Flow Averaging Transmitter

Series 255

The Kurz Series 255 Flow Averaging Transmitter is a versatile system transmitter designed for measuring flow rates in very large ducts that have non-uniform or unstable velocity profiles and/or wide temperature ranges.

The Series 255 is a state-of-the-art microprocessor-based system that powers and reads up to 16 independent sensing points, providing a grand average of the flow and temperature.

The Series 255 continuously reads and analyzes flow and temperature data from the individual channels, and automatically removes channels from the average that are under alarm or have been removed for service or repair.

The Series 255 is designed for high reliability and high availability with multiple and independent power and communication ports so that wiring issues will not bring down the entire multisensor network.

Kurz Instruments is dedicated to manufacturing and marketing the best thermal mass flow meters available and to support our customers in their efforts to improve their businesses.

Applications
- Stack & flue gas
- Coal pulverizer air
- Cement plants
- Nuclear power plants
- EPA & AMS emissions monitoring
- Any duct without metering runs
**SPECIFICATIONS**

- **Flow measurement range**
  0 to 70,000 SFPM x A (0 to 325 NMPS x A)  
  A=pipe / duct area
- **Temperature measurement range**
  -40°F to 500°F (-40°C to 260°C) (HT elements)  
  -40°F to 932°F (-40°C to 500°C) (HHT elements)
- **Measurement rate**
  < 0.1 second per sensor @ 38.4 kbps
- **Optically-isolated loop powered 4-20 mA outputs**
  12-bit resolution and accuracy;  
  Maximum loop resistance is 300 Ohm at 18 VDC, 550 Ohm at 24 VDC, 1400 Ohm at 36 VDC
- **Display update**
  2 seconds
- **Two optically isolated solid-state relays/alarms**
  0.5 A, 24 VDC optically coupled solid state relays
- **Electronics operating temperature**
  -20°C to 50°C
- **Input Power**
  Models 255A, 255B, 255C – 100-240 VAC, 50/60 Hz;  
  Model 255DC – 24 VDC, 3.6-13.5 A, depending on number and type of flow sensors

**CERTIFICATES & COMPLIANCES**

- **Industrial Safety for Electrical Equipment**
  Ordinary Locations  
  IEC/CSA/UL 61010-1 and 61010-2-030
  Hazardous Locations ETL/cETL, ATEX  
  IEC/CSA/UL 60079-0 — Explosive Atmospheres  
  IEC/CSA/UL 60079-7 — Increased Safety  
  IEC/CSA/UL 60079-15 — Type of Protection  
  IEC/CSA/UL 60079-31 — Equipment Dust Ignition
- **EMI Compliance**
  EN 61000-6-2 — EMC Immunity  
  EN 61000-6-4 — EMC Emission  
  EN 61000-3-2 — Harmonic Current Emissions  
  EN 61000-3-3 — Voltage Fluctuations & Flicker
- **Environmental**
  IP 65 Ingress Protection  
  IP 66 Ingress Protection
  NEMA Type 4X
- **NAMUR Signaling Standard**
  NE43-compliant 4-20mA outputs  
  NE107-compliant front panel indicators

**FEATURES**

- Up to 16 sensors providing point velocity, temperature, and sensor fault code
- Polycarbonate, stainless steel, or rack mount options
- Flow and temperature measurement data quality indication for event logging
- Maintains a 30-day log of daily flow totals
- Velocity-dependent correction factors for flow rate calculations
- Optically-isolated loop powered 4-20 mA output
- Two digital inputs
  DI1 – external trigger to toggle Maintenance Mode  
  DI2 – external trigger to initiate Zero-Span Cycle
- Six power/data ports for input channel network segmentation
  Reverse polarity, ESD, Surge, EFT, and EMI protection;  
  Each port current limited to 3.4 A
- One 4-20 mA non-isolated analog input
- Battery backed real-time clock
- User-defined TAG ID and flow area
- Three EEPROM data areas for system configuration restore points
- Automatic sensor out-of-tolerance indication, alarm, and re-averaging for multipoint flow elements
- Isolated USB to RS-485 port for auxiliary MODBUS connection to individual channels
  Galvanic isolation up to 1000 VDC
- User-configurable English or metric units for mass flow rate, mass velocity, and process temperature
  KGH, KGM, NCMH, NLPM, PPH, PPM, SCFH, SCFM, SFPM, SLPM, SMPS
- Easy-to-use interface
  Backlit Display with 4-lines of 20-characters each; 20-button keypad
- User-configurable flow display (scrolling or static)

**MODELS**

- **AC-Powered models**
  Model 255A up to 4 channels;  
  Model 255B up to 9 channels;  
  Model 255C up to 16 channels;
- **DC-Powered model**
  Model 255DC up to 16 channels

**OPTIONS**

- **NEMA Type 4X window kits for stainless steel enclosures**
- **Startup Assistance**
  Site visit by factory technicians for startup, installation verification, and commissioning
- **Field Calibration**
  In-situ flow profile traversing with calibrated measuring equipment by qualified technician
Series 255

Models 255A, 255B, and 255DC; Stainless Steel; Ordinary Location

Note: Shown with optional window

Model 255C; Stainless Steel; Ordinary Locations

[mm]  | NET WT. 46 lbs / 20.9 kg

Model 255C, 255B, and 255DC; Stainless Steel; Ordinary Location

Note: Shown with optional window

Model 255C; Stainless Steel; Ordinary Locations

[mm]  | NET WT. 46 lbs / 20.9 kg

Flow Averaging Transmitter

KURZ
2411 Garden Road • Monterey, CA 93940 | 800-424-7356 • 831-646-5911 | www.KurzInstruments.com
Models 255A, 255B, and 255DC; Stainless Steel, Hazardous Locations

Note: Shown with optional window

Series 255

Flow Averaging Transmitter

Model 255C; Stainless Steel; Hazardous Locations

Note: Shown with optional window

NET WT. 46 lbs / 20.9 kg

NET WT. 27 lbs / 12.2 kg
### Parent Number | Series Model
---|---
750993 | Model 255A; up to 4 sensors
750994 | Model 255B; up to 9 sensors
750995 | Model 255C; up to 16 sensors
750997 | Model 255DC; up to 16 sensors

### Option | Area Approval, Enclosure & Safety Approvals
---|---
A | General industrial safety | Polycarbonate | IP65 | Conforms to UL STD 61010-1, 61010-2-030 Certified to CSA STD C22.2 No.61010-1, 61010-2-030 Intended to be installed and used in non-hazardous locations.
B | General industrial safety | Stainless steel | IP65 | Ex nA nC ec IIC T3 Gc; Ex tc IIIC T80°C Dc Class I Zone2 AEx nA nC IIC T3 Gc; Zone 22 AEx tc IIIC T80°C Dc Class I, Division 2, Groups A-D, T3: Class II, Division 2, Groups F-G, T3 Can be installed and used in hazardous locations.
C | General industrial safety | Rack mount | N/A |
H | Hazardous location | Stainless steel | IP66 |

### Option | Communications and Inputs/Outputs
---|---
10 | Standard | Two 4-20mA isolated outputs, two solid-state relays, two digital inputs, one non-isolated 4-20 mA input |
20 | HART | Two 4-20mA isolated outputs, two solid-state relays, two digital inputs, one non-isolated 4-20mA input |
30 | Profibus DP | Two 4-20mA isolated outputs, two solid-state relays, two digital inputs, one non-isolated 4-20mA input |

### Option | Stainless Steel Window
---|---
A | Not included |
B | Optional stainless steel window for stainless steel enclosures |

### Maximum Sensors & Rated Current

<table>
<thead>
<tr>
<th>Model</th>
<th>Max # Sensors</th>
<th>Input Power AC (W)</th>
<th>Output Current DC (A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>255A</td>
<td>4</td>
<td>95</td>
<td>3.6</td>
</tr>
<tr>
<td>255B</td>
<td>9</td>
<td>200</td>
<td>7.7</td>
</tr>
<tr>
<td>255C</td>
<td>16</td>
<td>350</td>
<td>13.5</td>
</tr>
<tr>
<td>255DC</td>
<td>16</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

### Enclosure Dimensions & Weight

<table>
<thead>
<tr>
<th>F1</th>
<th>255 Model</th>
<th>External Dimensions inches [mm]</th>
<th>Enclosure Weight lbs [kg]</th>
</tr>
</thead>
<tbody>
<tr>
<td>A (Stainless Steel)</td>
<td>A, B, DC</td>
<td>20 x 16 x 8 [508 x 406.4 x 203.2]</td>
<td>27 [12.2]</td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>30 x 20 x 8 [762 x 508 x 203.2]</td>
<td>46 [20.9]</td>
</tr>
<tr>
<td>B (Polycarbonate)</td>
<td>A, B, DC</td>
<td>17.72 x 13.78 x 7.99 [450 x 350 x 203]</td>
<td>15 [6.8]</td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>24.96 x 21.0 x 9.84 [634 x 534 x 250]</td>
<td>30 [13.6]</td>
</tr>
<tr>
<td>C</td>
<td>A, B, C, DC</td>
<td>17.19 x 17 x 8.718 [436.6 x 431.8 x 221.4]</td>
<td>20 [9.1]</td>
</tr>
<tr>
<td>H (Stainless Steel)</td>
<td>A, B, DC</td>
<td>20 x 16 x 8 [508 x 406.4 x 203.2]</td>
<td>27 [12.2]</td>
</tr>
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<td>C</td>
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