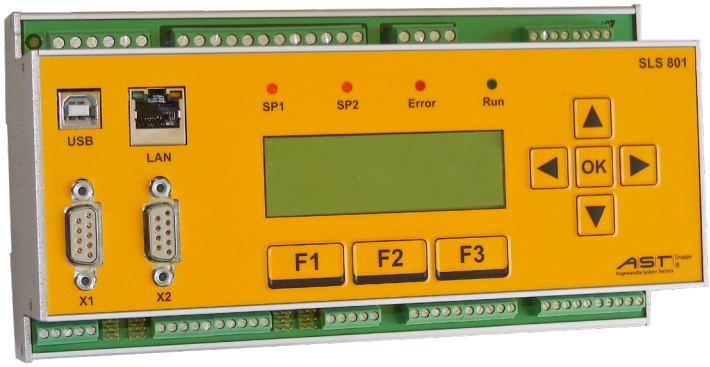
Gruppe
Angewandte System Technik

SLS 801
Safety Load Monitor



Applications: The unit SLS 801 can be used for load monitoring and overload protection of cranes and other hoisting devices. It offers many possibilities of programming and a high flexibility. So it is suitably as well for upgrading of existing machines as for new development.

Description: The safety-related amplifier SLS 801 is a programmable monitoring and switch unit. It measures and monitors the output signal of load sensors and displays the excess and underrun of tracking signals. A.S.T. offers the two alternative models SLS801.01 and SLS801.02.

Instrument setting: The user himself can program the unit via a HTTP-Browser or via the keypad. Altogether six error-safe relays K1 to K6 are programmable. The function of the two error relay outputs Error1 and Error2 is not alterable.

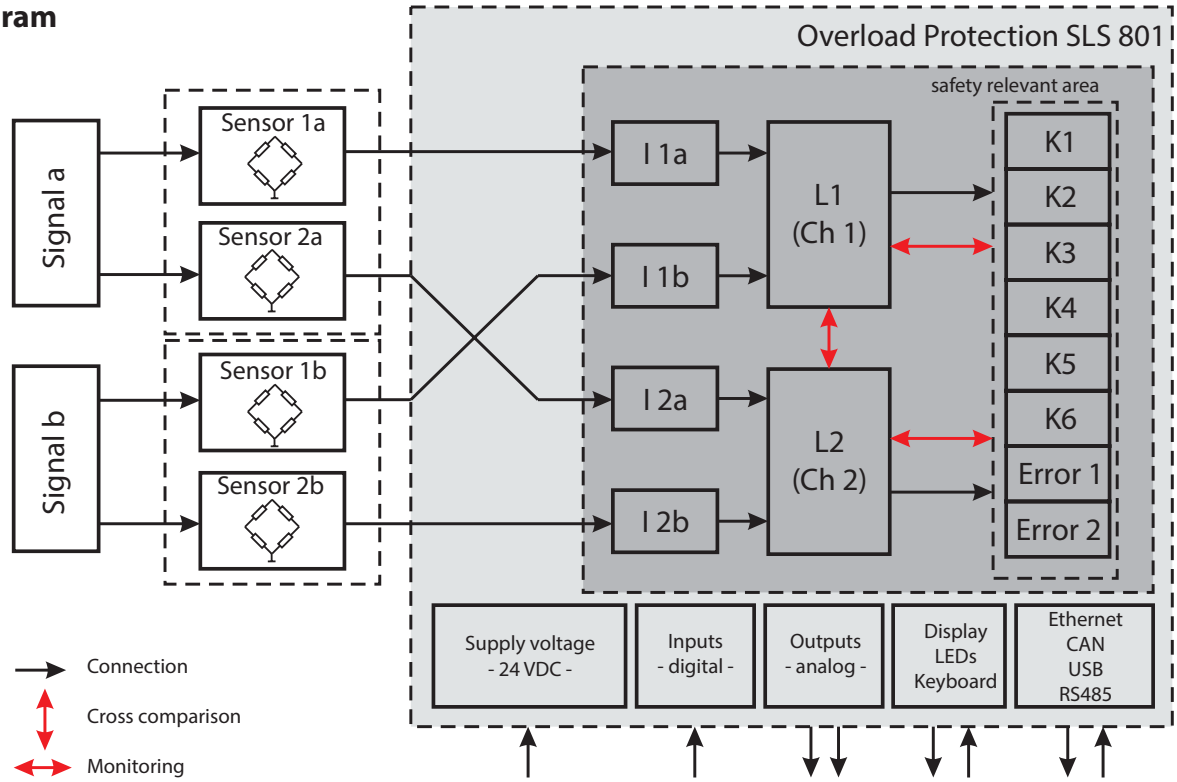
Connection of sensors: Two or four load sensors (depending on the type wether strain gauge sensors or sensors with the norm signal 4...20 mA) can be connected to the device. In each case two of them are used redundantly. According to the amount and type of the connected load sensors single loads, sum loads, differential loads and partial loads can be monitored.

Signal output: Via two analog outputs and several digital ports the load signals can be used in higher-level systems.

Additional benefit: An integrated two channel load spectrum recorder for two lifting units appraises the rated load hours referred to FEM 9.755.

Safety integrity: The device is constructed according to EN ISO 13849, it works in the high Performance Level PLd. The positively driven relays are adjusted for the safety relevant functions and will be switched off when system errors are detected. Thus, A.S.T. can guarantee a maximum of system safety when using this device.

Simplified Diagram



Functional Description

Two sensors 1a and 2a are loaded with the same load signal a. The indicated values of both sensors are transmitted to the SLS 801 inputs I 1a and I 2a.

In the safety relevant area of SLS 801 two logic modules L1 and L2 evaluate the sensor signals 1a and 2a relating to
- the adjusted load dependent switch-point K1 to K6
- the adjusted difference Δ1a, 2a of the redundant signals
- the sensor errors, i.e. cable break or short-circuit.

In case of excess of the differences or sensor errors the relays Error1 and Error2 react.

In the same way the system works with a load signal b aquired by the load sensors 1b and 2b.

If two load signals a and b are present, it is possible to transmit the sum load Σa, b or the difference load Δa, b to the relays K1 to K6. So the sum load of a hoisting machine with two lifting gears can be limited.

All output relays K1 to K6 and the error relays Error1 / Error2 are monitored regarding correct switching and also the load sensors in terms of cable break and short circuits.

The system monitors the synchronous run of each sensor pair. Therefore both logic modules redundantly perform a cross reference check. If there is any error the error relays switch off the system.

Not included into the safety relevant area of SLS 801 are
- both analog outputs 0...10 V and 4...20 mA for the sensors 1a to 2 b and selected sums and differences
- output LAN (RJ-45)
- output X1: CAN
- output X2: RS 485 / Option RS 232