GEFRAN

ML1018

MEASURING LANCE

Operating Manual

C-0116_v1.0_ENG

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PREFACE

Device data

Note the device serial number, order code and type, which are listed on the label, here:
- applied on the aluminum cover of the measuring lance
- applied on the aluminum case of the measuring lance

Should you need technical assistance, they must be communicated to Gefran Customer Service.

Measuring Lance	
Serial No.	
Order code	
Type	

Warnings and safety

Always make sure you have the latest manual version, that can be freely downloaded from the Gefran website (www.gefran.com).

The devices illustrated in the manual must be installed by qualified technicians, following the laws and regulations in effect and according to the instructions contained in this manual.

Installation and/or maintenance technicians must read this manual and strictly follow the instructions herein and found in the annexes since Gefran cannot be held liable for personal, property and/or product damages should the following conditions not be met.

Disposal

The ML1018 Measuring Lance must be disposed of in accordance with applicable regulations.

Some of the components used in the devices can cause damage to the environment if incorrectly disposed.

Disclaimer

Although all information contained within this document has been carefully checked, Gefran S.p.A. cannot be held liable for the possible presence of errors, or damage to persons or property due to improper use of this manual.

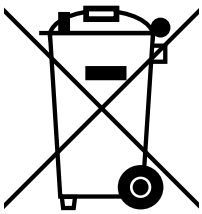
Gefran S.p.A. also reserves the right to make changes to the content and form of this document as well as the characteristics of the illustrated devices at any time without prior notice.

The technical and performance data indicated in this manual are to be considered as a guide for the user to determine the suitability for a certain use, and are not guarantees. They may be the result of Gefran S.p.A. test conditions and the user must compare them to his/her real application requirements.

Gefran S.p.A. cannot be held in any way liable for any damage to persons or property resulting from IN Sensor and indicator tampering, incorrect and improper use or otherwise non compliant with controller features and instructions in this manual.

Copyright

WEEE INFORMATION



DE

„Umsetzung der Richtlinie 2012/19/EU über Elektro- und Elektronik-Altgeräte (EEA)“
Das Symbol der durchgekreuzten Mülltonne auf dem Gerät oder der Geräteverpackung weist darauf hin, dass Sie das Produkt am Ende seines Lebenszyklus separat entsor¬gen müssen.
Die Getrenntsammlung dieses Geräts an seinem Lebenszyklusende wird vom Her¬steller organisiert und besorgt.
Der Nutzer, der das Gerät entsorgen möchte, muss sich daher an den Hersteller wenden, um Auskunft über seine Vorgehensweise zur Getrenntsammlung des Geräts an dessen Lebenszyklusende zu erhalten.
Die entsprechende Getrenntsammlung für die anschließende Zuführung des Altgeräts zum Recycling, zur Wiederaufbereitung und zur umweltverträglichen Entsorgung trägt dazu bei, negative Auswirkungen auf die Umwelt und die Gesundheit zu unterbinden und begünstigt die Wiederverwendung und/oder das Recycling von Werkstoffen, aus denen das Gerät besteht.

EN

“Implementation of Directive 2012/19/EU on waste electrical and electronic equip¬ment (WEEE)”
The symbol showing a crossed-out wheeled bin on equipment or its packaging indicates that the product must be collected separately from other waste at the end of its useful life.
The manufacturer is responsible for organ¬ising and managing the separate collection of this piece of equipment at the end of its useful life.
Users wishing to dispose of the equipment must therefore contact the manufacturer to obtain instructions from the same on how to have the equipment collected separately at the end of its useful life.
By collecting the disused equipment sepa¬rately, it can be recycled, treated or disposed of in an environmentally friendly manner, thus helping to prevent the environment and public health from being affected negatively and enabling reuse and/or recycling of the materials forming the same equipment.

FR

“Transposition de la Directive 2012/19/UE relative aux déchets d’équipements électriques et électroniques (RAEE)”
Le pictogramme de la poubelle barrée, figu¬rant sur l’équipement ou sur son emballage, indique que le produit en fin de vie doit être traité séparément des autres déchets.
Le ramassage sélectif de cet équipement en fin de vie est organisé et géré par le constructeur.
Tout utilisateur qui souhaiterait se débarras¬ser de l’équipement devra donc contacter le constructeur pour obtenir des informations concernant la méthode adoptée pour per¬mettre le ramassage sélectif de l’équipe¬ment en fin de vie.
Un ramassage sélectif correct, en vue de l’acheminement de l’équipement vers des opérations de recyclage, de traitement et de mise au rebut respectueuses de l’environne-ment, contribue à réduire les impacts poten-tiellement néfastes sur l’environnement et la santé, outre à favoriser la réutilisation des matériaux/composants dont l’équipement est constitué.

IT

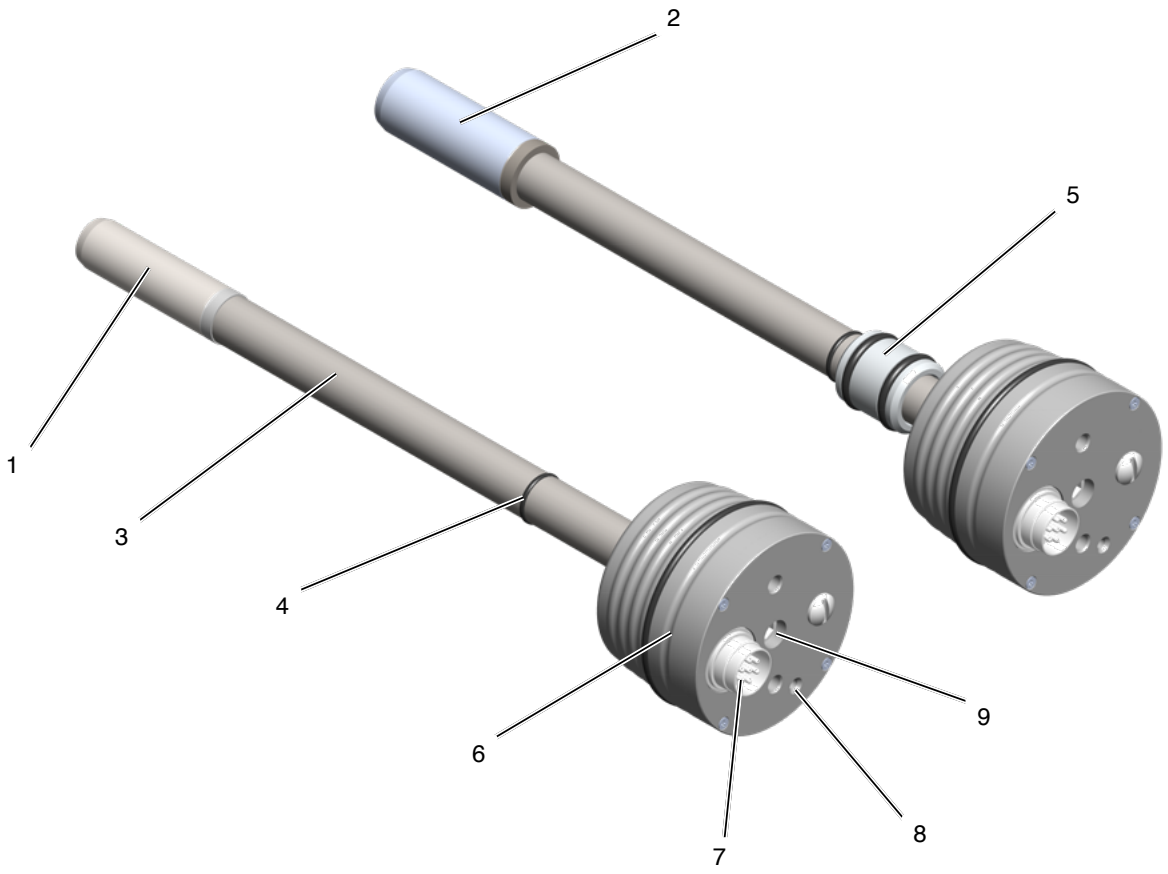
“Attuazione della direttiva 2012/19/UE sui rifiuti di apparec¬chiature elettriche ed elettroniche (RAEE)”
Il simbolo del cassonetto barrato riportato sull’apparecchiatura o sulla sua confezione indica che il prodotto alla fine della propria vita utile deve essere raccolto separatamen¬te dagli altri rifiuti.
La raccolta differenziata della presente ap-parecchiatura giunta a fine vita è organizza¬ta e gestita dal produttore.
L’utente che desideri disfarsi dell’apparec-chiatura dovrà quindi contattare il produt¬tore per ricevere indicazioni sul sistema da quest’ultimo adottato per consentire la rac¬colta separata dell’apparecchiatura giunta a fine vita.
L’adeguata raccolta differenziata per l’avvio successivo dell’apparecchiatura dismessa al riciclaggio, al trattamento e allo smaltimento ambientalmente compatibile contribuisce ad evitare possibili effetti negativi sull’ambiente e sulla salute e favorisce il reimpiego e/o riciclo dei materiali di cui è composta l’ap¬parecchiatura.

1. GENERAL DESCRIPTION

1.1. Profile

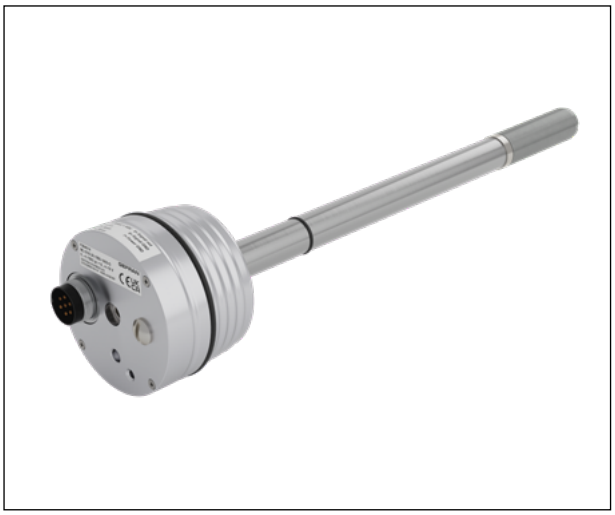
The measuring-lance ML1018 is inserted into a borehole in a tie bar and then preloaded to measure the strain at the sensortip. The 2 strain gauges in the sensor tip are then pressed so hard onto wall of the hole that friction replaces the bonding normally used to fix strain gauges.

1.2. Construction



1	Sensor tip Ø16
2	Sensor tip Ø20
3	Tube
4	Sealing ring (only Ø16)
5	Support ring (only Ø20)
6	Housing
7	Connector
8	LED Function indicator
9	Mounting with hexagon socket screw (6mm)

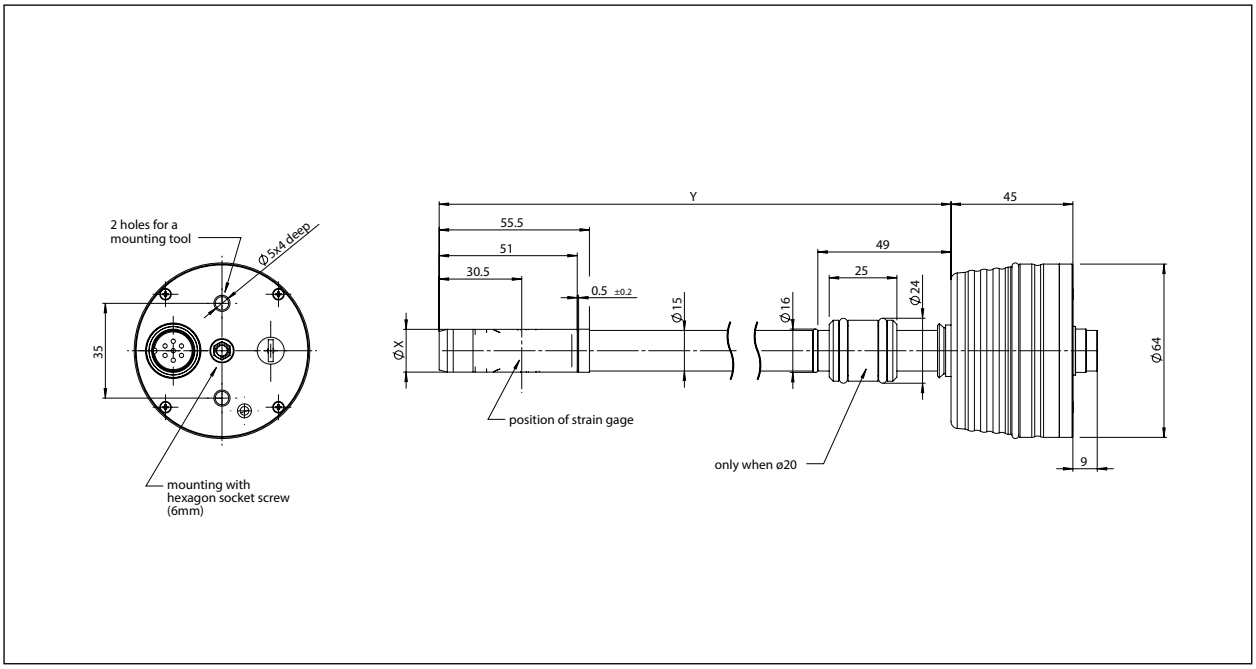
1.3. ML1018 Measuring Lance



Main features

- Measure strain in deep holes
- With calibrated digital amplifier
- Quick and easy mounting with torque-wrench
- High linearity on tension and compression
- For dynamic applications
- Used in injection moulding and die-casting machines or any cylinder
- Very high accuracy (like bonded strain gauges)
- Protected against overload

1.3.1. Dimensions



Dimensions in mm

2. INSTALLATION

Warning! The installation of the devices described in the manual must be carried out by qualified personnel, following the laws and regulations and in accordance with the instructions contained in this manual.

Warning! Do not open the device when the power is on.

Warning! Use extreme caution when installing and fixing the sensor unit.
If the sensor unit is installed at a height of more than 1.8 meters, all persons near the moulding machine must wear the protective helmet.

Warning! If even one of the above-mentioned requirements is not met, suspend installation and contact your Gefran dealer or Gefran Customer Service.

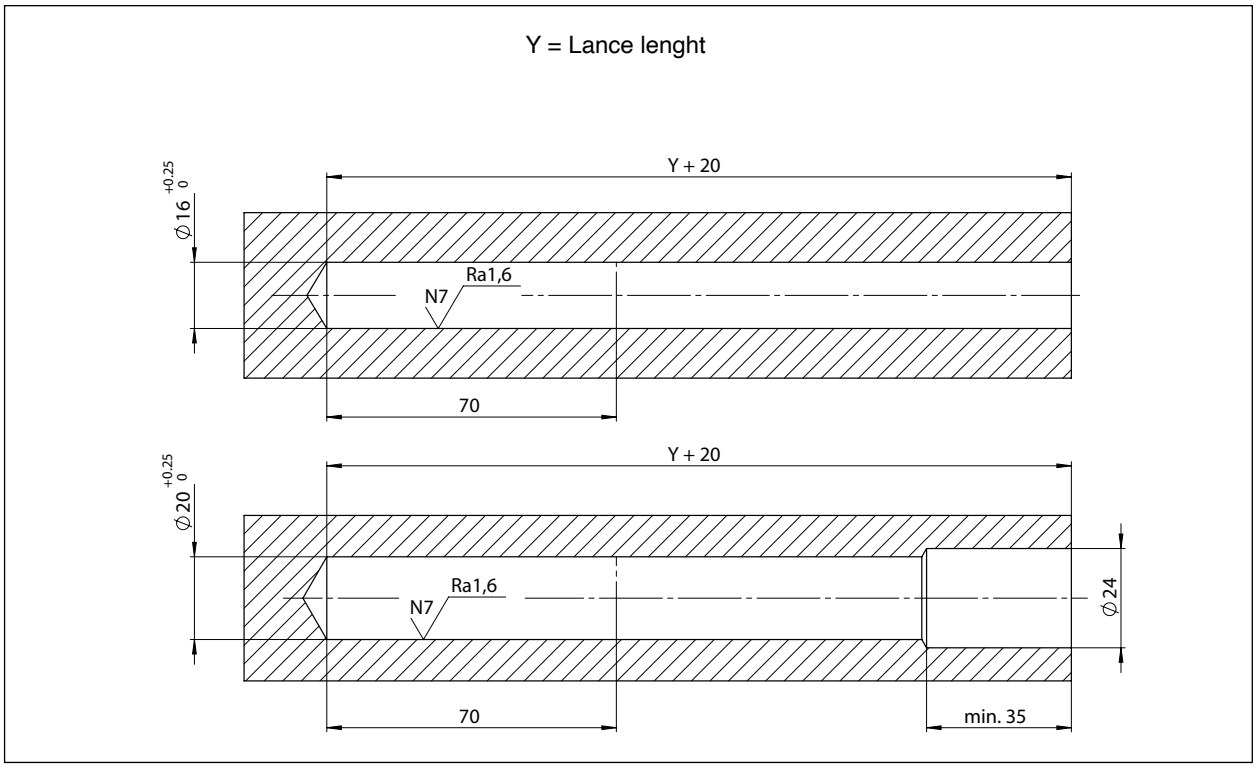
2.1. Preparing for assembly

Before proceeding with the installation, check that the measuring lance are intact and have not been damaged during transport.

Also make sure that the package contains all accessories listed in the documentation.

2.2. Borehole

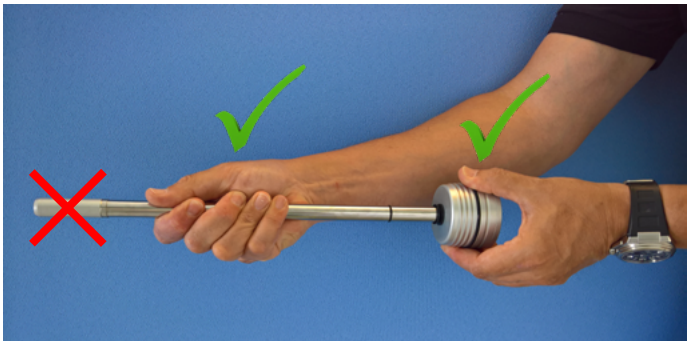
The borehole must be free of oil and dirt.



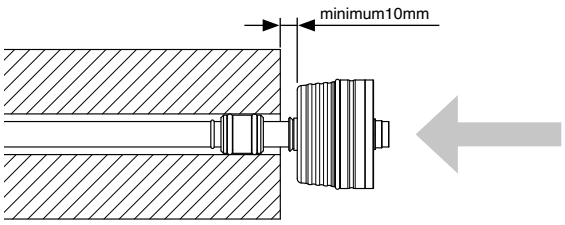
Dimensions in mm

2.3. Assembly

- Avoid contamination from grease or oil on the sensor tip.
- Don‘t touch the sensor tip with bare hands.
- The measuring lance housing must not rest against the workpiece.
- The sealing ring (Ø16mm) or the support ring (Ø20mm) must be inside the borehole.
- Only mount the measuring lance with the specified torque.



1. The borehole with specified lenght and diameter must be prepared.
2. Carefully take the measuring lance out of the packaging.

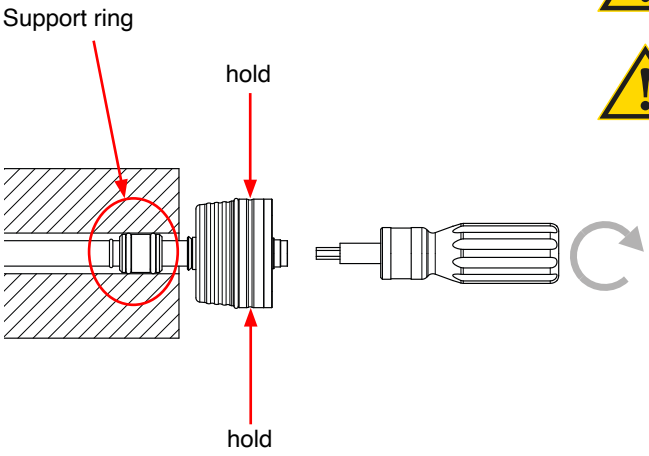


3. Insert measuring lance into the borehole with a slow continuous movement to the desired measuring point.
4. Insert measuring lance only so far that minimum 10mm of the tube of the measuring lance remains visible.
5. Adjust the support ring if nesessary, it must be inside the borehole (measuring lance with Ø20mm).
6. The sealing ring must be inside the borehole (measuring lance with Ø16mm).

The sealing ring (Ø16mm) or the support ring (Ø20mm) must be inside the borehole!

Mount the measuring lance only with the specified torque!

The housing must not rotate!



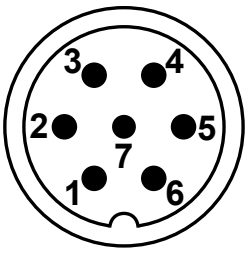
7. Hold the measuring lance housing with one hand
8. Tension measuring lance with torque meter (hexagon socket 6mm).
   Tightening torque: 3 Nm

2.4. Electrical connections

Warning! Please remember that failing to follow the instructions below could lead to electrical safety and electromagnetic compatibility problems, as well as void the warranty.

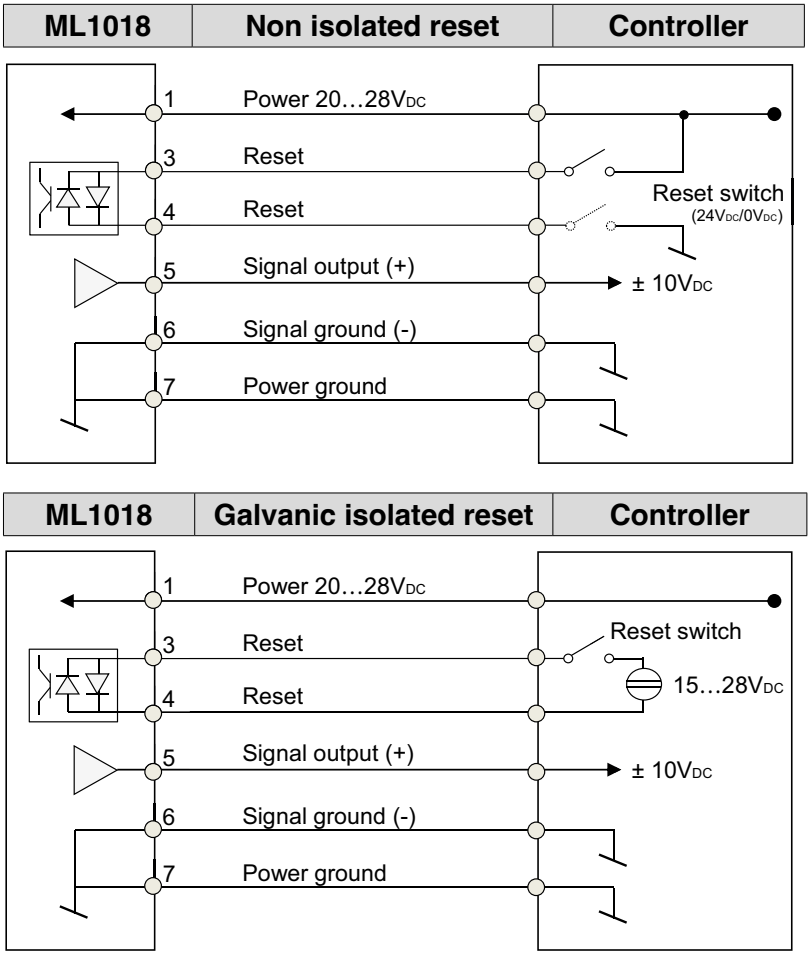
2.4.1. General rules for connections

- Make sure that the grounding connection is efficient. A missing or ineffective ground connection can cause unstable device operations due to excessive environmental disturbances.
- To avoid disturbances, the sensor cables must be kept away from the power cables (high voltage or large current).



Connector PIN	Function	Color
1	Power supply 20...28 VDC	White
2	n.c.	-
3	Reset	Green
4	Reset	Yellow
5	Signal output	Grey
6	Signal ground	Blue
7	Power ground	Pink

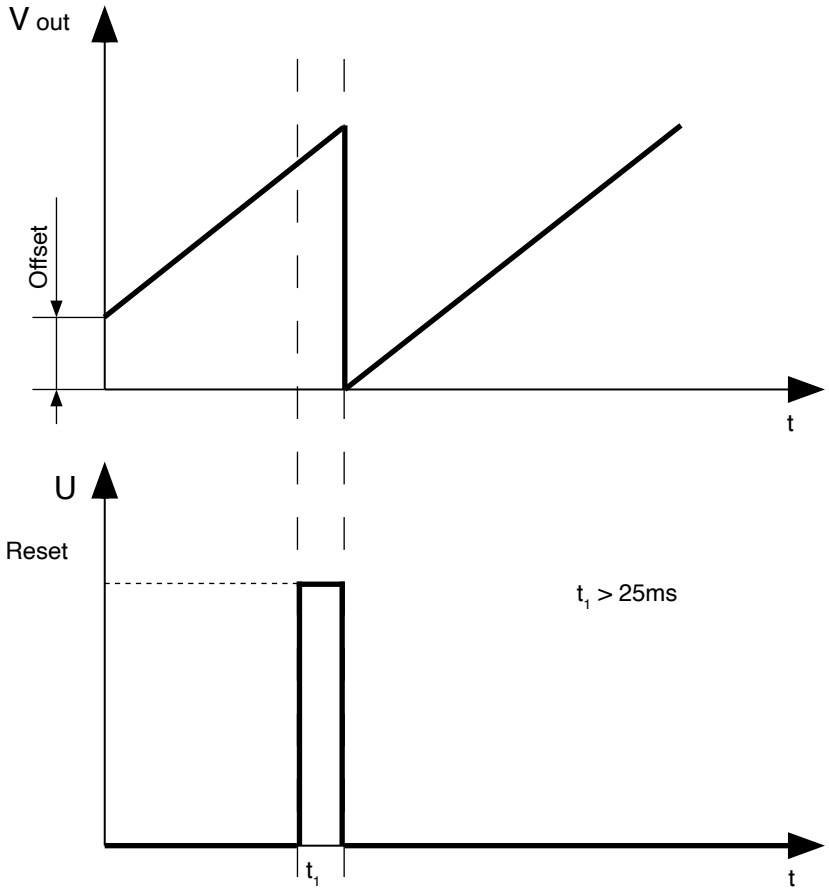
2.5. Reset function



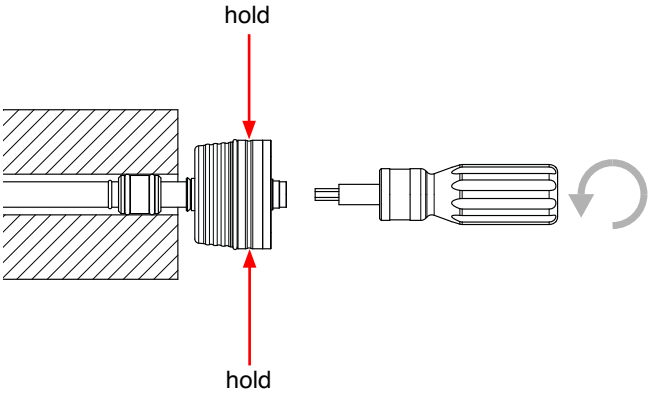
3. OPERATIONS

3.1. Measurement procedure

- Before starting to measure, three cycles at fullscale must be run.
- To avoid measuring errors SENSORMATE AG recommends to reset the zero point after each machine cycle.



4. DISMANTLING



1. Disconnect the cable from measuring lance.
2. Hold the measuring lance housing with one hand.
3. Release the hexagon screw with the other hand.
4. Pull measuring lance out of the borehole with a light tug.
5. Store the measuring lance in its original packaging.

5. TRANSPORT AND STORAGE

- Transport or store measuring lance only in original packaging.
- Store measuring lance where it will be secure against shock.
- Data on storage temperature are listed in the technical specifications.

6. MAINTENANCE

In general, the measuring lance does not require any maintenance.

6.1. Inspection

If the measuring lance is removed, the sensor tip of the measuring lance must be checked for damage to ensure proper functionality of a new installation and operation.

6.2. Servicing

In order to guarantee a faultless operation of the measuring lance, it is recommended to have repair work carried out only by Sensormate AG.

7. TECHNICAL SPECIFICATIONS

Measuring range	±1000με
Output signal	0...±10VDC
Noise	< 10mV
Accuracy	< ± 0.5% FS
Accuracy of zero point	< ± 0.1% FS
Linearity	< ± 0.5% FS
Repeatability	< 1% (max 2%)
Reset time	> 25ms
Reset voltage	15...28VDC
Supply voltage	20...28VDC
Supply current	< 60mA
Inverse polarity protection	Yes
Accidental short-circuit protection	Yes
Operating temperatur range	-10...65°C
Storage temperatur range	-10...65°C
Protection class	IP52

8. ORDER CODES

Measuring lance **ML1018** - □□ - □□□□ - □□□□ - □

Borehole diameter X (Sensor-tip)	
Sensor-tip Ø 16 mm	**16**
Sensor-tip Ø 20 mm	**20**

Lance lenght Y	
270 mm	**0270**
315 mm	**0315**
320 mm	**0320**
350 mm	**0350**
430 mm	**0430**
530 mm	**0530**
650 mm	**0650**
880 mm	**0880**
950 mm	**0950**
1000 mm	**1000**
1090 mm	**1090**
1400 mm	**1400**
1580 mm	**1580**
1850 mm	**1850**
1900 mm	**1900**
2270 mm	**2270**

Measuring range	
500 $\mu\varepsilon$	**0500**
1000 $\mu\varepsilon$	**1000**

Features	
No	**O**

Example: ML1018 - 20 - 0650 - 0500 - O

Measuring lance type ML1018, Borehole diameter X = 20 mm, Lance lenght Y = 650 mm,
Measuring range = 500µε, No features

Notes:

GEFRAN

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06-2025