

# LMC-Lm/LBm-xxxx-xxx

## Laser Doppler Measuring Systems

### 1 Specification

### 2 Technical data

#### Type of unit

Opto-electronic systems for industrial applications for the measurement of velocities, lengths and profiles

#### Measuring method

Laser Doppler Interferometry

#### Functions & fields of application

- Precise laser Doppler measurement directly on the material (metals, plastics, paper, textiles etc.)
- Replacement for rotary encoders
- Measurement of continuous processes in running production
- Speed measurement, control and synchronisation
- Cut-to-length measurement
- Single part measurement
- Part length control
- Measurement of elongation and reduction
- Saw and shear control
- Winding length measurement
- Inkjet printer control
- Measuring wheel rotary encoder calibration



#### Special features

- 1) Optimal replacement for conventional impellers with rotary encoders, avoiding their negative characteristics such as slippage, high repair costs and intensive maintenance costs
- 2) Robust design for harsh and rugged industrial conditions
- 3) Absolute measurement accuracy better than 0.05 %
- 4) Repeatability better than 0.02 %

#### Advantages

- 0-speed (LMC-LB series only)
- Automatic direction detection (LMC-LBm series only)
- Contactless measuring: no slip, no material marks
- No moving parts, no wear
- Easy integration via all current interfaces
- Easy set-up and operation via display or PC
- Permanent calibration with UKAS certificate
- Cost reduction thanks to maintenance-free operation
- Highly accurate speed and length measurement to reduce scrap, increase machine service life and avoid over- or underlengths

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## Laser Doppler Measuring Systems

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### 2 Technical data

|                               | LMC-Lm-0120-020                                                        | LMC-Lm-0300-060 | LMC-LBm-0120-020 | LMC-LBm-0300-060 |
|-------------------------------|------------------------------------------------------------------------|-----------------|------------------|------------------|
| Minimum speed                 | 0.1 m/min                                                              | 0.2 m/min       | 0 m/min          | 0 m/min          |
| Maximum speed                 | 2500 m/min                                                             | 5000 m/min      | 5000 m/min       | 10000 m/min      |
| Measuring field depth         | 20 mm                                                                  | 60 mm           | 20 mm            | 60 mm            |
| Measuring distance            | 120 mm                                                                 | 300 mm          | 120 mm           | 300 mm           |
| Accuracy                      | Better than 0.05%                                                      |                 |                  |                  |
| Repeatability                 | Better than 0.02%                                                      |                 |                  |                  |
| Max. acceleration             | > 1000 ms <sup>2</sup>                                                 |                 |                  |                  |
| Measuring frequency           | 50000/s                                                                |                 |                  |                  |
| Update time                   | 0.02 ms                                                                |                 |                  |                  |
| Measurement field Ø           | 4 mm                                                                   |                 |                  |                  |
| Wavelength                    | 620 – 690 nm                                                           |                 |                  |                  |
| Laser class                   | 3B, according to EN60825-1:2001                                        |                 |                  |                  |
| Laser power                   | < 20 mW                                                                |                 |                  |                  |
| Speed units                   | m/min, ft/min, yds/min                                                 |                 |                  |                  |
| Length units                  | m, ft, inch, yd                                                        |                 |                  |                  |
| Data interfaces/<br>Protocols | Standard: RS232, Ethernet IP, CANBUS                                   |                 |                  |                  |
| Digital in- and outputs       | 3 inputs, programmable<br>3 outputs, programmable                      |                 |                  |                  |
| Analogue output               | 0 – 10 VDC, programmable for speed or measuring rate                   |                 |                  |                  |
| Pulse outputs                 | 2 x pulse outputs or 1 x quadrature pulse output, max. frequency 1 MHz |                 |                  |                  |
| Operating temperature         | 5 – 45 °C                                                              |                 |                  |                  |
| Supply voltage                | 24 VDC; 8 W                                                            |                 |                  |                  |
| Dimensions                    | 140 x 105 x 50 mm (LxWxH)                                              |                 |                  |                  |
| Weight                        | 3 kg                                                                   |                 |                  |                  |
| Protection class              | IP 67                                                                  |                 |                  |                  |