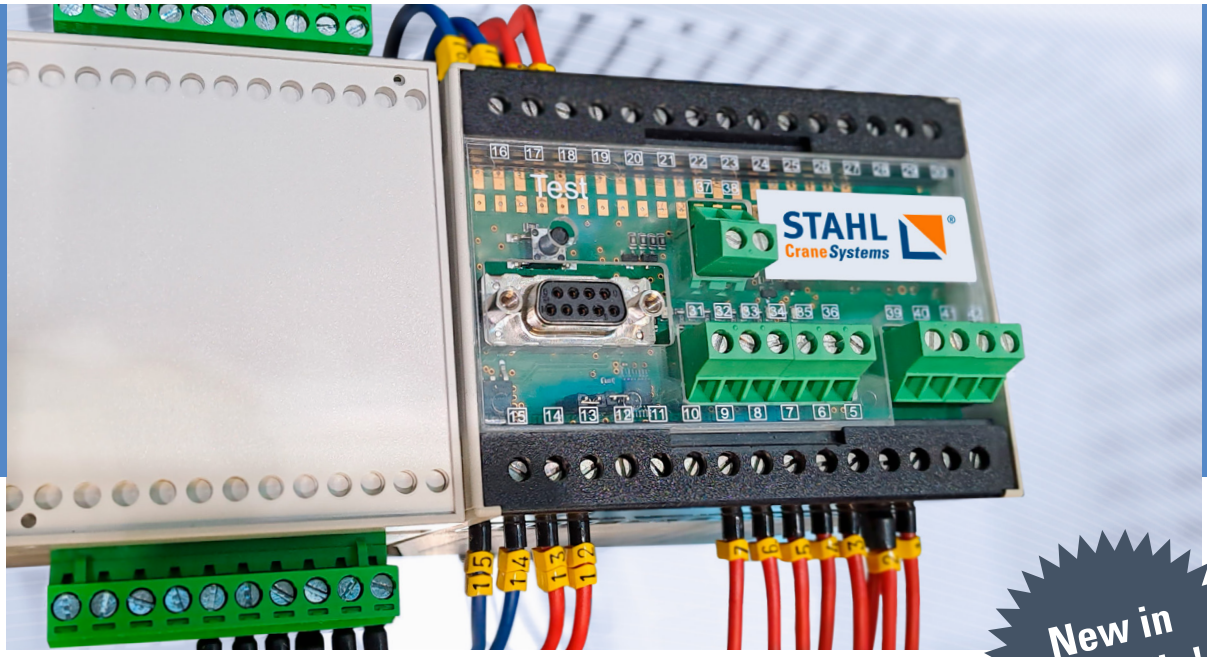
The SMC 4 Multicontroller



New in portfolio!

The SMC 4 Multicontroller is an electronic control and monitoring device that provides increased safety for hoists with pole-changing or frequency-controlled drive. By permanently monitoring the condition of the hoist, the SMC 4 contributes to safe operation and proper hoist use.

A Control and Safety Device All in One

The STAHL CraneSystems SMC 4 Multicontroller is flexible and can be scaled with additional functional and safety features, as well as improved communication interfaces. The safety-related functions and features have been updated and improved in accordance with applicable standards for lifting equipment to EN 14492-2, EN 15011 and EN 13001-2.

The combination of SMC 4 and Magnetek's IMPULSE®·VG+ frequency inverter enables safe and increased speed ›Advanced Ultra-Lift‹ at partial load. Thanks to integrated reliable speed monitoring in accordance with EN standards, Performance Level PL c to DIN EN ISO 13849-1 is attained. The TÜV-certified microprocessor and operating system come in Performance Level PL d. This eliminates the need for an additional safety programmable logic controller (PLC) for the rope drum brake.

Product Overview

- Modular in hardware and software
- Option module for six additional programmable inputs and outputs
- Optional rope drum brake in Performance Level PL d
- Extended operating data acquisition and exact fault diagnostics
- Fail-safe data storage
- Configuration app access for reading out and processing data
- Amplifier for up to 500 m cable connection via RS485
- Varnished circuit boards to protect against condensation

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The features and functions

The SMC 4 Multicontroller offers a compact overall solution for controlling a hoist and can be optimally adapted to prevailing conditions. The SMC 4 has a wide range of features and functions, thus creating the basis for safe work and long service life at a high level of safety.

Slack rope monitoring

The SMC 4 detects the release of tension on the rope when the load reaches its position and automatically stops the lowering operation. This prevents the load attachment device from touching or falling over onto the load. The hoist can then only be used in the upwards direction.

Load spectrum recorder

The hoist's use and runtime is logged. Taking the load, operating time and lifting speed into account, the recorded data is used to calculate the full load hours and the remaining service life.

Brake monitoring

The SMC 4 can be used to monitor the function and wear of the brakes. Data is recorded, evaluated and displayed via the configuration app. The data is read out via PC interface.

Configuration app for data evaluation

Authorized persons can access this data and set the parameters for safe via a wired SMC data transfer to a PC.

Load-dependent speed ›Advanced Ultra-Lift‹

When the hoist is only lifting a partial load, the hoist speed will increase up to 150 %. This increased speed enabled efficient and economical operation. When speed is decreased, it enables smooth set down and precise load positioning.

Load display

Sensors are used to determine load and condition values, and the load can be tared. The values determined can be sent via the SMC 4 to external load displays and to suitable radio receivers. Large load displays in various formats and displays in radio transmitters allow easy data viewing.

Automatic load control ALC

To prevent load spikes when attaching and lifting loads, automatic load control (ALC) is implemented via the SMC 4. The response is adapted to the respective application via multiple dynamic stages.

Motor management

Easy and exact load positioning is achieved with intelligent motor management. Jog mode suppression prevents the motors from overheating and reduces stress and wear on the hoists. With a frequency converter, the load is held in suspension without the brake being activated.

Load early warning

If the SMC 4 is parametrised appropriately, a load warning is given when the set limit value is reached. The crane operator is warned of a dangerous situation by signalling devices such as a horn, lamp or flashing light.

Overload cut-off

With dynamic overload protection, load sensors monitor lifting and lowering operations as well as the status of suspended loads. The SMC 4 detects any overloading of the hoist, evaluates the data and responds if the maximum permitted load is exceeded. The load is lowered safely.

Operating data acquisition

Using a PC, all operating data can be read out, evaluated, archived, and used with the configuration app for networked systems and production processes.

Radio remote control

Magnetek's robust radio transmitters with pushbuttons or in master switch/joystick design ensure good ergonomics and high operating comfort.

Temperature monitoring

The hoist and travel motors are equipped with PTC thermistor sensors for temperature monitoring as standard.

IMPULSE®·VG+ frequency inverters from Magnetek

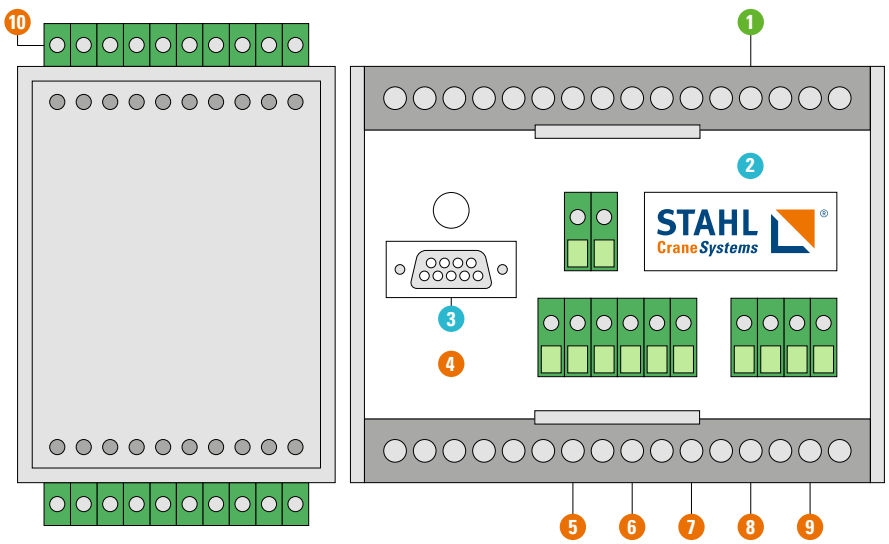
A frequency inverter is always advantageous when productivity is to be supplemented by an extended speed range. ›Advanced Ultra-Lift‹ enables safe, load-dependent and increased speed. At partial load, the lifting speed is increased, thus increasing efficiency. Reducing the lifting speed, in turn, allows the load to be set down gently and positioned precisely.

By means of a frequency converter, the SMC 4 Multicontroller provides important safety functions, including: functional safe shutdown in case of overload, speed monitoring, improved ALC automatic load control, brake and temperature monitoring, motor management and slack rope cut-off. It also enables controling and monitoring the load-dependent speed ›Advanced Ultra-Lift‹ by control and data communciation via the serial Modbus interface.

Optional rope drum brake

Designed as a safety intercept and holding brake, the rope drum brake prevents the load from falling even if the gearbox breaks. It also serves as an optional safety brake and is available in Performance Level PL d.

The SMC 4 Multicontroller monitors the speed of the rope drum and all functional control actions. The safety brake engages as soon as the intended speed limit is exceeded. The holding brake engages with a time delay after each stop and secures the suspended load. Among other things, the control system ensures smooth operation of the rope drum brake by means of a speed sensor and pawl position switch. By monitoring the brake and the release time, not only the cable drum brake but also the complete motor control is monitored. The braking torque between pawl ring and rope drum can be checked and set at any time. The rope drum brake is available with an explosion-proof design as an option.



1. Load display, Radio remote control
2. Operating data collection, Load spectrum recorder, Load pre-warning, Overload protection
3. Configuration app (data analysis), Frequency inverter with load-dependent speed ›Advanced Ultra-Lift‹
4. Function and error display via device LED
5. Automatic load control ALC, Slack rope monitoring
6. Motor management
7. Brake monitoring
8. Temperature monitoring
9. Device voltage of 24 VDC, control voltages of 24 V…230 VAC
10. Optional rope drum brake

Wired connection Modbus RS485 CAN-BUS

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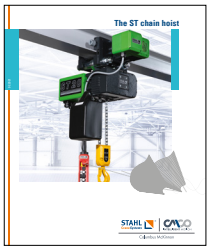

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