

# LSV-6200 *Velocimeter Controller*



## SERIES LSV-6000 VELOCIMETER SYSTEM

- LSV-6200  
Velocimeter  
Controller
- LSV-065 Sensor Head
- LSV-026 Sensor Head  
with Protection  
Housing

## MEASURING SPEED AND LENGTH

*Polytec's New Laser Surface Velocimeter LSV-6000 system uses proven laser Doppler technology to make highly accurate non-contact speed and length measurements on moving surfaces in industrial production environments. The LSV measures the frequency shift of back-scattered laser light from a moving object to determine its velocity and length. The velocimeter system is composed of the new LSV-6200 controller and either a LSV-065 or a LSV-026 non-contact vibrometer head.*

### Measuring Tasks in Industrial Production Environments

In many industrial processes, precise speed and length measurements are critical for regulating and controlling the production processes. This is especially true in the steel industry with its continuous or quasi-continuous production of slabs, bars, tubes and sheets. Extremely hot and corrosive slab fabrication environments significantly complicate measurements leaving only advanced non-contact measurement technology to provide the required precision and reliability.

### LSV-6200 Signal Processor

The Doppler signal from the sensor head has a frequency directly proportional to the speed of the measured object. The new LSV-6200 Velocimeter Controller uses a high performance digital signal processor (DSP) to evaluate the Doppler signal by means of FFT analysis. Prior to calculating the FFT, Polytec's Fast Burst Detector (FBD) circuit quickly identifies the Doppler frequency (i.e. speed) and immediately adjusts the internal A/D converter for optimum measurement accuracy (0.1%).

Customers appreciate Polytec's FBD when measuring accelerating surfaces, where the Doppler frequency is rapidly changing. Even when the material briefly moves out of the sensing area or the surface reflectivity goes to zero, the FBD enables the LSV-6200 controller to relock onto the surface speed within milliseconds. Through either digital or analog interfaces, the LSV controller easily integrates with a production process. The LSV-6200 is fully programmable through either serial port. It can accept commands from a process control system or be programmed by a notebook computer.

### LSV-6200 Software

The LSV PC software runs under both Windows® 2000 and XP operating systems. The software sets the scaling of the analog output, the number of encoder counts per length, trigger input characteristics, and other system/application setup configurations. All settings are stored in non-volatile memory. The software is capable of displaying real-time velocity and length data in an oscilloscope or chart recorder format.

## New Features of the LSV-6200

- Fast, state-of-the-art signal processor
- Higher measurement rate: 2300/s
- Simultaneous VFD display of velocity and length data
- English or Metric units can be configured via RS-232
- External large-size display unit connected via RS-422 (optional)
- Advanced internal diagnosis capability
- Offset length compensation
- VFD display of status messages and diagnostic results
- Advanced command set
- Improved "Material Present" detection (optional)
- Higher speed RS-232  
front side: 115 kbit/s  
back side: 230 kbit/s

## LSV-6200 Technical Data

General Specifications	
Power requirements	100 VAC - 240 VAC, 50/60 Hz, 100 W (max.)
Operating temperature	10 °C - 40 °C
Dimensions	450 mm x 360 mm x 145 mm (19" case)
VFD-Display	Velocity, length, status messages
Display units	m/s; m/min; m or ft/s; ft/min; feet
Vibrometer Heads	LSV-065 Sensor Head, LSV-026 Sensor Head
Accuracy	< 0.1% of measurement value for  v  > 30 mm/s
Maximum acceleration	20 m/s <sup>2</sup>
Signal delay	< 5 ms (measured at the analog output)
Signal capture time	20 ms typically, dependent on signal quality
Output update rate	Velocity: 1024/s typically (Length at RS-232: 512/s)
Protection class	IP 51
Standard interfaces	<ul style="list-style-type: none"> <li>- Serial interface, front RS-232, max. 115 kbit/s</li> <li>- Serial interface, rear RS-232 or RS-422, max 230 kbit/s</li> <li>- Analog voltage output ± 10 Volts, scaleable, 16 bit D/A</li> <li>- TTL control I/O 4 TTL outputs / 3 TTL inputs</li> </ul>
Optional interfaces	<ul style="list-style-type: none"> <li>- Encoder interface LSV-I-001: Opto-insulated encoder output, output frequency free programmable up to 125 kHz, 5 V to 24 V level</li> <li>- Parallel output interface LSV-I-002: Opto-insulated interface, format 18 data bit, plus 1 sign bit</li> <li>- Analog current interface LSV-I-010: 0 (4) to 20 mA, scaleable, 16 bit D/A, active and passive mode</li> <li>- Process interface LSV-I-020: Process interface with "Laser Ready" signal extends the standard TTL control interface by opto-insulated inputs and outputs. 4 outputs for 24 V, 400 mA (Voltage has to be supplied externally) and 3 inputs for 24 V level</li> <li>- Ethernet interface LSV-I-100: Interface for direct LAN integration (available 2004)</li> <li>- External Display interface LSV-I-040: RS-422 interface for external large-size display unit</li> </ul>
"Material Present" function (optional)	LSV-I-004: "Material Present" function for detection of material entering the LSV measurement volume. Including output of the "Material Present" signal. This option is recommended for all applications requiring a start/stop trigger and where no external light barriers can be used

For more information, please contact your local Polytec application/sales engineer.

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