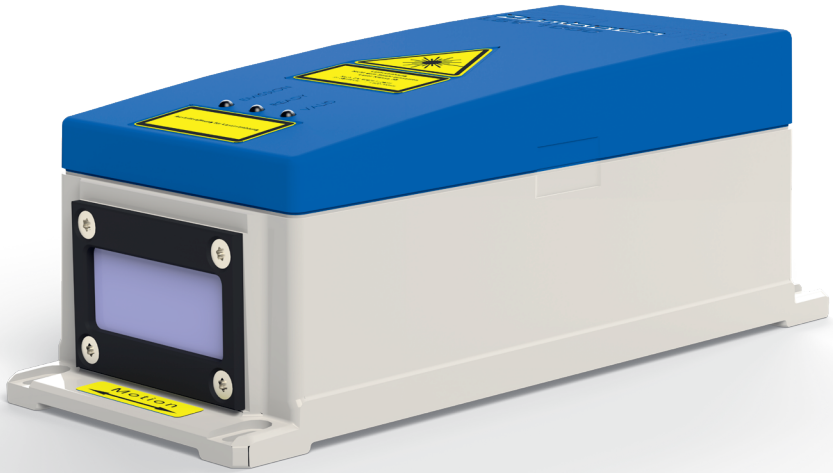
Zumbach

SWISS PRIME MEASURING SINCE 1957

Laser Surface Velocimeters

LSV 1100 / 2100



Non-contact Precision Speed and Length Measurement

Precision speed and length measurements are critical for optimization of continuous or quasi-continuous production processes. Proper utilization of these measurements can lead to lower production costs and higher product quality. The ideal sensor must exceed traditional contact encoder performance, increasing reliability and accuracy while minimizing maintenance requirements and material yield.

The LSV Laser Surface Velocimeters have been designed as the ideal next generation sensors for non-contact length and speed measurement. They provide precise length and velocity data quickly and reliably for both process control and cut-to-length applications.

The LSV 1100/2100 measure reliably on almost any solid surface, whether controlling processes utilizing carbon steel, shiny aluminium or oily sheets, or producing round wire and cable, or manufacturing paper, cardboard or tissue.

Compact, Reliable, Inexpensive and Profitable

- Zero speed, direction detection
- Reduced operating and maintenance costs
- Attractive ROI, fast payback
- All-in-one system, easy integration into production processes and control environments
- Easy to operate and no re-calibration required
- Visible laser for easy alignment in the field
- Robust sensor technology for reliable operation even under harsh conditions, protection classes IP 66 and IP 67
- Fast, state-of-the-art signal processor with powerful command set for efficient system communication via serial or Ethernet interface
- Includes two trigger inputs for additional light barriers or optical switches for high precision edge detection and offset length compensation
- Hardware status signals for remote diagnostic functions available
- User-selectable full quadrature pulse output and interfacing as LAN & RS-422

Important Features

- Easy process integration with 300 mm (11.81 in.) working distance and large depth of field
- Transparency thanks to the enhanced connectivity (web interface, Ethernet, field bus protocols)
- Multi user access (3 via Ethernet + 1 serial)

TECHNICAL DATA

Metrological Properties	LSV 1100	LSV 2100 (zero speed, automatic direction detection)
Nominal working distance in mm (in.)	300 (11.81)	300 (11.81)
Depth-of-field in mm (in.)	80 (3.15)	120 (4.72)
Min. velocity in m/min (ft/min)	0.50 (1.64)	0 (standstill)
Max. velocity in m/min (ft/min)	6000 (19'685)	± 7700 (25'262)
Measurement units	mm/s, m/min, m or ft, ft/s, ft/min (selectable)	
Accuracy	< 0.05 % of reading * (under controlled conditions)	
Reproducibility	< 0.02 % of reading * (under controlled conditions)	
Measurement value output rate	1024 s^{-1}	
Standard interfaces	RS-422, Encoder (user-selectable, max. 500 kHz), 24 V Status-I/O, Multi User Ethernet (10/100 Mbit/s), Web Interface	
Optional interfaces	Analog (voltage/current optional) , Profibus DP, Profinet IO, EtherNet/IP, Wireless Ethernet	

* For length measurement these values only achievable by using two trigger inputs, i.e. light barriers.

Housing and Power	
Weight	4.3 kg (9.48 lbs.)
Protection class	IP 66 and IP 67 (according to EN 60529)
Power consumption	24 VDC / 20 W
Operating temperature	0...45° C (32...113° F)
Relative humidity	Max. 80 %, non-condensing

Optics	
Wavelength	650-700 nm (visible beam)
Laser power	max. 25 mW
Laser class	3B
Beam diameter	2 x 4 mm (.08 x .16 in.)

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.

Compact terminal box
for moderate environmental requirements provides the common interfaces for the majority of applications.

Touch display
The 7" touch display simplifies parametrization and visualization of measurement values on site. It uses the same intuitive user interface, as known from operating the measurement system via laptops, smartphones and tablet PC.

Mobility Kit
Small light-weight power adaptor and interface for mobile measurement. Direct connection of LSV 1100/2100 to notebook possible.

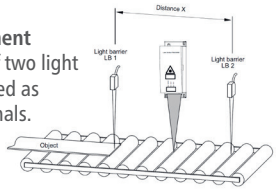
Air wipe with exchangeable window
This front-mounted, aerodynamically optimized air wipe unit keeps the exchangeable window free of dust and steam. For cleaning or replacement, the window can easily be exchanged.

Cooling Plate
He keeps the sensor in its operational temperature range, even under hot ambient conditions.

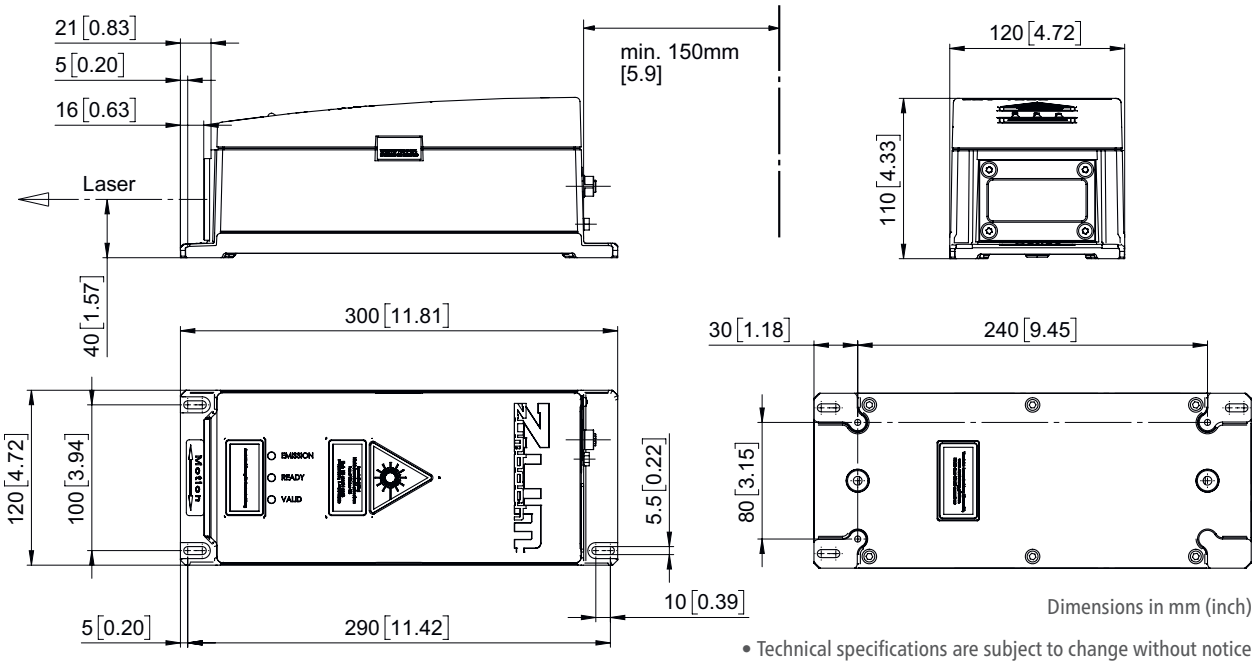
Mounting platform
The 3-axis adjustable mounting platform simplifies the precise alignment of the LSV sensor in relation to the measurement object. When mounting the LSV in a cooling housing, a suitable mounting platform is available.

Further accessories
Measurement frame installation kit, air amplifier, 87°/90° beam deflection unit, beam protective sleeve, cable protection, air preparation unit.

For length measurement
Example of two light barriers used as trigger signals.



DIMENSIONS



Dimensions in mm (inch)

• Technical specifications are subject to change without notice

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