

## LSV-1000 Laser Surface Velocimeter

Precise speed and length measurements are critical for controlling the production of continuous materials, sheet materials and piece goods. Laser Surface Velocimeters optimize production processes by providing reliable measurements and increase the output worldwide in the metal, cable and converting industries.

Due to the highly precise, non-contact measurement principle, the LSV eliminates common problems of traditional contact-wheel measurement methods such as damage to delicate surfaces, slippage and thermal expansion on almost any surface.

The compact design of the LSV-1000 enables an easy integration into the production line.



### Highlights

- Easy process integration thanks to flexible interface concept
- Gauge permanently adjusted\*
- Visible laser for easy alignment
- Robust sensor technology (IP 66, 67)
- Application-specific accessories (optional cooling, air purge, thermo-protective housing etc.)

\* The extremely stable optics concept of the LSV does not require re-adjustment due to technical reasons. Local laws and quality control regulations may require recalibrations.

## LSV-1000 Laser Surface Velocimeter

Precise, non-contact speed and length measurement

Datasheet



# Technical data



## Metrological specifications

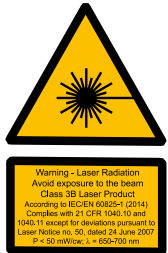
|                                       |   |      |  |      |      |      |
|---------------------------------------|---|------|--|------|------|------|
| Nominal working distance [mm]         | 200   | 300  | 500  | 700  | 1000 | 1500 |
| Depth-of-field [mm]                   | 30  | 40   | 60   | 80   | 120  | 140  |
| Minimal velocity [m/min]              | 0.3   | 0.53 | 0.8  | 1.05 | 1.43 | 2.11 |
| Maximal velocity [m/min]              | 875   | 1535 | 2296   | 3058 | 4188 | 6211 |
| Max. Acceleration [m/s <sup>2</sup> ] | 370*  |      |  |      |      |      |
| Measurement units                     | m/min, ft/min, m or ft (selectable)   |      |  |      |      |      |
| Accuracy                              | <0.05 % of reading**  |      |  |      |      |      |
| Repeatability                         | <0.02 % of reading**  |      |  |      |      |      |
| Measurement value output rate         | 1024 s <sup>-1</sup>  |      |  |      |      |      |
| Standard interfaces                   | <ul style="list-style-type: none"> <li>■ RS-422</li> <li>■ LAN (10/100 Mbit/s)</li> <li>■ RS-232</li> </ul> |      | <ul style="list-style-type: none"> <li>■ Encoder (user-selectable, max. 500 kHz)</li> <li>■ 24 V Status-I/O</li> </ul> |      |      |      |
| Optional interfaces                   | <ul style="list-style-type: none"> <li>■ Profibus</li> <li>■ Profinet</li> </ul>                            |      | <ul style="list-style-type: none"> <li>■ Analog (voltage/current optional)</li> </ul>                                  |      |      |      |

\* Depending on stand-off distance

\*\* Under controlled conditions

## Optics specifications

|                     |                                   |
|---------------------|-----------------------------------|
| Wavelength LSV-1000 | 650 - 700 nm (visible laser beam) |
| Laser power         | max. 25 mW                        |
| Laser class         | 3B                                |
| Beam cross section  | 2 x 4 mm                          |



## General specifications

|                        |                                  |
|------------------------|----------------------------------|
| Dimensions (L x W x H) | 300 x 120 x 110 mm (see drawing) |
| Weight                 | 4.3 kg                           |
| Power consumption      | 24 V DC / max. 20 W              |
| Operation temperature  | 0 ... +45 °C                     |
| Relative humidity      | max. 80 %, non-condensing        |

## Compliance with standards

|                              |  |
|------------------------------|--|
| Protection class             | IP66 and IP67 (according to EN 60529)<br>IP66, IP68 and IP69K with Thermo-protective housing |
| Mechanical shock reliability | 10 g according to EN 60068-2-29 (IEC 68-2-29)  |
| Vibration reliability        | according to EN 60068-2-6 (IEC 68-2-6)   |

# Accessories



## Connection box

The connection box is completely wired for instant operation and contains a full terminal block, a universal power supply and a LAN connector.



## Air wipe with quick-exchange window

A front-mounted, aerodynamically optimized air wipe unit keeps the sensor's optical window free of dust and steam. For cleaning or replacement, the quick release window can be easily exchanged.



## Mounting platform

The 3-axis adjustable mounting platform simplifies the precise alignment of the LSV sensor in relation to the measurement object. When mounting the LSV in a cooling housing, a suitable mounting platform is available.



## Cooling plate

The cooling plate keeps the sensor in its operational temperature range, even under hot ambient conditions.



## Thermo-protective housing TPH

To handle hot and hostile environments in harsh environments, Polytec has developed a cooled protective housing consisting of an aluminum housing with integrated stainless steel cooling coils. The coolant can either be water, rolling coolant, paraffin oil or kerosene. An optional heat shield protects the system from heat radiation from the measurement object itself or other heat sources.

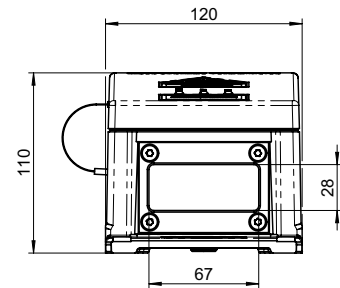
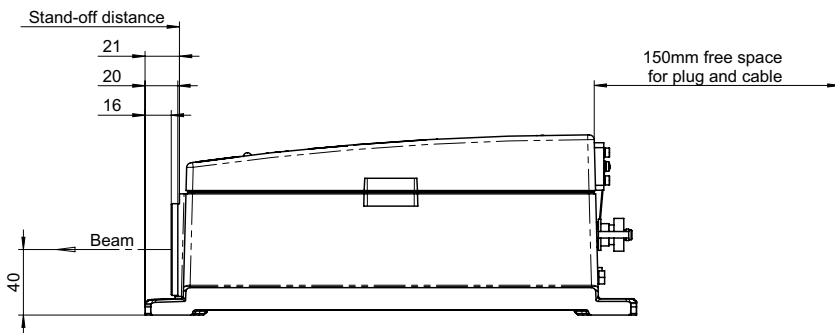
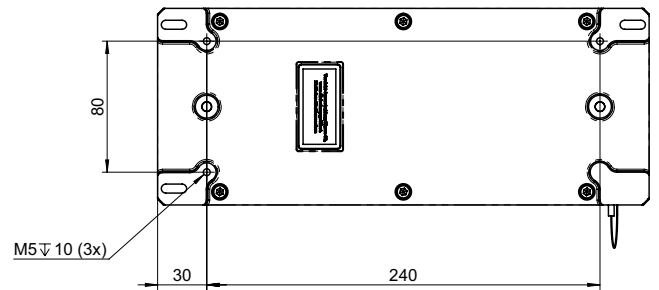
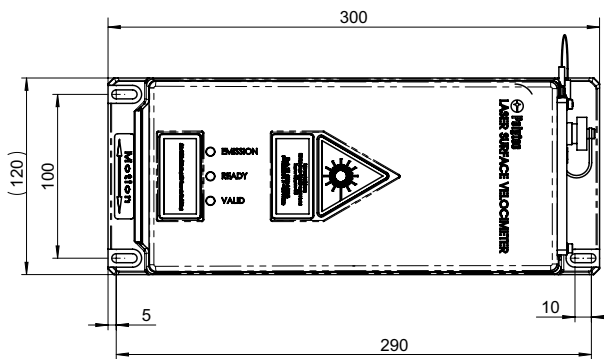


## Air amplifier

The air amplifier is used for purging the beam path of the LSV in steamy or dusty environments. It provides a stronger and more concentrated air current than the default air purge unit and considerably reduces the consumption of compressed air in comparison with conventional nozzles.

## Further accessories

Measurement frame installation kit, external display, mobility-kit, beam protective sleeve, cable protection, air preparation unit, beam deflection unit.



### More Information

For more information please contact your Polytec application/sales engineer or visit the LSV homepage [www.velocimeter.us](http://www.velocimeter.us) and [www.velocimeter.co.uk](http://www.velocimeter.co.uk).

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