

# TRIFLEX LNI 200

THE NON-INTRUSIVE LEVEL SENSOR  
FOR NON-CONDUCTIVE PRODUCTS



## Advantages

- The ability to detect weak signals coming from low dielectric products.
- Save time and costs in easy installation:
  - Single button setup.
  - No tank nozzles required.
- New FTC technology.
- Non-intrusive installation, no risks of leakage or overspill.
- Virtually no maintenance, no moving parts.
- Easy access maintenance without shutting down your processes, save time and costs!
- Fault detection according to Namur NE43 for fast error solving.
- Auto calibration, unaffected by product quality changes: reliable results ALL the time.
- Sensor status indication for easy reference.

## Signal output

- The analog output is a passive 2-wire 4 - 20mA signal (loop powered) according to the measured level indication.
- One solid state relays, which is triggered by a high or low level alarm.

## Applicability

- The Triflex LNI 200 is applicable for measuring products with a  $\epsilon_v \geq 1.3$  and  $\epsilon_v \leq 20$ .

## Applications

- The Triflex LNI 200 is specially designed for non-intrusive level applications of bulk solid products. It is ideal for situations where it is undesirable or impossible to make an entry into a plastic or glass storage vessel or for aggressive or contamination sensitive products.

## General information

### Introduction

The Triflex LNI 200 is designed to measure the level on the outside of a non-metallic tank without physical contact with the product. The LNI 200 incorporates the unique FTC technology (Field Time Control). This is a new innovative technology where an electric field is generated between a transmitting electrode and multiple receiving electrodes. The cycle time of the FTC level sensor changes as soon as a product intervenes this electric field. Multiple advanced receiver circuits are embedded to detect the level of low dielectric material, like bulk solid material or dry food products.

The Triflex LNI 200 transmitter does not require moving parts or product contact that may be subject to failure situations. Applications with a sensor with FTC Technology provide a more reliable and cost effective solution.

### Operation

The Triflex LNI 200 series is non-intrusive, by attaching the level measurement to the outside of a non-metallic tank, there is no need to drill or cut the tank wall and there is also no contact with the product being measured. There are no moving parts and therefore no cleaning or maintenance requirements. It is not an optical system, so the tank/silo doesn't need to be transparent. This reliable non-invasive technology can be applied to many different products and once installed is easily to set up. Press the button once, while connected to an empty tank and the system is up and running. This is one of the reasons why the Triflex LNI 200 improves the efficiency of bran and flour production.

### Alarm output

The solid state output can be used as an alarm for either low or high level alarm. Default it is set on the 2nd receiving electrode from below as a low level alarm.

It can however be factory set to any receiving electrode segment required (option ZD).

### Analog output signal

The analog output is a passive 2-wire 4 - 20mA signal (loop powered) according to the measured level indication.

### LED indicator

On the front there is a Bi-Color LED which acts as a level and status information indicator. The Bi-Color LED is showing the level relative to the bottom of the device with color gradually changing from RED at 0% to GREEN at 100%. The LED is capable of flashing while maintaining the level information. Flashing can be either fast, this indicates a diagnostic error and slow, this indicates a process warning.

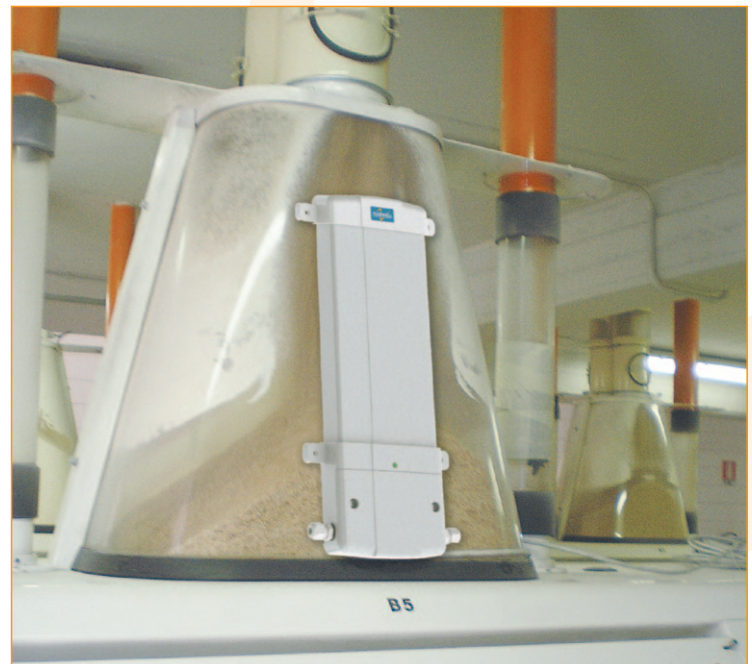
### Easy one button operation

Pressing the button during normal operation stores the measurement values from the sensors as the initial situation. This should be performed with an empty vessel/container only. This information is kept during power down.

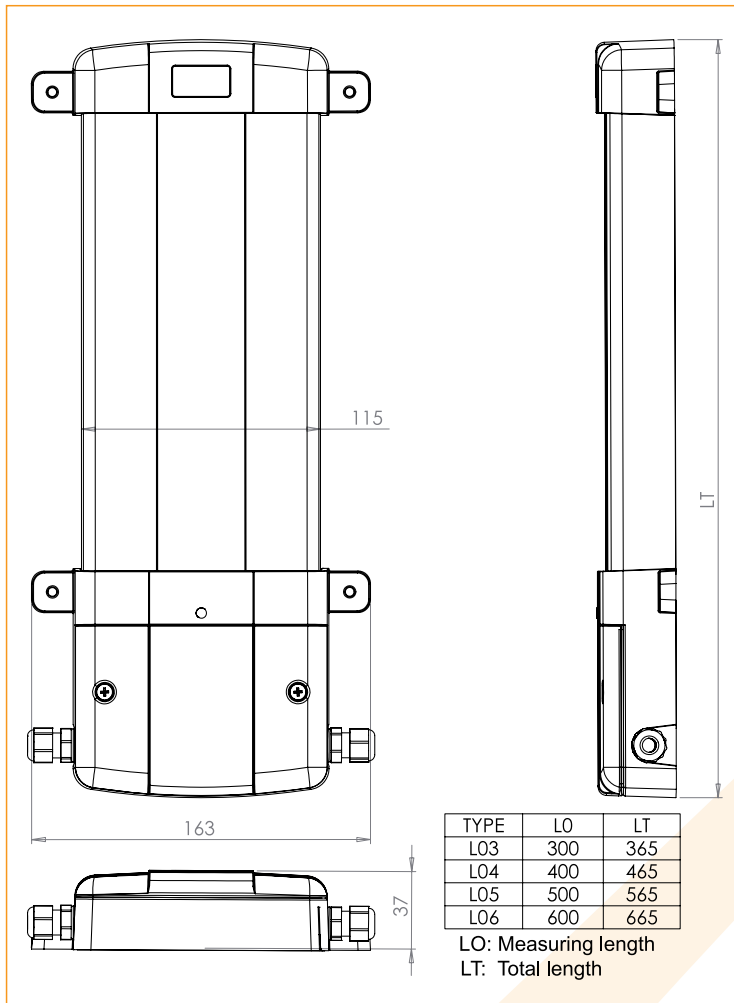
### Mounting conditions

The LNI 200 must be placed directly and tight to the non metallic tank or vessel. There are two mounting options. There is a strap mounted possibility and an adhesive tape option is pending.

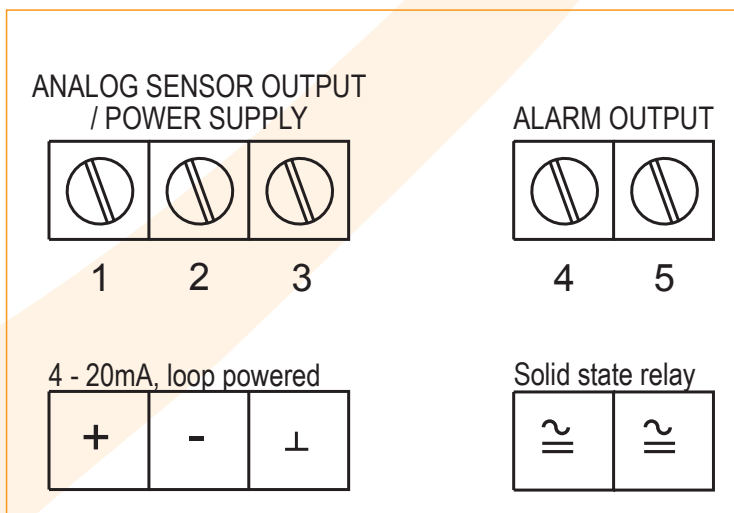
## Triflex LNI 200 on a Rollermill



## Dimensions enclosures



## Terminal connections



## Technical specification

### Enclosure

Material	Galvanised aluminum and ABS / PA.
Dimensions	365 / 465 / 565 / 665 x 163 x 37mm H x W x D.

### Power requirements

Power supply	12 – 34V DC.
Lift-off	
Voltage@4mA	~ 11V DC.
Min. operating	
Voltage@20mA	~ 9V DC.

### Operating specifications

Temperature	-40°C to +80°C (-40°F to +178°F).
Max. load resistance	550 ohm.
Sensor resolution	15mm.
Response time	1 second.

### Sensor output

Analog output	2-wire 4 - 20mA (loop powered). conform to Namur NE43. 4 - 20mA (0-100%).
Current signalling	3.8mA (saturating below -1.25%). 20.5mA (saturating above 103%). 3.6mA (fault current low value). 21mA (fault current high value).
Alarm output	Solid state 50V AC/DC.
Non-trip current	39mA (at 25°C).
Min. trip current	59mA (at 25°C).

### Data protection

Type	Non volatile backup of all settings.
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### Length options

	Measuring length: 300mm.
Type L03	Total length: 365mm. Segments: 20 pcs. (0.8mA / segment).
	Measuring length: 600mm.
Type L06	Total length: 665mm. Segments: 40 pcs. (0.4mA / segment).

### Applicability

LNI200	Low dielectric products $\epsilon_v \geq 1.3$ and $\epsilon_v \leq 20$
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### Applicability example

Ash (fly)	$\epsilon_v = 1.7 - 2.0$
Cement	$\epsilon_v = 1.5 - 2.1$
Epoxy Resin	$\epsilon_v = 3.6$
Flour	$\epsilon_v = 2.5 - 3.0$
Glass	$\epsilon_v = 3.7 - 10.0$
Grain	$\epsilon_v = 3.0 - 8.0$
Nylon	$\epsilon_v = 4.0 - 5.0$
Polypropylene	$\epsilon_v = 1.5$
Polycarbonate	$\epsilon_v = 2.9 - 3.0$
Rice (dry)	$\epsilon_v = 3.5$
Salt	$\epsilon_v = 3.0 - 15.0$
Sugar	$\epsilon_v = 3.0$

### Accessory

ATSo1	Triflex software management tool. (Linux based)
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## Ordering information

Model	Ordering Code	Description
LNI 200		Triflex LNI 200 Non-intrusive Level Transmitter.
Type	Lo3	Measuring length: 300mm - Total length: 365mm – Sensor segments: 20 pcs.
	Lo6	Measuring length: 600mm - Total length: 665mm – Sensor segments: 40 pcs.
Approval	XX	Safe Area.
Options	ZA	No options.
	ZB	Sensor tape mounted preassembly.
	ZC	Sensor strap mounted preassembly.
	ZD__	Customer set alarm*.
	ZE	Bottom-up assembly.

\* default alarm is at 2<sup>nd</sup> electrode from below as low alarm. If you require the alarm at another electrode, just add the electrode number from below to the ordering code e.g. ZDo4 is the alarm at the 4<sup>th</sup> electrode from below.

## General overview



- Connector 1: Analog output loop powered, ground & high/low level alarm output.
- Connector 2: Designated for factory setup and diagnostics (do not connect to a network device). This connector can be used to operate MODBUS type communication with the device.
- Bi-Color LED: Indicates level and status information.
- Push-button: - Stores the measurement value at calibration.  
- Shows the set-up mode NE43 conditions (burn out low / high / none).

Specifications are subject to change without notice.

Fluidwell Instruments bv  
P.O. Box 6  
5460 AA - Veghel - The Netherlands  
Tel.: +31 (0)413 343786  
Fax.: +31 (0)413 363443  
instruments@fluidwell.com  
www.fluidwell.com

