

Measure & Control
Instruments



LPS

Laser Projection Sensor Specifications.

Manual version : 13.0.0
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Part I: Introduction

The **LPS-H** (Laser Projection Sensor High speed) is specially built for tube, cable, wires. It measures the diameter at very high speed on 1 or 3 axes (depending of the version). Its measurement principle is based on the laser projection (shadow).

This method is position and vibration independent.

With 3 axes, it covers well enough the periphery of the cable to follow accurately the high frequency dimension changes in line and to quantify them, leading to a new approach of defect detection. It cumulates in one single instrument the diameter, the ovality measurement, the lump and neck detection as well as event management and recording.

The **LPS-H** instrument uses the latest technology to give the maximum performance.

Main Advantages

- Accurate and fast diameter measurement.
- Lump & Neck detection.
- Ovality measurement.
- Vibration measurement independent.
- Real time tolerances checking.
- Cable position measurement.
- Spool length and speed computing.
- Compact and hardened industrial instrument.
- Local display of measures and parameters.

CERSA-MCI develops and produces also complementary high performance measurement instruments for wire industry and optical fiber production.

Part II: Specifications

1 General specifications

HIGH SPEED DIAMETER MEASUREMENT

Model :	LPS005	LPS020	LPS080
Laser beam width :	7.0 mm	25.0 mm	100.0 mm
Range :	0.3-5.0 mm	1.0-20.0 mm	4.0-80.0 mm
Uncertainty / Repeatability:	±7µm	±20µm	±80µm
	<i>Remarks:</i> Includes slow ambient temperature fluctuation within 10-40 °c. Includes cable moves within the measurement area		
Number of axes :	1 or 3 (both versions are available)		
Internal measurement frequency :	20 kHz (no averaging required)		

LUMP & NECK DOWN DETECTION

The detection principle is based on the high speed diameter measurement (diameter tracking) without additional hardware.

Model :	LPS005	LPS020	LPS080
Minimum detectable diameter change :	14µm	40µm	160µm
Number of axis :	Similar to the number of axis of the high speed diameter measurement.		
Detection frequency :	20 kHz (no averaging required)		
Dating uncertainty :	max: 50µs		

X & Y POSITION MEASUREMENT

Model :	LPS005	LPS020	LPS080
Range :	±3.5 mm	±12.5 mm	±50.0 mm
	maximum	maximum	maximum
Uncertainty / Repeatability:	±0.05mm	±0.20mm	±0.80mm
Remark:	for 1 axis version, X position is unavailable, only Y position is measured		

BNC OUTPUTS

Quantity :	1 (for diameter control)		
Type	Voltage		Current
Range :	±4V		0-20mA or 4-20mA
<i>Voltage (Av) or current (Aa) type must be specified at order.</i>			
Updating frequency	500Hz		

DIGITAL OUTPUTS (Open collectors)

For alarms, tolerances...(user configurable)

Quantity :	2 (or 1 if length reset input is used)
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DIGITAL INPUTS

For length counting and length reset.

Quantity :	2
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RS232 COMMUNICATION

Used to connect the instrument to CIM software

Baudrate :	user configurable (38400 to 115200)
Maximum cable length :	35 meters (certified only with cables supplied by CERSA)

ENVIRONMENTAL CONDITIONS:

Air flow of 5 to 20 litres per minute required to clean the optics and cool down the electronic.

Ambient working temperature :	10 - 40 °c
Maximal working internal temperature :	55 °c
Storage temperature :	0 - 60 °c