ELT 8
Conductivity Level Switch

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 !

+44(0)1293 658360
tech@afriso-eurogauge.co.uk

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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 1.0mm^2 is used.

CAUTION **ATEX installations may only be carried out by qualified and trained personnel in accordance with ATEX specific requirements.**

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 level switch device may only be used for continuous level monitoring in metal containers, silos and tanks for the storage of the following media, provided such media can be detected with a capacitance probe.

Liquids

Granulated materials

Powdered materials

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 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
Afriso Eurogauge Ltd
Unit 4, Satellite Business Village
Fleming Way, Crawley
West Sussex. RH10 9NE

Tel: +44(0) 1293 658360 Fax: +44(0)1293 528270
email: techoffice@eurogauge.co.uk
Web: www.eurogauge.co.uk

Application

The ELT8 is designed for use with electrically conducting liquids such as water, sewage etc. The unit can be used with either one sensing probe as a single point level switch to operate high or low level alarms etc, or with two sensing probes for the automatic starting and stopping of pumps, etc.

The setting of the unit can be adjusted with the sensitivity (D) control to ensure that the unit switches at the correct level and is not affected by foam etc. on the liquid surface.

Operation

A partly insulated electrode is selected from the Eurogauge range of sensing probes and installed into the container. When the electrode is in contact with the conducting liquid an AC circuit is completed through the liquid in the container to either the metal container wall or to an earth electrode. Completing this circuit operates the output relay.

Installation

General

The ELT8 is designed for wall or cubicle mounting and can be fitted to symmetrical DIN rails by means of an optional mounting clip. Plug-in construction allows the mounting base containing the terminals for external wiring to be pre-wired in a cubicle, or on site. Removable rubber grommets are provided for cable access together with two ‘knockouts’ moulded into the base.

Mounting

A weatherproof enclosure, with pre-drilled mounting plate, is available under Part No. 7410 001 for applications where the instrument has to be mounted outdoors, or in a hostile environment. The enclosure has a transparent cover enabling the indicator lamps to be easily observed. Mount instruments vertically in cubicles allowing 20mm distance either side for heat dissipation.

Wiring

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

The probe circuits (terminals 11 and 12) must not be wired using mineral insulated wire (MICC) as erratic operation and loss of signal may occur. It is recommended that cable with polyethylene or PVC insulation is used for all signal circuits, recommended conductor size is 1.5mm^2.

Multi-core cable may be used for signal circuits provided that supply voltage cables are not included.

Multi-core cables must be of the twisted pair type. Earth returns should not be commoned.

Run signal cables (terminals 11 and 12) separate from power supply cables or use screened cables to ensure optimum performance.

The container must be earthed or if of non-metallic construction, or internally lined, a separate earth electrode must be installed.

In single probe installations the electrode must always be connected to E1 (terminal 11).

Commissioning

Check that the instrument is wired up in accordance with the wiring diagram.

Check that the supply voltage (works preset - see rating plate on base of unit) is correct for the installation.

Failsafe : The unit is fitted with an internal failsafe selector switch which has been works preset for high level failsafe (HL). This failsafe feature ensures that the relay is always de-energised when the alarm condition, as indicated by the red 'alarm' LED, is reached.

To change the failsafe mode remove the base cover and slip the PCB out of its housing. Slide the failsafe switch to either the LL position for low level or HL for high level failsafe,as required.

Switch on the supply and allow a few minutes for the instrument to stabilise.

The sensitivity (D) control should be set fully clockwise to ensure that a switchpoint is obtained when liquid covers the probe(s). This may be simulated by short-circuiting the probe(s).

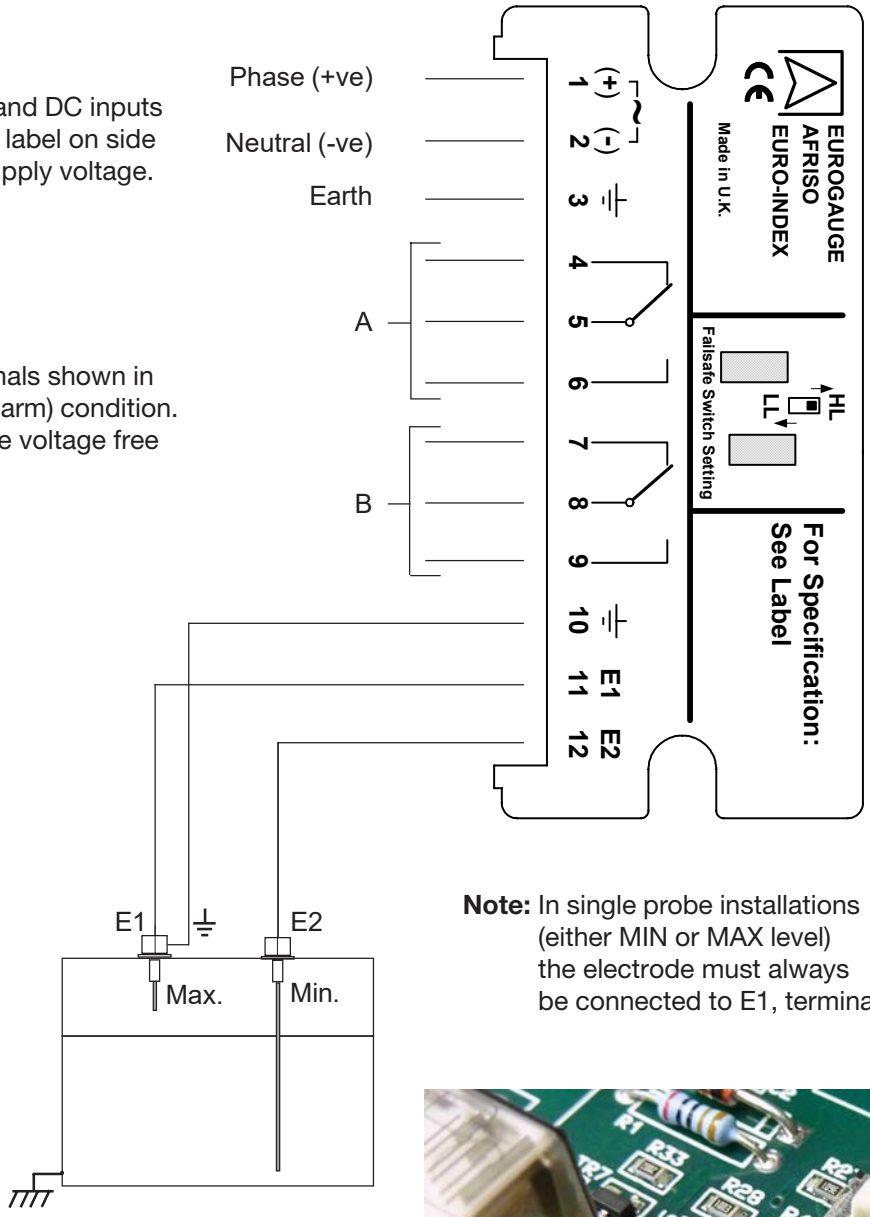
Note

In applications where foam conditions exist or are likely to occur, the sensitivity setting of the ELT8 should be reduced by turning the sensitivity (D) control in an anti-clockwise direction to a setting of approximately 1-2 on the scale.

Connection Diagram

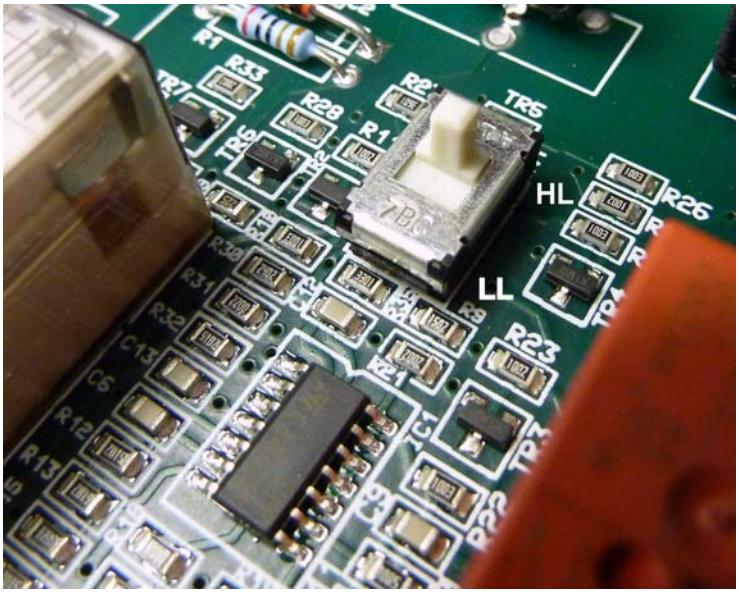
Supply (AC and DC inputs shown). See label on side of unit for supply voltage.

Relay Terminals shown in power off (alarm) condition. Terminals are voltage free



Note: In single probe installations (either MIN or MAX level) the electrode must always be connected to E1, terminal 11.

Note:
If fitting a replacement:-
<u>Units prior to October 2010</u>
Terminal 7 - Normally Open
Terminal 9 - Normally Closed



Failsafe switch location on PCB

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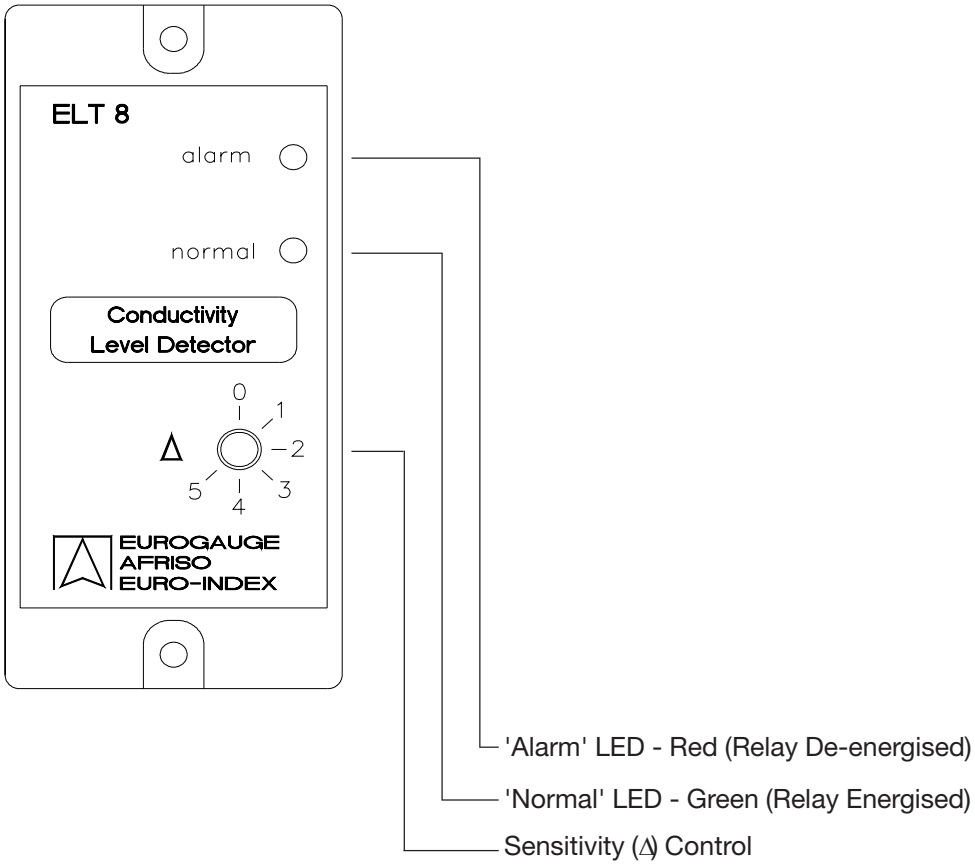
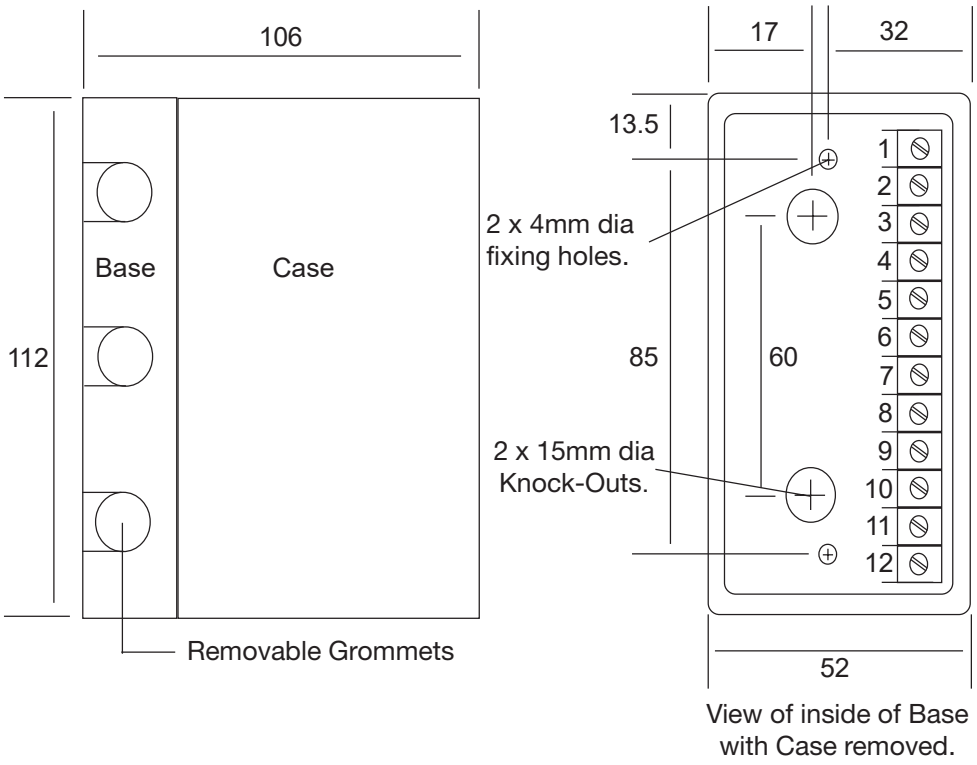
Front Panel Indicators and Controls



Outline & Dimensions



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Specification

Part Numbers	556008000-1 : 230V ac; 556008000-2 : 110V ac; 556008001-3 : 24V ac; 556008001-5 : 48V ac; 556008230-4 : +24V DC.
Supplies:	24/48/110/230V ac (Selected by internal solder links) : 50Hz : 4VA . ac supply tolerances : -15%, +10%. +24V DC : 2 Watts : tolerance ±15%.
Sensitivity:	Variable from 2.5kΩ to 60kΩ (400μS to 17μS). Controls Sensitivity (Δ) to set trip point. Approximate Settings: 0 = 2.5kΩ (400μS). 1 = 4kΩ (250μS). 2 = 9kΩ (110μS). 3 = 15kΩ (67μS). 4 = 40kΩ (25μS). 5 = 60kΩ (17μS).
Output:	Double pole changeover contacts - Voltage free. Rating 3 Amps at 250V ac 750VA; 1 Amp at 12V DC non-inductive load.
Indicators:	LEDS Green - 'normal' operation - output relay energised. Red - 'alarm' condition - output relay de-energised.
Failsafe:	Maximum failsafe - green LED on - output relay energised - probe uncovered. Minimum failsafe - green LED on - output relay energised - probe covered.
Hold Facility:	Latch-on circuit between high and low level probes (E1 and E2) for pump control etc.
Temperature:	-10°C ... 60°C
Housing:	ABS case with polyester base.
Fixing:	Base mounted by 2 x 4mm diameter holes for screws, or clip mounting to symmetrical DIN rail.
Protection:	IP40 : (BS5940/IEC 529).
Cable Entry:	5 removable blind grommets : 2 'knockouts' in base (15mm).
Size:	112mm x 52mm x 106mm overall.
Weight :	0.4kg.
Note 1	For 24 Volt DC operation with Part No. 5560 08 230 the negative supply line is earthed. Connections : Terminal 1 - +24V DC; Terminal 2 - 0V; Terminal 3 - Earth.
Note 2	We reserve the right to alter the design or specification of this product without prior notice.

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Declaration of Conformity

ELT 8 Conductivity Level Switch

This is to certify that the above named product 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.

BS EN 61000-6-3:2007+A1:2011
Electromagnetic Compatibility - Generic Emission Standard.
Emission standard for Residential, Commercial and Light Industry.

BS EN 61000-6-2:2005
Electromagnetic Compatibility - Generic Immunity Standard.
Immunity for industrial environments

BS EN 61010-1:2010
Safety requirements for electrical equipment for measurement, control and laboratory use.

Signed: D C Ward Position: Technical Manager Date: 13/09/2016

This declaration applies to all 55xx Series part number(s) as specified in this User Guide

Declaration of Product Origin

ELT 8 Conductivity Level Switch

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.
Unit 4, Satellite Business Village,
Fleming Way, Crawley,
West Sussex.
RH10 9NE. United Kingdom.
Tel: +44 (0)1293 658360
Fax:+44 (0)1293 528270
sales@afriso-eurogauge.co.uk
www.eurogauge.co.uk

Signed: D C Ward Position: Technical Manager Date: 09/01/2014

This declaration applies to all 55xx Series part number(s) as specified in this User Guide

Measuring, control and monitoring devices
for building, industry and environmental protection.

AFRISO EUROGAUGE Ltd
Unit 4
The Satellite Business Village
Fleming Way
Crawley
West Sussex
RH10 9NE

Tel: +44 (0) 1293 658360
Fax: +44 (0) 1293 528270

www.eurogauge.co.uk
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