



## **USER MANUAL**

### **SC441C7xx TRANSMITTERS**

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**CHANGE HISTORY**

Rev	Description	Date	Changed By	Approved By
1	First Release	29/11/2009	TC	JH

Note some sections of this document contain controlled content that is subject to regulatory body approval. If modifying sections marked as controlled content, check that approval body requirements are still met.

**TABLE OF CONTENTS**

DISCLAIMER.....	2
CHANGE HISTORY .....	3
TABLE OF CONTENTS .....	4
1 PRODUCT DESCRIPTION.....	5
1.1 Connectors .....	6
2 INSTALLATION.....	7
2.1 Positioning the Transmitter.....	7
2.2 Installing Sensors and Cabling.....	7
Securing the Transmitter .....	8
2.2.1 Fixing the Transmitter to a Horizontal Tank.....	8
3 MAINTENANCE .....	9
3.1 Replacing the Transmitter .....	9
3.2 Maintaining the Transmitter .....	9
3.3 FCC PART 15 COMPLIANCE .....	10
4 Warranty.....	11

## 1 PRODUCT DESCRIPTION

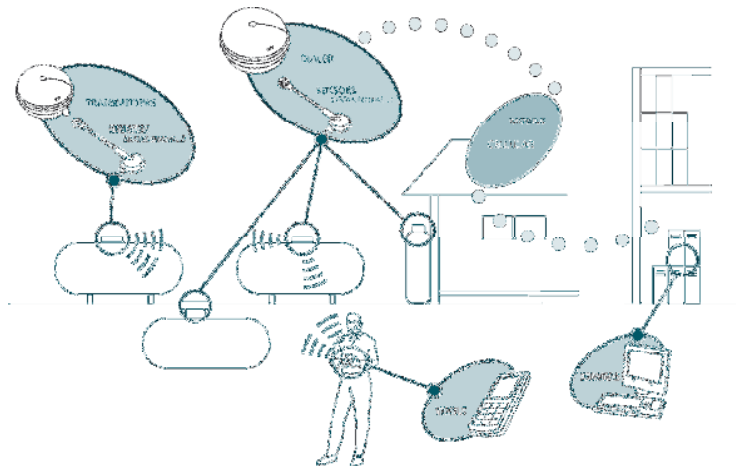


The SC441 Transmitter Series is specifically designed to be mounted on gas tanks and connect to existing tank float gauges and gas meters, eliminating the need for expensive intrinsic safety barriers and wiring to the tank or meter. Each site must have a dialer and the SC441 periodically communicates with the site dialer using low power radio transmissions in the ISM band, and the dialer then transfers the collected tank levels and gas usage data to the GASLOG Server.

SC441 transmitters are typically used on a GASLOG telemetry site where:

- there are more appliances than can be directly connected to the site dialer,
- the appliances are physically separated from one another, and/or
- the dialer must be located away from the appliances in order to get adequate GSM coverage or connect to the PSTN fixed telephone network.

The SC441 is powered by an internal lithium battery and under normal operating conditions will give many years of operation on the original battery. To achieve this, the SC441 is normally in a powered down state and only wakes up for short periods to take measurements and to communicate with the site dialer.



**Figure 1 : GASLOG Telemetry Site**

## 1.1 Connectors

On the underside of the SC441 transmitter there are 2 connectors labelled A and B. A variety of Silicon Controls sensors and senders can be inserted into these connectors including SC645 tank level senders.



**Figure 2 : SC645 Tank Level Sender**

## 2 INSTALLATION

### 2.1 Positioning the Transmitter

The prime consideration when positioning the SC441 is the radio performance.

The main factors that affect the performance of radio communications between the dialer and the transmitter are the transmission distance and the presence of obstacles in the path between them. Ideally there should be a direct line of sight between the dialer to the transmitter. However this is sometimes not achievable. Obstacles that can affect performance include items such as vehicles, garages, trees, posts, brick walls etc.

Choose a position for the SC441 where you can conveniently make the cable connections to the monitored appliances and that is not close to pipes, metalwork or other obstacles. If you are monitoring a gas tank, then the best position is generally on top of the tank.

Place the transmitter in the chosen position but DO NOT glue it into position at this stage.

#### NOTES:

- The SC441 should preferably be mounted horizontally on a surface wider than 0.4m (such as the top of the tank).
- The SC441 should not be positioned closer than 0.5 meter from a SC414 dialer. At such short range radio performance may be unreliable or not work at all.
- The SC441 contains a radio antenna which should not be covered or obstructed by any metallic objects – doing so may significantly reduce the effective radio range.

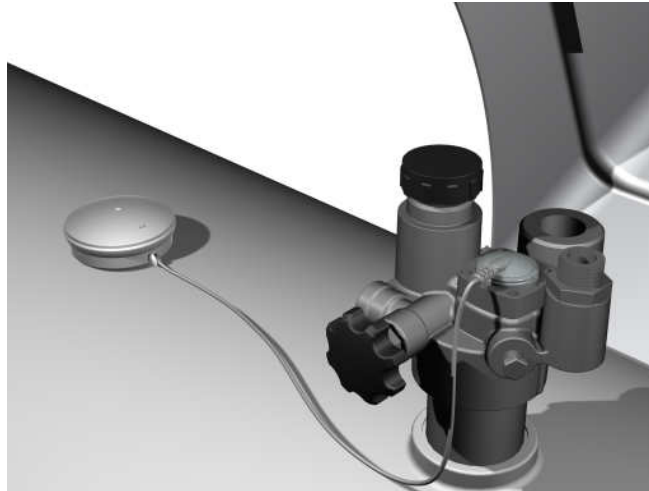


Figure 3 : Ideal position for a SC441 on a horizontal tank

### 2.2 Installing Sensors and Cabling

During this step, the connections are made from the appliances being monitored and the SC441 transmitter.

Detach the bracket of the transmitter, connect the Sender and reattach the base.

## Securing the Transmitter

### 2.2.1 Fixing the Transmitter to a Horizontal Tank

- Clean the relevant section of the tank with primer.
- Lay out the cable so that there is no slack - excess cable should be neatly coiled and not dangling.
- Turn the transmitter upside down and apply a 3mm bead of adhesive around its base.
- Fix transmitter to the tank in the location and direction determined during testing.
- Once fixed in position the transmitter must not be moved.

#### NOTE

**Do not disturb the Transmitter once in position, this will allow the adhesive to cure and secure the Transmitter to the tank. In adverse weather conditions the adhesive may take up to 48 hours to cure.**

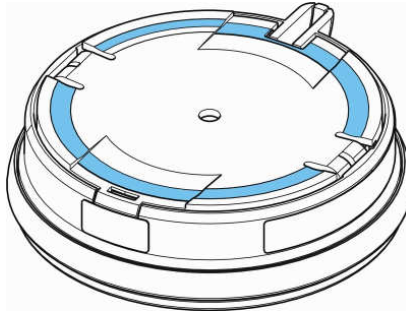


Figure 4 : Applying adhesive to transmitter base

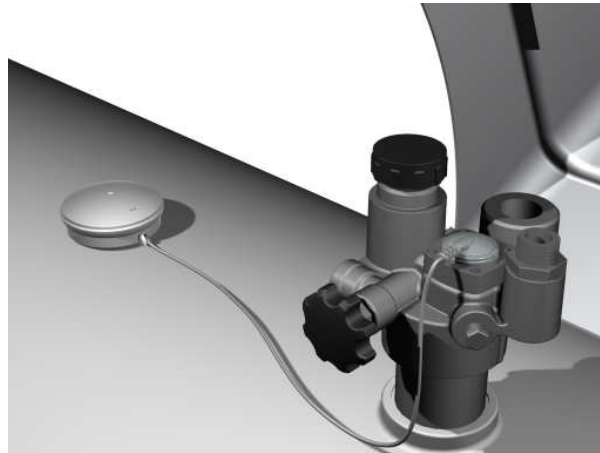


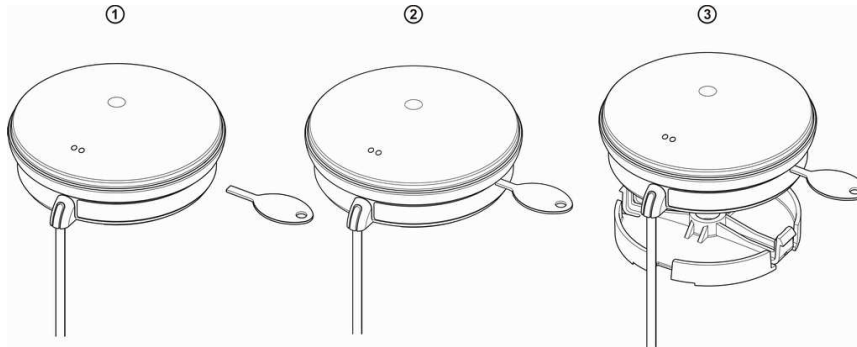
Figure 5 : SC441 on a horizontal tank



### 3 MAINTENANCE

#### 3.1 Replacing the Transmitter

To replace the Transmitter you will need an SC663A Removal Tool. Insert the tool as shown below and lever the Transmitter away from the grey mounting plate. Then turn the Transmitter upside down and carefully remove the Sender cable.



Clean any debris off the mounting plate, insert the Sender cable into the Transmitter, place the new Transmitter into position and lever back until it locks.

#### 3.2 Maintaining the Transmitter

The Transmitter is powered by a primary battery and has no user serviceable parts.

The following should be inspected every time the tank is filled:

- Housing is clean and has no cracks or significant abrasions
- Mounting plate is securely fastened to the tank
- Outer sheath of the Sender cable is not damaged
- Sender is properly in place

HAZARD WARNING:

- Use a damp cloth to clean the Transmitter housing to avoid static discharge.

### 3.3 FCC PART 15 COMPLIANCE

The following instructions apply to SC441C7xx equipment:

GASLOG equipment has been tested and found to comply with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

GASLOG equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the installation manual, may cause harmful interference with radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user may try to correct the interference by one or more of the following:

- Reorient or relocate the receiving antenna of the radio or television.
- Increase the separation between the equipment and the receiver.
- Connect the equipment onto an outlet on a different branch circuit than that of the receiver.
- Consult the dealer or an experienced radio/TV technician.

The user may find the following booklet helpful:

- *How to Identify and Resolve Radio-TV Interference Problems*

This booklet is available from the US Government Printing Office, Washington, D.C. 20402.

**WARNING:** changes or modifications to GASLOG equipment not expressly approved by Silicon Controls could void the user's authority to operate the equipment.

## 4 WARRANTY

Silicon Controls Pty Limited ("Silicon Controls") warrants this product against defects in materials and workmanship for a period of 12 months from the original date of purchase to the original purchaser only. This warranty shall not apply in the event that the product has been used prior to its sale to the original purchaser.

During the warranty period, Silicon Controls will repair or replace (at its option) at no charge any components that prove to be defective, provided the defective component is returned (shipping prepaid and properly packed) to Silicon Controls. Proof of purchase date must accompany any request for warranty service.

This warranty does not apply if, in the opinion of Silicon Controls, the product has been damaged by accident, misuse, neglect or subjected to modifications other than those prescribed in this guide.

This warranty is in lieu of all other express or implied warranties, statements or representations except those warranties implied by statute, the restriction or modification of which would be void pursuant to that statute.

In the event that this product should prove defective, your sole remedy shall be the repair or replacement of the defective components as stated above. Silicon Controls will not be liable for any direct or indirect damages including but not limited to any lost profits or other incidental or consequential damages arising from use of this product. Some statutes do not allow the exclusion or limitation of incidental or consequential damages for breach of warranty implied by those statutes, so the above limitation may not apply to you.