OMNTEC Mfg., Inc.
1993 Pond Rd, Ronkonkoma, NY 11779 *Tank Gauging • Liquid Level and Leak Detection Systems • Relays*

OMNTEC Bid Specification

OEL8000II

Automatic Tank Gauging
Leak Detection System

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* Specifications subject to change without notice

Part 1 System Requirements

1.1 Description

A. This specification is intended to provide information for bidders in order to understand the aboveground and underground storage tank systems.

B. This specification will describe a continuous aboveground/underground storage tank and leak detection system that is in accordance with Subpart D CFR 280 and shall meet the performance specifications and functions of the OMNTEC Automatic Tank Gauge and Leak Detection Monitoring System.

C. The aboveground/underground storage tank system shall meet all applicable standards and regulatory agency requirements, including, but not limited to, the standards and requirements of the following:

D. Environmental Protection Agency (EPA)

E. Underwriters Laboratories, Inc. (UL)

F. National Electric Code (NEC)

G. National Bureau of Standards (NBS)

H. National Fire Protection Agency (NFPA)

I. American Petroleum Institute (API)

J. American Society fro Testing and Materials (ASTM)

K. American National Standards Institute (ANSI)

L. Underground Storage Tanks: Subpart D, 40 CFR Part 280

1.2 Standards

A. Standards for Tank Monitoring Systems include sensors, probes, leak detectors and all accessories.

B. EPA Regulations 40 CFR Sub Part D

C. Certification by an Independent Laboratory using EPA Protocol (#EPA/530/UST-90/006)

Part 2 Specifications

2.1 In-tank Leak Detection

A. The system shall utilize probes based on magnetostrictive technology to measure level and in-tank leak detection.

B. The Automatic Tank Gauge (ATG) will be capable of performing a static monthly tank tightness test to a threshold of 0.1 GPH with a P_D=99.9% and P_{FA}= 0.1%. The Automatic Tank Gauge (ATG) will be capable of performing a static annual tank tightness test to a threshold of 0.05 GPH with P_D=97.8% and P_{FA} = 2.2%.

2.2 Interstitial Leak Detection for Double-wall Tanks

2.2.1 Wet Monitoring

A. The system shall be capable of detecting a breach in the inner or outer wall of a brine-filled interstitial space of a double-wall fiberglass tank by continuous leak sensing of the level in the reservoir.

B. The system shall distinguish between a high level and a low level in the brine reservoir of a double-wall tank and alarm to indicate if level changes.

2.2.2 Discriminating Dry Monitoring

A. The system will be capable of detecting a breach in the inner or outer wall by performing continuous leak sensing in the dry interstitial space.
B. The system will be capable of distinguishing between water or hydrocarbons and annunciating the specific alarm.
C. The leak sensor will be designed for ease of installation or removal.
D. The system will detect probe or leak sensor failure.
E. The leak sensor will be installed without leader cable

2.3 Discriminating Sump Monitoring

A. The system will perform automatic, continuous leak detection in all sumps.
B. The system will be capable of distinguishing between water or hydrocarbons and annunciating the specific alarm.
C. All sensors will be self-diagnostic.

2.4 Non-discriminating Monitoring

A. The system will perform automatic, continuous leak detection in all sumps and interstitial spaces
B. All sensors will be self diagnostic
C. The system will be capable of annunciating sensor alarm
D. The leak sensor will be designed for ease of installation or removal

2.5 Well Monitoring

2.5.1 Dry Well

A. The system will be capable of detecting the presence of hydrocarbons by monitoring well using vapor sensors of the adsistor technology.
B. The sensor will generate the appropriate alarm.
C. The sensor will not be sacrificial.

2.5.2 Wet Well

A. The system will be capable of detecting hydrocarbons or water in a wet well.
B. The sensor will annunciate the appropriate hydrocarbon alarm with .031 inches of hydrocarbon present.
C. The sensor will alarm on the presence of water.

2.6 Product Inventory

A. The tank monitoring system will have the capability of reporting all deliveries, a minimum of three shift reports per day, and real time tank volume; tank volume; tank temperature and product height in inches.
B. The system will be capable of automatically producing inventory reports.
C. The system will be capable of storing 32 deliveries.

2.7 Inventory Management Reports

A. The system shall monitor inventory in either U.S. or Metric units in up to eight tanks and produce a combination of automatic and manual reports for each tank. The reports should include the following information:
   1. Shift reports
   2. Leak tests (Volumetric)
   3. Alarm report & history
   4. High-Low level status
   5. Drop reports
   6. Alarm status
   7. System configuration
   8. Water level / volume
   9. Product volume / height
   10. Environmental compliance reports

B. All inventory reports will be generated automatically or on demand.

C. The system will be capable of generating automatic drop reports.

D. The system will be capable of displaying all information via printer (optional) and L.C.D. display.

2.8 Communications

A. The tank monitoring system will provide the ability to communicate with locally attached electronic devices through RS-232 ports, RS485 port or with remote locations via an internal Fax / modem or relay outputs.

B. The communications protocol shall be OMNTEC native communications protocol or compatible.

C. The tank monitoring system shall provide all available reports on the integral printer (optional)

2.8.1 Serial Communications

A. The system shall provide two RS-232 and one RS485 communications interface for data transmission to a computer or a Fax / modem for remote communications.

2.8.2 Fax / modem

A. The automatic tank gauging system (ATG) shall contain an internal Hayes-compatible Fax / modem with a snap in RJ-11 jack for direct data transmission over phone lines, and have the ability to transmit information directly to a PC.

B. The Fax / modem shall have the ability to:
   1. Interface with a computer
   2. Receive calls from a PC or terminal to query ATG information. The ATG shall have provisions for enabling or disabling the answer mode for telephone line sharing applications.

2.8.3 Reports

A. The system shall be able to generate reports through the communication interface in a display or printer. All reports may be retrieved locally.

B. The system shall be capable of running all reports native to the ATG it is monitoring, and generate them on demand.

2.9 I/O Interface

2.9.1 Relays

A. The system will be capable of accepting up to twenty-four programmable SPDT relay outputs.

B. Relays will be true form C programmable both normally open and normally closed.

C. The relays can be configured in either a Normally Open or a Normally Closed orientation.

2.10 Low Voltage Outputs

A. System will be capable of generating up to eight low voltage outputs (12VDC) for external devices (high level remote annunciators)

2.11 Alarms

A. The tank monitoring system will be capable of audible and visual indication on all alarms.

B. Alarms:

1. High product
2. Caution (visual only)
3. Low product
4. High water
5. Any leak alarm

C. All alarm conditions will be capable of being printed automatically or an demand (optional)

D. The system will be capable of remotely communicating all alarm conditions.

E. The system will be capable of silencing all audible alarms.

F. All visual alarm conditions must remain until alarm condition is removed.

G. The system shall be capable of accepting up to eight low voltage audio/visual high level remote annunciators with acknowledge switches.

H. The system will be capable of storing a minimum of 148 alarm conditions

2.12 Installation

A. The system will be site programmable for specific tank specifications.

B. The system will offer numeric security code.

C. The system will be capable of providing site location information.

D. System will be capable of printing all set-up parameters.

2.13 Test Feature

A. The system will have a test button capable of testing:

1. RAM
2. PROM
3. Leak sensors
4. Gauging probes
5. Audible / visual
6. Printer
7. L.C.D. display

8. Internal electronic diagnostics
9. Test feature allows for sensor remote testing as per Third Party Certification

Part 3 System Capabilities

3.1 Controller

A. The controller will have 20 oil tight tactile switches for alphanumeric programming.
B. The controller will have 4x40 L.C.D. LED backlit display.
C. The controller will have three L.E.D. indicators for alarm, fault and OK status.
D. The controller will have a 36 character thermal printer. (optional)
E. The controller will have battery back-up for programming memory
F. The controller will have the capability to communicate with remote computers.
G. The controller will be UL listed.
H. The controller will be installed per UL and NEC code for intrinsic safety.
I. The controller will have intrinsically safe inputs.
J. The controller will be equipped with a locking mechanism.
K. The controller will have conduit knockouts.
L. The controller will be wall mountable.
M. All internal power will be supplied by off board switching regulated power supply.

3.2 Gauging Probes

A. All probes will be wired with Belden 8761 (OMNTEC EC-2).
B. Using Belden 8761 probe must not be placed in excess of 1000ft from controller
C. For cable runs greater than 1000 ft consult manufacturer.
D. The probe will be capable of performing a .1gph and .2gph tightness test per EPA protocol.
E. All probes must be third party certified.
F. All probes are acceptable for both AST and UST installations.
G. All probes will be capable of being installed in 2", 3" or 4" openings and must be field adjustable.
H. The probe must have a minimum of six temperature-sensing devices.
I. The probe must be constructed of 316 grade stainless steel all welded construction.
J. The probe must be supplied with cathodic boot, minimum of six inches in length.
K. The probe must have striker plate protective end cap.

3.3 Leak Sensors

A. Sensors must utilize electro-optic technology with four wire buss networking capability
B. The sensors will be wired with 4 conductor 22AWG shielded cable with drain (OMNTEC EC-4) or equivalent.
C. The system will be capable of monitoring up to 44 leak sensors.
D. Sensors will be able to be tested without removal from location.

3.3.1 Discriminating Sump Sensor

A. The discriminating sump sensor shall utilize electro-optic technology to detect the presence of liquid and use a conductive electrode to determine whether the liquid is water or hydrocarbon, and provide an alarm to notify the user of the situation.
B. The sump sensor shall not be sacrificial.
C. The sump sensor shall provide an indication of fluid when liquid reaches approximately .5” in height.
D. The sump sensors shall be supplied with a twelve-foot cable to connect the sensors to field wiring in the sensor junction box.
E. The sump sensor shall be supplied with watertight installation splice kit.

3.3.2 Discriminating Interstitial Sensor for Dry Double-wall Steel Tanks

A. The interstitial sensor for a doublewall steel tank shall be designed to fit in a 2” drop tube.
B. The interstitial sensor will be equipped with 20ft of cable.
C. The sensor will utilize electro-optic technology to detect the presence of liquid and use a conductive electrode to determine whether the liquid is water or hydrocarbon, and shall provide an alarm to notify the end user.
D. Sensor will be supplied with cord grip and water tight installation splice kit.

3.3.3 Discriminating Interstitial Sensor for Dry Double-wall Fiberglass Tanks

A. The sensor shall be designed to fit into an interstitial monitor rib and be positioned at the bottom of the tank.
B. The interstitial sensor will be equipped with 20ft of cable.
C. The sensor will utilize electro-optic technology to detect the presence of liquid and use a conductive electrode to determine whether the liquid is water or hydrocarbon, and shall provide an alarm to notify the end user.
D. Sensor will be supplied with cord grip and watertight installation splice kit.

3.3.4 Reservoir Sensor

A. The reservoir sensor will use electro-optic sensing technology.
B. The reservoir sensor shall be designed to fit into a typical brine filled reservoir configuration.
C. The sensor shall be supplied with twenty feet of cable and a watertight splice kit.
D. The sensor will be capable of detecting a change in the reservoir level.

3.3.5 Monitoring Well Sensor

A. The well sensor will employ float technology to detect the presence of water in the well..
B. The groundwater sensor will utilize expandable polymer technology for sensing hydrocarbons on water.
C. The sensor shall be equipped with a lockable, watertight cap.

3.3.6 Non-discriminating Sensor

A. Sump sensor
    1. The sump sensor will utilize electro-optic technology to detect the presence of liquid and shall provide an alarm to notify the end user.

2. The sump sensor shall be designed with a twelve-foot cable to connect the sensor to field wiring in the sensor junction box. The sensor shall be equipped with watertight cord grip and splice kit to install in sensor junction box.

B. Interstitial sensor for dry double-wall steel tank

1. The interstitial sensor for a doublewall steel tank shall be designed to fit in a 2" drop tube.
2. The interstitial sensor will be equipped with 20ft of cable.
3. The sensor will utilize electro-optic technology to detect the presence of liquid and shall provide an alarm to notify the end user.
4. Sensor will be supplied with cord grip and water tight installation splice kit.

C. Interstitial sensor for dry fiberglass tanks

1. The sensor shall be designed to fit into an interstitial monitor rib and be positioned at the bottom of the tank.
2. The interstitial sensor will be equipped with 20ft of cable.
3. The sensor will utilize electro-optic technology to detect the presence of liquid and shall provide an alarm to notify the end user.
4. Sensor will be supplied with cord grip and watertight installation splice kit.

3.4 Communications

3.4.1 Fax / modem

A. The Fax / modem will utilize the standard Hayes command set and be compatible with phone systems.

B. The Fax / modem will have the capability to communicate directly with a computer.

C. The Fax / modem will use standard RJ-11 jack.

3.4.2 RS-232 Serial Communications Interface

A. The system will have the capability to communicate directly with a computer.

B. The system will provide direct interface using standard RS-232 serial communications hand-shaking signals.

C. The system will utilize nine pin D sub miniature connector

Part 4 Technical Support

4.1 Technical Support

A. Manufacturer will technically support toll free field support number.

B. A certification program will be offered.

C. Supply installation documentation.

Part 5 Documentation

5.1 Manuals

A. The manufacturer shall supply product documentation that addresses the following categories as additional support:

1. Installation Instructions

2. System Setup instructions
3. System operating instructions
4. Probe installation instructions
5. Product data sheet
6. Wiring diagrams which include the following:
    a. Identification of all devices and equipment terminals, and all external connection terminal blocks.
    b. All external wiring connections with approved wire colors and circuit designations

5.2 Third-party Certification

A. The manufacturer shall supply third-party documentation for all products certifying that performance meets or exceeds EPA requirements.

Part 6 Warranty

A. The seller OMNTEC Mfg., Inc. warrants to buyer, for one year: That all systems meet specifications herein. All systems are free of defects when properly installed, and maintained by user. The sellers sole obligation is to repair or replace parts found to be defective, or non-conforming after evaluation by factory. The liability of the seller shall not exceed the price paid for the system. The above warranty is exclusive of all other warrantees whether implied or expressed. Seller assumes no obligation for special or, indirect damages incurred by user