

# Thermal Gas Mass Flow Meters for Industrial Applications



PRECISE, RELIABLE, TRUSTED  
**SOLUTIONS**  
IN GAS FLOW MEASUREMENT

- INDUSTRIAL PROCESSING PLANTS  
PULP & PAPER, STEEL, & CHEMICAL
- OIL & GAS
- BIOGAS
- WASTEWATER

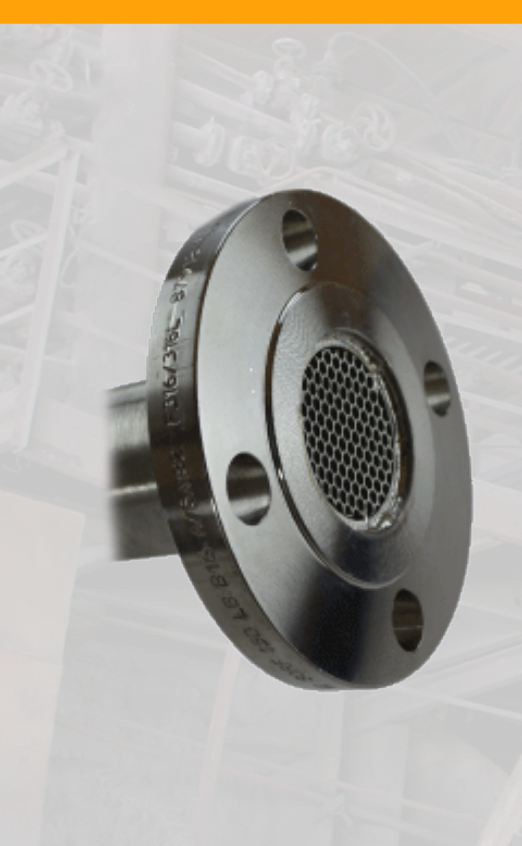
**TEESING**

[WWW.TEESING.COM](http://WWW.TEESING.COM)



**FOX**  
THERMAL™





## BENEFITS OF THERMAL MASS FLOW TECHNOLOGY

- Direct mass flow measurement of air and gases in standard volumetric units (e.g., SCFM or NM3/H) or mass units (e.g., LBS/M or KG/H)
- No additional pressure or temperature compensation required
- Repeatability and exceptionally broad measurement range: up to 1000:1 (100:1 typical)
- Standard linear 4-20mA output proportional to mass flow rate
- Low pressure drop
- No moving parts
- Cost-effective
- Insertion, inline & remote\* styles
- Measures flow rate and temperature

\*Features and approvals vary by model number

## INDUSTRIES AND APPLICATIONS

### Major Industries Served

- Industrial facilities
- Oil & Gas
- Wastewater
- Environmental & emissions monitoring
- Aluminum & steel production
- Pulp & Paper facilities
- Chemical plants
- Textile plants
- Manufacturing of glass & ceramics
- Food & beverage facilities
- Automotive plants
- Pharmaceutical facilities

### Industrial

- Pure & mixed gas measurement of industrial processes

### Oil & Gas

- Measurement of gas to flares or combustors
- Gas measurement for gas allocation
- Gas from Vapor Recovery Units (VRU's)
- Gas from separators
- Fuel & natural gas monitoring

### Wastewater Treatment Facilities

- Air flow monitoring of aeration to pools
- Natural gas flow to sludge incinerators

### Environmental & Emissions Monitoring

- Natural gas monitoring for emissions calculations
- Vent or flash gas monitoring
- Flare or waste gas monitoring
- Landfill gas (LFG) monitoring



**TEESING**

WWW.TEESING.COM

\*not available on all models

WWW.TEESING.COM | +31 70 413 07 50



## CERTIFICATIONS, ACCURACY COMPLIANCE, AND APPROVALS

Quality you can count on!

- ISO 9001:2015 certified Quality Management System
- CE Mark
- FM/FMc product certifications
- ATEX/IECEX certifications\*
- CRN approvals\*
- Welding qualifications to ASME IX
- BLM 3175 and API 14.10 accuracy compliant



## AWARD-WINNING FEATURES ON FOX THERMAL PRODUCTS

The entire line of thermal gas mass flow meters from Fox Thermal have consistently won innovation and breakthrough product awards.

Compare model features below:

- 4 Innovation Awards
- 4 Breakthrough Product Awards
- 1 Product of the Year Award

## THE FOX THERMAL DIFFERENCE

- Microprocessor-based, field-rangeable electronics
- DDC-Sensor™ proprietary flow sensor design\*
- Gas-SelectX® field selectable gases / gas mixes without affecting accuracy\*
- CAL-V™ and Zero CAL-CHECK® Calibration Validation\*
- Free FT View™ Software to configure meter, print Calibration Validation certificates, run simulations, and more!\*
- Data Logger with 7-year history\*

\*not available on all models

**TEESING**

WWW.TEESING.COM

WWW.TEESING.COM | +31 70 413 07 50





## MODEL FT1

### The "Plug-n-Play" Flow Meter

An economical solution for a variety of industrial and wastewater applications.

- Advanced DDC Sensor™
- Gas-SelectX® technology: Pure gas menu and a 5-gas mix
- CAL-V™ Calibration Validation
- Optional Modbus RTU (RS485), BACnet MS/TP, or HART communication protocols
- Insertion and inline styles



## MODEL FT2A

### The Industrial Facility Favorite!

Extensive communications options!

- Contact input to reset total
- Optional Modbus RTU (RS485), BACnet MS/TP (RS485), Profibus-DP, DeviceNet, or Ethernet Modbus TCP communication protocols
- DC or AC input power options
- Insertion, inline, integral, and remote styles



**TEESING**

WWW.TEESING.COM

WWW.TEESING.COM | +31 70 413 07 50



## MODEL FT3

### Offshore Favorite!

- Infrared (IR) buttons on display/configuration panel
- Zero CAL-CHECK® & CAL-V™ Calibration Validation tests
- Optional Modbus RTU (RS485) or HART communication protocols
- DC or AC input power options
- Insertion, inline, integral, and remote styles



Processing's  
**Breakthrough  
Products 2012**

## MODEL FT4A

### Great for Digester Applications and Much More!

A precision meter for landfill gas, biogas, and flare gas measurement!

- Advanced DDC Sensor™
- Gas-SelectX® technology with 3 Menus: Pure Gas, Gas Mix, and Oil & Gas Mix
- CAL-V™ Calibration Validation
- Optional Modbus RTU (RS485) or HART communication protocols
- Insertion and inline styles



**TEESING**

WWW.TEESING.COM

WWW.TEESING.COM | +31 70 413 07 50





## MODEL FT4X

### BLM 3175 and API 14.10 Accuracy Compliant!

The perfect flow meter for oil & gas applications!

- Data Logger with date/time stamp
- Advanced DDC-Sensor™
- Gas-SelectX® technology with 3 Menus: Pure Gas, Gas Mix, and Oil & Gas Mix
- CAL-V™ Calibration Validation
- Optional Modbus RTU (RS485) or HART communication protocols
- Insertion, inline, integral, and remote styles



### FT4X Standard Data Logger with Date/Time Stamp

The advanced features of the Model FT4X Data Logger include:

- 40 daily totals (24-hour totals)
- Settable Contract Time defines Contract Day
- Time/date stamped alarm & event logs; 7 year history
- Power off totalizer; power failure creates event log entry

Access logs to learn about the meter's settings and functionality:

- View the meter's gas or gas mix composition
- View the meter's configuration and other meter settings
- View Calibration Validation historical test data
- View and print logs of events and alarms



**TEESING**

WWW.TEESING.COM

WWW.TEESING.COM | +31 70 413 07 50



## STATE-OF-THE-ART TECHNOLOGY

### FT View™ Software

Free, advanced downloadable software!

- PC-based software application, installed in minutes
- Configure flow meter settings
- Available for every Fox Thermal flow meter model
- Flow meter connected by USB port

### Calibration Validation

Know if your flow meter is reading accurately in the field!

- Calibration Validation at the push of a button
- Eliminate the cost and inconvenience of annual factory calibration
- Tests take less than 5 minutes to run
- Produces a pass/fail result
- Certificate can be produced (using FT View software only)

### DDC-Sensor™ - Direct Digitally Controlled Sensor

Innovative design for precise measurement and full-featured flow meters!

- Interfaces directly with the flow meter's microprocessor
- Faster speed and more versatile programmability
- Robust, non-cantilevered RTD elements to eliminate vibration
- Provides the technology platform necessary for calculating accurate gas correlations



**TEESING**

WWW.TEESING.COM

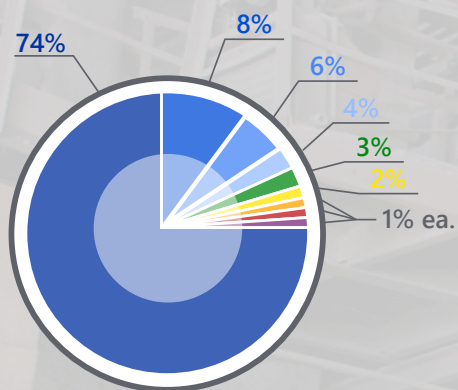
WWW.TEESING.COM | +31 70 413 07 50





## GAS-SELECTX<sup>®</sup>

Create a custom gas mix for your Fox Thermal flow meter



- Methane
- Ethane
- Propane
- Nitrogen
- Hexanes
- n-Butanes
- i-Butanes
- Pentanes
- CO2

## STATE-OF-THE-ART TECHNOLOGY (CONT'D)

### Gas-SelectX<sup>®</sup> Gas Selection Menu - Models FT1, FT4A, & FT4X

- Allows the user to choose from gas menus
- Switch gases or gas mixes in the field
- No need to return the flow meter to the factory for a recalibration
- Three gas menus:
  - Pure gas menu
  - Mixed gas menu
  - Oil & gas menu\*

### The 3 menus of Gas-SelectX<sup>®</sup>

Pure Gas Menu	Mixed Gas Menu	O&G Gas Menu*
Air	Air	Carbon Dioxide
Argon	Argon	Nitrogen
Butane	Butane	Methane (C1)
Carbon Dioxide	Carbon Dioxide	Ethane (C2)
Methane	Ethane	Propane (C3)
Natural Gas**	Methane	i-Butane (C4)
Nitrogen	Nitrogen	n-Butane (C4)
Oxygen	Oxygen	Pentanes (C5)
Helium	Helium	Hexanes (C6)
Hydrogen	Hydrogen	Heptanes (C7)
Propane	Propane	Octanes (C8)
Ethane		Nonanes+(C9)+

\*Not available on model FT1

\*\*Choosing *Natural Gas* sets the NAESB average in a pre-programmed mix of methane, ethane, propane, nitrogen, and carbon dioxide.