



## 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  
DO NOT STARE INTO BEAM  
CLASS II LASER PRODUCT

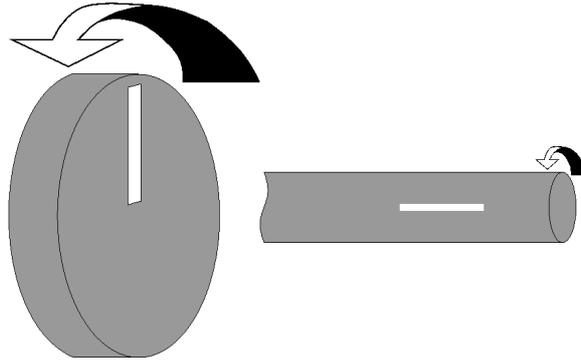
### Installation

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 / UK 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 2014/34/EU as outlined in harmonised norm for:

EN 61000-6-2:2005	<i>immunity</i>
EN 61000-6-3:2007+A1:2011	<i>emissions</i>
EN 61000-6-4:2007+A1:2011	<i>emissions</i>

Complying with the harmonised Standards:

ISO 9001:2015	<i>quality management system</i>
EN ISO/IEC 80079-34:2020	<i>Application of quality systems for ex product</i>
IEC 60079-0:2017 (Edition:7.0)	<i>Part 0: Equipment – General requirements</i>
IEC 60079-11:2011 (Edition:6.0)	<i>Part 11: Equipment protection by intrinsic safety "i"</i>
IEC 60079-28:2015 (Edition:2.0)	<i>Part 28: Protection of equipment and transmission systems using optical radiation</i>

Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0: 2018  
EN 60079-11: 2012  
EN 60079-28: 2015

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

ATEX Code:  II 1 G

EU type Examination certificate Baseefa15ATEX0142 Iss 2.0

UK type Examination certificate BAS21UKEX0531 Iss 1.0

IECEX certificate of conformity IECEX BAS 15.0032 Iss 2.0

Notified Body: -

SGS Baseefa, Approved Body number 1180  
SGS Fimko Oy, Notified Body number 0598

Laser: - class II power <1mw, BS EN 60825-1:2014+A11:2021

Regulation (EC) No 1907/2006: - The product contains none of the 'xxx' substances of Very High Concern (SVHC) on the Reach candidate list, in a concentration above the 0.1% by weight allowable limit.

B Jones

13<sup>th</sup> October 2021