sensify
GATEKEEPER SYSTEM™

SMART VALVE IoT SENSIFY GATEKEEPER SYSTEM (SGS) USER MANUAL

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INSTRUCTIONS AND OPERATIONAL FUNCTIONS

This document contains a step-by-step guide to operating the system, equipment identification and includes the associated 'event' relevant to the multiple protocols.

The SGS 'Smart Valve System', identifies cylinder ownership and controls and manages the cylinder filling process.

SGS Filling Nozzles are connected to the SGS 'Smart Valves' and communicate via Radio Frequency Identification (RFID). Each SGS Filling Nozzle is connected to an SGS Controller which verifies the cylinder information stored on the 'Smart Valve'.

SGS HARDWARE

1 SGS 'Smart Valves'

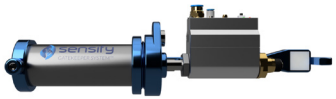
SGS 'Smart Valves' are brass forged pressure control devices that are fitted to the LPG cylinder. They are instantly identifiable by the blue hand wheel tap located on the top of the valve.

A 'Smart Valve' is operated by turning the hand wheel tap in an anti-clockwise direction to open the valve and a clockwise direction to close it.

2 SGS Filling Nozzle

Filling Nozzles are connected to the filling scales and are used to fill the Smart Valves.

The Filling Nozzles are equipped to fill both Smart Valves and regular LPG cylinder valves.



3 SGS Controller

SGS Controllers are connected to multiple SGS Filling Nozzles. The unit communicates with the filling scales to determine the cylinder weight and receives the cylinder tare weight from the 'Smart Valve' to calculate the residual LPG in the cylinder.

The unit then controls the filling process and records the information when filling is completed.

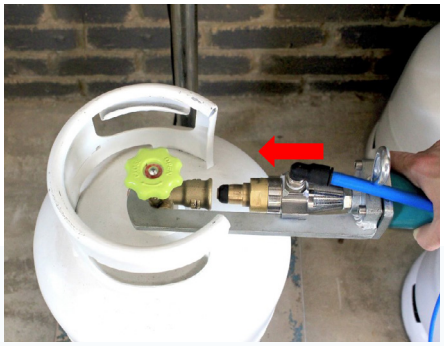
FILLING INSTRUCTIONS

1 Cylinder Placement

- Ensure that the scale is clear from any debris and or anything that can interfere with the cylinders weight.
- Ensure the scale is at 0.
- Place the cylinder in the centre of the scale.

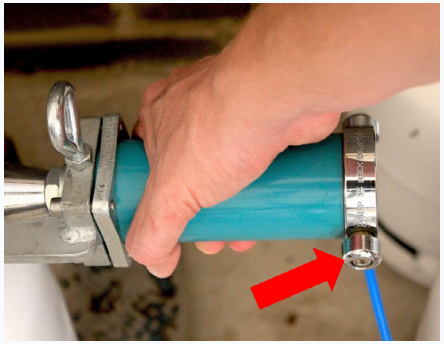
2 Connect/ Activation

- Connect the SGS Filling Nozzle to the SGS 'Smart Valve' by securing the 'hook' of the Filling Nozzle behind the back of the 'Smart Valve' . When connected, the 'filling head' will move forward and engage with the 'Smart Valve' (Picture 2).
- Press the button to open the airflow (Picture 3). This will push the filling head forward to engage with the 'Smart Valve' and lock the Filling Nozzle into place.



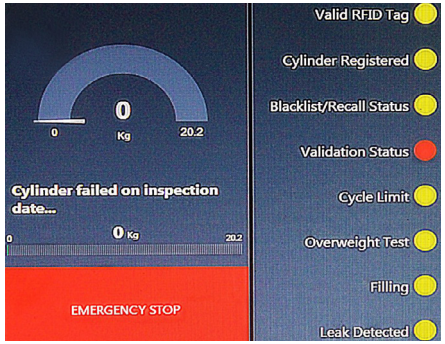
3 Activation

- Ensure the Filling Nozzle is aligned with the 'Smart Valve'.
- Once aligned, press the button located at the back of the Filling Nozzle to activate the nozzle (Picture 3). This will move the filling head forward into the 'Smart Valve' securing the Filling Nozzle into place.



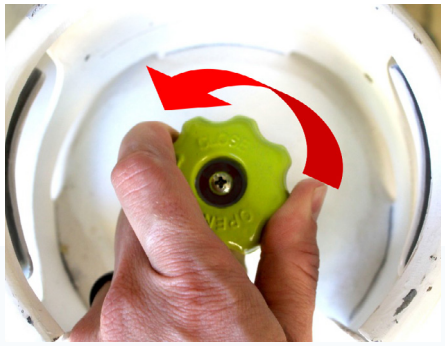
4 Authentication of the 'Smart Valve'

- The SGS 'Smart Valve System' will automatically retrieve the cylinders size and tare weight from the 'Smart Valve' and will retrieve the current cylinder weight form the filling scale. The 'Smart Valve System' will then calculate the residual LPG in the cylinder and the amount of LPG that is to be filled.
- When verified, a green light will be illuminated.
- In the event a green light is not illuminated, the system will display a red light to show the relevant 'Event' that must be addressed (Picture 4).



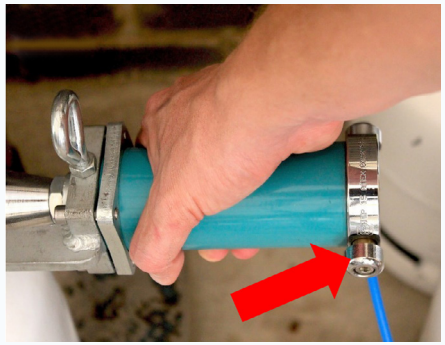
5 Opening the hand wheel tap

- When the green light is illuminated, the cylinder has been approved for filling/refilling.
- Proceed by turning the hand wheel tap anti-clockwise until fully open (Picture 5).



6 Filling Process

- Press the button located on the filling head of the Filling Nozzle.
- When the cylinder refilling volume has been reached, the 'Smart Valve System' will automatically close the Filling Nozzle and filling scale solenoid.
- Proceed by turning the hand wheel tap clockwise until fully closed.
- Disconnect the Filling Nozzle by pressing the button at the back of the Filling Nozzle (Picture 6).



EVENT MANAGEMENT

Unregistered Cylinder

In the event a cylinder is not registered to the 'Smart Valve System' or has been registered with another company, the system will display 'Unregistered Cylinder'.

Note: The 'Smart Valve' is automatically soft locked to prevent filling/refilling. The cylinder can only be unlocked by 're-registering' it at the Coding Station.

Validation

When a cylinder exceeds its pre-set validation period, the 'Smart Valve System' will automatically soft lock the cylinder preventing it from being refilled.

Note: The cylinder can only be unlocked when validated and approved by the 'Smart Valve System's General Manager.

Cylinder Recalled

A cylinder issued with a recalled order is automatically soft locked by the system.

Note: Recall Orders to remove old or faulty cylinders can only be issued by the Smart Valve System's General Manager. The cylinder can only be unlocked via the Access Management System by the General Manager.

Cylinder Blacklisted

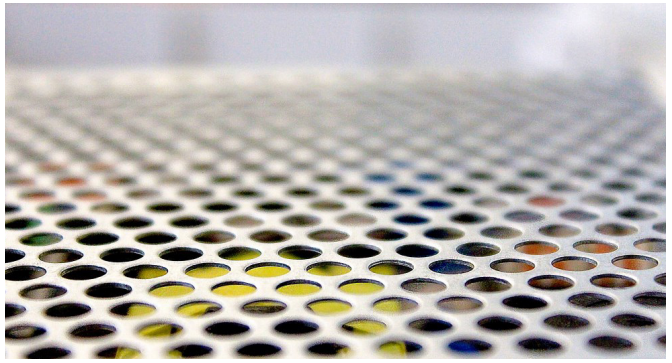
When a cylinder is stolen or delivery has not been confirmed within the pre-set time, the system will 'blacklist' the cylinder which is automatically soft locked to prevent it from being refilled.

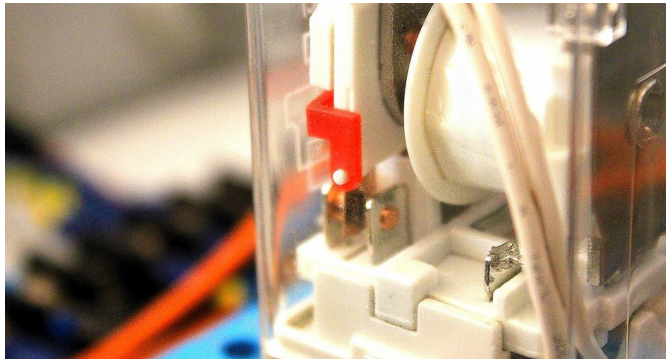
Once the cylinder is recovered and validated as 'safe', the cylinder is unlocked and it can be refilled and put back into the circulation.

Cylinder Cycle-Limit

Cylinder Cycle-limits enforce inspections at pre-set cycles during the life cycles of the cylinder.

When a pre-set 'Cycle-Limit' is exceeded, the cylinder is soft locked and the system display the information the cylinder has to comply with before it is approved for recirculation.





HEALTH AND SAFETY

In the event of a gas leakage, press the 'Emergency Stop' button on the Controller.

Ensure that all bodily parts are clear from any moving components before engaging the Filling Nozzle.

Ensure that the Filling Nozzle is correctly aligned and centred before engaging.

Ensure the 'Smart Valve' hand wheel tap is fully open before attempting the filling process.

Ensure the 'Smart Valve' hand wheel tap is fully closed before disconnecting the Filling Nozzle.

Industry standard procedure: Inspect the 'Smart Valve' before and after filling for any leaks and or defects.

Industry standard procedure: Inspect the Filling Nozzle before and after each cylinder is filled for any leaks and or defects.

Do not attempt to tamper with any part of the SGS 'Smart Valve System'.

Do not attempt to use the SGS 'Smart Valve System' for any other purpose than that specified.

Any misuse of the SGS 'Smart Valve System' is monitored and recorded by the system.

GENERAL:

If the cylinder is removed from the filling scale during the filling process, the system will automatically stop the process.

If the Filling Nozzle is removed during the filling process, the system will automatically stop the process.

If pressure from the pump supply line is below the specified pressure level, the system will automatically stop.

Installation, maintenance and repairs can only be carried out by Sensify technicians.

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