

Load under Control



WatchDog pro for lifting technology

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WatchDog pro monitors loads using active power measurement, and records this data for preventative maintenance cycles through 'modular monitoring technology'

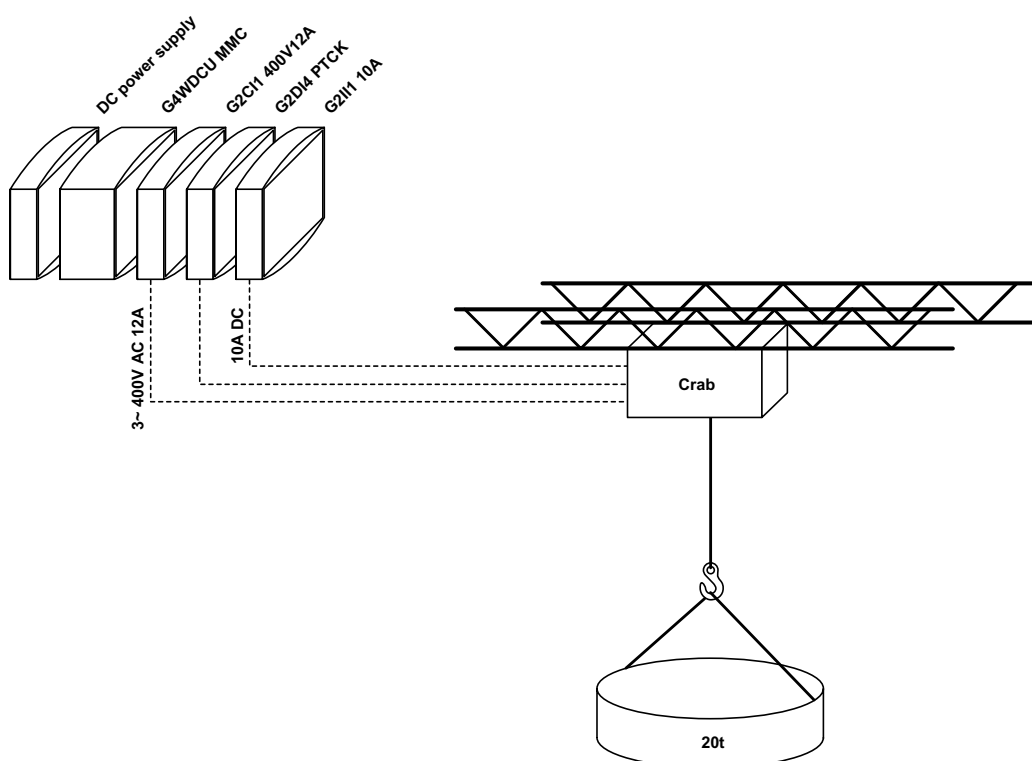
Problem

A safety system for overload detection is required for cranes (e.g. bridge cranes and gantry cranes) and hoisting devices that have a load bearing capacity in excess of 1000kg. To date this **overload protection feature** has been realised almost exclusively by using mechanical or electromechanical systems. Apart from the space requirements and the associated stroke loss, the conventional overload mechanisms are more maintenance-intensive and have high initial costs. The **reliability** of crane systems decreases without appropriate intelligent monitoring technology and an associated **data recording** function. **Repairs and downtime costs** make operation of the plant less efficient.

Task

The mechanical systems should be replaced by an electronic overload protection device, which, apart from improved ease of use, offers a wider range of functions. Monitoring **movement, overload, motor temperature** as well as **brake wear and temperature** will help to optimise the reliability of crane systems. In order to ensure clear traceability of the operation, all **operating conditions, including the time stamp, must be recorded**. Moreover, **electronic systems** can be **integrated easily** without making complex alterations to the lifting apparatus construction, which also makes them ideally suitable for retrofitting.

Schematic diagram: Monitoring of a gantry crane system with WatchDog pro



When it comes to monitoring lifting machines **WatchDog pro** provides clear functional advantages over standard load controllers. The system from TELE **monitors** and switches the crane motors via the **motor current and active power**. The load conditions can be precisely tailored based on the measured active power. All operating conditions can be recorded and clearly traced thanks to the integrated memory card. This makes it easier and quicker to identify the causes of defects and to avoid the resulting downtime. **Transferring the operational data** via optional **GSM module** will create additional advantages. **WatchDog pro** can be connected to existing controllers using various **fieldbuses (Modbus, Profibus, Ethernet, etc.)**, which makes it very easy to construct redundant systems.

Solution

The strengths of the **WatchDog pro** monitoring system are also evident in terms of cost savings across the board. On one hand this is achieved through its **low purchase price**, and on the other by its substantially **higher life span** in comparison to mechanical solutions. Downtime costs and repair costs are reduced thanks to **operational data collection** and the resulting **preventative maintenance cycles**. Due to its **modular construction** the monitoring system can be **individually adapted** to any crane application (such as the monitoring of braking currents directly up to 10A DC and/or the monitoring of the magnetic current for magnetic lifting gear).

Advantages

- **electronic monitoring via active power input**
- **no stroke loss (compared to mechanical solutions)**
- **low initial costs**
- **high service life**
- **ability to record the operating conditions as well as adapted maintenance cycles**
- **high degree of reliability**
- **lower downtime costs and repair costs**
- **measuring after frequency converter**

WatchDog pro modules

G4WDCU MMC

art.no.: 2500000

CPU (central control unit)

- 4 digital inputs
- 2 programmable relay outputs
- optional serial interface connection
- MMC memory card
- remote bus connection



G2DI4 PTCK

art.no.: 2500102

Monitoring of the motor temperature

- 4 digital PTC inputs
- Short circuit monitoring of the sensor circuits
- Temperature monitoring



G2CI1 400V12A

art.no.: 2500450

Monitoring of the true power for overload protection

- Power factor measurement (PF) in 1 or 3-phase mains
- Recognition of inductive / capacitive consumers and generators
- Detection of additional measurement parameters (P, S, Q, Urms, Irms)
- 2 measuring ranges 1.2kW and 4.8kW (12A, 400VAC)
- Suitable for VFI (10-100Hz)



G2II1 10A

art.no.: 2500250

1-phase current (max. 10A) monitoring to control the brake

- Current measurement in 1-phase mains
- Measuring range between 100mA and 10A

