OFS 2000F™ For Flare Line Applications

OFS-2000F™ Advantages

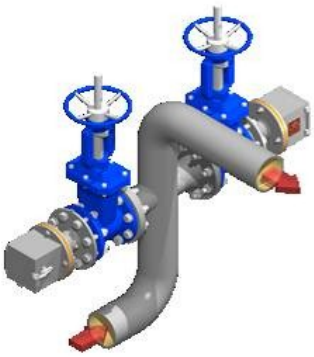
- Full path measurement = maximum accuracy.
- Measurement range of 0.03 to 170 m/sec
- Calibration not required
- Non-interfering - nothing in flow path.
- No flow media high temperature limits.
- Ultra low maintenance design.
- Measurement unaffected by
  Distance - Pressure
  Temperature Moisture
  Gas Density/Composition/Opacity
- NIST - tested unbeatable advanced technology, high performance and proven reliability!

OFS 2000F for Flare Stacks

OFS 2000 measures optical scintillation across the entire distance between the transmitter and receiver. It is the only flow sensor that gives a true non-contacting complete cross-stack flow measurement. OSI's patented optical scintillation measurement algorithm uses advanced Digital Signal Processing (DSP) to measure the movement found in a gaseous flow stream, providing highly accurate, measurements.

By its very nature OFS scintillation measurement does not drift. This means OFS 2000 systems require no calibration – ever. OFS technology uses a proprietary patented algorithm developed by OSI and certified by NIST (National Institute of Standards and Technology) and is supported with over 20 million hours of observation data. Automatic calibration check and continuous self-test diagnostics are built-in for user security.

Housed in a rugged package to cope with hazardous or explosive environments, OFS 2000F is capable of measuring flow velocity as from 0.03 to 170 m/sec across distances from 0.2 to 12 meters with 5000/1 turndown ratio



Flexible Installation

OFS can install in tight spaces with minimum space requirements of 2 upstream / 1 downstream diameters.

Installation is based on standard ANSI pattern 4" pipe flange. OFS 2000 can be installed on live process lines using hot tap procedure and gate valves for isolation. No re-piping and no shutdown needed.

OFS 2000 F for Air/Steam –assisted flares

Used in conjunction with OFS 2000 (air flow) and OFS 2000R (steam flow) models. OFS 2000F can give the user unprecedented control of air/steam assisted flare stacks.

Mass and Volumetric Flow add-ons

With added temperature and pressure inputs, OFS 2000 systems are capable of delivering moment-by-moment volumetric flow data, taking any guesswork out of tailoring fuel/air mix for optimum combustion. An easily obtainable plug-in is required for mass flow.

Flexible Communications

All systems are equipped with 4-20mA Current Loop, RS-232/485, ModBus RTU data outputs, and can be configured with Serial port, Limited Distance Modem, and Fiber Optic Interface for any type of PLC, DAS, WAN or LAN.

All OFS 2000 sensors meet or exceed requirements set by the Environmental Protection Agency, and California's South Coast Air Quality Management District:

- EPA Method 14
- EPA MACT RSR 40 CFR 63.670
- EPA 40 CFR part 60 & 75
- EPA 40 CFR part 60 sub part J & Ja
- SCAQMD rule 1118

OFS-2000 Certifications: UL 3101-1:1993, CSA C22.2 No. 1010.1:92, IEC 61010:1999

OFS2000F™ Specifications

Flow Performance	
Measurement Technique	Optical Scintillation (OSi Patented)
Dynamic Range	0.03 to 170 m/sec, bidirectional (current loop output limited to 100 m/sec, full range via MODBUS RTU / serial interface)
Accuracy (absolute)	+/- 0.01 m/sec basic -or- +/- 2% of reading, whichever is greater
Repeatability (relative)	+/- 0.01 m/sec basic -or- +/- 1% of reading, whichever is greater
Long Term Drift	Less than 1% per year
Response Time	Response 0.3 sec., Update: 3 sec. Averaging (selectable): 3-600 sec.
Automatic Calibration	2 or 3 point; user selectable interval -or- on external command
Sensor Health Monitoring	Continuous self-test of voltages, performance, optics, etc.
Media / Environmental	
Stack / Duct / Pipe Diameter	0.2 to 10 m, standard -- consult factory for other ranges
Media Temperature / Pressure / Humidity	No effect on measurement
Media Transparency	Up to 95% opacity (OFS-2000-FW recommended for high opacity)
Ambient Temperature / Humidity	-50 to 60 C (-58 to 140 F) / 0 - 100% condensing
Physical Specifications	
Light Source	Eye-safe 670 nm visible red LED, 5 deg. divergence angle
Sensor Heads (w/ 4" sch.40 flange extender)	9 x 9 x 13 inches, 13 lbs. -- NEMA4 weather resistant
Control Unit: 19" Rack Mount (standard) NEMA4 Wall Mount (optional)	5 x 17 x 20 inches, 13 lbs. (for indoor use) -or- 12 x 16 x 10 inches, 15 lbs. (for outdoor / factory floor use)
Electrical Specification	
User Interface	RS-232 serial I/O and / or 4-20 mA optically isolated current loop; Also two sets of relay contacts for fault and calibration indication.
Power for Transmit Head	Universal 100-240 VAC, 50/60 Hz, 12 VA (fused & surge protection)
Power for Control Unit	Universal 100-240 VAC, 50/60 Hz, 40 VA (fused & surge protection)
Cable between Control Unit & Receive Head	25 foot standard; to 300 foot optional (shielded, 10 cond., 22 AWG)

Specifications are subject to change without notice.

OFS systems are assembled per individual customer order. OSI offers an array of options to meet customer requests. we offer a variety of adapters to match ANSI 150 and 300 flanges (3" and 4"). Flange adapters and equipment enclosures are available in powder – coated aluminum (standard) or 316 Stainless Steel (optional).

OFS-2000F™ Options:

- **Z-Purge Option** for Class I Div I & II applications.
- Standard Control Unit is rack mount; for wall mount, order **1910-301, NEMA4 Option**.
- For custom receiver cable length, order 1910-216-nnn where "nnn" is cable length in feet (max 300).

OFS-2000F™ Accessories:

- **MZ-1179-00** Fiber Optic Modems (FOM) for distances to 1 mile (2 required)
- **MZ-0649-00** Limited Distance Modems (LDM) for distances > 100 feet to 3 miles. (2 required)
- **1910-804** Laptop DB9 serial communications cable

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