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Sistemi Elettronici
di Apertura Porte e Cancelli
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CE

Italiano

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LOOP 2

Spira rilevamento veicoli
Vehicle Loop Detector

Istruzioni - Operating instructions

Questo prodotto è un accessorio o una parte di un sistema. Leggere e seguire sempre le istruzioni del produttore dell'apparecchio al quale state collegando questo prodotto. Rispettare tutte le regolazioni di sicurezza. La non osservanza potrebbe causare danni, lesioni o morte.

This product is an accessory or part of a system. Always read and follow the manufacturer's instructions for the equipment you are connecting this product to. Comply with all applicable codes and safety regulations. Failure to do so may result in damage, injury or death!

Product Overview

The LOOP 2 Vehicle Loop Detector allows for detection of metallic objects entering into the field formed around the detection loop. We have designed the LOOP 2 with the following objectives in mind:

1. Compact package to allow easy installation into small operator housings.
2. All controls are accessible from the outside for easy installation and operation.
3. Integral loop conditioner is provided, to enable detector operation with marginal loops.
4. Provide all features and controls necessary for a variety of applications.
5. Use metal housing for maximum durability and RF resistance.
6. Provide maximum surge protection on all inputs and outputs of the detector.

We took extra care to achieve and exceed these objectives. For example the controls are divided into two groups. The group on the front of the detector is for basic operation and the group on the back of the detector is for advanced settings. This way the more advanced settings are not visible to the casual user.

The LOOP 2 is made from aircraft quality anodized aluminum and all switches have gold plated contacts that are sealed for protection. The circuit is protected by an advanced thermal resettable fuse, snubbing circuitry on the relay contacts, Metal Oxide Varistor on the power input and triple protection on the loop input.

The LOOP 2 features are extensive and include full loop diagnostic with frequency counter, 10 sensitivity settings, delay and extend features, :fail safe and "fail secure" operation, automatic sensitivity boost, pulse or two presence relay operation and more.

Technical Specifications

Power Supply	24 Volt DC
Power Supply Tolerance	+/- 20% of power rating
Current Draw	100 mA maximum
Housing Material	Extruded Anodized Aluminum H=3.25"(83mm), W=2.56"(40mm) D=3.65" (90mm)
Relay Type	(2) DPST 5A@ 125VAC
Temperature Range	-40 to 180 Degrees Fahrenheit
Connector	11 Pin Octal compatible with DIN rail mount socket or wire harness
Loop Inductance Range	20 to 2000 micro henries with "Q" factor of 5 or higher
Loop Input	Transformer Isolated
Power On Indicator	Green T-1 LED
Detect Indicator	Red T-1¾ LED
Surge Protection	MOV, Neon and Silicon Protection Devices
Tuning	Detector automatically tunes to the loop after power application or reset
Tracking	Detector automatically tracks and compensates for environmental changes
Environmental Protection	Circuit board is conformal coated to resist moisture
Frequency Counter	Counts Loop frequency, each blink represents 10KHz. Counts between 3 to 13 blinks confirm that the detector is tuned to the loop.
Power Indicator	Solid lighted green LED indicates power
Loop Failure Indicator	Slow blinking green LED indicates loop failure
Loop Failure Memory	Fast consecutive green blinking LED indicates past loop problem that healed
Detect Indicator	Solid lighted red LED indicates detection
Extend Indicator	Blinking red LED after vehicle leaves the loop indicates time extend
4 minute limit	Blinking red LED during vehicle detection indicates that 4 minute limit has expired.

Controls, Indicators and Connections

Front

POWER	LED
Green T-1 Glows when power is applied	

DETECT	LED
Red T-1 3/4 Glows to indicated detection	

FREQUENCY COUNTER	Momentary Switch
Pull up toward Power LED and release	

RESET	Momentary Switch
Push down toward Freq. and release	

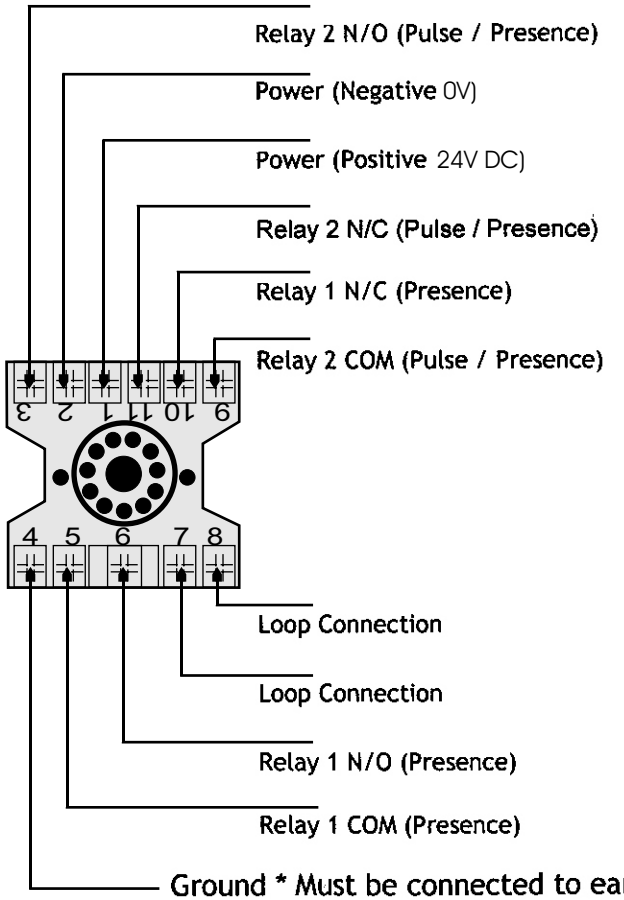
FREQUENCY	Three position Switch
Low, High, Medium Unit must be reset after any change!	

Back

SENSITIVITY	BCD Switch
0,1,2,3,4,5,6,7,8,9 must be on a number	

DIP SWITCH FUNCTIONS		DIP switch
	OFF	ON
1	Pulse on relay 2	Presence on relay 2
2	Pulse on Detect	Pulse on Un-detect
3	Costant presence	4 minute limited presence time
4	“Fail Secure”	“Fail Safe”
5	Filter OFF	Filter ON
6	ASB OFF	Automatic Sensitivity Boost
7	Extended Detect	6 seconds
8	Extended Detect	3 seconds
DIP 7 & 8 ON Extend time is 9 seconds		

For more details see page 9 and 10.



CONNECTIONS

PIN	FUNCTION
1	POWER +
2	POWER -
3	RELAY 2 N/O (IPUSE OR PRESENCE)
4*	GROUND*
5	PRESENCE RELAY (1) COM
6**	PRESENCE RELAY (1) N/O
7	LOOP
8	LOOP
9	RELAY 2 COM (PULSE OR PRESENCE)
10**	PRESENCE RELAY (1) N/C
11	RELAY 2 N/C (PULSE OR PRESENCE)

* **NOTA**: Pin 4 must be connected to earth ground for surge protection to be effective.
****NOTE**: Functions on pins 6 and 10 are reserved if DIP switch 4 is set to OFF “Fail Secure” operation.

Installation

1. Connect the LOOP 2 to appropriate power supply as marked on the label of the detector on pins 1 and 2 according to the connection chart on page 8 of this manual.
2. Connect the loop wires to pins 7 & 8. The LOOP 2 must be connected to a loop meeting the appropriate requirement listed on page 7.
3. Connect the desired relay outputs to the operator control board inputs. Relay 1 is a "Constant Presence" and Relay 2 is "Pulse" or "Constant Presence".
4. Adjust sensitivity to desired level to assure detection of all vehicle traffic. Factory set is normally 3 or 4.
5. Pin 4 must be connected to earth ground for effective surge protection.
6. Do not install the loop wire near or parallel to:
   a. Low voltage lighting.
   b. Telephone lines.
   c. Underground power lines.
   d. Electrical pavement heaters.
   e. Cell phone towers or radio communication systems.
   f. Overhead power lines.
   g. Transformers.
7. To install the loop into new concrete with re-bar or wire mesh we recommend that the loops be installed at least 1 inch above the re-bar.
8. When installing in saw cut we recommend the use of backer rod and a good grade sealant for the type of surface.

Operational settings explained

1. **Reset Switch**- when this toggle switch is momentarily pressed down toward the "Frequency Switch" and released will cause the LOOP 2 to reboot.
2. **Frequency Switch**- this 3 position toggle switch is used to change the loop operation frequency to High/Medium or Low. This helps to prevent cross talk with adjacent loops and possible interference from other sources in the same operational frequency. Note: When the frequency is changed the LOOP 2 must be re-set.
3. **Frequency Counter**- when this toggle switch is momentarily pushed up toward the power and detect LEDs will cause the detector to blink the red "Detect" LED. Each blink of the LED indicates a frequency multiple of 10 KHz. (example 5 blinks = 50 KHz.) Counts from 3 to 13 confirm that the detector has tuned to the loop.

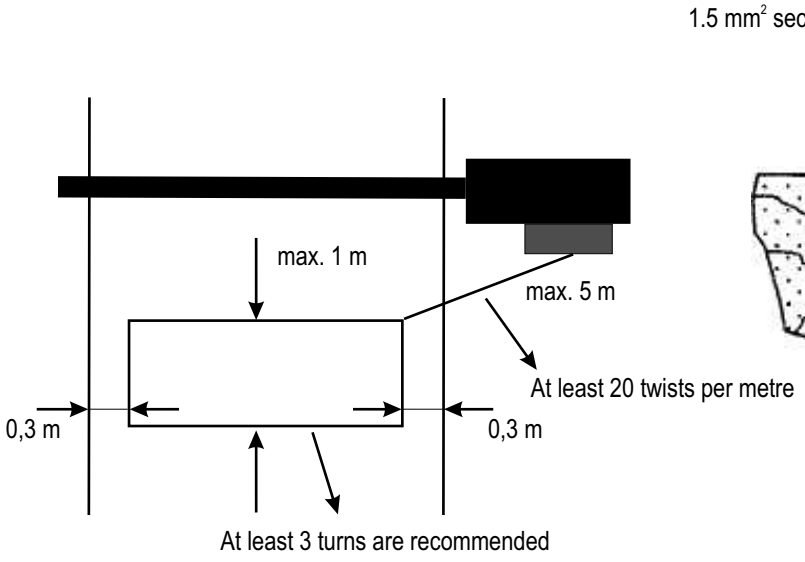
4. **Sensitivity**- this rotary switch controls the detector sensitivity. During normal operation the sensitivity setting is 3 or 4. Note: the higher the sensitivity the more prone the detector will be to interference. To increase detection height without increasing the detector sensitivity settings, increase the size of the loop. Detection height is roughly 70% of the shortest side of the loop. (example 4 x 8 loop = approximately 33 inch detection height and a 6 x 8 loop = approximately 50 inch detection height.)
5. **ASB**- Automatic Sensitivity Boost is activated by DIP switch 6 on the back of the detector. This allows the detector to be set at a "standby" sensitivity and when detection occurs sets the sensitivity to maximum until the unit un-detects. This allows for the use on high bed vehicles that might otherwise un-detect while still in the loop.
6. **Pulse/Presence relay 2**- this feature is controlled by DIP switch 2 on the back of the detector and allows relay 2 to act in the pulse mode or as a second presence mode relay mimicking relay 1.
7. **Pulse Detect/Un-detect**- this feature is controlled by DIP switch 2 on the back of the detector. Allows for activation on entering into the loop or exiting from the loop.
8. **Constant Presence / 4 minute limit**- this feature is controlled by DIP switch 3 on the back of the detector and allows for the detector to hold the activation for as long as any vehicle is in the detection loop or to allow the relay to de-activate after 4 minutes. **Warning!** DO NOT USE 4 minute limit unless opening is protected by a secondary safety device such as the IRB-4X.
9. **Fail Safe / Fail Secure**- this feature is controlled by DIP switch 4 on the back of the detector. Normal factory setting is "Fail Safe" which allows the detector to hold the gate open in the event of a failure or loss of power on the detector. "Fail Secure" setting will force the detector to not change states on power loss or power up. **Warning!** This setting should not be used for safety reversing of gates, doors or barriers. **Note**: Function output on pins 6 and 10 are reversed if DIP switch 4 is turned off.
10. **Filter**- this function is controlled by DIP switch 5 on the back of the detector. This feature inputs a momentary delay into the detection circuit to verify that a vehicle is present in the loop for a minimum time period before activation occurs.
11. **Extend Detect**- this feature is controlled by DIP switches 7 and 8 on the back of the detector. Turning on switch 7 allows for a 6 second extension of the detection after the vehicle leaves the loop. Turning on switch 8 allows for a 3 second extension of the detection after the vehicle leaves the loop. Turning on both switches 7 and 8 allows for a 9 second extension of the detection after the vehicle leave the loop.

REALISATION OF THE SENSITIVE ELEMENT (FIG. 1)

The detectors are suitable for coils made up with an insulated copper wire with a cross-section of at least 1.5 sq. mm. Preferably use twisted copper wires with at least 20 twists per metre to connect the detector to the coil. Jointing in the coil wires and in the twisted cable is not recommended. If the wires used for the twisted cable are especially long or in proximity to other power cables, shielding of said wires is recommended. Earthing of the shield should only be made at the extremity of the detector.

Excepting special cases, the detection coils should be rectangular. Install with the longer sides placed at right angles in the direction of vehicle movement. These sides should ideally be kept at a meter one from the other. Coil length is a function of the width of the road surface to be monitored. A distance of no more than 300 mm is recommended between the coil and each edge of the road surface. For coils running over a perimeter of more than ten metres two wire windings are normally employed, while for coils with a lower perimeter three or more windings are required, and four windings are required for coils with a perimeter below six metres.

All permanent coil components must be secured to the road surface in appropriate grooves made using masonry cutting tools or the like. A cross-cut at a 45° inclination must be made at the circuit angles so as to prevent the risk of the coil cable being damaged in proximity to the apex of the right angles.
Nominal groove length: 4 mm.
Nominal groove depth: 50 mm.
The coil-detector connection cable must also be laid in an appropriate groove running from one of the circuit angles along the circuit perimeter to the road surface edge. To ensure wiring continuity between the coil and connection cable allow for a long enough lead to reach as far as the detector before inserting the cable inside the coil groove. After laying the required number of wire windings in the groove along the coil perimeter, route the wire towards the road edge through the connection cable groove.
It is advisable that connection cable length not exceed 100 metres. As coil sensitivity diminishes proportionally to connection cable length the latter should be kept as short as possible.
Coils are secured to road surface by means of a quick-drying compound containing epoxy resin or asphalt mastic applied hot.



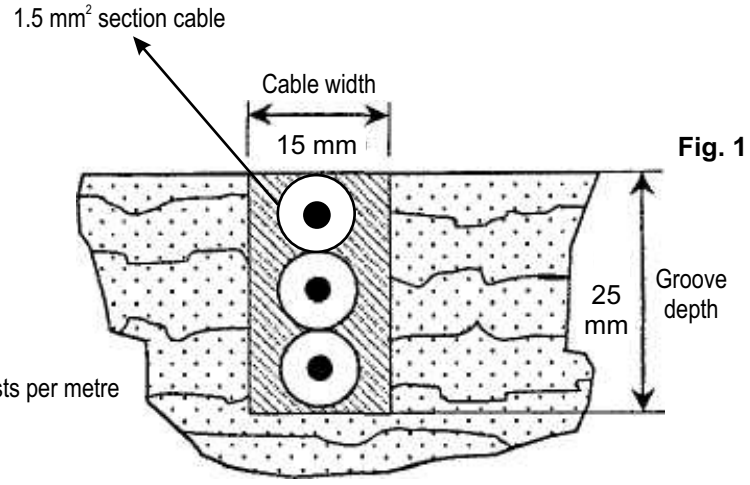


Fig. 1

Note: It is advisable to use an only piece of uninterrupted cable to forme the loop. Therefore, it is preferable to make a preliminary of the cable length.
Ex. (Perimeter loop per twists) + distance of the module + 200 mm.

TROUBLE SHOOTING GUIDE

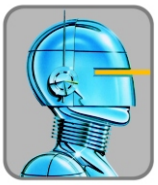
SYMPTOM	POSSIBLE CAUSE	SOLUTION
Green Indicator is not lit	No input voltage	1. Check voltage on pins 1 and 2. 2. Check wiring to detector. 3. Verify voltage used matches voltage marked on unit.
Green Indicator flashes	Loop wire shorted or disconnected	Check loop resistance on pins 7 and 8, it should be less than 5 ohms and more than 0.5 ohms.
Green Indicator flashes with two consecutive fast blinks	Loop wire was temporarily shorted or disconnected	Check loop resistance on pins 7 and 8, it should be less than 5 ohms and more than 0.5 ohms. The reading should be steady.
Detector stays in detect mode after the vehicle leaves the loop and fails to un-detect.	1. Faulty Loop. 2. Poorly crimped connections 3. Loose connections	1. Perform megger test between loop lead and ground, the reading should be greater than 100 Mega ohms. 2. Check that loop is tightly connected to proper terminals 3. Check that splices are tightly soldered and sealed against moisture
Detector detects intermittently even when there is no vehicle on the loop.	1. Faulty Loop 2. Poorly crimped terminals 3. Loose connections 4. Cross-talk between adjacent loop detectors 5. Loop not securely installed to prevent movement of wire in pavement	1. Perform megger test between loop lead and ground, the reading should be greater than 100 mega ohms. 2. Check that loop is tightly connected to terminals 3. Check that splices are tightly soldered and sealed against moisture. 4. Set adjacent loops to different frequencies. 5. Verify that loop is securely installed in pavement and that site is in good condition preventing movement of loop wires.

AVVERTENZE GENERALI PER INSTALLATORE E UTENTE

1. Leggere attentamente le **Istruzioni di Montaggio** e le **Avvertenze Generali** prima di iniziare l'installazione del prodotto. Conservare la documentazione per consultazioni future
2. Non disperdere nell' ambiente i materiali di imballaggio del prodotto e/o circuiti
3. Questo prodotto è stato progettato e costruito esclusivamente per l'utilizzo indicato in questa documentazione. Qualsiasi altro utilizzo non espressamente indicato potrebbe pregiudicare l'integrità del prodotto e/o rappresentare fonte di pericolo. L'uso improprio è anche causa di cessazione della garanzia. La SEA S.p.A. declina qualsiasi responsabilità derivata dall'uso improprio o diverso da quello per cui l'automatismo è destinato.
4. I prodotti SEA sono conformi alle Direttive: Macchine (2006/42/CE e successive modifiche), Bassa Tensione (2006/95/CE e successive modifiche), Compatibilità Elettromagnetica (2004/108/CE e successive modifiche). L'installazione deve essere effettuata nell'osservanza delle norme EN 12453 e EN 12445.
5. Non installare l'apparecchio in atmosfera esplosiva.
6. SEA S.p.A. non è responsabile dell'inosservanza della Buona Tecnica nella costruzione delle chiusure da motorizzare, nonché delle deformazioni che dovessero verificarsi durante l' uso.
7. Prima di effettuare qualsiasi intervento sull'impianto, togliere l'alimentazione elettrica e scollegare le batterie. Verificare che l'impianto di terra sia realizzato a regola d'arte e collegarvi le parti metalliche della chiusura.
8. Per ogni impianto SEA S.p.A. consiglia l'utilizzo di almeno una segnalazione luminosa nonché di un cartello di segnalazione fissato adeguatamente sulla struttura dell'infisso.
9. SEA S.p.A. declina ogni responsabilità ai fini della sicurezza e del buon funzionamento della automazione, in caso vengano utilizzati componenti di altri produttori.
10. Per la manutenzione utilizzare esclusivamente parti originali SEA.
11. Non eseguire alcuna modifica sui componenti dell'automazione.
12. L'installatore deve fornire tutte le informazioni relative al funzionamento manuale del sistema in caso di emergenza e consegnare all'Utente utilizzatore dell'impianto il libretto d'avvertenze allegato al prodotto.
13. Non permettere ai bambini o persone di sostare nelle vicinanze del prodotto durante il funzionamento. L'applicazione non può essere utilizzata da bambini, da persone con ridotte capacità fisiche, mentali, sensoriali o da persone prive di esperienza o del necessario addestramento. Tenere inoltre fuori dalla portata dei bambini radiocomandi o qualsiasi altro datore di impulso, per evitare che l'automazione possa essere azionata involontariamente.
14. Il transito tra le ante deve avvenire solo a cancello completamente aperto.
15. Tutti gli interventi di manutenzione, riparazione o verifiche periodiche devono essere eseguiti da personale professionalmente qualificato. L'utente deve astenersi da qualsiasi tentativo di riparazione o d'intervento e deve rivolgersi esclusivamente a personale qualificato SEA. L'utente può eseguire solo la manovra manuale.
16. La lunghezza massima dei cavi di alimentazione fra centrale e motori non deve essere superiore a 10 m. Utilizzare cavi con sezione 2.5 mm^2. Utilizzare cablaggi con cavi in doppio isolamento (cavi con guaina) nelle immediate vicinanze dei morsetti specie per il cavo di alimentazione (230V). Inoltre è necessario mantenere adeguatamente lontani (almeno 2.5 mm in aria) i conduttori in bassa tensione (230V) dai conduttori in bassissima tensione di sicurezza (SELV) oppure utilizzare un'adeguata guaina che fornisca un isolamento supplementare avente uno spessore di almeno 1 mm.

GENERAL NOTICE FOR THE INSTALLER AND THE USER

1. Read carefully these **Instructions** before beginning to install the product. Store these instructions for future reference
2. Don't waste product packaging materials and /or circuits.
3. This product was designed and built strictly for the use indicated in this documentation. Any other use, not expressly indicated here, could compromise the good condition/operation of the product and/or be a source of danger. SEA S.p.A. declines all liability caused by improper use or different use in respect to the intended one.
4. The mechanical parts must be comply with Directives: Machine Regulation 2006/42/CE and following adjustments), Low Tension (2006/95/CE), electromgnetic Consistency (2004/108/CE) Installation must be done respecting Directives: EN12453 and En12445.
5. Do not install the equipment in an explosive atmosphere.
6. SEA S.p.A. is not responsible for failure to observe Good Techniques in the construction of the locking elements to motorize, or for any deformation that may occur during use.
7. Before attempting any job on the system, cut out electrical power and disconnect the batteries. Be sure that the earthing system is perfectly constructed, and connect it metal parts of the lock.
8. Use of the indicator-light is recommended for every system, as well as a warning sign well-fixed to the frame structure.
9. SEA S.p.A. declines all liability as concerns the automated system's security and efficiency, if components used, are not produced by SEA S.p.A..
10. For maintenance, strictly use original parts by SEA.
11. Do not modify in any way the components of the automated system.
12. The installer shall supply all information concerning system's manual functioning in case of emergency, and shall hand over to the user the warnings handbook supplied with the product.
13. Do not allow children or adults to stay near the product while it is operating. The application cannot be used by children, by people with reduced physical, mental or sensorial capacity, or by people without experience or necessary training. Keep remote controls or other pulse generators away from children, to prevent involuntary activation of the system.
14. Transit through the leaves is allowed only when the gate is fully open.
15. The User must not attempt to repair or to take direct action on the system and must solely contact qualified SEA personnel or SEA service centers. User can apply only the manual function of emergency.
16. The power cables maximum length between the central engine and motors should not be greater than 10 m. Use cables with 2,5 mm^2 section. Use double insulation cable (cable sheath) to the immediate vicinity of the terminals, in particular for the 230V cable. Keep an adequate distance (at least 2.5 mm in air), between the conductors in low voltage (230V) and the conductors in low voltage safety (SELV) or use an appropriate sheath that provides extra insulation having a thickness of 1 mm.



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Note - Notes - Note - Notas - Anmerkung

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