ATTENTION!

Danger of electricity! Make sure that no liquid may get inside the device. If this happens, interrupt the power supply to the device at once.

If you notice any damage, e.g. broken or crushed cables, damaged plugs, enclosures etc., turn off the device and make sure that the device cannot accidentally be turned on again.

The device may only be installed, brought into service and repaired by an approved expert. Inappropriate operation, improper maintenance or not observing the instructions in this manual can lead to danger.

Any malfunction of the device which may limit the safety of its users or others must be removed immediately. All warning and safety labels on the device must be observed and kept complete and legible.

The appropriate usage must be observed by all means. For damage resulting from inappropriate usage the manufacturer will not undertake any liability.

The device must not be used as a safety component in the system. The manufacturer will not undertake any liability. For damage resulting from inappropriate usage the manufacturer will not undertake any liability. The user will subsequently bear the responsibility for himself and others or damage to the device.

1.1 Usage according to regulations

The IG315/2 is solely suited for the detection of vehicles. Any further usage is not appropriate. Do not use the IG315/2 for any other purpose.

1.2 Label

The IG315/2 is provided with a quality label / serial number. You will need these indications when talking with the customer service, e.g. ordering accessories or spare parts.

The operator of the device must ensure that the chosen means of operation will not cause damage to material or danger to people and that all security and safety installations are present and functioning. Before installation and first operation, please observe the instructions in the manual.

The manual must be available at the site of usage at any time. It must be read thoroughly and applied appropriately by the person responsible for the operation, maintenance and service of the device.

Note

Our products are in a constant process of improvement and advancement. Because of this, read the current manual thoroughly before installation and first operation.

Without prior consent of the manufacturer, no modifications, neither mechanical nor electrical, may be done. Only parts that have the consent of the manufacturer may be used for backfilling or as accessories. Any violations will lead to the termination of conformity and the manufacturer’s warranty. The user will subsequently bear the risk (the Declaration of Conformity is available at www.swarco.com/sts).

Note the serial number and name of the device in order to have them available when needed:

Serial number:

Voltage version:

1.3 Further documentation

Notes on loop installation

1.4 Symbols

In several places throughout this manual you will find the following symbols stating important safety instructions:

ATTENTION!

This symbol indicates dangers which might cause damage to people or property.

Note

This symbol indicates information for installation and function of the device.

2.1 Features

The induction impulse transmitters IG315/2 evaluate the inductive and static hold time. Those depict the inductivity of a high-frequency oscillator circuit. If a vehicle crosses the loop, its metal components cause a change of frequency in the oscillator circuit. Those are analysed by the loop detector, transmitted as switching signals via floating relay contacts and displayed on the front LEDs. The analysis of the loop frequency is done via a micro-controller system which aligns automatically to the according loop and compensates changes of the loop inducitivity caused by temperature, humidity or aging of components. The induction impulse transmitter IG315/2 is a 1-channel unit, which means that this device can connect to and evaluate one induction loop.

2.2 Switching outputs

The switching output is coupled with the LED display (A) on the front panel (see 4). There are two switching outputs available. Relay A is switched as static signal or impulse for the mode “loop occupied”. Relay B emits an additional impulse or can be activated as switching output for the failure report (ERRR) via the operating units on the front. All switching outputs are equipped with electro-mechanical relays.

2.3 Parameter adjustment

Via the DIP-switches on the front the following parameters can be adjusted:

- sensitivity
- hold time
- frequency of the measuring system
- switch-off delay
- B-relay as fault report, (instead impulse relay)
- impulse when leaving the loop
- switch-on delay
- automatic alignment
- detection by fault

2.4 Technical data

<table>
<thead>
<tr>
<th>Technical data</th>
<th>IG315/2 S.T. /</th>
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<th>IG315/2 S.T.T. /</th>
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<tr>
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<td>resp. 24 V AC/DC: +/-10 % / 3 VA</td>
<td></td>
</tr>
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<td>Storage temperature</td>
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<tr>
<td>Safety</td>
<td>IP30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enclosure (plastic)</td>
<td>1 = 75 mm, w = 37 mm, h = 68 mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Connection</td>
<td>via 1-pin connector (type 76-211) dimension of socket manufacturer-dependent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Inductivity range</td>
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2.6 Pin connection

Standard model 315/2 SV / ST *

Special model 315/2 WV / WT * 315/2 STV / STT *

Notes on loop installation

2.7 Symbols

* indicated on right label of device

Note

1.4 Symbols

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2.6 Pin connection

Standard model 315/2 SV / ST *

Special model 315/2 WV / WT * 315/2 STV / STT *

Notes on loop installation

2.7 Symbols

* indicated on right label of device

Note
3 Installation of the IG315/2

For the use of the device in a surrounding with higher protection requirements, SWARCO TRAFFIC SYSTEMS offers special enclosures (type GHIG300 / GHIG301).

Before switching on the power supply, the device must be plugged onto the socket.

3.1 Special notes on the loop

The safe functioning of the device depends essentially on the technically proper installation and laying of the loops, since the loops are the sensors of the device. The loop feed cable must be drilled approx. 20 – 50 times per meter and must be laid in distance from life wires. For further information see notes on laying of loops (available at www.swarco.com/sts).

4 Device adjustments

After every device adjustment a new alignment must be effected by pushing the reset-button (E).

4.1 Adjustment of sensitivity and hold time

IG315/2 Version „Tor“ (gate) 

(Typ: IG315/2ST. / IG315/2STW. / IG315/2STV.)*

<table>
<thead>
<tr>
<th>channel switch (C)</th>
<th>S1</th>
<th>S2</th>
<th>S3</th>
<th>hold time: S4</th>
</tr>
</thead>
<tbody>
<tr>
<td>sensitivity</td>
<td>7</td>
<td>on</td>
<td>on</td>
<td>on/impulse</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>off</td>
<td>on</td>
<td>off/hold</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>on</td>
<td>off</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>off</td>
<td>on</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>on</td>
<td>on</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>off</td>
<td>on</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>low</td>
<td>on</td>
<td>-</td>
</tr>
</tbody>
</table>

5 Alignment and fault diagnosis

5.1 Alignment

When switching on the power supply, when there are voltage interruptions or when the reset button (E) is pushed, the loop detector automatically aligns itself to the connected loops and switches the relays to switching position "loop not attenuated". During the alignment period the yellow power-LED (F) is blinking for a few seconds. With a low sensitivity the detector is ready for operation at once. After the alignment the power-LED (F) keeps glowing.

During the alignment phase there may be no vehicle on the loop since it will not be detected.

Display of switching and failure status

The switching mode "loop occupied" is indicated by a glowing green channel-LED (A). Loop failure caused by a nearby loops. Two or more detectors must not operate on the same frequency.

5.2 Detection and correction of errors

<table>
<thead>
<tr>
<th>Description</th>
<th>Possible cause</th>
<th>Correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detector does not align, yellow LED does not glow</td>
<td>There is no power supply for detector</td>
<td>Check connection to power supply</td>
</tr>
<tr>
<td>Red LED glowing, green LED blinking long, long, long</td>
<td>Detector detects &quot;loop interrupted&quot;</td>
<td>Check loop and loop connection</td>
</tr>
<tr>
<td>Red LED glowing, green LED blinking short, long, short</td>
<td>Detector detects &quot;loop short-circuited&quot;</td>
<td>Delete test mode relay tightened (see table Adjustment of sensitivity and hold time)</td>
</tr>
<tr>
<td>Yellow and LED glowing, relay permanently tightened</td>
<td>Loop is moved mechanically</td>
<td>Control laying of loop, observe documentation &quot;Laying of loops&quot;</td>
</tr>
<tr>
<td>Detector does not switch in spite of adjusted alignment</td>
<td>Test mode relay tightened is active</td>
<td>Deactivate test mode relay tightened (see table Adjustment of sensitivity and hold time)</td>
</tr>
<tr>
<td>Chosen sensitivity is too low</td>
<td>Progressive increase sensitivity until vehicles are detected correctly</td>
<td></td>
</tr>
</tbody>
</table>

Constraints for the compliance with EN 300330-1

According to the stated formula, the following loop windings in dependence to the loop area are recommended:

<table>
<thead>
<tr>
<th>Product class:</th>
<th>Area</th>
<th>Number windings</th>
<th>( L_{\text{loop}} ) [µH]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class 2</td>
<td>( 1 \times 3 \text{ m}^2 )</td>
<td>5</td>
<td>100 - 300</td>
</tr>
<tr>
<td></td>
<td>( 1.5 \times 5 \text{ m}^2 )</td>
<td>4</td>
<td>150 - 500</td>
</tr>
<tr>
<td></td>
<td>( 2 \times 7 \text{ m}^2 )</td>
<td>3</td>
<td>180 - 250</td>
</tr>
<tr>
<td></td>
<td>( 3 \times 8 \text{ m}^2 )</td>
<td>2</td>
<td>300 - 400</td>
</tr>
</tbody>
</table>

Operating frequency range (L = 15 µH – 400 µH)

20.05 kHz \( + f \) 70 kHz

Total inductivity (loop + feed cable):

Specification: \( L_{\text{loop}} < 400 \) µH

Example:

Loop inductivity 200 µH, feed cable inductivity < 200 µH with 100 µH / 100 m length of feed cable < 200 m

Requirements acc. to DIN 60950

The device has basic insulation.

6.2 EC Declaration of Conformity

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