



Volt-free indication of hazards in power distribution and power generation plants

Usage of the FSM10 drop flap fault indicator



For the monitoring of transformer feeder panels it is of great advantage for the plant operators and plant constructors to realize the monitoring with fail-safe displays. This serves to quickly identify sources of failures in a de-energized state and therefore to a quick elimination of said failures.

With fail-safe displays, fault alarms such as temperature tripping, ground fault, automatic machine failure, UMZ tripping, Buchholz tripping, pick-up switching, tripping by a high-voltage fuse etc. are also displayed in the de-energized state. The standard display modules such as panel-mounted fault indicators are not capable of fulfilling that requirement.

THE SOLUTION AT SCHALTTECHNIK NORD

Schalttechnik Nord has been solving this problem highly successfully for many years with the FSM10 drop flap fault indicator from EES in Backnang. Managing director Ivan Doulík reports on the positive aspect of using the FSM10 in the feeder panels.

„There are not only advantages for the customer due to the simple and fail-safe reporting of operating states and faults, but the switchgear manufacturer also has an advantage due to a significant simplification in the testing and commissioning of the systems on site.“

During the kick-off meeting, the question often arises as to how faults are read out and displayed, since plants are also without a connection to the BMS. Especially for main power supplies, this is an important point, says Mr. Doulík: „In this way, the customer and planner can usually be convinced of the necessity of monitoring with the FSM 10 drop flap fault indicator.“

The highlight of the FSM10 is that 10 of these fail-safe indicators with mechanical drop flaps are combined in an extremely compact, space-saving device measuring 96 x 96 mm.

In most cases, 8 - 9 fault indications are quite sufficient to monitor a transformer, confirms Mr. Doulík. If more than 10 messages are needed, up to four devices can be cascaded via the CAN bus interface.

A big plus of the FSM 10 is not only the display during a de-energized state. The compact design, the acoustic warning in the device, outputs for warning lamps and external acoustic detectors are also available. In addition, the status LED on the drop flaps and the self-monitoring of the device round off the overall picture of the FSM10.

OUR CUSTOMER

Schaltechnik Nord, which is based in Eching near Munich, is very successful in planning and manufacturing switchgear and power supply systems for industry and public-sector clients in southern Germany. In detail, this includes medium-voltage switchgear up to 36 kV, low-voltage switchgear up to 7,000 A, subdistribution boards, EW transfer distributors, NH distributors, protection technology and control technology.

DEVICE SETUP

The compact drop flap annunciator FSM 10 in the size 96 x 96 mm has 10 mechanical drop flaps for monitoring ten channels. Green drop flaps and respectively one LED signal the current status. Pending signals are stored by means of bistable mechanical display elements independent of energy. Four output relays with changeover contacts are available for further processing of the signals.

The inputs of the FSM10 are designed with bipolar opto-couplers and are isolated from the supply voltage.

The parameterization is carried out via the DIP switches or with the help of the supplied parameterization software. Due to the possibility of parameterization, the FSM10 offers more flexibility compared to conventional drop flap fault annunciators. The following values can be adjusted:

- Delay times of each individual signal input
- Normally closed / normally open current processing of each individual signal input
- Assignment of the inputs to the two alarm groups
- Determination of the reporting procedure of the reporting groups
- Setting the function of the keys and function inputs
- Assignment of the relays to the signals (Σ 1..2, horn 1, horn 2, alive signal)
- Horn duration for automatic acknowledgement

In addition, an event logging with time-stamped entries (optionally via DCF77) of all inputs and outputs is possible. It is also possible to forward the collective alarm to the central control system. The event log can be read out with a serial RS232 interface.

THE BENEFITS AT ONE GLANCE

- 10 drop flap elements with integrated LED in one compact unit
- Display of alarms even in de-energized state
- 6 galvanically separated, freely parameterizable function inputs
- Permanent event log
- Parameterizable via DIP switches and/or software
- Cascadable up to 40 alarms



CONCLUSION

Due to the display of the alarms in the de-energized state, on the basis of the mechanical drop flaps and the 10 signals in one device, the drop flap fault indicator FSM10 is perfectly suited for transformer monitoring as an economical solution. Not only does it offer benefits to the operators of the systems, but also to the switchgear constructor due to its compactness during installation and during testing and commissioning of the switchgear.