



Field Service & Support – Optical Flow Sensors

SERVICE TYPES: OSi provides several different types of field service by factory trained engineers as shown below:

Start-up / Commissioning Services

Unlike competing technologies, the OFS is simple to install and start-up. OSi provides no-cost telephone support for customers doing their own installation. For difficult applications or if the customer prefers, OSi can provide on-site technical assistance for starting up new sensor installations, following the customer's completion of basic mechanical and electrical installation. These services typically include:

- Inspection and checkout of mechanical installation and electrical wiring.
- Optical alignment and checkout of transmitter and receiver assemblies.
- Initial system start-up and system / operational testing.
- Complete documentation of service performed.
- Basic on-the job training for site personnel and no-cost follow-on incident / trip-related telephone support.

OSi recommends one engineer for an estimated one full day on-site for the first system and one additional day for every one or two additional units. One to two additional days (for continental-US sites) plus direct travel expenses will be charged as well. Note that any delays encountered by OSi service personnel such as incomplete customer installation, restricted access issues, customer safety training requirements, support personnel availability and similar will be billed at the standard hourly rate in addition to the scheduled service visit charges. (Standard field engineering service charges of \$1280 per day (onsite and travel) plus direct travel expenses apply.) To minimize travel expenses and possible schedule conflicts, OSi recommends all service trips be set up with at least two weeks advance notice.

Corrective Maintenance / Application Support Services

The OFS uses a modular construction and customers that have attended our factory or on-site training programs can easily repair equipment failures in 30 minutes or less if spare parts are on hand. OSi provides no-cost engineering support to aid in problem resolution. OSi can also provide on-site engineering support to help a customer resolve system failures and application problems. Note that this service is billed even during the warranty period of a system, as the standard warranty provides for factory repair of sensors only. For critical or quantity applications, OSi recommends the customer purchase a critical spares kit or one or more complete spare units. Also, due to the complexity of accurately measuring flow under the infinite variety of possible flow patterns and installation configurations, it is sometimes necessary to provide on-site engineering support to optimally meet the user's application needs. These services can include:

- Perform troubleshooting to isolate problems
- Repair and or replace defective parts (additional charges for replacement parts if out of warranty).
- Install hardware / firmware upgrades.
- Work with customer personnel to analyze and troubleshoot application specific issues.
- Analyze flow volumes and construct custom calibration curves for non standard flow applications.
- Complete documentation of service performed.
- Provide no-cost incident specific telephone support.

Standard field engineering service charges of \$1280 per day (onsite and travel) plus direct travel expenses apply.

Training of Customer Personnel

OSI can provide and strongly recommends our comprehensive training program for customer personnel either at the customer's site (following equipment installation, or in conjunction with our startup services) or at our factory. The course is designed to familiarize users and maintenance personnel with the technology, operation and maintenance of the OFS. Both factory and on-site training programs include copies of all course materials for all attendees.

- **At customer's site:** For smaller groups of students (4 max), the training can be accomplished in one day on site (plus travel days). For larger groups (typically 12 max) the on-site training is done over a two day period (plus travel days). Standard field engineering service charges of \$1280 per day (onsite and travel) plus direct travel expenses apply.
- **At OSI factory site:** Training can be provided at our factory facility, often times with a cost savings, depending on the number of personnel attending. Factory training is normally performed as a one day (full 8 hour) program for 2 to 8 students. (Students from different customers may be combined into a single class). The cost for factory training is \$900 for the first student and \$400 each for any additional from the same customer.

All training includes both classroom and hands on training. The course topics include:

- Overview of basic scintillation theory
- Optical Flow Sensor design overview
- Theory of operation
- Mechanical installation and electrical interfacing
- Optical alignment
- Electronic calibration
- Routine maintenance
- Troubleshooting and correcting application issues
- Troubleshooting and correcting hardware failures

GENERAL:

OSI will make every effort to honor your schedule requirements. The customer and OSI will mutually agree upon final scheduling of any services after receipt of a Purchase Order. A two (2) week minimum notification of request for start-up / preventative / training services is highly recommended. Expedite charges may be applied to urgent service needs, based on availability. OSI is not a large company. The disadvantage is that we cannot send one of a hundred marginally trained service persons out with short notice. The advantage however, is that the service person we do send out is a fully trained, degreed factory engineer. We may take a little longer to respond, but you will get fully qualified, expert service!

The customer has the following general responsibilities to provide:

1. Timely access to the instrument and safe working conditions for OSI personnel.
2. Any special equipment and availability of elevator or equipment lift, where applicable.
3. An on-site representative authorized to make decisions regarding services and plant monitoring requirements.
4. Maintain stable boiler or stack load levels during any periods of the stack/duct sampling runs.
5. Any accessibility or similar on-site delays during a service visit that are not the direct fault of OSI shall be billed at the applicable standard field service rate.