



## Insertion Flow Meter 454FTB-WGF FOR CONDENSING GAS ENVIRONMENTS



Kurz thermal mass flow meters provide excellent measurement capabilities in dry gas flows. They have proven durability, accuracy, and repeatability. Where all thermal meters have been largely ignored is in the biogas environment. Condensation levels in biogas fluctuate as temperatures change during the day, and it's the highly unreliable readings from those liquid droplets vaporizing on the sensors that make wastewater and landfill operators dismiss thermal meters.

Kurz engineers created the first cost-effective thermal alternative for realtime and accurate measurements in condensing gas flows. Tests confirm that the Kurz 454FTB-WGF insertion flow meter outperforms other thermal flow meters by providing consistently accurate and highly responsive measurements in condensing gas environments.

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## SPECIFICATIONS

- **Velocity range**  
0 to 4,000 SFPM (18.6 NMPS) (Air)  
0 to 3,000 SFPM (14 NMPS) (50/50 Biogas)  
0 to 2,000 SFPM (9.3 NMPS) (CH<sub>4</sub>)  
Higher velocities available with reduced condensate immunity
- **Flow accuracy** (SCFM at laboratory conditions)  
±(1% of reading +20 SFPM)
- **0.25% reading repeatability**
- **Velocity time constant**  
1.5 second for velocity changes at 4,000 SFPM (constant temperature)
- **Process temperature time constant**  
10 seconds for temp changes at 1,000 SFPM (constant velocity)
- **Process temperature rating**  
-40°F to 248°F (-40°C to 120°C)
- **Process pressure rating**  
Up to 150 PSIG (10 BARg)
- **Electronics operating temperature**  
Integral display  
-13°F to 149°F (-25°C to 65°C)  
Remote aluminum display  
-40°F to 149°F (-40°C to 65°C)  
Remote polycarbonate display  
-13°F to 122°F (-25°C to 50°C)

## FEATURES

- **Aluminum (Type 4, 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 flow rate**
- **Built-in dry gas flow calculation for saturated processes**
- **Two optically isolated solid-state relays / alarms**
- **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**

## APPROVALS

- **EPA mandatory GHG certification**  
40 CFR 98.34(c)(1)
- **Alarm output conformity**  
NAMUR NE43
- **European Union CE compliance**  
EMC, LVD, PED, ROHS, and WEEE
- **Canadian Registration**  
CRN
- **CSA, ATEX & IECEx approvals for Nonincendive, Flameproof, and Explosion-proof**  
EN IEC 60079-0, EN IEC 60079-1  
EN IEC 60079-15, Class I, Div 1 and 2

## OPTIONS

- **Remote enclosure**  
Aluminum or polycarbonate
- **Multiple gas calibrations with up to five curves loaded in memory**
- **User-defined binary gas composition**
- **Communication protocols**  
HART (v7 FSK) and PROFIBUS DP
- **Digital input dedicated to purge and zero-mid-span drift check**
- **Pulsed output as a remote flow totalizer**

## 454FTB-WGF Benefits

By improving biogas management, wastewater facilities, landfill sites, and other condensing gas environments have the opportunity to improve their efficiency and decrease operation costs.

- **The first thermal mass flow meter offering accurate and reliable condensing gas flow measurements**
- **Wastewater facilities can achieve higher efficiency in meeting peak flow and load conditions**
- **Accurate and realtime digester measurements reveal digester imbalances, enabling early corrective action and leading to increased gas production**
- **Optimizing the digester process allows a facility to recover maximum digester gas**
- **Monitoring the true gas flow facilitates less gas being flared and more going toward energy production**
- **Fogging in stacks and around fan inlets can be monitored**

## 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 response to temperature and velocity changes in the industry**
- **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**
- **Velocity-temperature mapping for wide ranging velocity and temperature**
- **The ability to accurately report Greenhouse Gas emissions**