×W×H)**
  3.9×3.9×1.6 inch (100.0×100.0×42.0 mm)
- **Operating Temperature Range**
  -10℃ to +55℃.
- **Operating Humidity Range**
  relative humidity from 0% to 95%, non-condensing
- **Service Life**
  more than 12 years
- **Installation Method**
  support magnetic suction type, suction type, side suction type, the top of the cabinet installation
- **Alarm Stage**
  Primary alarm. Thermal Depolymerization of Insulation Materials. Temperature range 80 to 190 ℃, varies by specific insulation material.

  Secondary alarm. Carbonization of Insulation Materials. Temperature range above 230 ℃, varies by tspecific insulation material.
- **Alarm Threshold**
  Primary alarm. Range 10 to 2000 units, default 300, step 10

  Secondary alarm. Range 2010 to 4000 units, default 2900, step 10
- **Monitoring Materials**
  PVC, ABS, Epoxy resin, PC, FR-4, PE, PA6, PA66, PBT, DMC. Lithium battery electrolyte vapor.
- **Communication Mode**
  RS-485 Modbus-RTU bus communication less than 1.5km

ELECTRICAL SPECIFICATIONS

- **Mains Power Supply**

  24VDC wide voltage range 18 to 30VDC
- **24 VDC Operating Current** 35 mA
- **Maximum Current** 50mA@24 VDC
- **Power Consumption** less than 1VA

PRODUCT CERTIFICATION

- EN 61010 for EU Directive (2014/35/EU)
- EN 61326 for EU Directive (2014/30/EU)
- RoHS 3 EU 2015/863

CE

BASES

ordinary base, relay base and interface base share an identical appearance

This document is not intended to be used for installation purposes. We try to keep our product information up-to-date and accurate.
We cannot cover all specific applications or anticipate all requirements. All specifications are subject to change without notice.

For more information, please contact UPI at sales@upi-asia.com

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ORDERING INFORMATION

Model No.	Description
DT-300/RJ	• Pyrolysis Sensing Electrical Fire Monitoring Detector • Standard for ordinary base, can be replaced by relay base and interface base
Relay Base	
RJIO-B	• 4" Mounting base. • Four indicator lights. run (1 second interval flashing), input, fault output, alarm output. • Built-in buzzer. Primary and secondary alarm short sound. Fault long sound. • A set of DC24V active signal input. For reset function. •Two sets of normally open passive relay node output. According to the configuration, to achieve primary and secondary and fault output function; for docking FAS system or linkage external execution device. • The power supply input is AC85 to 305V and 47 to 63Hz, DC24V wide voltage range 18 to 30V, which is used one-on-one with the detector and can provide power adaptation function.
Interface Base	
RJLTE-B-EU **RJLTE-B-CN**	• 4" Mounting base. • EU Version. For Europe and Asia-Pacific. • CN Version. For Mainland China. • Four indicator lights. run (1800ms off, 200ms on, 1800ms on, 200ms off), input, fault output, alarm output. • Built-in buzzer. Primary and secondary alarm short sound. Fault long sound. • A set of DC24V active signal input. For reset function. •Two sets of normally open passive relay node output. According to the configuration, to achieve primary and secondary and fault output function; for docking FAS system or linkage external execution device. •Access data to the cloud platform through 4G network access. • The power supply input is AC85 to 305V and 47 to 63Hz, DC24V wide voltage range 18 to 30V, which is used one-on-one with the detector and can provide power adaptation function. • According to the field signal coverage, the patch built-in antenna (default) or SMA external antenna can be selected.
Detector Demo Kit	
YSX/DT-300/ RJ-D	The installation method and functions of DT-300/RJ can be displayed.