Detecting Leakage and Damage to Bag Filter and Monitoring Operation Status of Electrostatic Precipitator

Triboelectric method Dust Monitor

DT450G

The DT450G Dust Monitor features improved operationality and reliability based on installation and application experiences with the previous model DT400G. Features include one-touch automatic range setup in response to process conditions and automatic drift compensation. Also, the DT450G can measure at a process temperature up to 250°C, allowing it to cover a wide range of applications.

Applications

- Electrostatic precipitators at boilers, incinerators, cement kilns
- Bag filters at pulverized coal, granulation, sugar, powder milk plants

Bag Filter Breakage Detection in a Pulverized Coal Injection System

Dust Monitoring to Detect Damage in Coke Oven Walls

Dust Monitoring of Exhaust Gases for Efficient ESP Operation in Cement Manufacturing Process

Features

- High Performance and High Reliability
  - The measurement range can be set through a one-touch operation in response to process conditions
  - Automatic drift compensation function is available

- Excellent Maintainability
  - Air purging prevents moisture condensation at connecting portions
  - Maintenance-free operation over a long time without being affected by dust accumulation

- Wide Range of Applications with Simple Operation
  - All you need to do is just set the parameters through key operation on the front panel
  - Standard specifications are applicable to a wide range of applications at a process temperature up to 250°C and with a pressure of up to 200 kPa

- Flexible Installation
  - Integrated construction of sensor and converter allows for easy installation
  - Flange mounting or socket welding mounting can be selected

DT450G vs. Optical Dust Monitor

Relationship between Applied Voltage and Efficiency of ESP
### STANDARD SPECIFICATIONS

- **Measurement objects:** Solid particles in gas
  - Particle size: 0.3 µm or greater
  - Measurement range: 0.1 mg/m³ to 1 kg/m³

- **Measurement principle:** Inductive electrification

- **Process conditions:**
  - Temperature: 200 °C or less
  - Pressure: 200 kPa or less
  - Gas flow rate: 0.5 m/s or greater
  - Humidity: 95 % RH or less

- **Measurement range**
  - Flange setup: One-branch automatic setup or manual setup (Note 2)
  - Setup range: Variable (10 to 50 %, 10 % step)

- **Contact output signal**
  - High/Low alarm
  - Contact capacity: 5 A, 240 V AC or 24 V DC
  - Setting range: 1 to 99 % (1 % step) of measurement span

- **Ambient conditions**
  - Temperature: –20 to 60 °C
  - Humidity: 95 % RH or less (non-condensing)
  - Vibration: 5 m/s² (0.5 g) or less

- **Construction**
  - Sensor/probe: Direct insertion
  - Insulation of sensor: PEEK
  - Case: Aluminum

- **Rated model**
  - 100 to 120 V AC, 200 to 240 V AC

- **Power supply**
  - Converter: Integrated with detector, protection rating IP64

- **Humidity**
  - 95 % RH or less

- **Temperature**
  - –20 to 60 °C

- **Contact output signal**
  - High/Low alarm
  - Contact capacity: 5 A, 240 V AC or 24 V DC
  - Setting range: 1 to 99 % (1 % step) of measurement span

- **Vibration**
  - 5 m/s² (0.5 g) or less

- **Mounting**
  - Flange or socket (dedicated)

- **Weight**
  - Approx. 2.2 kg (excluding flange)

### MODEL AND SUFFIX CODES

- **Suffix Code**

### DIMENSIONS

- **Flange Mounted Model**

---

**Note:** Teflon coated probe (option code “/TC”) is recommended to prevent the insufficient insulation by dust and moisture deposited on sensor probe. Teflon coated probe is designed to operate at a temperature not exceeding approximately 150 °C.

---

**Measurement range does not directly represent dust concentration. To know the absolute value of dust concentration, the relationship between the output signal and the dust concentration should be obtained by laboratory analysis or relevant way.**

**Note:** With one-touch automatic setup function, measurement range is set so that the dust concentration of the process corresponds to a setpoint of setting level. In manual setup, the measurement range is set by gain (x1, x10, x100, x1000, x10000). Refer to GS 11K01C01-01E for detailed specification.

---

**Solid particles in gas**

- Measurement range: 0.1 mg/m³ to 1 kg/m³

---

**Measurement principle**

- Inductive electrification

---

**Process conditions**

- Temperature: 200 °C or less
- Pressure: 200 kPa or less
- Gas flow rate: 0.5 m/s or greater
- Humidity: 95 % RH or less

---

**Measurement range**

- Flange setup: One-branch automatic setup or manual setup (Note 2)
- Setup range: Variable (10 to 50 %, 10 % step)

---

**Contact output signal**

- High/Low alarm
- Contact capacity: 5 A, 240 V AC or 24 V DC
- Setting range: 1 to 99 % (1 % step) of measurement span

---

**Ambient conditions**

- Temperature: –20 to 60 °C
- Humidity: 95 % RH or less (non-condensing)
- Vibration: 5 m/s² (0.5 g) or less

---

**Construction**

- Sensor/probe: Direct insertion
- Insulation of sensor: PEEK
- Case: Aluminum

---

**Rated model**

- 100 to 120 V AC, 200 to 240 V AC

---

**Power supply**

- Converter: Integrated with detector, protection rating IP64

---

**Humidity**

- 95 % RH or less

---

**Temperature**

- –20 to 60 °C

---

**Contact output signal**

- High/Low alarm
- Contact capacity: 5 A, 240 V AC or 24 V DC
- Setting range: 1 to 99 % (1 % step) of measurement span

---

**Vibration**

- 5 m/s² (0.5 g) or less

---

**Mounting**

- Flange or socket (dedicated)

---

**Weight**

- Approx. 2.2 kg (excluding flange)