



# MiniVLS Optical Speed Sensor - Type ia Laser Version Instructions MiniVLS211/ia

**Ex ia op is IIC T4 Ga (-20°C < Ta < +40°C)**  
**⊕ II 1 G**

## Specification

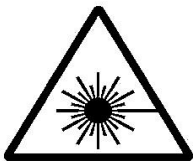
Optical Range (laser version): 100 - 2000 mm.  
Fixing method (Plain body -code 211/ia): Slotted for bracket mounting.

## Variations

MINIVLS211/ia Plain bodied version

## Pin Connections

	Moulded Cable	Screened Cable	
Pin 1	Brown	Red	Positive Supply 5v
Pin 3	Blue	Green	Ground
Pin 4	Black	Yellow	Signal output



**WARNING  
LASER RADIATION  
CLASS II LASER**

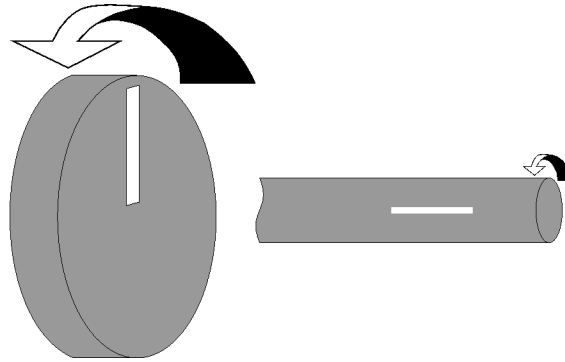
## Installation

The plain body has two slots enabling it to be mounted onto a bracket. Once the bracket is fixed in position either permanently or temporarily onto a tripod, the MiniVLS can be clipped in. Ensure no parts will come into contact with moving machinery.

## Instructions for use

1. Fix a piece of reflective tape as shown below.
2. The minimum size of the reflective target in the direction of travel should be twice the size of the light source image.
3. Arrange the MiniVLS fixing so the beam is roughly in the centre of the tape.
4. With the MiniVLS connected, the LED should light as a signal is received back from the target. On fast rotating targets the LED will appear to be on continuously.

Tape orientation for use on discs or shafts.



### Use Without Reflective Tape.

Under controlled conditions reflective tape may not be required. If there is an existing difference in reflectivity on part of the object to be monitored then this may be used e.g. keyways and slots in bright shafts, spokes of a wheel, fan blades etc.

If there is more than one target per revolution of the shaft, then the resulting reading must be divided by the number of targets to obtain the correct reading. In the case of multiple targets these must be equally spaced around the shaft or disc or jitter will occur in the measured value, this effect is most apparent at slow speeds.

On bright shafts it is possible to paint a non-reflective segment and conversely on non-reflective shafts a reflective mark can be painted.

### Note

The unit detects contrasts in reflectivity not differences in colour.

As conditions can vary greatly from application to application some experimentation may be required to determine the best method.

### Warning

1. The MiniVLS must **only** be connected to appropriately Ex certified equipment.
2. The sensor cannot be repaired and must be replaced by an equivalent unit.
3. The MiniVLS models are not intended to be exposed to dusty conditions.
4. The MiniVLS should not be subjected to mechanical or thermal stress, nor should it be subjected to any aggressive substances
5. The apparatus has no internal provision to prevent the rated voltage being exceeded. Such provision must be provided external to the apparatus
6. The plastic lens at the front of the unit must be protected from prolonged UV exposure

The sensor has been designed such that it will not give rise to injury or harm due to contact, nor will it produce excessive heat, infra-red, electromagnetic or ionising radiation, nor does it have any non-electrical dangers.

### Parameters

Pin 1 w.r.t. Pin 3	Pin 4 w.r.t. Pin 3
$U_i = 6V$	$U_o = 6V$
$I_i = \text{self-limiting}$	$I_o = 12mA$
$P_i = \text{self-limiting}$	$P_o = 14mW$
$C_i = 3.2\mu F$	$C_o = \text{zero}$
$L_i = \text{zero}$	$L_o = \text{zero}$

# EU DECLARATION OF CONFORMITY

Compact Instruments Limited. 61-65 Lever Street, Bolton Lancashire, UK, BL3 2AB declare that the following product: - OPTICAL SENSOR MINIVLS211/ia  
Has been designed and manufactured in accordance with:

European Directive 2014/30/EC as outlined in harmonised norm for

EN 6100-6-4:2007+A1:2011 *emissions*

EN 61000-6-3:2007+A1:2011 *emissions*

EN 61000-6-2:2005 *immunity*

Complying with the harmonised Standards:

ISO 9001:2015 *quality management*

EN ISO/IEC 80079-34:2011 *quality systems for manufacture*

EN 60079-11:2012 *Protection by intrinsic safety "i"*

EN 60079-28:2015 *Protect of equipment using optical radiation*


EN IEC 60079-0:2018 *General equipment requirements*

IEC 60079-11:2011 *Protection by intrinsic safety "i"*

IEC 60079-28:2015 *Protect of equipment using optical radiation*

IEC 60079-0:2011 *General equipment requirements*

Ex Classification Ex ia op is IIC T4 Ga (-20°C < Ta < +40°C)

Atex code:  II 1 G

EC type Examination certificate Baseefa15ATEX0142

IECEx certificate of conformity IEC BAS 15.0032

Notified Body: - Baseefa 1180, Buxton UK

Laser: - class II power <1mw, EN 60825-1:2014

Regulation (EC)No1907/2006: - The product contains none of the 163 substances of Very High Concern (SVHC) on the Reach candidate list, in a concentration above the 0.1% by weight allowable limit.

B Jones

25<sup>th</sup> May 2016