

SLD4 Loop Detector Quick-start Guide

There are two variants of the SLD4 detector.

SDL4 Standard 667/1/45200/001 variant replaces the ST4R and ST4S detectors.

SDL4 Enhanced 667/1/45200/011 (with **BLACK** screw on front) has additional facilities such as vehicle profiling. Setting up this variant is beyond the scope of this document but the notes concerning communication & configuration tool are still relevant.

The 667/1/45200/001 can replace the ST4R and ST4S detectors in all applications however some differences in the set up and operation of the detectors should be noted.

Unless there is a particular reason to set the detector up manually (bicycle sensitive as an example) for VA applications the detector can be left in full Automatic mode. This is the default setting as dispatched from the Factory.

Warning: 1. From the Factory the SLD4 is set Full Automatic Mode - OPTOMISED for V/A.

2. The switches on the front and side of the SLD4 do not correspond to those of the ST4 detector.

Inductance

The SLD4 detector has links to adjust the inductance range. The SLD4 works over a wider range of inductance than the ST4 however it is important to understand the inductance ranges. When connected to loops in series or with large inductances a higher inductance range may need. The inductance ranges are 20 to 150 µH [Default setting] 150 to 300 µH and 260 to 2000 µH

On High Inductance loops it will be necessary to set the appropriate Inductance range, this was not required on the ST4

Sensitivity

The sensitivity of the SLD4 does not correspond to the figures for the ST4. The SLD4 will normally be bicycle sensitive at between 0.04 to 0.08% for a single loop.

In fully automatic mode the detector sets-up/adjusts itself thus averaging the results of multiple vehicles.

The detector starts at high sensitivity and averages the deviation in frequency caused by vehicle detects, it then selects a threshold which is a percentage (less than 10%) of the average deviation. This is necessary to avoid false detects and ensure reliable detector operation free from chattering and adjacent lane pick up.

During this period if any channel is set to Automatic the mode lamp will remain off until all channels set to Automatic mode have had detected 20 vehicles. The Mode lamp will now flash in sync with the power lamp. The automatic mode of operation has been *optimised for VA operation* and in most instances in fully automatic mode the detector will not be bicycle sensitive but will pick up motorcycles.

Important Note: If in Full Automatic mode the sensitivity of vehicles/loops are NOT optimum you SHOULD leave the frequency switches in Automatic mode allowing linked detectors to auto set the frequency and set the sensitivity switches to the required positions.

Out of the Box installation of an SLD4

The SLD4 detector is delivered from the factory as follows:

Front Panel - All switches ON - Automatic sensitivity.

PRESENCE - All switches OFF - All channels 4Min Presence time.

MODE/FREQ - All OFF - Automatic frequency.

Inductance links - All set to the lowest range - 20 to 150 µH

Most new installations will work with these settings.

There are effectively 3 modes

1. Full Automatic
2. Frequency Automatic
3. Manual

Lamp enable and Reset button

This detector only has a single push button the full description of functions can be found in the handbook. The most common uses are described here:

- Single tap LED enable
- Double tap LED disable
- Push and hold 3 seconds Hardware reset

Is the detector working?

- Detector channel fast flashing

Fast flashing of the channel indicates that the channel was not able to obtain a set of working conditions.

The sensitivity may have been set too high for the noise floor (See LINFO on page 2 – Handset Commands)

The inductance is out of the set range.

The loop or feeder is faulty.

- Channel Inter-reaction (Detectors giving false detects and Channel Chattering)

All SLD4 detectors in a single rack will communicate via an infra red link. If a detector other than an SLD4 is placed between SLD4 detectors this IR link will be broken. The IR link allows the detectors to select different operating frequencies to reduce the likelihood of detector inter-reaction. In some cases due to the operation requirement of the detector it is not possible for the Automatic mode to prevent inter-reaction. In these cases manual setting of the affected channel should resolve the problem.

Currently it is not possible to extend the infra red link between backplanes in different racks or if the IR link is obstructed, this is being reviewed see latest issue of 667/HB/45200/000 for details, restrictions and availability.

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- Failure for detectors to synchronise

When all detectors in a rack are synchronised and auto-tuning has completed the detectors mode lamps with flash in step. If the detectors fail to synchronise check the IR LED's are not dirty or obscured by other equipment.

- Not detecting all required vehicles

If a detector channel is failing to pick up all vehicles required then it may be necessary to manually set the sensitivity. The detector sensitivity in automatic mode is determined as a fixed percentage of the rolling average of vehicles detected. It is possible if there are large numbers of vehicles with a "large detector footprint" to push this average up making the detector less sensitive to motor cycle. This should not occur with a standard traffic installation.

Advanced configuration and diagnostics

If it is necessary to communicate with the SLD4 then the following items will be required:

- Laptop PC/Netbook with the following software and hardware
- PC based "SLD4 configuration tool" 667/TZ/45216/000
- USB cable interface 702/4/08535/000

Warning any device connected to the SLD4 should be isolated from ground and running on its internal batteries. Failure to comply could result in damage to SLD4 and the connected device.

Handset Command

Once the USB cable interface is configured as described in 667/HB/452000/000 the detectors handset commands can be entered using a serial terminal application such as HyperTerm.

There are some useful commands that can assist with fault finding.

In most instances it will not be necessary to use the handset tool for general maintenance however it will be useful to locate less obvious problems.

The Command FLTS gives the current fault status of the detector.

The Command LINFO gives the state of all 4 channels on the card the important values are Noise and SenHz.

If the value of noise is high it will either prevent the channel from operating or in Auto mode make the loop less sensitive. The SenHz value should always higher than the value of Noise. Detail of this can be found in the handbook 667/HB/45200/000

Configuration Tool

The configuration tool 667/TZ/45216/000 can be used to update firmware of the detectors if required. It also has features that allow the profile of the detector to be monitored and recorded. This could be used to check the operation of the detector in unusual configurations or challenging operational conditions.

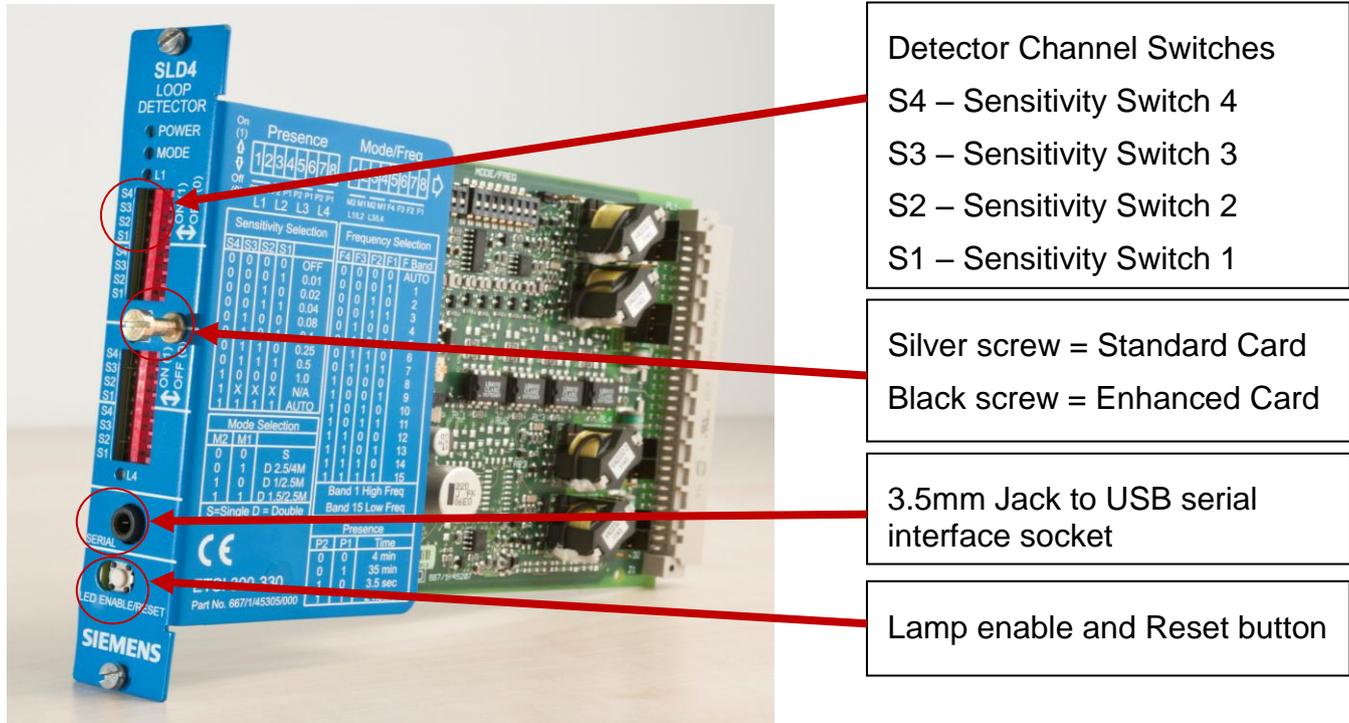


Fig 1 SLD4 Loop Detector Card

Associated Documents

- 667/HB/45200/000 General Handbook for the SLD4 Series Loop Detector
 667/HE/20663/000 Loop Detector and Cable Terminations - Installation and Commissioning

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