

MOVECAT LMS-M Mobile Load Measuring System

compliant with BGV D8 and C1, as well as igvw SQ P2 D8 Plus and EN 61508 SIL 1* to SIL 3* (*depending upon configuration)



The Movecat LMS-M load measuring system was developed to accompany the D8, D8 Plus and C1 chain hoists and pre-rigging applications. It will prove useful whenever it is necessary to measure and monitor the effective load on chain hoists and suspension points or other drives and load points. As a versatile ancillary tool, it can simply be hung at any point in the load or transmission line, where it ascertains in real time fully dynamically the effective tractive forces and transmits this information to the controller unit for evaluation and further processing.

The LMS system works on the strain-gauge principle of force measurement along the longitudinal axis.

The strain gauge (DMS) is protected by an aluminium tube sealed with a highly elastic compound from mechanical and other damage. The system is designed to satisfy the most stringent safety requirements, attaining during BGV D8 applications a safety factor of 6 and during igvw SQ P2 D8 Plus as well as BGV C1 applications a safety factor of 12. In the light of these data, the need for an additional secondary safety system for D8 Plus

and C1 applications is obviated.

The area of use has been conceived in such a way that the actual rated load is available as a real suspension load and yet the system can ascertain and evaluate overload conditions up to 150%. Furthermore, a test and calibration system has been integrated. This assures and examines, in connection with a Movecat LMS or controller, the correct functioning of the unit at each start-up. In the course of the calibration process, the length of the control cable and any temperature fluctuations are taken into account and compensated for. Cable runs of up to 100 m can be realized without problems. A further important advantage of self-checking is the fact that the load does not have to be unhooked but is recognized by the system and has no effect whatsoever on the test process.

Any error in the system is detected by the controller and leads depending upon the controller and its settings to the display and closing down of the drive or the connected load group. The current version corresponds to the provisions of EN 61508 SIL 3. In connection with the Movecat I-Series and LMS LRC controllers, the load values can be ascertained in real time and shown on the display in kilograms or

percentages. In connection with the I-Series controllers, underload and overload conditions can be defined and monitored. Overloading of the connected drives, suspension points or bearing structures is therefore effectively prevented.

For pure load measuring tasks, a battery-driven 1-channel controller (LMS LRC1) is also available as a manual device as well as linkable 4- and 8-channel devices (LMS LC4/8B).

The LMS systems are equipped with rotatable, highly robust ring eyelets. The LMS-M systems are available in versions for rated loads of 250, 500 and 1,500 kg according to D8 Plus and C1 or 500, 1,000 and 3,000 kg according to D8. The LMS systems are recommended in combination with Movecat controllers for professional rigging applications in the trade fair, events, theatre, studio and touring sectors.



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FEATURES:

- State-of-the-art strain-gauge technology: strain-gauge full bridges measure the length change and lateral extension produced by the traction forces. An integrated amplifier sends the measurement signal to the controller for analysis and further processing.
- Axial force transmission
- Integrated calibration and test system
- Self-test corresponding to EN 61508 SIL 3
- Ready for operation with Movecat LMS and MPC I-series* controllers
- **LMS-M 250/500**
250 kg rated load according to D8 Plus and C1 with safety factor 12
500 kg rated load according to D8 with safety factor 6
- **LMS-M 500/1000**
500 kg rated load according to D8 Plus and C1 with safety factor 12
1,000 kg rated load according to D8 with safety factor 6
- **LMS-M 1500/3000**
1,500 kg rated load according to D8 Plus and C1 with safety factor 12
3,000 kg rated load according to D8 with safety factor 6

*Functions depend upon the actual controller configuration

Technical data:

- Measuring range 0 to 150% of BGV D8 nominal load
- Overload: max. 150 % of the BGV D8 rated load
- Collapse load (calc.): 600% of the D8 rated load/1,200% of the C1 rated load
- Calibration tolerance: < 1.0% of FS*~
- Non-linearity: < 0.5 % of FS*~
- Hysteresis: < 0.3 % of FS*~
- Temp. error: 0.04% of FS/K 0,04% of reference value/K
- Operating conditions: - 20° to + 50° C
- 1.5 m DC4 data connection cable with C4M data cable connector
- Dimensions:

LMS-M 250/500	205 x 55 x 32 mm
LMS-M 500/1000	220 x 65 x 32 mm
LMS-M 1500/3000	280 x 90 x 45 mm

 (H x W x D, without connector cable)
- Weight:

LMS-M 250/500	0.6 kg
LMS-M 500/1000	1.0 kg
LMS-M 1500/3000	2.3 kg
- Protection rating: IP 67
- BGV D8, C1 and igvw SQ P2 D8 Plus as well as EN 61508 SIL 3 conformity

* The values depend upon the use and force transmission They were achieved under favourable conditions according to the user manual. FS = D8 rated load.

Technical equipment:

- Robust aluminium housing with two rotatable, highly-robust eyelets and two securing cotter pins
- Lateral cable outlet with metal kink protection
- Housing in anodized aluminium, ring eyelets painted silver, available optionally in all matt black

Options / Accessories:

- LMS LRC1 1-channel manual controller with computer interface
- LMS LC4/8B 4/8-channel controller, 19" with integrated Movecat D8 M-Link system and outputs for ancillary functions such as warning lights, alarms etc.
- MPC 4ID8 and 4IC1 controllers with LMS input card
- Silver finish and special colours upon enquiry
- Transport case for four or eight devices



Subject to technical modifications and typographical errors.