Tank Filling Systems
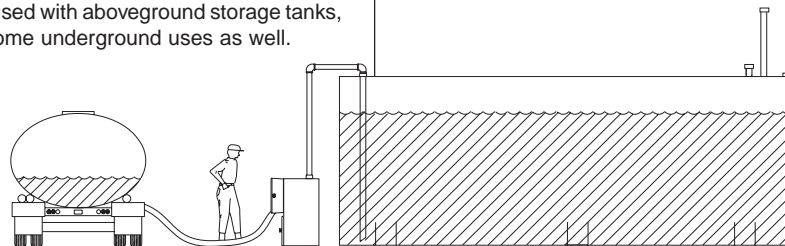
for Petroleum Products

SIMPLX®

What Is It Used For?

Generally used with aboveground storage tanks, although some underground uses as well.

What Is It?

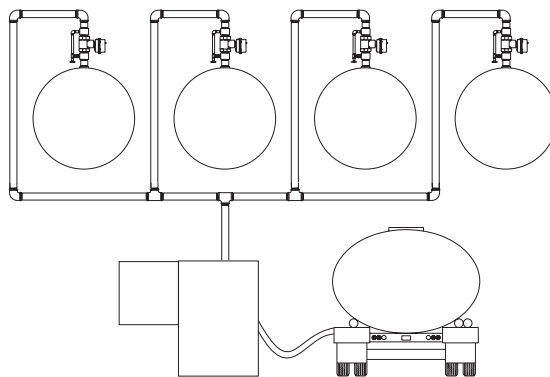An easy means of filling above ground storage tanks from delivery trucks.

From pumpers...

From gravity trucks...

With manual shutoff

With automatic shutoff

One Tank or Multiple Tanks

What kinds of products can I deliver with this system?

Petroleum products and automotive products

• Fuel Oils
• Jet Fuel
• Gasoline
• Lube Oils

• Transmission Fluid
• Hydraulic Oils
• Brake Fluid
• Antifreeze
• Contact Simplex for other products

Why do I need this Simplex System?

• Easy fill of aboveground storage tanks
• Eliminates ladders, top fill
• Allows use of gravity truck with tall aboveground storage tanks
• Controls and prevents spills

• Provides fill shutoff
• Allows multiple tank filling
• Factory standard, packaged
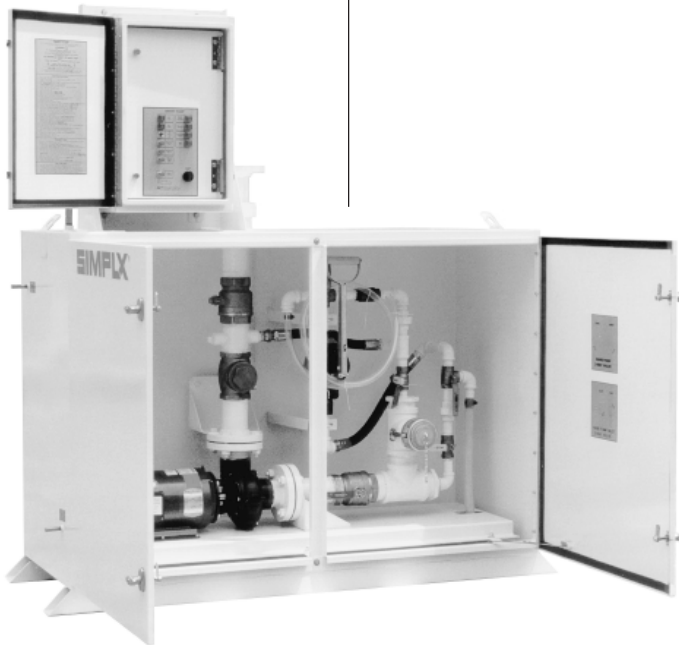• Highly engineered
• Economical

Selection Guide and Table of Contents

MEMBER PEI
PETROLEUM EQUIPMENT INSTITUTE

TANK FILLING SYSTEMS

Class I Liquid, <100°F Flash Point
Class II Liquid, >100°F Flash Point

CONTROLLERS AND OTHER PRODUCTS

SmartPump with optional full enclosure.
Lockable, with containment basin and hand pump.

FuelPort

FuelPort with optional Flush Wall-mounting Flange

Description

The Simplex FuelPort is a compact, economical solution for simple filling and spill prevention for aboveground storage tanks. The FuelPort includes all valves and fittings necessary for hose connection from a pumper truck to an above ground storage tank, packaged within a lockable, weatherproof spill containment box. The FuelPort can be bolted to the tank, hung from the fill pipe, or attached via clamps to a 3" post. The FuelPort is suitable for use with fuel oil, gasoline, automotive products, or certain chemicals. An optional vapor recovery adaptor is available.

Includes:

- Weatherproof, lockable box with spill containment
- Tank mounting weld brackets (2)
- FuelPort mounting tabs to accept weld brackets (above) or optional 3" post clamps
- Quick disconnect hose coupling with dust plug
- Hand pump for spill containment, with shutoff and check valve
- Check valve
- Shutoff valve
- Ground stud

Full-Size FuelPort with Vapor Recovery

Specifications:

Fitting size: 2", 3" or 4"
Hand pump capacity: 1 gpm
Paint: white

Spill containment:
Compact FuelPort - 7 gallons
Full-Size FuelPort - 20 gallons

Net weight:
Compact FuelPort - 129 lbs.
Full-Size FuelPort - 250 lbs.

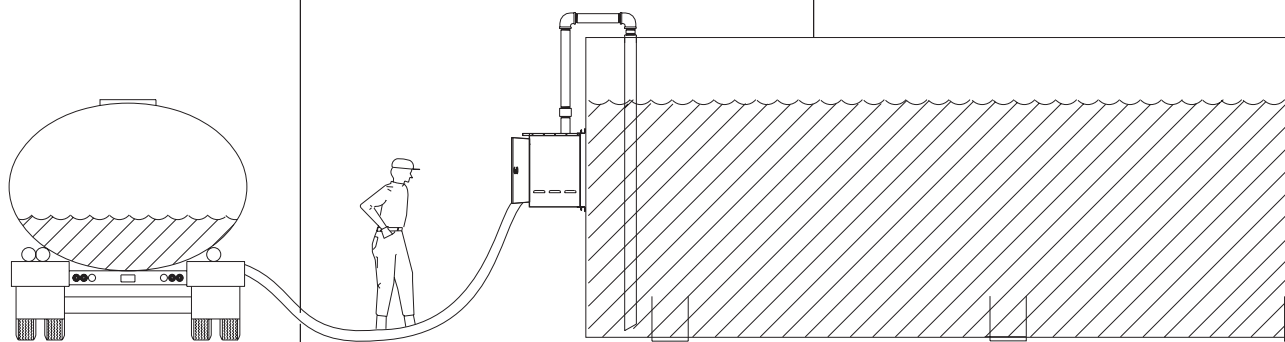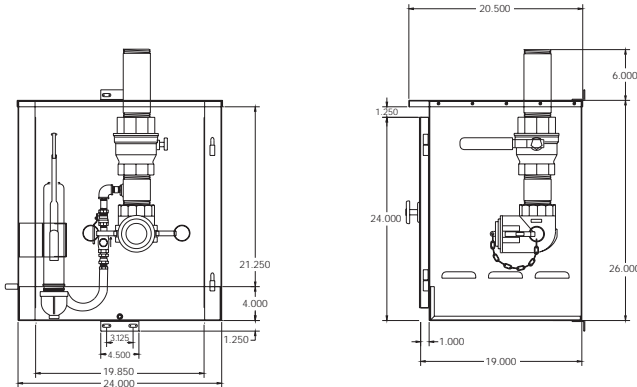## Fittings: 2", 3" or 4"

Inlet to accept:

- Standard fitting: Quick detachable coupling with check valve, shutoff ball valve
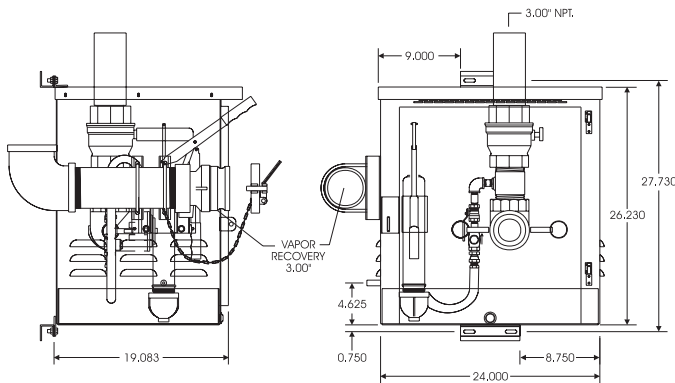- Optional fitting: Buyer specified dry disconnect

Outlet fitting:

- Threaded pipe welded in top panel, 3" NPT threads
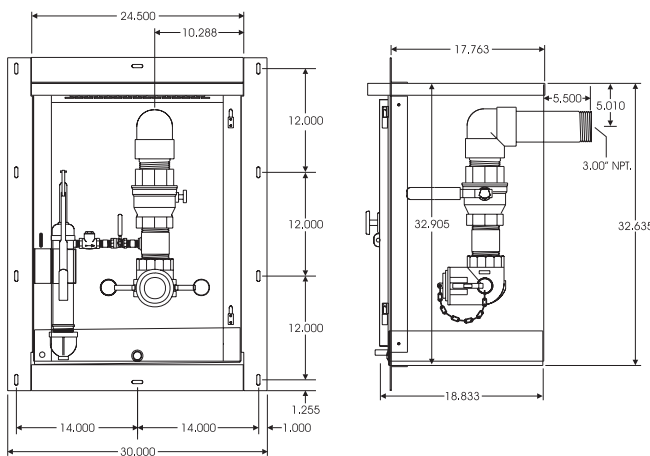- Optional gasoline vapor recovery adaptor
- Bottom outlet

Standard FuelPort:

FuelPort with Vapor Recovery:

FuelPort with Flush Wall-mounting Flange:

FuelPort Installation:

- Mount to side of tank using weld brackets (included with FuelPort)

STANDARD WELD BRACKETS
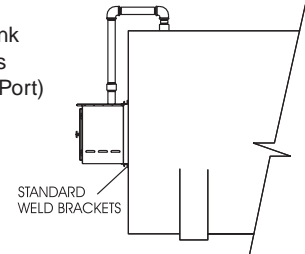
- Hang from Fill Pipe (pipe hanger required)
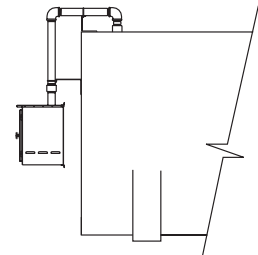
- Clamp to Post (see options list)

OPTIONAL 4' POST ASSEMBLY WITH CLAMPS
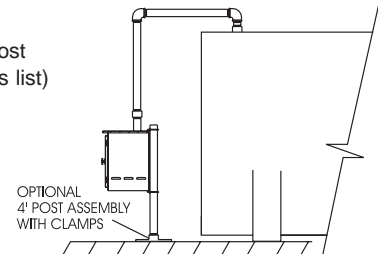
FuelPort Order Checklist

(see Price Book 8A79155E for model and option details.)

☐ Specify fitting size: 2", 3" or 4"

☐ If gasoline use, is vapor recovery required?

Options:

☐ Fire rated valves

☐ Dry disconnect adapter (full-size FuelPort only)

☐ Fuel strainer (full-size FuelPort only)

☐ Hydrostatic level gauge

☐ Flush wall-mounting flange

☐ Post assembly with base, 48" high, w clamps

☐ Post clamps

☐ Fusible link fire valve on outlet

Automatic FuelPort

Description

The Simplex Automatic FuelPort is a factory packaged system for control of filling operations of aboveground tanks that are filled from pumper trucks. The Automatic Fuel-Port provides a ready means of ground level connection of the fill hose, and captures spills that may occur at the fill point during filling operations. The Automatic FuelPort alerts the operator at the 90% level with filling operations locked out at 95%. A leak detection circuit prevents filling of leaking tanks. Visual and audible level and leak alarms and continuous level indication are provided.

The Simplex Automatic Fuel-Port is available for use with fuel oil (Class-II liquids) or gasoline (Class-I liquids).
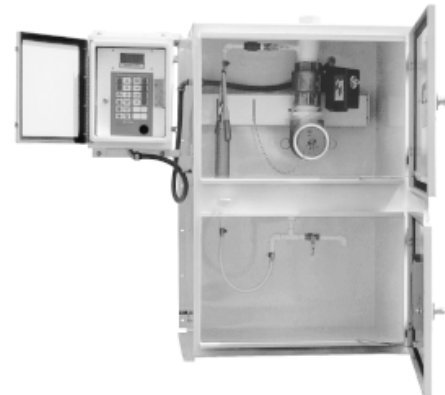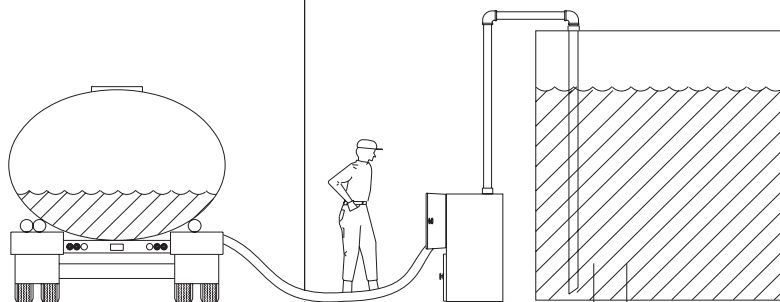
Single or multiple tank controllers are available. Multiple tank controllers allow operator selection of the tank to be filled with automatic lockout of all other tanks. (refer to page 8 and 9)

How it works:

1. Delivery truck arrives and driver proceeds to Automatic FuelPort to make fuel delivery.

2. Connect ground cable

3. Unlock fill box and control box

4. Turn on controller

5. Read fuel level in tank on level indicator gauge

6. Connect delivery hose to hose coupling

7. Open valve on truck

8. Start delivery pump on truck

9. Press "valve open" pushbutton on controller

10. Automatic FuelPort valve opens

11. Fuel is delivered to tank

12. At 90% level, audible and visual alarm activates and alerts driver

13. Driver may stop delivery by depressing "valve close" pushbutton and proceed to step #16

14. Driver tops off to 95%

15. At 95% level, audible and visual alarm activates and Automatic FuelPort valve closes (valve may not be reopened)

16. Stop fill pump

17. Drain delivery hose

18. Close truck valve

19. Disconnect delivery hose from Automatic FuelPort

20. Turn controller off

21. Close and lock Automatic FuelPort doors

22. Proceed to next delivery, where, hopefully, the owner has had the foresight to install a Simplex Automatic FuelPort

Includes:

- Freestanding, pad or tank mountable, weatherproof and lockable enclosure with 20 gallon spill containment sump
- Quick disconnect hose coupling with dust plug
- Check valve
- Electrically operated shutoff valve
- Automatic controller, described below
- Hand pump for spill containment, with shutoff and check valve
- Ground stud

Compact Design Automatic FuelPort

Controller includes:
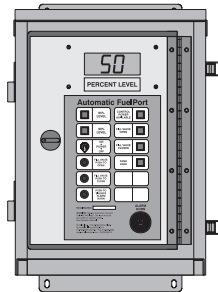
- Level transmitter for installation in 2" tank fitting minimum
- Digital level indicator scaled in percent level (diesel version only)
- 90% visual alarm
- 95% visual alarm
- Tank leak alarm
- Audible alarm horn activated by alarms above
- Power available indicator
- Control power on-off switch
- Valve open/close push-buttons
- TYPE 3R enclosure (fuel oil version)
- Explosion proof enclosure (gasoline version)

Specifications:

Fitting size: 2", 3" or 4"
Spill containment: 20 gallons
Hand pump capacity: 1 gpm
Paint: white
Net Weight: 313 lbs. (Oil), 363 lbs. (Gas)
Control power: 115-1-60v
Level transmitter fitting: 2" min.

Oil Automatic FuelPort:
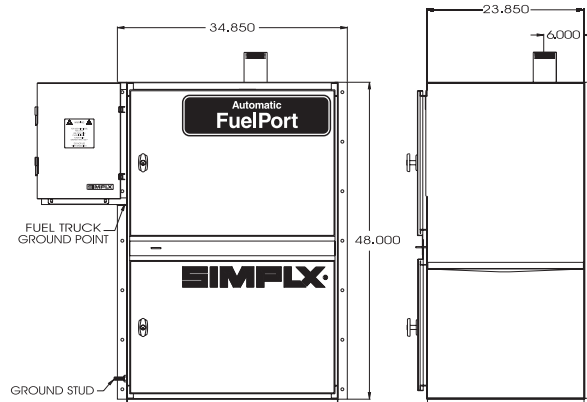
Gas Automatic FuelPort:
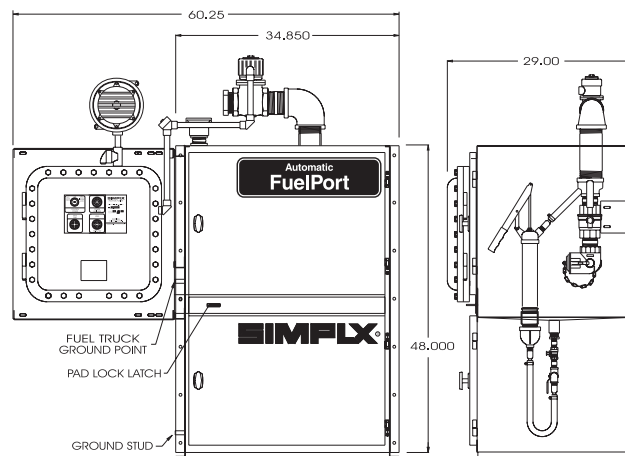
Explosion Proof (Gas) Controller:
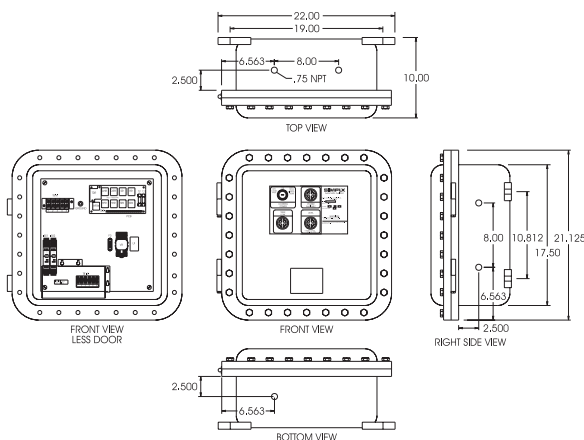
Automatic FuelPort Order Checklist

(see Price Book 8A79155E for model and option details.)

☐ If gasoline use, is vapor recovery required?

☐ How many tanks to fill?

☐ Tank leak sensing required?

☐ Size fill fittings: 2", 3" or 4"?

☐ Accurate tank dimensions required, 2" or 4" fitting required for transmitter (specify)

☐ Specify options

Automatic FuelPort for Filling Multiple Tanks

Description

When used for filling of two or more tanks, the Automatic FuelPort allows for operator selection of the tank to be filled with automatic lockout of all off-line tanks. Sophisticated interlocks prevent inadvertent filling of a non-selected tank.

90% alert and 95% automatic shutoff are provided. Tank level indicator and (optional) leak sensing are included.

Automatic FuelPorts for use in the filling of multiple tanks include electrically operated shut off valves for each tank. These are shipped loose for installation at the inlet to each tank.

SIMPLX®

TO TRUCK

Automatic Fuel Port
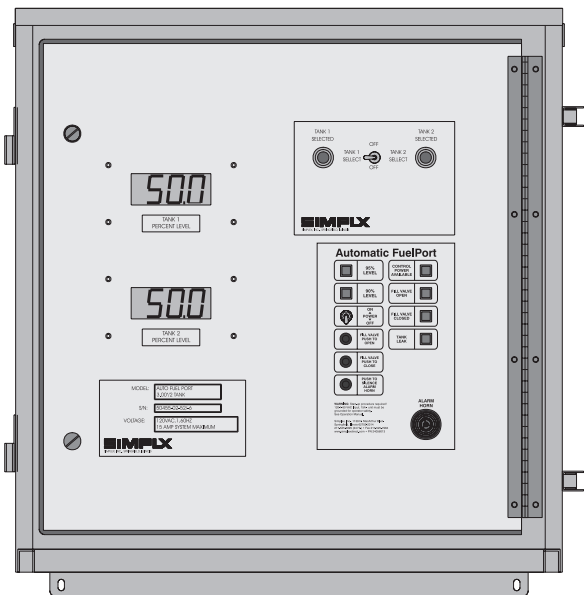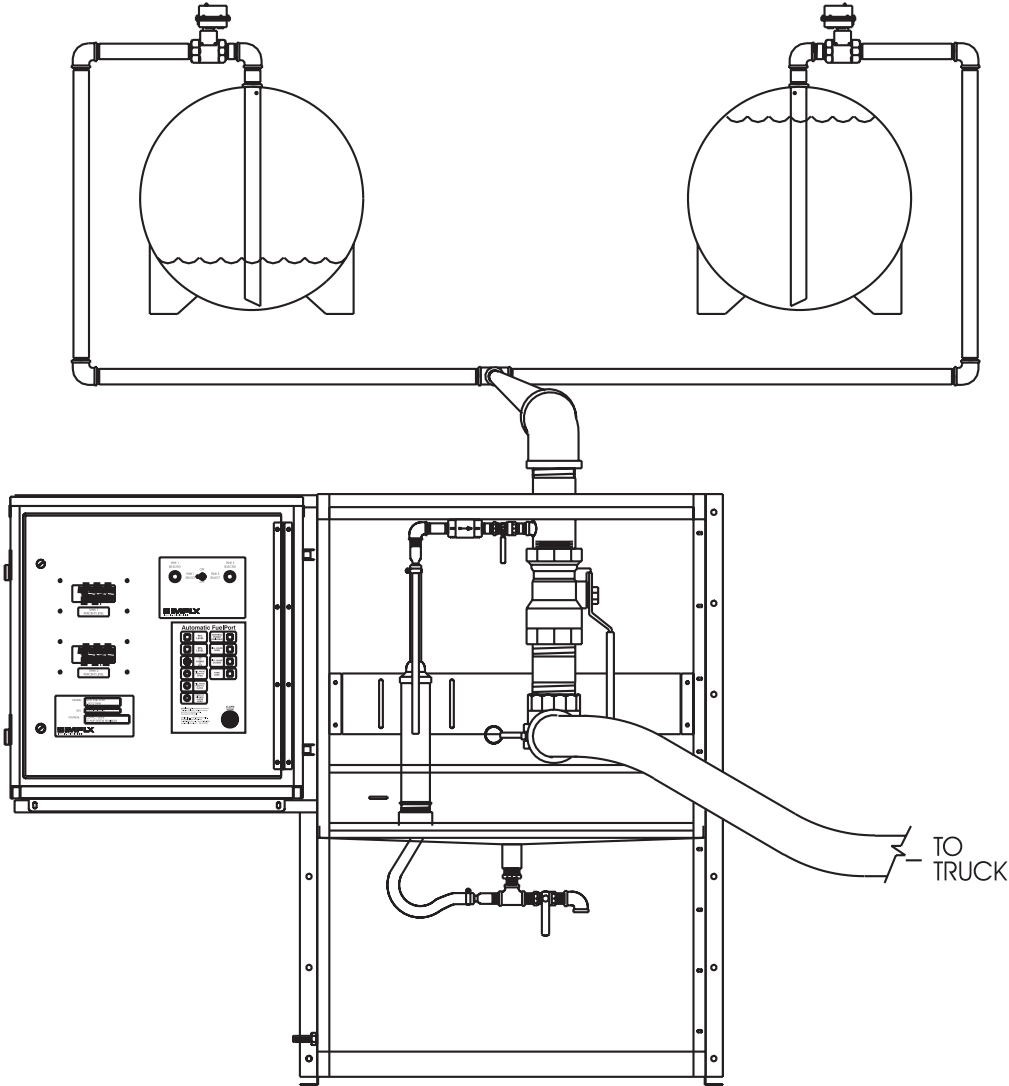
SIMPLX

SmartPump

Description

The Simplex SmartPump is a tank fill pump with intelligence. The SmartPump is a factory pack-aged system for transfer of fuel from gravity trucks to storage tanks and control of filling op-erations to prevent overfill and allow for full drain-ing of the truck delivery hose. The SmartPump
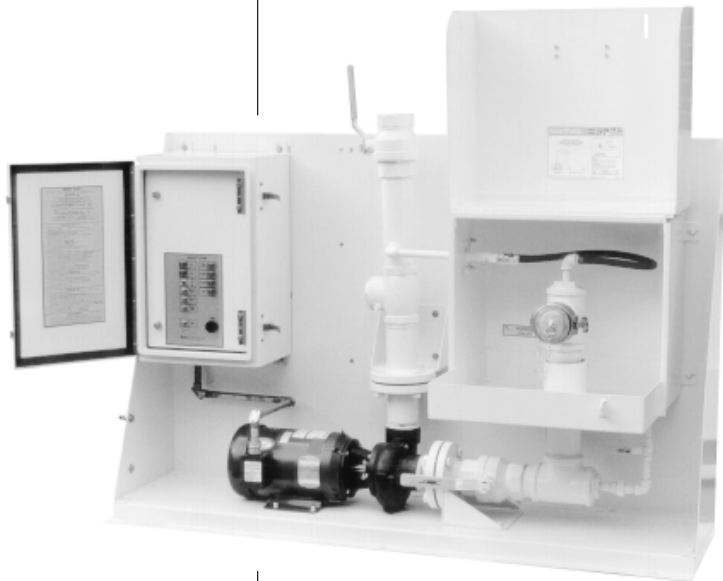
provides a ready means of ground level connec-tion of the fill hose, and captures spills that may occur at the fill point during filling operations. The SmartPump includes a high capacity fuel trans-fer pump and intelligent pump controls. The unique design and intelligence of the SmartPump allows full and easy draining of the truck fill hose prior to disconnect. The SmartPump detects the 90% level, stops filling operations and activates an alarm. The SmartPump allows the operator to continue filling and/or drain the fill hose up to the 95% level at which time all filling operations are locked out and an alarm is activated. A leak detection circuit prevents filling of leaking tanks. Visual and audible level and leak alarms and continuous level indication are provided.

The Simplex SmartPump is available for use with fuel oil (Class-II liquids) or gasoline (Class-I liq-uids).

Single or multiple tank controllers are available. Multiple tank controllers allow operator selection of the tank to be filled with automatic lockout of all other tanks.

How it works:

1. Delivery truck arrives and driver proceeds to SmartPump to make fuel delivery
2. Connect ground cable
3. Unlock fill box and control box
4. Turn on controller
5. Connect delivery hose to hose coupling
6. Open valve on truck
7. Open SmartPump inlet valve
8. Open SmartPump outlet valve
9. Start SmartPump
10. Fuel is delivered to tank
11. At 90% level, audible and visual alarm acti-vates and alerts driver, SmartPump stops
12. Driver may stop delivery at this point
13. Driver can restart SmartPump by depress-ing "override" push-button and depressing "Pump Start" push-button. Pump will run for 30 second intervals
14. Driver can continue filling or drain delivery hose at this time
15. To drain hose, driver closes truck valve and breaks hose connection at tank and allows SmartPump to empty hose
16. Driver may restart SmartPump in 30 second intervals, but all filling and hose draining op-erations must be ended and truck valve closed prior to reaching 95% level
17. At 95% level, audible and visual alarm acti-vates and SmartPump stops. SmartPump can not be restarted
18. Close SmartPump outlet valve
19. Close SmartPump inlet valve
20. Disconnect delivery hose and ground cable
21. Turn controller off
22. Close and lock SmartPump doors
23. Proceed to next delivery, where, hopefully, the owner has had the foresight to install a Simplex SmartPump

Specifications:

Fitting size: 2", 3" or 4"
Spill containment: 7 gallons
Paint: white
Net weight: 617 lbs. (Oil), 632 lbs. (Gas)
Level transmitter fitting: 2"

Single-Tank SmartPumps

Includes level transmitter shipped loose for remote tank mounting

MODEL NO.	APPLICATION**	FITTINGS	HP/GPM
SP-2	Oil	2"	2/150
SP-2G	Gas	2"	2/150
SP-3	Oil	3"	5/300
SP-3G	Gas	3"	5/300***
SP-3GV	Gas, with vapor recovery	3"	5/300***
SP-4*	Oil	4"	5/300
SP-4G*	Gas	4"	5/300***
SP-4GV*	Gas, with vapor recovery	4"	5/300***

4" inlet, 3" internals and outlet

**APPLICATION: "Oil" = Class II liquid, flash point > 100° F
                            "Gas" = Class I liquid, flash point < 100° F

***SP3, SP4 Gasoline SmartPumps at 120/240V, single phase, rated 3hp/200 gpm at 35' foot head

Includes:

- Freestanding, pad mountable, open construction pumpset with weatherproof and lockable fill box with 7 gallon spill containment sump and weatherproof and lockable control box
- 2", 3" or 4" fittings available
- Quick disconnect hose coupling with dust plug
- Inlet shutoff valve
- Check valve
- Outlet shutoff valve
- Line purging valve
- Spill sump drain valve
- High capacity transfer pump, see details below
- Automatic controller, described below
- Ground stud

Controller includes:

- Level transmitter for installation in 2" tank fitting minimum
- 90% visual alarm
- 95% visual alarm
- Tank leak alarm
- Audible alarm horn activated by alarms above
- Power available indicator
- Control power on-off switch
- Pump start/stop push-buttons
- Top-off/hose drain mode push-button
- Pump starter
- TYPE 3R control enclosure (fuel oil version)
- Explosion proof control enclosure (gasoline version)

Pump Performance

SmartPump with 5 hp pump, 3" or 4" inlet:	Head (ft.)	Gpm
	75	200
	65	250
	55	300
	40	350
	25	400

SmartPump with 2 hp pump, 2" inlet:	Head (ft.)	Gpm
	55	75
	45	125
	35	150
	15	200

SmartPump Order Checklist

(see Price Book 8A79155E for model and option details.)

☐ If gasoline use, is vapor recovery required?

☐ How many tanks to fill?

☐ 2 hp (150 gpm) or 5 hp (300 gpm) ***SmartPump?

☐ Specify voltage: single phase: 120v or 240v; 3 phase: 208, 240, 416, 480v

☐ If 5 hp, 3" or 4" inlet?

☐ Tank leak sensing required?

☐ Accurate tank dimensions required, 2" or 4" fitting required for transmitter (specify)

☐ Specify options (page 13)

Two-Tank SmartPumps

Include two level transmitters and two electrically operated shutoff valves shipped loose for remote tank mounting

Two-Tank SmartPumps

Includes two level transmitters and two electrically operated shutoff valves shipped loose for remote tank mounting.

MODEL NO.	APPLICATION**	FITTINGS	HP/GPM
SP-2G/2	Gas	2"	2/150
SP-3/2	Oil	3"	5/300
SP-3G/2	Gas	3"	5/300***
SP-3GV/2	Gas, w/vapor rec.	3"	5/300***
SP-4/2*	Oil	4"	5/300
SP-4G/2*	Gas	4"	5/300***
SP-4GV/2*	Gas, w/vapor rec.	4"	5/300***

*4" inlet, 3" internals and outlet

**APPLICATION: "Oil" = Class II liquid, flash point > 100° F
"Gas" = Class I liquid, flash point < 100° F

***SP3, SP4 Gasoline SmartPumps at 120/240V, single phase, rated 3hp/200 gpm at 35' foot head

Multiple Tank SmartPumps

Two or more tanks: includes level transmitters and electrically operated shutoff valves shipped loose for remote tank mounting, one set for each tank. Change model number suffix to indicate number of tanks.
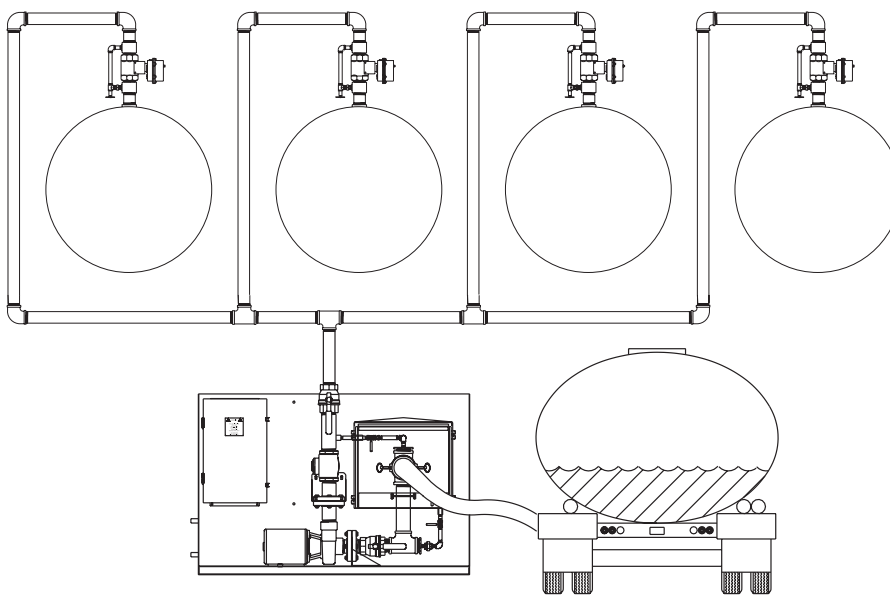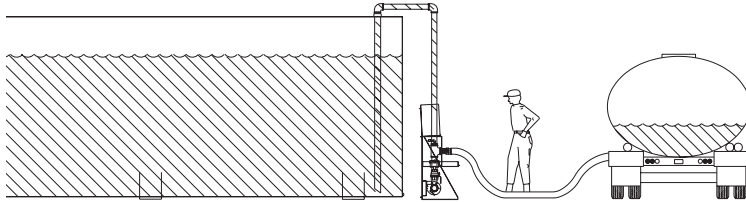
Mini SmartPump

SmartPump Options:

Inlet fittings:

• Standard quick disconnect coupling: 2", 3" or 4":

- 2" available for 2 hp SmartPump

- 3" and 4" available for 5 hp SmartPump

• Dry disconnect adaptor: 2" or 3":

- 2" available for 2 hp SmartPump

- 3" available for 5 hp SmartPump

Valves:

• Fusible link fire valve, installed on outlet

• Fire rated shutoff valves, in lieu of standard bronze valves

• Fire rated shutoff valve assembly for installation on aboveground storage tank fuel inlet, including fire rated ball valve and self-closing fusible link valve (shipped loose)

Leak sensors:

• Tank leak sensor, float switch type, for mounting in a vertical position in collection sumps, monitoring pipes and steel double wall tank sumps. For installation in 2" fitting. SmartPump controller includes: tank leak alarm, tank fill shutoff, alarm contacts.

• Tank leak sensor, as above, except optical type, for restricted space installation in tank annular space, double wall pipe collection sump, etc.

Level indicator gauges:

• Digital level indicator, percent level reading. Includes level transmitter for installation in 2" NPT fitting

• Digital tank monitor with display of tank level in gallons, liters or percent; high and low level alarms, audible alarm; output contact. Includes level transmitter for installation in 2" NPT fitting

• Hydrostatic level gauge, hand pump type with 5" dial type indicator calibrated in gallons. Transmitter installed in 2" tank fitting

Enclosure:

• Lockable full enclosure with containment basin and hand pump. (See photo page 3.)
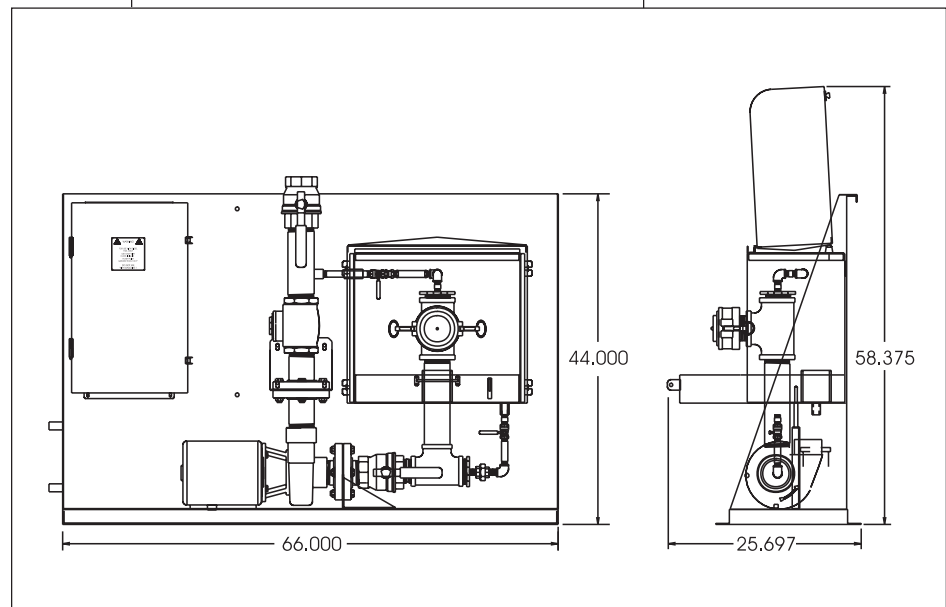
TC-9
Fuel Fill
Controller/
Overfill
Preventer

Description:

The Simplex Tank Commander TC-9 Fuel Fill Controller is an electronic monitor and control system used to control tank filling and prevent overfill. The TC-9 is used with a remote electric solenoid valve or motorized valve.

During filling operations, the TC-9 provides continuous level indication, 90% level audible and visual alarm, 95% level audible and visual alarm and shut off.

The TC-9 can receive a signal from an external tank leak sensor to activate an alarm, send a remote signal and automatically close the fill valve. The TC-9 is for use with fuel oil only.

Includes:

- TYPE 3R rainproof, lockable enclosure with hinged door
- Electronic level sensor for installation in tank - 2" fittings
- Digital level indicator, percent level
- Red alarm light; 90% level
- Red alarm light, 95% level
- 90dB audible alarm horn with silence push-button
- Control power on-off switch
- Valve open-close push-buttons
- Alarm 90% level
- Alarm and automatic valve shut off at 95% level
- Leak sensor input/alarm, automatic shut off

- Indicators for
  - Power available
  - Fill valve closed
  - Fill valve open
  - Tank leak (external input)
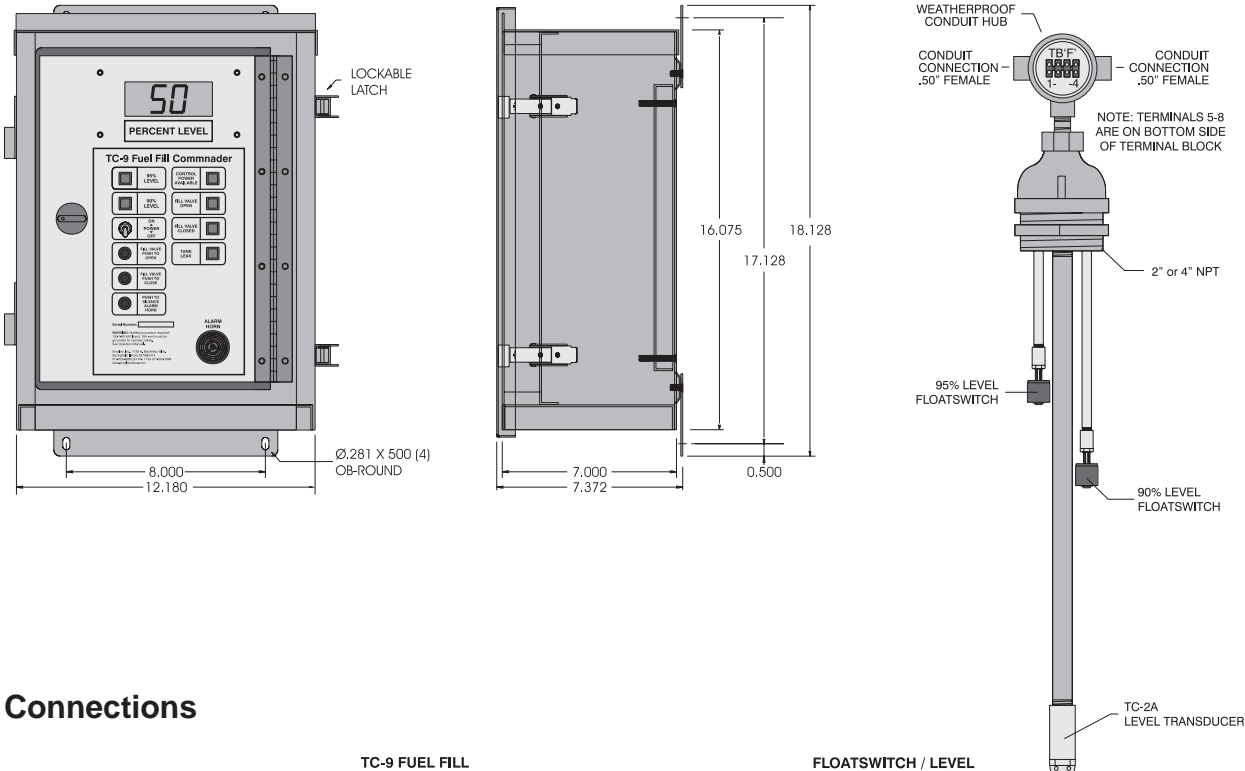 - 90% level alarm
  - 95% level alarm

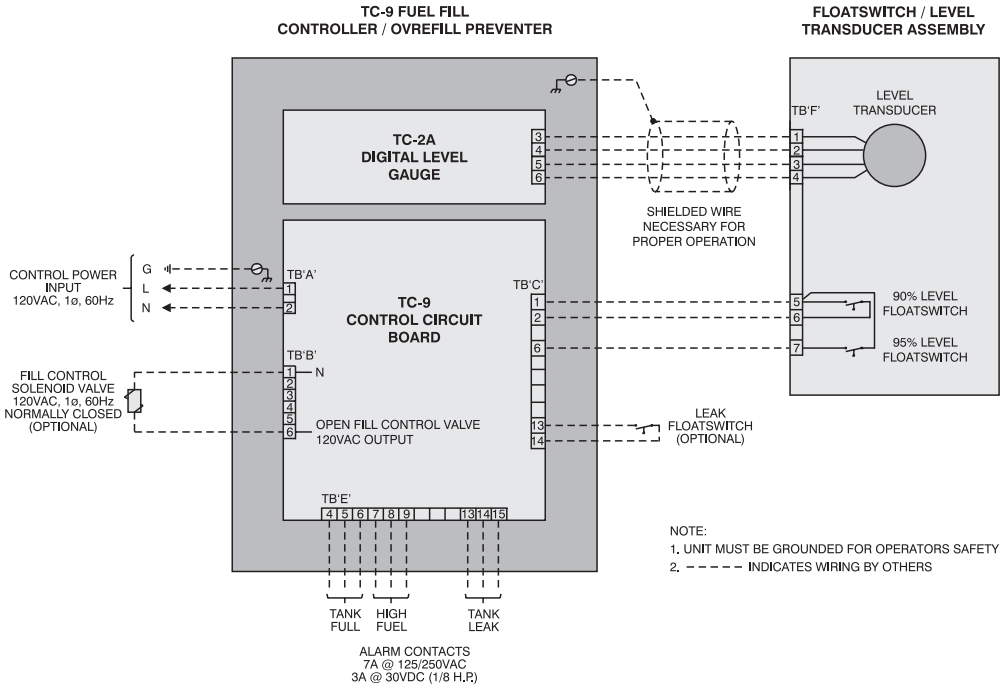## Specifications:

Power supply:
  115-1-60 VAC

Accuracy: ±2%

Transmitter fitting:
  2" or 4"

Application:
  Fuel oil (Class II liquid)

Dimensions and Key Features

LOCKABLE LATCH

50
PERCENT LEVEL

TC-9 Fuel Fill Commnader

95% LEVEL
90% LEVEL
CONTROL POWER AVAILABLE
ON POWER OFF
FILL VALVE OPEN
FILL VALVE CLOSED
FILL VALVE PUSH TO OPEN
TANK LEAK
FILL VALVE PUSH TO CLOSE
PUSH TO SILENCE ALARM HORN
ALARM HORN

8.000
12.180
Ø.281 X 500 (4) OB-ROUND

16.075
17.128
18.128

7.000
7.372
0.500

WEATHERPROOF CONDUIT HUB

CONDUIT CONNECTION .50" FEMALE
TB'F'
1 - 4
CONDUIT CONNECTION .50" FEMALE

NOTE: TERMINALS 5-8 ARE ON BOTTOM SIDE OF TERMINAL BLOCK

2" or 4" NPT

95% LEVEL FLOATSWITCH

90% LEVEL FLOATSWITCH

TC-2A LEVEL TRANSDUCER

Connections

TC-9 FUEL FILL
CONTROLLER / OVREFILL PREVENTER

FLOATSWITCH / LEVEL
TRANSDUCER ASSEMBLY

TC-2A
DIGITAL LEVEL
GAUGE

3
4
5
6

SHIELDED WIRE
NECESSARY FOR
PROPER OPERATION

TB'F'
LEVEL
TRANSDUCER
1
2
3
4

CONTROL POWER
INPUT
120VAC, 1ø, 60Hz

G
L
N

TB'A'
1
2

TC-9
CONTROL CIRCUIT
BOARD

TB'C'
1
2
6

5
6
7

90% LEVEL
FLOATSWITCH

95% LEVEL
FLOATSWITCH

FILL CONTROL
SOLENOID VALVE
120VAC, 1ø, 60Hz
NORMALLY CLOSED
(OPTIONAL)

TB'B'
1 — N
2
3
4
5
6

OPEN FILL CONTROL VALVE
120VAC OUTPUT

13
14

LEAK
FLOATSWITCH
(OPTIONAL)

TB'E'
4 5 6 7 8 9 13 14 15

TANK
FULL

HIGH
FUEL

TANK
LEAK

ALARM CONTACTS
7A @ 125/250VAC
3A @ 30VDC (1/8 H.P.)

NOTE:
1. UNIT MUST BE GROUNDED FOR OPERATORS SAFETY
2. ------ INDICATES WIRING BY OTHERS

TC-8 Tank Alarm Panel

Description

The Simplex Tank Commander TC-8 Tank Alarm Panel is used to monitor High Level, Low Level, and Tank Leak Alarms. The TC-8 provides both audio and visual indication. Relay dry contacts are provided for remote alarms. The TC-8 receives signals from float switches mounted on the tank. The float switches may be included as an option or provided by others.

The TC-8 is available in 120VAC and 24VDC voltages. The TC-8 is for use with fuel oil or other Class II liquids or non-flammable liquids or chemicals. The TC-8 carries a UL 508A Label.
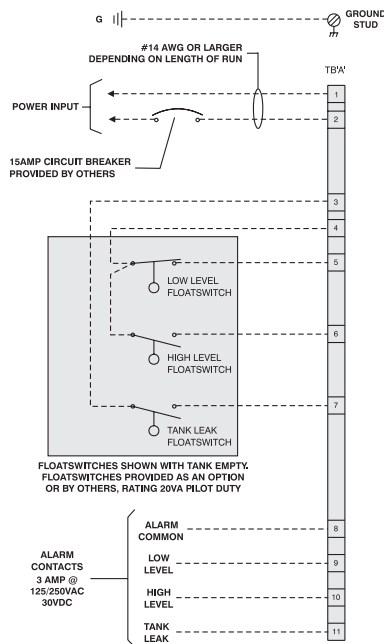
Includes

- TYPE 3R rainproof, lockable enclosure with hinged door
- UL 508A Listed controls and enclosure
- High visibility red alarm light; high level
- High visibility red alarm light; low level
- High visibility red alarm light; tank leak
- 90dB audible alarm horn with silence pushbutton
- Press-to-test pushbutton
- Indicators for
  - Tank leak (external input)
  - High level alarm (external input)
  - Low level alarm (external input)
  - Level sensors, optional

Specifications

Power supply: 115V AC, 1ø, 60 Hz or 24VDC

Application: Fuel oil or other Class II liquids or non-flammable liquids or chemicals

Connections

FLOATSWITCHES SHOWN WITH TANK EMPTY.
FLOATSWITCHES PROVIDED AS AN OPTION OR BY OTHERS, RATING 20VA PILOT DUTY

NOTE:
1. UNIT MUST BE GROUNDED FOR OPERATORS SAFETY
2. - - - - - INDICATES WIRING BY OTHERS

Dimensions

FRONT VIEW
LESS DOOR

RIGHT SIDE VIEW