

InoxLaser NL-01

Non-contact level measurement sensor

Product overview

The NEWCO Instruments InoxLaser is a non-contact laser sensor used to measure the distance to a solid surface. This surface could be anything from a flat metal plate on the side of an overhead crane, to the top of material stored in a silo. With an easy to use menu system, the InoxLaser can be configured for either distance or level measurement and the high accuracy, long range and fast update rate make this the ideal sensor for many different applications.

Quick start guide

NL-01



Level, distance & position measurement of solids

Features

- Non-contact measurement with laser technology
- 303 Stainless steel housing
- Measurement range up to 50 meters (164 feet)
- Continuous measurement with a resolution of 10 mm
- NAMUR compliant 4...20 mA output
- 2 Normally open relay outputs
- Easy configuration via USB
- Optional Dust tube accessory (NL-01/DT) and Swivel mounting bracket (NL-01/SB)

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Getting started

1. Connect the 24 V power supply, the 4..20 mA output, and the relays, as necessary for your application.
2. Plug a USB cable into the mini-B connector in the terminal compartment of the InoxLaser (NL-01).
3. Plug the other end of the USB cable into a PC and run the NEWCO Terminal software program.
4. Press the “Connect” icon. The display will indicate the distance measured in meters and the signal strength as a percentage.
5. To access the “Home” menu, press the arrow up ↑ key.
6. Use the arrow left ← and right → keys to access the “4..20 mA Controls”, “Relay Controls” and “Laser Controls” menus. Select a sub-menu item using the relevant numeric key. Type new values as a numeric string or as a toggling selection, and use Enter ↵ key to save and exit. A summary of the menu structure is given below:

Menu	Selection	Default	Range of values	Description
Home	N/A	** Serial #___ **	N/A	General information regarding the NL-01.
4..20 mA Controls	1. 4 mA	0.60 m	0.00 .. 50.00 m	Distance corresponding to the 4 mA.
	2. 20 mA	25.00 m	0.00 .. 50.00 m	Distance corresponding to the 20 mA.
	3. Fail safe	Hold	<3.6 .. Hold .. >21.0 mA	Failsafe condition of the 4 .. 20mA.
	4. Fail time	4.00	0.00 .. 600.00 s	Delay time between failure and failsafe.
	5. Test	--- mA	4.0 .. 12.0 .. 20.0 mA	Output test of the 4 .. 20 mA.
Relay Controls	1. Relay 1	1.00 m	0.00 .. 50.00 m	Distance at which Relay 1 activates.
	2. Relay 2	2.00 m	0.00 .. 50.00 m	Distance at which Relay 2 activates.
	3. Hysteresis	0.25 m	0.00 .. 2.00 m	Distance between activation and deactivation of the relays.
	4. Configure	Near closed / Far open	Near closed / Far open or Near open / Far closed	Relay configuration.
	5. Test relays	Open open	Open or closed	Tests relay functionality.
Laser Controls	1. Filtering speed	100.000 m/s	0.005 .. 100.000 m/s	Maximum filling speed of the vessel.
	2. Power	100%	100% .. 130%	Output power of the laser.

7. From each menu, use the arrow up ↑ and down ↓ keys to see the effects of changes to the settings.
8. Once all the settings are entered, go back to the “Home” menu and press the arrow down ↓ key restart normal measurements.

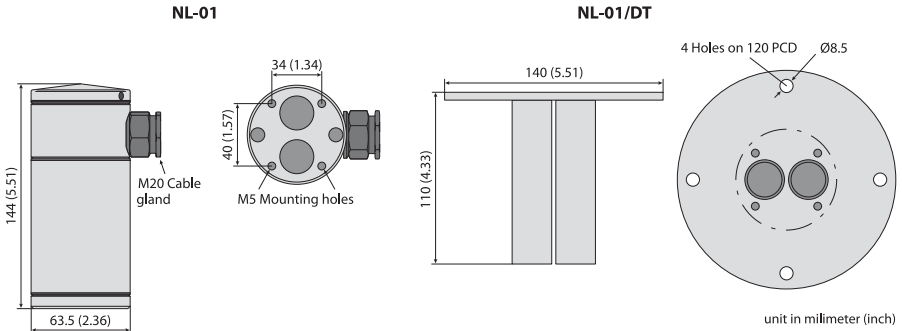
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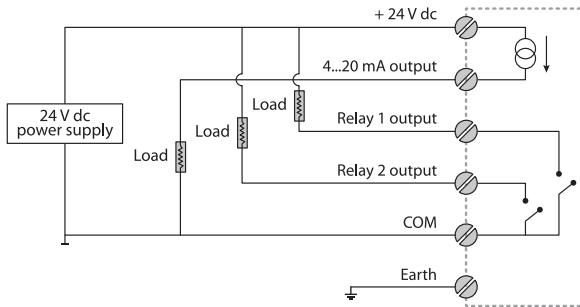
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Dimension drawings



Connections



Safety warning

The laser beam of the InoxLaser NL-01 has very low energy and is normally safe to use (Class 1M). The pulsed beam emitted is invisible, with a wavelength of 850nm, an average power of 11mW and a peak power of 14W. Do not stare into the beam, wear the appropriate protective glasses and take safety precautions. Never look at the beam through a magnifying optical instrument.



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Technical specifications

Performance data	
Sensing range	0.3 .. 50 m (0.98' .. 164')
Resolution	1 cm (0.39")
Accuracy	<0.1% of full range at 20°C
Update rate	5 readings per second
Technical data	
Power supply	24 V dc nominal (12 .. 28 V dc)
Current consumption	100 mA nominal
Output	
Analog	4 .. 20 mA NAMUR compliant, non-isolated. 2 x Relays (N/O), 250 V at 3 A.
Communication	USB at 115200 baud 8-N-1
Mechanical data	
Diameter	NL-01: 6.35 cm (2.36") NL-01/DT: 14 cm (5.51")
Length	NL-01: 14.4 cm (5.51") NL-01/DT: 11 cm (4.33")
Weight	NL-01: 1 kg (2.2 lb) NL-01/DT: 0.75 kg (1.65 lb)
Connection	Flange accessory (NL-01/DT) with 4 Ø 0.85 cm holes on 120 PCD
Housing material	303 Stainless steel
Optical data	
Optical aperture	6 cm (2.36")
Beam divergence	< 1° to half power points
Lens material	Impact resistant acrylic
Laser safety classification	Class 1M CAUTION: Do not view laser directly with optical instruments
Environmental data	
Operating temperature	-20°C .. +60°C
Pressure	Atmospheric
Enclosure rating	IP66

NEWCO Instruments CC

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