

# KARED

SIGNALLING MODULES - KSR



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### Programmable operation mode

Each of the fault signalling channels may be independently programmed at will. The device differentiates between maximum 7 different states: regular operation, appearance of an alarm signal, alarm acknowledgement, alarm disappearance before acknowledgement, alarm disappearance after acknowledgement, etc. Each state may be represented by any combination of colour and back-lighting (green, red, yellow) and signalling method (continuous light, light blinking with the frequency of 1 Hz, light blinking with the frequency of 2 Hz).

### Signal filtering and delaying

Integrated digital filters process input signals and realize signal filtering and delaying operations or extend pulse duration time. Filter parameters are individually defined for each of the channels.

### Event recording

The signalling module is able to log 1000 events with the resolution of 1 millisecond. The time when an event occurs is determined by an integrated real-time clock. Logged events may be uploaded to a master system or saved in the form of a file to a PC. At the moment the number of events exceeds 1000, the oldest log items are overwritten.

### Isolated voltage inputs

Two-stage inputs are designed to operate at fixed voltages of 24, 48, 110 or 220 V. Isolation is realized by means of transoptors. Each of the inputs allows one to select the signal edge that will trigger an alarm. The device is fitted with three (optionally 5) relay outputs used to control an external alarm siren or light signalling elements.

### Communication connectors

The devices are fitted with two communication connectors (RS485 – 4-wire) that support selected commands of Modbus RTU and IEC 60870-5-103 protocols. One of them is used to connect the device to a master system. The other one allows the device to be connected to two signalling modules in a special signal duplication mode or it can be used by an external data concentrator.

### Large, back-lit signalling fields

As the fields are large and fully back-lit, they are easy to read. Brightness regulation allows the user to adapt the device to current environment conditions.

### Universality and flexibility

The signalling modules may function both as stand-alone fault signalling devices and as components of an extensive system designed for alarm state signalling and acquisition.

### Compact construction

Compact construction of the device reduces its footprint, while simultaneously facilitating stable mounting of the device.

### Cost-effective solution

As one device comprises a panel of displays, a recording unit, communication interfaces and facility signal acquisition interfaces, the cost of the device can be reduced, while its versatility is maintained.