



A1H-U

Vehicle Loop Detector



CE

Operating Instructions

CAUTIONS AND WARNINGS



CE REQUIREMENT: Use Pre-formed loops with built-in surge suppression for CE compliance. Connect shield on lead in wire to earth ground.

CE REQUIREMENT: Use CE rated power supply for CE compliance providing suppression as specified by EN61000-4-5.

Not to be used in personal safety applications.

When more than one loop detector is used, set each one to a different frequency.

Refer to DIP switch diagram for frequency settings.

IMPORTANT:

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

Specifications

Sensitivity	10 levels, 0-9
Display	Indicates optimum sensitivity level, 0-9 Diagnostic aid
Loop frequency	4 settings (low, med-low, med-hi, high)
Loop inductance	20...2000 μ H (Q factor \geq 5)
Grounded loop	Isolation transformer allows operation with poor quality loops
Automatic tuning	Detector tunes to loop on power-up and following frequency count function
Environmental tracking	Automatic compensation
Surge protection	Loop circuitry protected by surge suppressors
Presence relay	SPDT relay contacts (form C)
Contact ratings	1A @ 24VDC...120VAC
Power / loop fault indicator	Green LED
Detect / frequency count indicator	Red LED
ASB (Automatic Sensitivity Boost)	Increases sensitivity after initial detection to prevent dropout due to high-bed vehicles
Power	12VDC...24VDC, 24VAC (see Cautions and Warnings)
Operating Current (Standby/detect)	15mA/45mA
Operating temperature	-40°C...82°C (-40°F...180°F) 0...95% relative humidity
Dimensions (L x W x H)	2.9"(74mm) x 0.9"(23mm) x 3.3"(84mm)
Mounting method	DIN rail mount - 35mm
Weight	0.25 lbs. (113 g)
Connector	8 screw terminals

PRODUCT OVERVIEW

The A1H-U rail mount, vehicle loop detector is compatible with most gate operators. The A1H-U may be used in Center, Safety and Exit loop positions. The display feature makes set-up easy by displaying the optimum sensitivity setting required to detect a vehicle positioned on the loop. Ten sensitivity settings allow for fine adjustment of detection level.

The A1H-U provides relay contact outputs indicating vehicle presence. The A1H-U features automatic sensitivity boost (ASB), delay, fail-safe/fail-secure and infinite or normal (5 min.) presence. Four frequency settings provide flexibility in preventing crosstalk in multi-loop applications.

OPERATION

Power up

Upon power up the detector initializes by automatically tuning to the loop. The green LED indicates that the detector is powered and operational.

Frequency setting

The operating frequency of the loop is a function of the specific loop inductance and DIP switch settings 1 and 2. The primary purpose of the frequency setting is to allow the installer the ability to set different operating frequencies for multi-loop installations, recommended to prevent crosstalk/interference from adjacent loops. After changing the frequency setting, press the Frequency Count switch to re-initialize the detector. To check the operating frequency of a loop refer to the Frequency Count section. To determine whether crosstalk between adjacent loops is occurring, refer to the Sensitivity Display section.

Sensitivity Display

The sensitivity display simplifies the installation process by displaying the sensitivity setting required to detect a vehicle on the loop. To use this feature, observe the display while a vehicle is moving into position on the loop, note the number displayed, then adjust the sensitivity setting (rotary switch) to the displayed position.

During normal operation, when a vehicle is not on the loop, the display is blank. The effects of crosstalk or other interference can be observed on the display when the loop is vacant. Interference or crosstalk will cause the display to indicate a level, typically 8 or 9. It may be necessary to observe the display for a minute or so to see this effect. Change the frequency setting to prevent crosstalk.

Sensitivity setting

The 10-position rotary switch allows for precise adjustment of detection level. The sensitivity level increases from position 0 thru 9 with position 0 being the lowest sensitivity. Typical applications require a setting of 3 or 4. The sensitivity display simplifies the installation process by displaying the sensitivity setting required to detect a vehicle on the loop. To use this feature, observe the display while a vehicle is moving into position on the loop, note the number displayed, then adjust the sensitivity setting (rotary switch) to the displayed position.

Frequency Count / Reset

Press the Frequency Count switch and count the number of flashes on the red LED. Each flash represents 10kHz. To help to prevent crosstalk when multiple detectors are used for adjacent loops, perform a frequency count on each detector to confirm the operation frequencies are different. Following a frequency count cycle, the detector re-initializes

Automatic Sensitivity Boost

The Automatic Sensitivity Boost causes the sensitivity to increase following initial detection. This feature is useful to prevent dropout when detecting high-bed vehicles. The sensitivity returns to its normal setting after the vehicle exits the loop. Decimal point on the display indicates ASB on.

Presence output

The Presence settings provides two selections, the output can be set for Infinite Presence or Normal Presence. Infinite Presence causes the output to remain in detect mode as long as the vehicle remains on the loop. Normal Presence causes the output to reset after 5 minutes. **DO NOT USE THE NORMAL PRESENCE SETTING UNLESS THE OPENING IS PROTECTED BY A SECONDARY SAFETY DEVICE.**

Delay

The Delay setting provides a 2 second delay before activating after a vehicle enters the loop, for both Presence and Output B (except when output B is set to Detect-On-Stop).

Fail Safe / Fail Secure

Fail Safe setting causes the A1H-U to activate the Presence output in the event a loop failure. Fail Secure setting will cause the A1H-U not to activate the Presence output in the event a loop failure.

Controls and Indicators

SENSITIVITY SETTING

	Position 0.....9
Sensitivity	Low.....high

DETECT / FREQUENCY COUNT

	Red LED
Presence detected	on
No presence	off
Frequency count	flashing

POWER / LOOP FAULT INDICATOR

	Green LED
Normal operation	on
Shorted loop	1 fast flash
Open loop	2 fast flashes
Abrupt change (>20%)	3 fast flashes
Previous loop fault	2 slow flashes

ULTRAMETER™ DISPLAY

Indicates sensitivity setting required to detect vehicle

FREQUENCY COUNT / RESET

Press to start frequency count, re-initializes after count

AUTOMATIC SENSITIVITY BOOST

	DIP switch position 1
ASB enabled	on

PRESENCE

	DIP switch position 2
NORMAL (5 min.)	on
INFINITE	off

DELAY (2 seconds)

	DIP switch position 3
DELAY	on

SPARE (not used)

5	4
---	---

FAIL SAFE / SECURE

	DIP switch position 6
Fail Secure	on
Fail Safe	off

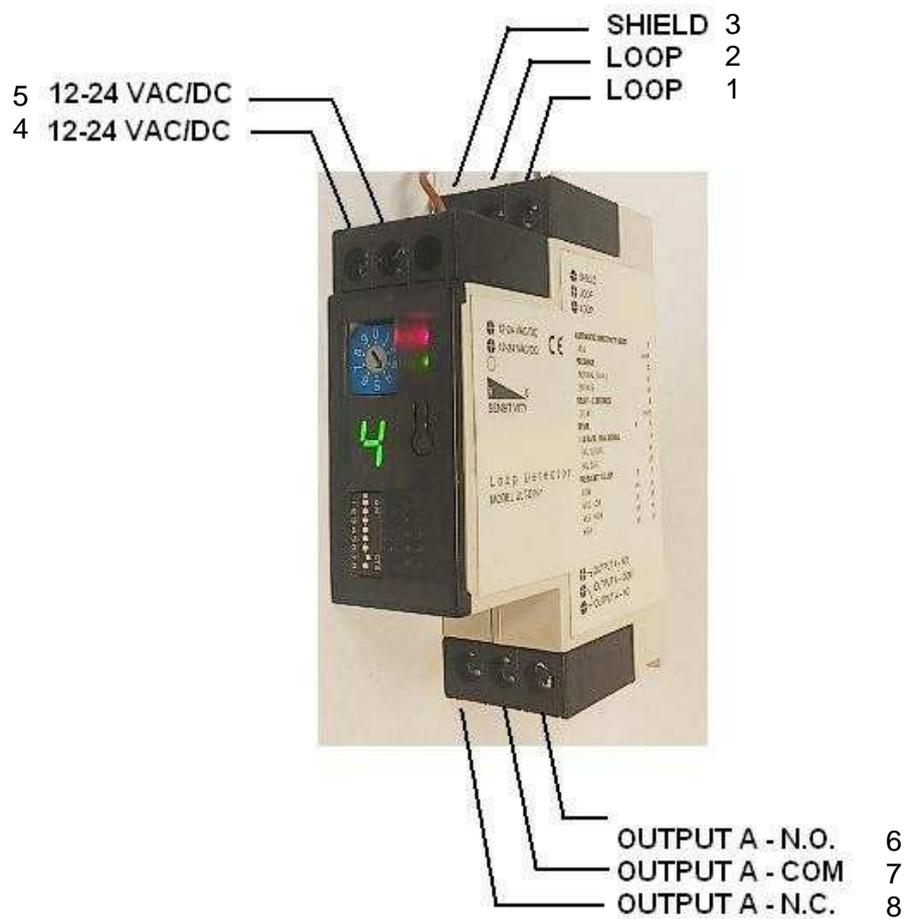
FREQUENCY SETTINGS

	DIP switch position	
FREQUENCY	7	8
Low	on	on
Medium low	on	off
Medium high	off	on
High	off	off



Connections

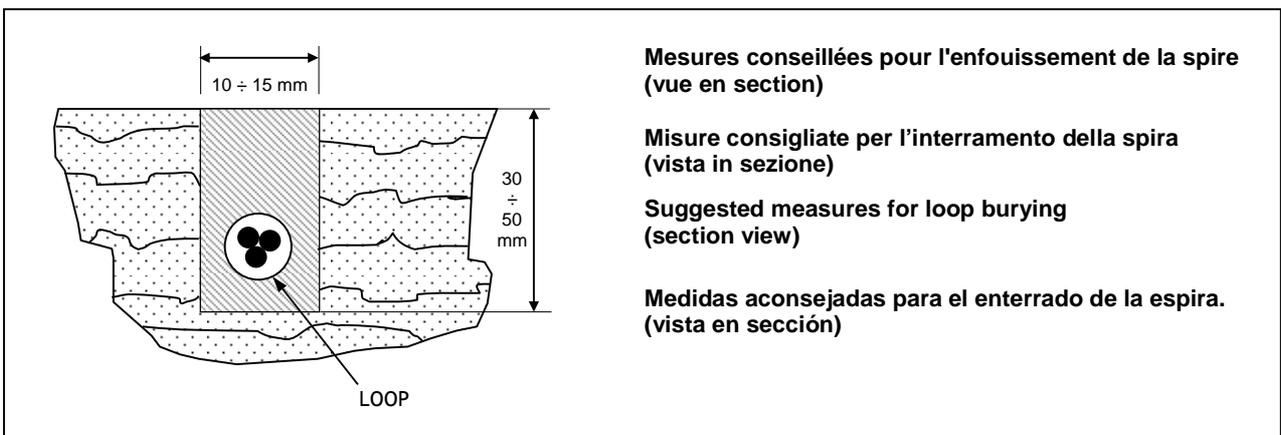
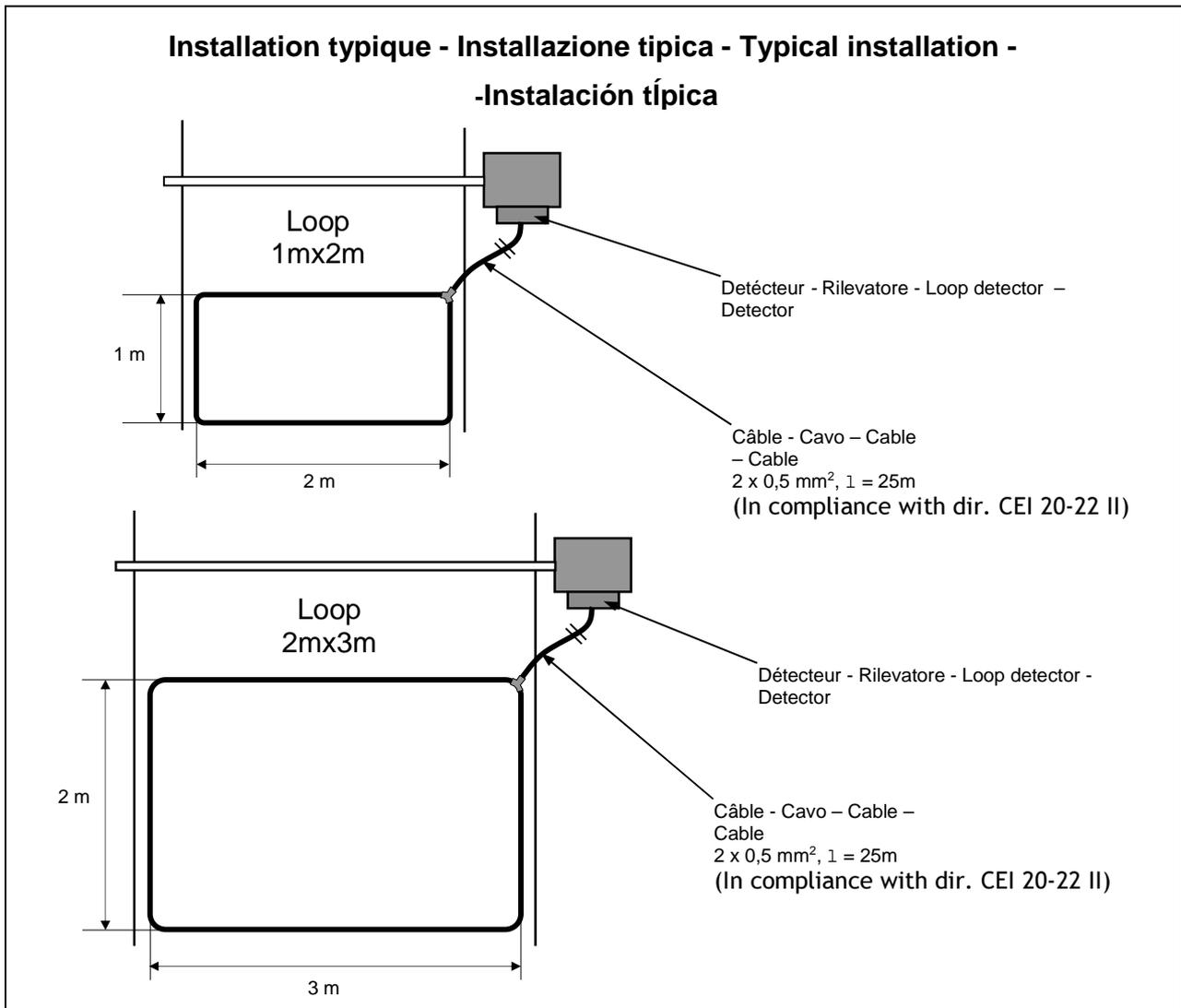
Description
1 Loop
2 Loop
3 Shield - EARTH GROUND
4 Power (12VDC...24VAC/DC)
5 Power (12VDC...24VAC/DC)
6 Presence - Output A - N.O.
7 Presence - Output A - COM
8 Presence - Output A - N.C.



Troubleshooting

Symptom	Possible cause	Solution
Green LED flashes	Loop wire shorted or open	Check loop resistance on the appropriate loop pins on the control board connector, between .5 ohms and 5 ohms.
Green LED flashes, 2 fast	Loop was previously shorted or open	Check loop resistance on the appropriate loop pins on the control board connector.
Detector remains in detect after vehicle has left loop	<ol style="list-style-type: none">1. Faulty loop2. Poorly crimped terminals3. Loose connections	<ol style="list-style-type: none">1. Perform megger test from loop lead to ground, should be >100 megohms2. Check loop connections to terminals3. Check splices are properly soldered and sealed against moisture4. Observe display, level indicated on display indicates residual frequency shift from vacant loop to vehicle presence, press Frequency Count switch to re-initialize the detector
Intermittent detection	<ol style="list-style-type: none">1. Faulty loop2. Poorly crimped terminals3. Loose connections4. Cross-talk between adjacent loops	<ol style="list-style-type: none">1. Perform megger test from loop lead to ground, should be >100 megohms2. Check loop connections to terminals3. Check splices are properly soldered and sealed against moisture4. Set adjacent loops to different frequencies (see Frequency Setting)
No detection	<ol style="list-style-type: none">1. Loop wire shorted or open2. Loop sensitivity set too low	<ol style="list-style-type: none">1. Check loop resistance on the appropriate loop pins on the control board connector, between .5 ohms and 5 ohms.2. With vehicle on loop, observe display, set sensitivity to the level indicated on the display

Loop Installation



- The cable that connects the loop with the detector must be turned at least 18 times per meter.



ALLMATIC S.r.l
32020 Lentiai - Belluno - Italy
Via dell-Artigiano, n°1 - Z.A.
Tel. 0437 751175 - 751163 r.a. Fax 0437 751065
<http://www.allmatic.com> - E-mail: info@allmatic.com

GUARANTEE - In compliance with legislation, the manufacturer's guarantee is valid from the date stamped on the product and is restricted to the repair or free replacement of the parts accepted by the manufacturer as being defective due to poor quality materials or manufacturing defects. The guarantee does not cover damage or defects caused by external agents, faulty maintenance, overloading, natural wear and tear, choice of incorrect product, assembly errors, or any other cause not imputable to the manufacturer. Products that have been misused will not be guaranteed or repaired.

Printed specifications are only indicative. The manufacturer does not accept any responsibility for range reductions or malfunctions caused by environmental interference. The manufacturer's responsibility for damage caused to persons resulting from accidents of any nature caused by our defective products, are only those responsibilities that come under Italian law.