

Generator Sub-Base Belly Tank Integrated Fuel System Spec

Introduction

Generator Sub-Base (Belly) Fuel Tanks are often used to simplify the delivery of fuel to the engine. Sub-base tanks need equipment for safe filling from delivery trucks, or re-filling from remote storage tanks. Filter Polishers are an important component as well to assure reliable performance of modern engines. And it is often advantageous for the facility to be able to transfer fuel between tanks to manage inventory.

The Generator Specification can be modified very simply by inserting some key paragraphs to assure reliable fuel supply.

Key Specification Elements for Generator Fuel Equipment

- A. Generator Base Fuel Tank Monitoring.** Provide an electronic monitoring system with touch screen interface for fuel stored in generator base tank. The system shall be in addition to the level sensors integrated into the generator controls. The system shall include a level sensor capable of measuring fuel height of 1 inch (25 mm) and greater, and shall provide tank fuel level information in inches, gallons, and % full. Fuel measurements shall be temperature compensated. Audible and visual alarms shall be provided for high level, low level, fuel re-order level, and leak. The monitoring panel shall incorporate up to 5 leak detection sensors for auxiliary leak sensing of fuel pumps and piping systems. The monitoring panel shall have a Modbus interface to other power system monitors. Provide Earthsafe C80 MicroPlex Controller and accessories.

- B. Generator Base Fuel Tank Remote Fill.** Provide an electronic controller and remote fill station for fuel transfer from delivery trucks to generator base fuel tanks. The fill station shall be a lockable stainless steel enclosure, flush mounted or surface mounted as indicated on drawings. The fill station shall have a minimum of 7 gallons spill capacity. The fill station shall include a 2" (50mm) tight fill connection and cap, 2" (50mm) ball valve, 2" (50mm) check valve. A 85-95% high level sensor and 2" (50mm) actuated valve shall be provided for field installation at each generator base fuel tank. The controller shall provide audible and visual alarms for 85% and 95% tank levels. The system shall have a time limited jog mode for filling between 85% and 95%, and shall disable the fill function at 95%. . The system shall include a level sensor capable of measuring fuel height of 1 inch (25 mm) and greater, and shall provide tank fuel level information in inches, gallons, and % full. The system shall be capable of remote filling 1 or 2 fuel tanks. The controller shall have a Modbus interface to other power system monitors. Provide Earthsafe MM400 Fill Station and accessories.

C. Generator Base Fuel Tank Remote Refill and Overflow Pump. Provide an electronic controller and accessories for fuel tank refill from a remote fuel storage tank and pump system. The equipment shall be mounted within a weatherproof enclosure exterior to the generator enclosure. The enclosure shall provide a minimum 3 gallon leak containment capacity and monitored leak sensor. The unit supply side shall include an inlet solenoid valve normally closed, a high stop solenoid valve normally open, with an upstream ball valve and strainer, and a flow limiting valve set at 6 GPM (25 LPM). The solenoid valves shall include a manual bypass valve, and shall be provided as a duplex redundant unit where indicated on drawings.

The unit return flow side shall include a return flow positive displacement pump and motor starter. Pump accessories shall include inlet strainer, check valve or foot valve, inlet and outlet isolation valves, pressure and vacuum gauges, and a pressure relief bypass valve. The pump shall be a high suction type with 1150 RPM, TEFC motor, 120 VAC (230VAC) with a flow capacity of 9 GPM (40 LPM) or greater. The unit shall include a pump motor starter disconnect with overload protection.

The controller shall monitor a 4 point level sensor furnished for field installation in the generator tank for sensing high, refill stop, refill, stop, and low levels. The controller shall include a dry contact output relay to provide a pump start signal for the remote fuel supply pump. Alarms shall be provided for high level, low level, leak, flow, and pump alarms. The unit shall include inlet and outlet flow sensors for proof of flow. The controller shall have a Modbus interface to other power system monitors. Provide Earthsafe MM550 Tank Refill System and accessories.

D. Generator Base Fuel Tank Duplex Refill Pump. Provide a PLC based controller and accessories for fuel tank refill from a remote fuel storage tank utilizing duplex fuel transfer pumps. The equipment shall be mounted within a weatherproof enclosure exterior to the generator enclosure. The enclosure shall provide a minimum 3 gallon (12L) leak containment capacity and monitored leak sensor.

The unit shall include dual positive displacement pumps and duplex motor starter. Pump accessories shall include inlet strainer, check valve or foot valve, inlet and outlet isolation valves, pressure and vacuum gauges, and a pressure relief bypass valve. The pumps shall be high suction type with 1150 RPM, TEFC motor, 120 VAC (230 VAC) with a flow capacity of 6 GPM (25 LPM) each. The unit shall include a duplex pump motor starter disconnect with overload protection.

The controller shall monitor a 4 point level sensor furnished for field installation in the generator tank for sensing high, refill stop, refill, stop, and low levels. Alarms shall be provided for high level, low level, leak, flow, and pump alarms. The unit shall include inlet and outlet flow sensors for proof of flow. Provide Earthsafe MM200 Duplex Pump System and accessories.

E. Generator Base Fuel Tank Filtration / Polishing System. Provide an electronic controller and accessories for filtration and polishing of fuel stored in the generator base tank. The equipment shall be mounted within a weatherproof enclosure exterior to the generator enclosure. The enclosure shall provide a minimum 3 gallon (12L) leak containment capacity and monitored leak sensor.

The unit shall include positive displacement pump and motor starter. Pump accessories shall include inlet strainer, check valve or foot valve, inlet and outlet isolation valves, pressure and vacuum gauges, and a pressure relief bypass valve. The pumps shall be high suction type with 1150 RPM, TEFC motor, 120 VAC (230 VAC) with a flow capacity of 6 GPM (25 LPM) each. The unit shall include a pump motor starter disconnect with overload protection.

The filter shall be a particulate and coalescing filter rated at 2 microns. The filter vessel shall include a water sump with drain.

The controller shall perform filtration on a timed cycle based on user inputs for start day and time, and fuel tank size. The system shall include a differential pressure transmitter and provide differential pressure indication and alarms. The system shall include filter water sensor and a leak sensor. Alarms shall be provided for filter high differential pressure, filter water, leak, and pump failure. The unit shall include a flow sensors for proof of flow. Provide Earthsafe M300 Filtration Polishing System and accessories.