

Insertion Flow Meter 410FTB FOR AERATION AIR APPLICATIONS



Wastewater applications require fast, precise control of air flow which in turn controls the dissolved oxygen (DO) in the aeration basin. Traditional control schemes result in DO measurements with large oscillations, requiring a higher DO setpoint. Large oscillations cause rapid wear of valves and other expensive system hardware while the supporting overranged DO setpoints create significant energy losses. Tighter control requires a faster, quieter measurement signal of the aeration air.

Kurz engineers created the 410FTB Aeration Air meter to allow optimization of the DO control systems. Tests confirm that the 410FTB outperforms other thermal flow meters by providing a quieter, faster response. The 410FTB was field proven with Model Predictive Control, a state of the art nonlinear control system, resulting in energy savings up to 45%.

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SPECIFICATIONS

- **Velocity range**
0 to 12,000 SFPM (56 NMPS)
- **Velocity (v) accuracy**
(SFPM at laboratory conditions)
 $\pm (1 + 2000/v) \%$ of reading
- **< 0.21% reading repeatability**
- **Response time (t₆₃)**
0.18 seconds to 63 % of final value
- **Temperature accuracy**
 $\pm (0.5 \%$ of reading $+1 \text{ }^\circ\text{C}$) for
velocities above 100 SFPM
- **Electronics operating temperature**
Integral display
-13 °F to 149 °F (-25 °C to 65 °C)
Remote aluminum enclosure
-40 °F to 149 °F (-40 °C to 65 °C)
Remote polycarbonate enclosure
-13 °F to 149 °F (-25 °C to 65 °C)
- **Process pressure rating**
Up to 50 PSIG (345 kPag)
- **Process temperature rating**
-40 °F to 347 °F (-40 °C to 175 °C)
- **Installation requirement**
The flow meter should be placed 3 line
diameters or more upstream of the flow
control valve

FEATURES

- **Aluminum (Type 4X, IP66) dual chamber polyester powder-coated enclosure**
- **Adjustable display/keypad orientation**
- **Optically-isolated loop-powered 4-20 mA output**
- **Integral or remote user interface**
- **User-configurable flow display (scrolling or static)**
- **User-configurable English or metric units for mass flow rate, mass velocity, and process temperature**
- **Velocity-dependent correction factors for dynamic flow profiles**
- **Built-in zero-mid-span drift check**
- **Built-in flow totalizers and elapsed time**
- **Configuration/data access via USB or RS-485 Modbus (ASCII or RTU)**
- **Patent US 7,418,878**
- **3-year warranty**

CERTIFICATIONS & COMPLIANCES

- **Industrial Safety for Electrical Equipment**
IEC/CSA/UL 61010-1
- **CE and UKCA compliance**
EMC, LVD, PED, ROHS, and WEEE
- **NAMUR Signaling Standard NE43**
Compliant 4-20 mA Outputs
- **Based on SIL design**

OPTIONS

- **Enclosures**
Aluminum or remote-only polycarbonate wall mount
- **One 4-20 mA non-isolated analog input**
- **Digital input dedicated to zero-mid-span drift check**
- **Two optically isolated solid-state relays / alarms**
- **Pulsed output as a remote flow totalizer**
- **Communication protocols**
RS-485 Modbus (ASCII or RTU),
HART (v7 FSK) and PROFIBUS DP

410FTB Benefits

By improving DO control in the aeration basin, wastewater facilities have the opportunity to improve their efficiency and decrease operation costs.

- **First Kurz flow meter specifically designed for measurement of aeration air**
- **The fastest thermal mass flow meter offering accurate, low noise air flow measurements**
- **Tighter control reduces wear on control valves**
- **Wastewater facilities can achieve higher efficiency by increasing the gain on their control systems**
- **Optimizing the aeration basin process allows a facility to minimize their air demand**
- **Reducing air demand results in cost savings and increased blower lifetimes**

The Kurz Advantage

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.

In this effort, we provide:

- **The highest repeatability, accuracy, and reliability available**
- **The fastest, low noise response to temperature and velocity changes in the industry**
- **Meters that are 100 % field configurable by the user**
- **Continuous self-monitoring electronics that verify the integrity of sensor wiring and measurements**
- **Sensors that do not overheat at zero flow using a patented constant temperature control method and power limiting design**
- **For aeration applications, flow conditioners or minimum upstream meter runs are not required**