Metermatic

SEALED COMPARTMENT SYSTEM (SCS)

Printer

SCS Monitor

API Adapter

API Sensor

Overfill Sensor

Retain Sensor

Manhole / Inclination Sensor

Secure your deliveries

Avoid unauthorized product removal

Put a stop to product contamination

By sealing, monitoring and recording the operations of all compartment inlets and outlets with the **Metermatic Sealed Parcel Delivery System**

- Continuous real time monitoring and recording
- Powerful data analysis capabilities
- GPS and GPRS ready

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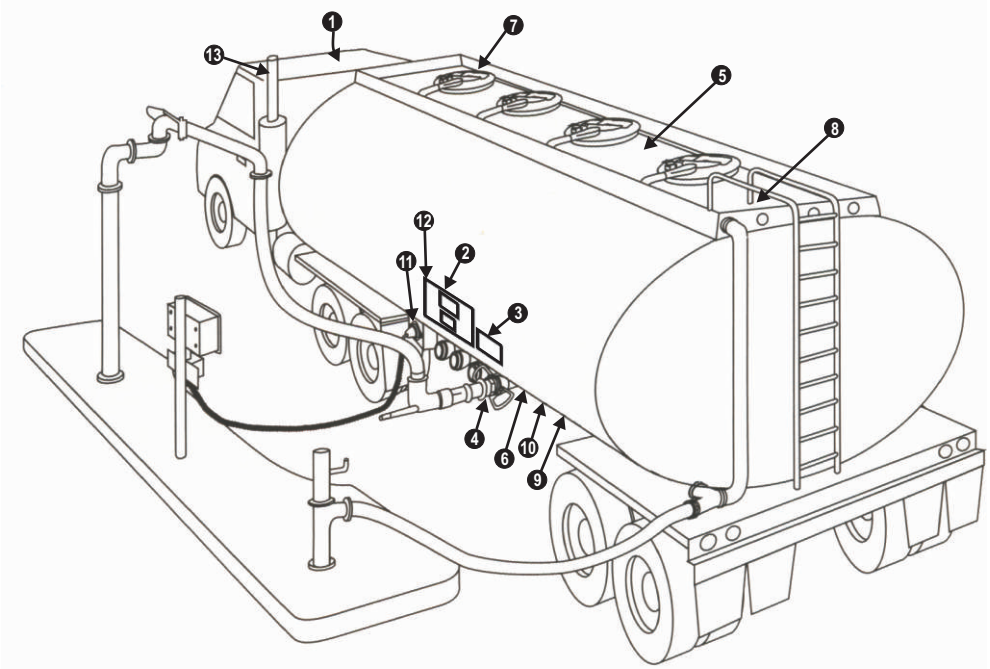


The SCS is a Sealed Parcel Delivery system which effectively secures the load for transfer from one point to another in accordance with EN15208 and provides detailed and accurate information regarding any changes in the load status.

All vehicle compartment inlets and outlets are continuously monitored and any opening or closing of any of the vehicle's loading or unloading points is detected, date time and position stamped (subject to the vehicle being equipped with a suitable GPS/GPRS device) and recorded by the SCS Monitor. The sensors are uniquely numbered to prevent their substitution with a fraudulent sensor. The SCS also monitors and records the state of each compartment by way of the bottom valve sensors, the bottom retain sensors and, optionally, the overfill sensors. All data recorded is available for transfer via GPRS and / or can be printed.

Added benefits are:

Assistance in the prevention of "cocktails" where:
(a) a non compatible product is loaded into a compartment which already contains a different product, or
(b) product is dropped into the incorrect forecourt tank.
This is achieved by immediate availability to the operator of information regarding the status of the compartment (empty or not) as well as which product was loaded.
Prevention of overfills by connecting the overfill sensors to the SCS monitor. Should an overfill be detected the SCS will send a signal to the gantry to allow the preset to shut it down and, as an optional extra, shut the truck bottom valve.

The SCS is available either with or without the optional Pneumatic Interface System which allows for pneumatic control of the bottom and vent valves.

SCS System Components

1. Printer

The printer is mounted either in the cab or in a safe area on the truck. It is connected to the SCS Monitor via the Vehicle Communication Interface. It is used during the delivery process to print the status of the vehicle or compartment on arrival at the forecourt (all compartments sealed) and after the delivery has taken place. It can also be used to print recorded events for further analysis.

2. SCS Monitor

The SCS Monitor manages the system by monitoring the sensors and recording each opening or closing of the manholes, API adaptors and bottom valves. Any change to the status of the wet/dry sensor is also recorded. All such events are date and time stamped and stored in the internal memory.

3. Pneumatic Interface System (optional)

Used to interface between bottom and vent valves and the SCS Monitor.

4. API Sensors

Fitted to each API adaptor the API sensors indicate if theAPI adaptor is open or closed as well as if there is liquid in the discharge lines.

5. Overfill Sensor

The overfill sensor mounted at the top of each compartment may be optionally connected to the SCS Monitor in which case the Monitor will shut the bottom valve and remove the permissive from the gantry should an overfill occur.

6. Retained Sensor

A wet/dry sensor fitted in the bottom of each compartment is used to detect any product left in the compartment.

7. Manhole Sensor

Mounted on the manhole of each compartment, the manhole sensor detects when the manhole is opened and relays this to the SCS monitor.

8. Inclination Sensor

Mounted on the truck, the inclination sensor senses the inclination of the vehicle to prevent the unloading of product should the tilt of the vehicle exceed a certain set inclination.

9. Bottom Valve Sensor
The bottom valve sensor monitors and records opening and closing of the bottom valve.

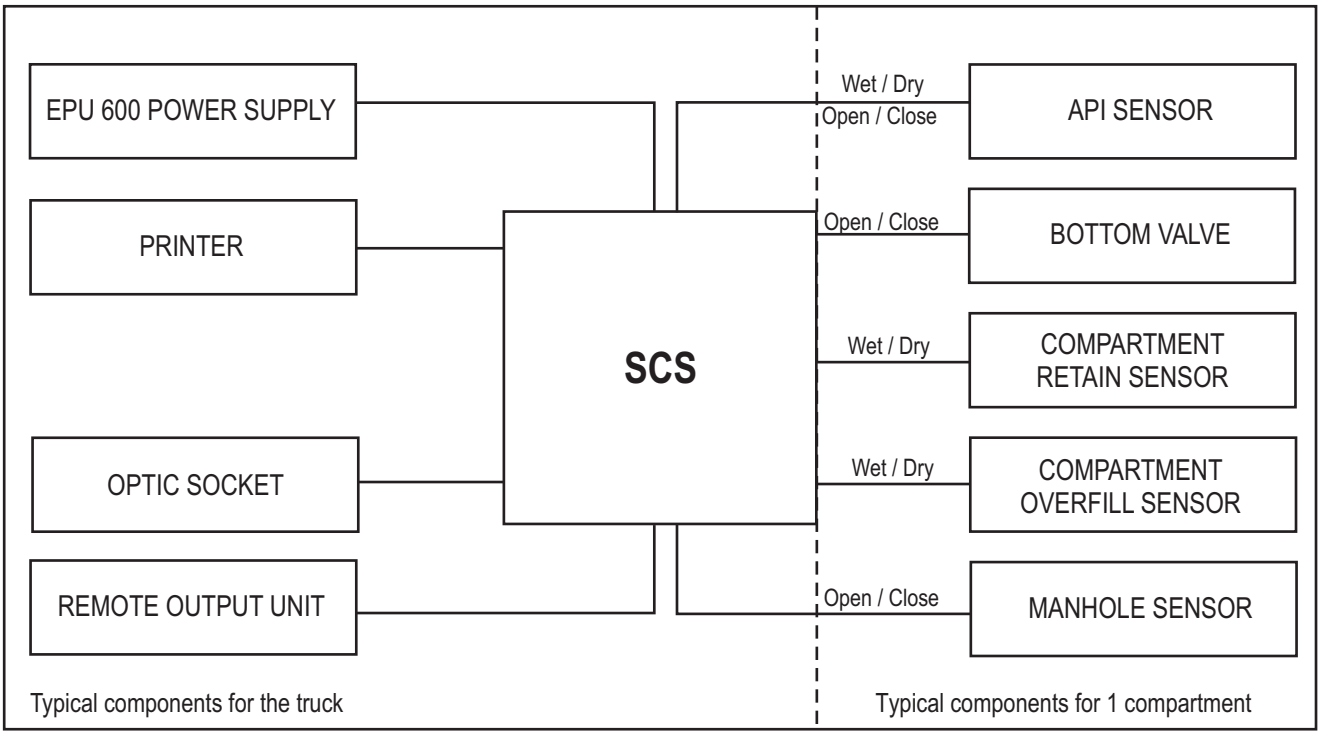
10. Remote I/O Unit
Provides the SCS-300 with the ability to control bottom valves.

11. Gantry Interface
The vehicle interfaces to the gantry rack monitor via the industry standard optic socket.

12. Battery Back-up
Battery back-up allows vehicle seals to be monitored for 72 hours if the system is disconnected from the vehicle battery.

13. Vehicle Communication Interface
Provides the interface between the SCS monitor and the printer; and the SCS monitor and a PC.

14. SCS Explorer Software for PC and PDA (Optional)
Used to configure the SCS system from a PC or PDA via a user friendly wizard. It also allows the user to download and evaluate all events recorded by the SCS monitor.



LOADING / UNLOADING OPERATION

OPERATION	COMPARTMENT STATUS DISPLAY	SENSOR STATUS			
		Manhole Open / Close	API Wet / Dry	API	Retain
Before load commences - No product in compartment	Empty	Closed	Closed	Dry	Dry
Couple hose	Unsealed	Closed	Open	Dry	Dry
Loading starts	Loading	Closed	Open	Wet	Wet
Load complete	Sealed	Closed	Closed	Wet	Wet
Unloading commences	Unsealed	Closed	Open	Wet	Wet
All product unloaded but waiting for clingage to discharge	Drain	Closed	Open	Dry	Dry
Uncouple hose	Close API	Closed	Open	Dry	Dry
Delivery Complete - No product in compartment	Empty	Closed	Closed	Dry	Dry

Should any of the manholes or API adaptors be opened after loading has been completed and before the vehicle arrives at the service station, the compartment status will change to display “unsealed” allowing the service station owner to refuse the load.

If one of the compartments cannot be emptied completely, the driver can change the status of that compartment from “unsealed” to “resealed” to allow the secure return of product to the gantry. If that compartment is opened again it will change back to “unsealed” and cannot be resealed again.

TECHNICAL SPECIFICATIONS

SYSTEM POWER
24 VDC ± 15%

POWER SUPPLY
3 intrinsically safe output channels. Certified for operation in zone 1, housed in an Exe certified enclosure

VEHICLE COMMUNICATION INTERFACE
Output power source, adjustable from 12V to 24V to power external communication device. e.g. Printer

- 1 x Intrinsically safe RS485 interface to SCS printer port. RS485 signal converted to RS232 which can be interfaced to a standard text printer with DTR flow control or printers with bi-directional communication
- 1 x Intrinsically safe RS485 interface to SCS communication port. RS485 signal can be routed through to provide a RS485 interface to a secondary on truck computer.

Alternatively the RS485 interface can be routed through 2 RS232 interfaces for communication to a GPS or computer. RS485 to RS232 interfaces can be selected for Baud rates of 2400, 4800 or 9600 bps.

BACK-UP POWER
NiMH Nickel-metal hydride battery pack (4 Ah). Standby time: 72 hours under preload condition. Battery management controlled by SCS electronics.

OVERFILL
Can interface to Two wire and Five wire optic overfill sensors. (Up to 12 compartments)

COMPARTMENT WET / DRY DETECTION
Can interface to Two wire optic retain sensors. (Up to 12 compartments)

COMMUNICATIONS (2 PORTS)
Half duplex asynchronous communications on a multi-drop RS485 network

API, MANHOLE SENSORS and REFERENCE SENSOR
Can interface to 12 API and Manhole sensors and 1 reference sensor

INPUTS
2 general purpose optically isolated inputs
1 intrinsically safe proximity sensor input

DISPLAY
320 x 240 graphic LCD

CLOCK
Non - volatile real time clock with time and date display

KEYPAD
18 key vandal proof keypad interface

SWITCHES
Vandal proof start and stop switch interface

ENCLOSURES
Rated to IP67

MEMORY
On board memory for transaction storage of +/- 19,000 events per compartment.

APPROVALS

The Safety and Control System has ATEX approvals for operation in hazardous locations. The system has been tested for conformance with the following assessment standards:

SCS-300 Series Safety and Control System
Sira 09ATEX2127X
Ex e ib mb [ia] IIA T4 (Tamb = -20°C to 60°C)

 II 2(1) G

EN60079-0:2006
EN60079-11:2007
EN60079-7:2007
EN60079-18:2004

API-300 Sensor
Sira 09ATEX2138X
Ex ia IIA T4 Ga (Tamb = -20°C to 60°C)

 II 1 G

EN60079-0:2006
EN60079-11:2007
EN60079-26:2007

MAN-300 Sensor
Sira 09ATEX2138X
Ex ia IIA T4 Ga (Tamb = -20°C to 60°C)

 II 1 G

EN60079-0:2006
EN60079-11:2007
EN60079-26:2007

Vehicle Communications Interface (VCI-200)
Sira 02ATEX2117X
[EEx ib] IIA

 II 2 G

EN60079-0:2006
EN60079-11:2007

95/54 EC Directive : 1995 : Radiated Emissions
95/54 EC Directive : 1995 : Radiated Immunity
IEC 61000-4-2 : 1999 : Electrostatic Discharge
ISO 7637-2 : 1990 : Conducted Immunity
ISO 7637-3 : Coupled Immunity