REZONANS

OGM240

Rated capacity limiter system for hydraulic and lattice boom cranes

ISO 9001 registered company

Description

The rated capacity limiter system OGM240 was designed for mobile hydraulic and lattice boom cranes. OGM240 system is intended to aid the crane operator in efficient crane operation by monitoring the load and warning of an approach to an overload and other conditions.

Features

– Graphical LCD — indication of all key parameters on display;
– easy calibration procedure — for accurate weight setting single reference load is required;
– internal datalogger;
– built-in cutout relays — no external relays are necessary;
– readout from datalogger and data setup via SD card.

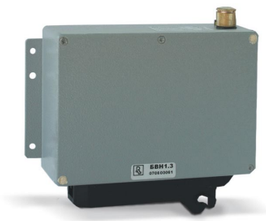
System components

Operator Console BI04

Operating console for external or free-standing installation with back-lit monochrome display. Eight buttons keyboard for menu navigation and functions selection.
On customer's demand the rated capacity limiter system might be equipped with graphical multicolor TFT-display display for representation of data and diagnostic message.
It contains a set of standard wire (CAN, LIN, USB) and wireless interfaces (Bluetooth or Wi-Fi), as well as inputs for two video cameras.

Control Module

The controller was designed for commutating of resistive and inductive loads and converting analog and discrete inputs.
It is used in electronic control and rated capacity limiter systems.



Cable Reels with Length- and Anglesensors of DDS series

Designed for the measuring of the length and the angle of the boom on telescopic cranes. The cable reel can be used for all types of equipment which require precise measurement of the telescopic boom.

Anti-two block switches of VM series

On customer's demand the rated capacity limiter system might be equipped with anti-two block switches of VM series.
VM safety limit switches were designed for cranes, winches and hoisting appliances, and restrict the height of the hook lifting equipment.

AC Field Detector DL220.14

The AC field detector (high-voltage sensor) measures electric field intensity of AC power transmission lines with frequency of AC 50 Hz..

Pressure Transducers DD250.11

The DD250 pressure transducer measures high static and dynamic pressure up to 250 bar of fluid and gaseous environments.
It is perfect part of rated capacity indicators or control systems in hydraulic installations.

Rotation Transducer DUA360

The rotation transducer DUA360.13 provides measurement of crane boom rotation angle.
It was designed for mounting on a slewing ring or axis of crane rotation.

Functionality

Rated Capacity Limiter

OGM240 generates signals for switching off hoisting mechanisms, which decrease crane stability when weight of load is over normative.

Limits of the crane movements

The system blocks crane mechanisms automatically:
– hook lifting winch at uppermost (anti two-block system) and lowermost (last wirerope wrap) positions;
– luffing at stroke positions;
– boom movements when AC field detector is on.

Monitoring load and geometry variables of crane

Operator console indicates:
– load variables — actual load, maximum permitted capacity for current radius and percentage of rated capacity;
– geometry variables — radius, boom length (for telescopic boom cranes), height of the boom head;
– date and current time.

Boundary and zone protection

Boundary and zone protection intended for protection crane from collisions with fixed obstacles. OGM240 has three types of boundary and zone protection:
– limitation of boom head height;
– limitation of radius by line at any angle;
– limitation of boom rotation angles.

Datalogger

The internal datalogger records geometry and load variables and states of inputs and outputs into nonvolatile memory. The datalogger memory includes three parts for short-time, long-time data and infromation about crane overload.
The short-time, long-time and crane overload data consist of recordset. One record has the next fields:
– recording time and date;
– actual load;
– maximum permitted capacity;
– percentage of rated capacity;
– angle of the main boom;
– radius of the load;
– length of the main boom (for telescopic boom cranes);
– height of the boom head;
– rotation angle of the slewing crane;
– crane configuration;
– information about crane overloads;
– states of inputs and outputs;
– time moments when limiter is positive locking.
The long-term storage data consist of:
– hour meter;
– total quantity of working cycles;
– load statistics;
– crane characteristic number;
– serial numbers of crane and rated capacity limiter system;
– date of mounting.

Monitoring parameters of crane engine and hydraulics

Operator console indicates:
– engine oil pressure;
– engine coolant temperature;
– hydraulics oil pressures (in 3 points);
– hydraulics oil temperature.

Control of crane and crane's truck electrics

The system generates next commands for:
– solenoids of crane motions;
– electromagnet of winch accelerated motion ;
– marker lamp of the boom head;
– headlamps;
– cooling fan of hydraulics oil temperature.
Each type of mobile cranes has their version of OGM240 system. OGM240 versions have different package contents, sensors, displays, software and supply voltage.

The system conforms to safety requirements of Rostekhnadzor (Russian Federal Service for Ecological, Technical and Atomic Supervision).

Technical characteristics

Measuring range:	
– oil pressure in the hydraulic system	< 40 mPa
– the crane boom angulation	0-90 degrees
– the crane arm extension	<30 m
– the rotation angle of crane's platform	360 degrees
The distance of air power line detection:	
– voltage 220 V-1 kV	1,5-4 m
– voltage 1-35 kV	2-7 m
– voltage 35-110 kV	4-10 m
– voltage 110-450 kV	6-15 m
– voltage more than 500 kV	9-20 m
The response error of overload safety by load moment	±5%
The setting and indication current time error (at +25C°)	±3±4 sec./day
Number of records in datalogger:	
– operational data	38000
– overload data	2000
The period of operational data recording to the datalogger	1-25 seconds
Nominal size of datalogger operational memory	<24 hours
Supply voltage	10-32 V DC
Power consumption (at +25C°)	<40 W
Protection class (to IEC 60529) of component parts OGM240:	
– operator console	IP55
– sensors	IP67
Operating temperature range	– 40...+55 °C
Storage/Transport temperature range	– 50...+65 °C
Vibration resistance	<50 m/sec^2 (at 50...200 Hz)
Impact resistance	<100 m/sec^2

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