



Fixed Instruments Repair and Service Class

2 day Initial Class

Introduction

- Instructor and student welcome and introductions
- Safety review
- MSA overview
- Course administration
- Review of FIRST handout

Basic requirements

- Legal and minimum requirements for repairing fixed gas detectors
- Calibration gas requirements
- Sensor date code and software revision code discussion
- ESD (Electro-static Discharge)
- Gas interferences and combustible gas factors.

Sensor Theory

- Electro-chemical
- Catalytic bead with demonstration of exploding gases
- Infrared
- Photo-acoustic gas detection
- Symptoms of gas poisoning.

UltimaX A, B, E, T, 3 & PrimaX

- Overview of models
- Operational review
- Application suitability of models
- 4-20mA wiring
- Remote sensor wiring
- Signal boost applications
- Hart and Modbus setup
- Network topology discussion
- Power supply capacity
- Ambient environment affects
- Controller & Calibrator comparison
- Zero and calibration review
- Common problems and repair

Toxgard II & Trigard

- Overview of models
- Operational review
- MRI application review
- Zero and calibration review
- Disassembly, inspection and function of specific parts
- Common problems and repair

Gasgard 8, Model 9010 / 9020, Model 1000 & Gasgard XL

- Overview of differences between models
- Operational review with setup mode (Gasgard XL connection software)
- Sensor connections discussion
- Common problems and repair

OPIR (Open Path Gas Detection) Day 2

- Review of previous day
- Overview of differences between models
- Operational review with setup
- Alignment issues
- LEL-Meter units discussion
- Customer alarm expectations
- Common problems and repair

Flamegard

- Overview of differences between models
- Properties of a flame
- False alarm suppression
- Common problems and repair

Ultrasonic Gas detection

- Overview of model
- Where it is used and how is it different than normal gas detection.
- Sound assessment procedure
- Common problems and repair

Older equipment:

Model 500, 700, 5000, 6000, DAN, Non-intrusive sensors, Tankgard, Riguard, PSS, RSS

- Overview of model and replacement unit.
- Limits of repair.

Course Summary

- **Open book/open note evaluation**
- Complete course evaluation final administration and wrap up