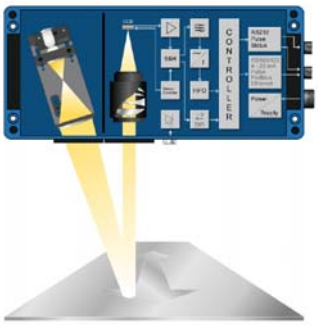
MODULOC Control Systems

VLM250 VELOCITY AND LENGTH SENSOR

White Light Velocity Sensor Providing Length & Velocity



- ***Mounting options -170, 185 & 240 mms***
- ***Pulse output for encoder emulation.***
- ***Multiple programmable outputs.***
- ***Compact rugged construction.***
- ***Assimilates direction & encoder inputs***
- ***Velocity determined to 0.1% accuracy***
- ***Analog 4-20mA output***
- ***Measures off all surfaces***

Applications

Suitable for nearly all materials, such as metal, paper, textiles, plastics, rubber, ceramics and timber.

Ideal for the measurement of a wide range of products, including tapes, rails, plates, foils, tubes, profiles, cables, wires, ropes, etc.

Caters for various processes such as cutting, positioning, regulation, inspection, quality control.

Examples: Length and speed measurement at winders, length cutting units, coating and inspection lines; velocity measurement in paper machines for example at pulp, web and paper; inspection of cut length pipes and profiles; provision of velocity signals for testing purposes, velocity regulation and cutting control for extruders.

General Description

The VLM 250 operates optically without contact, and implements the principle of the spatial filer by means of the use of a CCD sensor. Spatial filter is the generic term used to describe a measuring principle for the non-contact determination of the velocity and length of moving materials. The spatial filter is based on the filtering effect grind-like structures (grid modulation).

The function of the VLM 250 can be described as follows:

The Object to be measured is reproduced through the objective onto the CCD sensor. The CCD sensor is operated as an optical grid (no image pickup). The object to be measured is illuminated by an integrated light source. External light is effectively suppressed with this method.

When the object is moved, a signal frequency is generated due to grid modulation. This frequency is proportional to the velocity at which the object is moving. The device measures the signal frequency and converts it to a velocity value.

There are several control circuits that enable automatic adjustment to the most varied of materials (material surface structure and brightness).

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VLM250 Technical Data

Application	**Non-contact velocity and length measurement for nearly all materials**			
	VLM 250 A	**VLM 250 D**	**VLM 250 L**	**VLM 250 V**
Measuring Distance	185 ± 7.5 mm	240 ± 15 mm	170 ± 7.5 mm	170 ± 7.5 mm
Extended Measuring Distance	185 ± 15 mm	240 ± 30 mm	170 ± 10 mm	170 ± 10 mm
Measuring Range	0.07 … 6.7 m/s	0.03 … 6.7 m/s	0.008 … 1.7 m/s	0.004 … 0.5 m/s
Extended Measuring Range	0.14 … 13.3 m/s	0.07 … 13.3 m/s	0.016 … 3.3 m/s	0.008 … 1.0 m/s
	VLM 250 FA	**VLM 250 FD**	**VLM 250 FL**	**VLM 250 FV**
Measuring Distance	185 ± 7.5 mm	240 ± 15 mm	170 ± 7.5 mm	170 ± 7.5 mm
Extended Measuring Distance	185 ± 15 mm	240 ± 30 mm	185 ± 10 mm	170 ± 10 mm
Measuring Range	0.07 … 25 m/s	0.03 … 15 m/s	0.008 … 1.7 m/s	0.004 … 0.5 m/s
Extended Measuring Range	0.14 … 50 m/s	0.07 … 30 m/s	0.016 … 3.3 m/s	0.008 … 1.0 m/s

Application	Lengths- and velocity- measurement, especially suitable for measurement of low velocities
Evaluation	Processing unit for length-calculation
Accuracy [1])	0.1 %
Repeatability [1])	better than 0.05% in the range of 170 ± 5 mm
Working distance	170 ± 7.5 mm widen 170 ± 10 mm, accuracy 0.2 %
Velocity range [2])	0.008 up to 1 m/s (0.5 up to 50 m/min)
(on customers demand)	widen 0.016 up to 2 m/s (1 up to 100 m/min)
Length range	Internal range for length measurement until 200 km
Detector / measurement principle	CCD-line / spatial filter principle
Lighting [2])	white light, halogen lamp 10 W
Programming interface [3]**)**	RS 232 (opto isolated)
Opto isolated outputs [3])	OUT1, OUT2, OUT3
function	OUT1, OUT2: pulse output, 2 pulse encoder emulation OUT3: signal status
frequency of pulse output	1 Hz - 7 kHz (max. +0,2 % measuring error at 7 kHz) (optional high resolution pulse output available)
type / max. output current	npn open collector / 40 mA
Opto isolated inputs [3])	IN1, IN2
Function	external direction signal and trigger signal (for signals ±20 mA, 0/20 mA or 0/24 V, Ri approx. 1 kOhm)
LOW-level	-40 up to +0,3 mA
HIGH-level	+2 up to +40 mA
Power supply	230 V / 50 Hz optional 115 V / 60 Hz or 24 V / DC
Power consumption	< 50 W
Temperature range	0 up to 50 °C (0 up to 120 °F)
Protection type	IP 65
Weight 2)	approx. 5,8 kg
Electrically Magnetically Agreeableness	Industrial standard corresponding to CE 4)
Dimensions without connectors [2])	360 mm x 180 mm x 90 mm

Options

Analog output IF1 4 up to 20 mA or 0 up to 20 mA (16 Bit, opto isolated)
various digitally interfaces IF1 (RS485/RS422, RS232, opto isolated)
high resolution pulse output IF2 0,1 Hz up to 25 kHz and IF2F up to 500 kHz (2 x 2 pulse, resolution 20 ns)
laser light barrier, automatic direction detection (not for F/S-series), Real Time Clock, counter a. displays
mounting equipment, linear units, protection case, window jet

[1]) DIN 1319 / ISO 3534, from the measured length value, Conditions: metallic surface, length 10 m
[2]) Conventional type, other types possible
[3]) all connections are short-circuit proof, max. voltage 50 V/DC, 36V/AC
[4]) proof test by accredited institute

MODULOC Technology - The Total Sensor Solution

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We reserve the right to alter specifications without prior notice. Specifications without tolerances are typical values.

Your Local Sales Representative:

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