

LAD-R

Leak Detector Pressure Type



About this User Guide

This guide is part of the device installation.

Read this guide before using the device.

Keep this guide during the entire service life of the device and always have it readily available for reference.

Always hand this guide over to future owners or users of the device.

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- + Read guide before use!
- + Observe all safety information!
- + Keep guide for future use!

If In Doubt ASK !

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WARNING TERMS

The type and source of danger associated with this device is shown here.

Precautions to take in order to avoid the danger are shown here.
There are three different levels of warning:



DANGER	Imminent danger! Failure to observe the information will result in death or serious injuries.
WARNING	Possible imminent danger! Failure to observe the information may result in death or serious injuries.
CAUTION	Dangerous situation! Failure to observe the information may result in minor or serious injuries and damage to property or device not working as expected.

General Installation and Wiring requirements

The device must be installed in accordance with the details given later in this guide.

All wiring must be in suitable cable for the application conditions and must comply with the relevant regulations of the electrical supply authority concerned, together with any other statutory requirements which may affect the complete installation.

It is recommended that cable with polyethylene or PVC insulation with a conductor size of at least 1.0mm² is used.

CAUTION



MICC cable (Pyro) must never be used under any circumstances

Signal cables should be run separately from any cables carrying mains voltages.

If signal cables are to be run through areas of high electrical interference it is recommended that screened cable is used with the screens being terminated only to the device earth terminal or as specified.

Specific terminal connection information may be found on identification label(s) on the device unless otherwise advised..

Refer to separately supplied installation guides for information regarding external components of the system such as level sensors, sounders and beacons etc.

CAUTION



Electrical systems may be impacted and the device switching contact (if fitted) may be destroyed by voltage peaks when inductive loads are switched off.

Use commercially available standard RC combinations such as 0.1µF/100Ω for inductive load switching.

Troubleshooting

Repairs and fault finding may only be performed by Afriso Eurogauge personnel or qualified personnel under Afriso Eurogauge instruction.

Refer to separately supplied installation guides for information regarding fault finding and repairs on external components.

Safety

Intended use

The device may only be used for continuous pressure monitoring in storage tank interstitial spaces and double skinned pipework.

Any use other than the application explicitly permitted in this guide or authorised by Afriso Eurogauge is not permitted.

Predictable incorrect application

The device must never be used in the following cases:

Hazardous area (ATEX)

If the device is operated in hazardous areas, sparks may cause deflagrations, fires or explosions.

Safe handling

This product represents state-of-the-art technology and is made according to the pertinent safety regulations. Each device is subjected to a function and safety test prior to shipping.

Operate the device only when it is in perfect condition. Always observe the operating instructions, all pertinent local and national directives and guidelines as well as the applicable safety regulations and directives concerning the prevention of accidents.

WARNING

Severe burns or death caused by mains voltage (110/230 VAC, 50/60Hz) in the device

Do not expose the control unit to water.

Interrupt the mains voltage supply before opening the device or before performing maintenance and cleaning work and make sure it cannot be switched on by accident.

Do not tamper with or modify the device in any way whatsoever.



Transport and storage

CAUTION

Damage to the device due to improper transport.



Do not throw or drop the device.

Protect from wetness, humidity, dirt and dust.

CAUTION

Damage to the device due to improper storage.



Protect from wetness, humidity, dirt and dust.

Store the device in a clean and dry environment.

Only store the device within the permissible temperature range.

Staff Qualification

The device may only be mounted, commissioned, operated, maintained, shut down and disposed of by trained staff. Electrical work may only be performed by trained electricians and in compliance with all applicable local and national directives.

Modifications to the device

Changes or modifications made to the device by unauthorised persons may lead to malfunctions and are prohibited for safety reasons unless specifically instructed by the manufacturer.

Use of spare parts and accessories

Use of unsuitable spare parts and accessories may cause damage to the device. Use only genuine manufacturer spare parts and accessories.

Liability information

The manufacturer shall not be liable in any form whatsoever for direct or consequential damage resulting from failure to observe the technical instructions, guidelines and recommendations given in this guide or ancillary documents.

The manufacturer or sales agent shall not be liable for costs or damages incurred by the user or by third parties in the usage or application of this panel, in particular in case of improper use of the device, misuse or malfunction of the connection, malfunction of the device or of connected devices.

The manufacturer or sales agent shall not be liable for damage whatsoever resulting from any use other than the use explicitly permitted in this guide or ancillary documents.

The manufacturer shall not be liable for misprints.

Disposal and Recycling

Switch off the supply voltage and disconnect from device.

Disconnect all other terminals and remove wiring from device.

Dismount the device.

To protect the environment, this device must **not** be disposed together with normal household waste

Dispose of the device according to local directives and guidelines.

This device consists of materials that can be recycled.

Electronic inserts can be easily separated and the device consists of recyclable materials.

Where it is not possible to dispose of the device locally in accordance with environmental regulations please contact us for return or disposal instructions.

Warranty

The manufacturer's warranty for this device is 24 months after the date of purchase.

This warranty shall be good in all countries this device is sold by the manufacturer or its authorised dealers or agents.

Refer to separately supplied installation guides for information regarding warranty on external components.

Copyright

The manufacturer retains the copyright to this device. This guide or any separately supplied installation guide may not be reprinted, translated, copied in part or in whole without prior written consent.

We reserve the right to make technical modifications with reference to the specifications in this guide without notice.

Customer Satisfaction

Customer satisfaction is our prime objective.

Please get in touch with us if you have any questions, suggestions or problems concerning the device or external components.

Contact

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Application and description

The LAD-R pressure type leak detector contains the following elements in an impact-resistant housing display elements and controls, a printed circuit board with the electronic components for processing the output signal and connections for the remote pressure gauge with two switching contacts or individual high and low pressure switches as required.

The LAD-R monitors the over/under pressure in the interstitial space of a pipe or storage tank and generates an alarm signal in the case of a pressure drop or increase. The alarm is indicated audibly and visibly and is also available via a voltage-free relay contact (1 changeover contact). The switch points for low and high pressure can be adjusted via the two switching contacts of the remote pressure gauge by means of an adjustment spanner.

The total monitored interstitial space volume must not exceed 1200 litres per LAD-R.

The manifolds are constructed of aluminium and they are available with 1 to 6 connections and fitted with a 1, 5 or 10 bar pressure gauge according to requirements

Each connection is equipped with a separate shut-off valve to locate leaks. The connections are designed for 6 mm plastic or copper pipes.

Function

The LAD-R alarm unit is connected to the interstitial space via a manifold by means of a copper or plastic pipe 6 x 1 mm.

The pipe or storage tank interstitial space is filled with nitrogen from a nitrogen cylinder with pressure reducer by means of the filling and test fitting connected to the manifold self-closing test coupling.

When the space is filled, the pressure in the interstitial space must be increased until the pressure indicated on the pressure gauge is between the low and high switch point settings.

After filling and testing, the filling and testing fitting and the nitrogen cylinder are disconnected from the self-closing test coupling at the manifold.

When the LAD-R is powered up it starts monitoring the interstitial space after a short automatic lamp and sounder test. The amber operating lamp indicates that the device is operating normally.

The contact pressure gauge measures the overpressure in the interstitial space via the pressure pipe. When there is no alarm condition, the black pointer of the contact pressure gauge is between the two red switching contacts.

The lower switching contact indicates the switch point for Low Pressure Alarm.
The upper switching contact indicates the switch point for High Pressure Alarm.

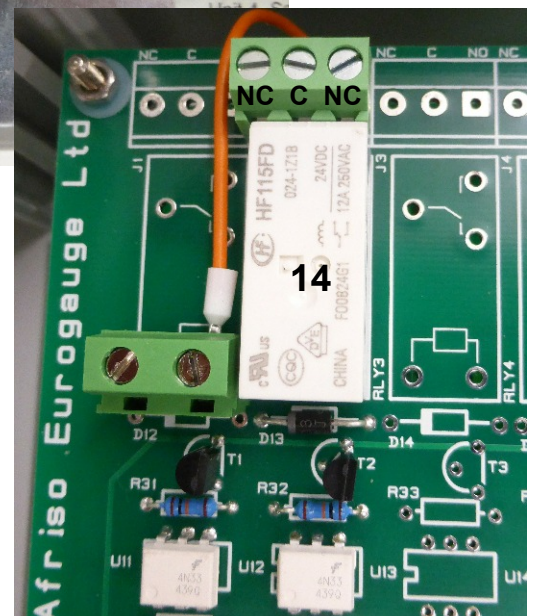
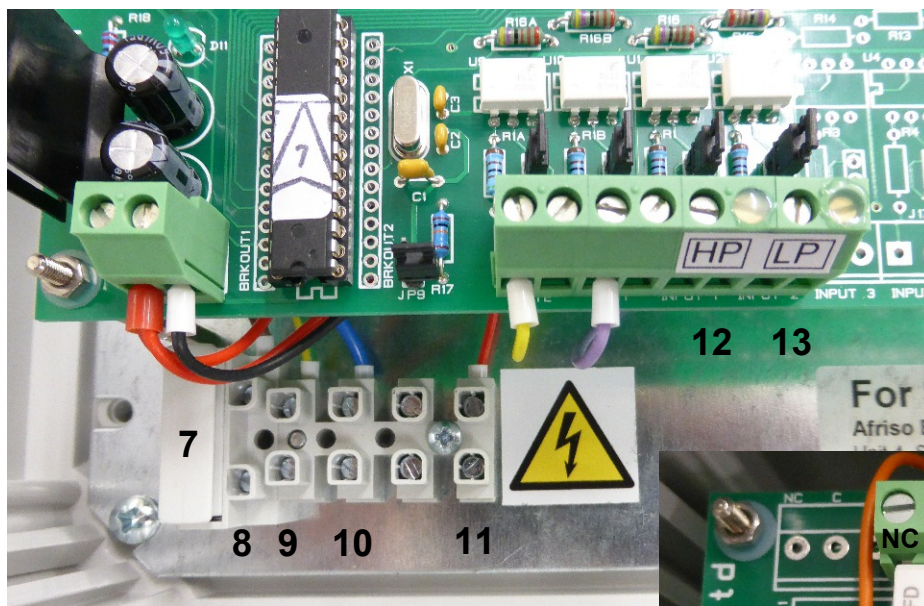
Examples of operation in double skinned pipework:

Pipe contents at 6 bar pressure
Pipework Interstitial space at 2 bar pressure
10 bar pressure gauge on manifold.
High pressure alarm at 3 bar
Low pressure alarm at 1 bar
Leak from interstitial space into atmosphere
Low pressure alarm active

Pipe contents at 6 bar pressure
Pipework Interstitial space at 1 bar pressure
10 bar pressure gauge on manifold.
High pressure alarm at 3 bar
Low pressure alarm at 1 bar
Leak from interstitial space into interstitial space
High pressure alarm active

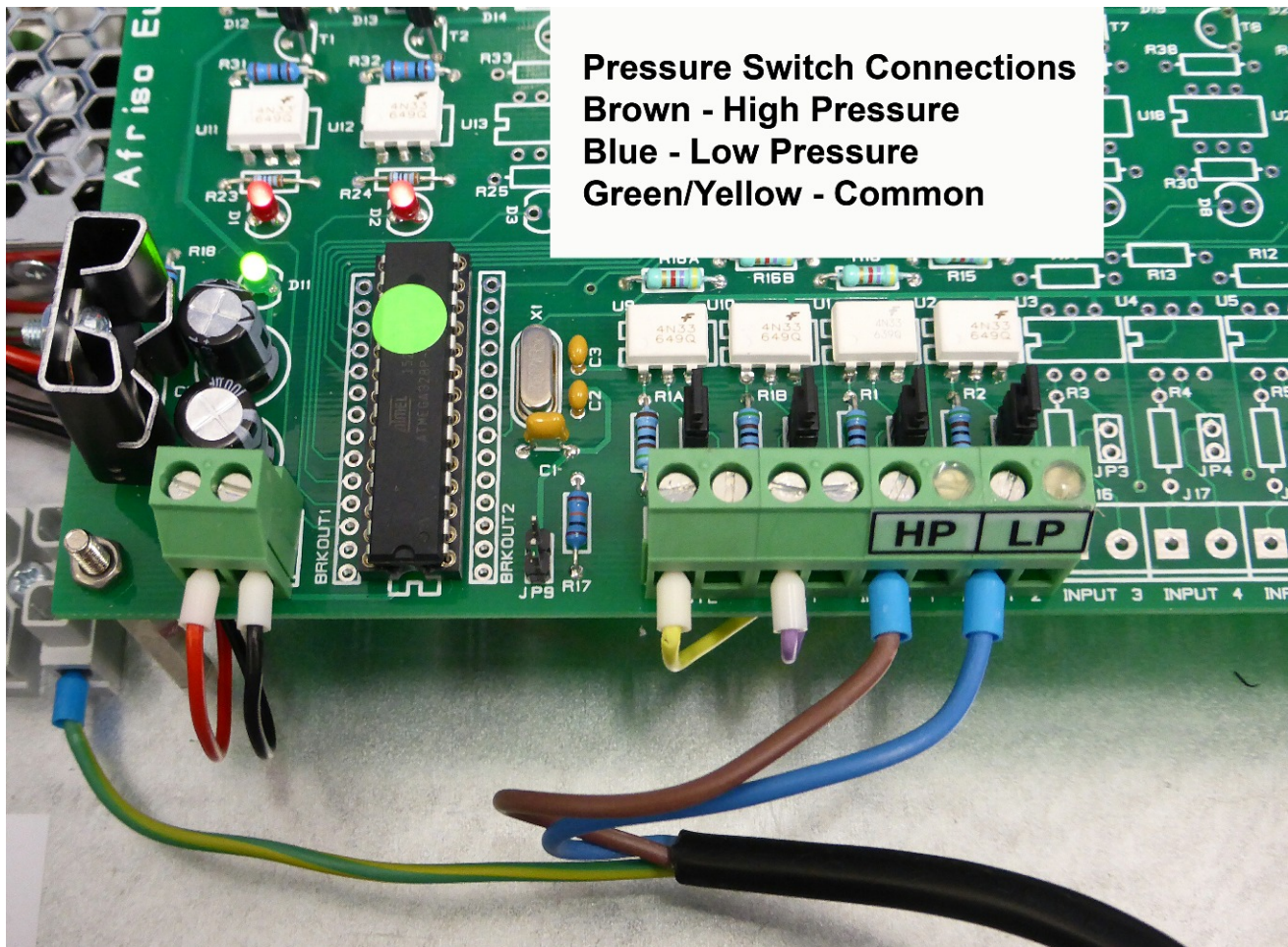
The audible alarm can be cancelled via the Mute switch, visual alarms cannot be cancelled.

Controls and Connections



- 1 Mute Sounder Pushbutton
- 2 Sounder
- 3 Power On Lamp
- 4 Test Pushbutton
- 5 High Pressure Alarm Lamp
- 6 Low Pressure Alarm Lamp
- 7 Fuse 1A 20 x 5mm
- 8 Live (110/230Vac 50/60Hz)
- 9 Earth
- 10 Neutral
- 11 24Vdc to common pressure contact
- 12 Input from high pressure contact
- 13 Input from low pressure contact
- 14 Alarm Relay (voltage free contacts)

Leak Detection Switch Connections



ES-41 High & Low Pressure Switch

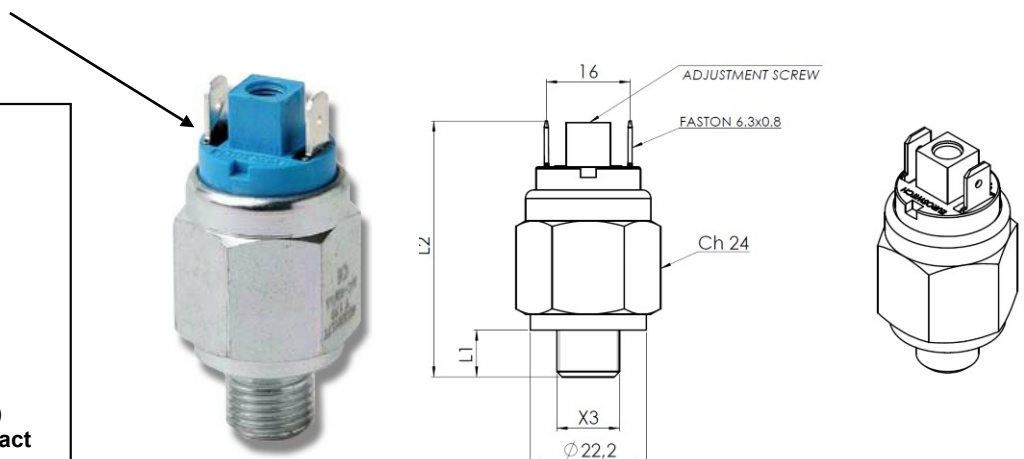
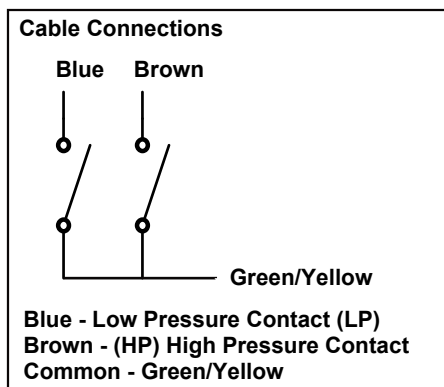
Trip point adjustment screw position

Supplied preset <1 bar for low pressure & >7 bar for high pressure.

Adjust switch point according to requirements using manifold pressure gauge.

Note. Switch with red insert is low pressure and blue insert is high pressure.

Images © PVL Ltd





Declaration of Conformity

LAD-R Leak Detector - Pressure Type

This is to certify that the above named product(s) fully complies with the Electromagnetic Compatibility Directive 2014/30/EU and the Low Voltage Directive 2014/35/EU of the European Union and with the requirements of the normative sections of the following harmonised European Standards.

- EN61000-6-3: Electromagnetic Compatibility - Generic Emission Standard. Residential, Commercial and Light Industry.
- EN61000-6-1: Electromagnetic Compatibility - Generic Immunity Standard. Residential, Commercial and Light Industry.
- EN 61010-1: Safety requirements for electrical equipment for measurement, control and laboratory use.

Signed :



D. C Ward

Position: Technical Manager
Date: 13/09/2016

Declaration of Product Origin

LAD-R Leak Detector - Pressure Type

We confirm that the following product designs originate and have been wholly manufactured within the United Kingdom of Great Britain and Northern Ireland by:

Afriso Eurogauge Ltd.
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Fleming Way, Crawley,
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Signed:



D C Ward

Position: Technical Manager

Date: 13/09/2016