

# MFKC200AG

## Diesel Engine Monitor

### DIRECTIONS FOR USE



Engine control panel



Remote control panel

## I. Summary

MFKC200AG diesel engine monitor (hereafter simplified as “Monitor”) is a full-automatic electronic monitoring and control system of diesel engine and generator under the control of microcomputer. It could precisely measure and display the rotating speed, oil pressure, water temperature, oil temperature and exhaust temperature of diesel engine, carry out real-time monitoring on the above measured parameters according to users’ setting, and send out signals of sound alarm, light alarm and distant transmission alarm etc. In case the stoppage of machine is set up, the Monitor will send out stoppage signal if the parameter exceeds the stoppage value.

## II. Product Characteristics

1. Microcomputer digital control, and reliable work;
2. Digital display of parameters of diesel engine, and integration of measuring and monitoring;
3. Modularization of functional configuration, and integration of product structures;
4. Resistance to vibration, humidity, salt mist and high/low temperature;
5. Powerful ability to resist interference, convenient installation and use, and high performance-price ratio;
6. Remote monitoring of running parameters;
7. Automatic zero set of lubricating oil pressure
8. Accumulation of running period of diesel engine.

## III. Main Technical Indicators

1. Application environment:
  - a. Working environment:  $-10^{\circ}\text{C}\sim+55^{\circ}\text{C}$ ;
  - b. Vibration:  $2\sim 25\text{Hz}$ ; Amplitude:  $1.6\text{mm}$ ,  $25\sim 100\text{Hz}$ ;  
Acceleration:  $\pm 40\text{m/s}^2$ ;
2. Measuring range and precision of rotating speed
  - a. Display range:  $1\sim 9999\text{r/min}$ ;
  - b. Measurement error:  $\leq \pm 1\text{ r/min}$  (number of teeth for speed measurement: 60)
  - c. Maximum signal frequency:  $20\text{KHz}$ ;
  - d. Matching transducer: Magnet-resistance pulse rotational sensor.

3. Pressure survey limits and precision
  - a. Measuring range: 0.00~1.00MPa;
  - b. Accuracy class: Grade 1.5
  - c. Equipped sensor: BPR resistance alternating pressure sensor.
4. Limits and precision of survey temperature
  - a. Measuring range: 0°C~120°C;
  - b. Precision grade: 1.5
  - c. Survey limits: 0°C~120°C;
  - d. Equipped sensor: hot copper resistance (Cu50) sensor.
5. Storage battery voltage survey limits and precision
  - a. Measuring range:18V~32V;
  - b. Precision grade:1.5.
6. Display method
  - LED display
7. Number of measuring and control channels
  - Rotating speed: 1
  - Lubricate pressure: 1
  - Water temperature: 1
  - lubricate temperature: 1
  - Storage battery voltage: 1
8. Power supply: DC24V<sub>-25%</sub><sup>+30%</sup>

#### IV. Functions

1. Meanings and functions of lamps
  - Speed high:** diesel rotational speed overstep the standard data.
  - Pressure low:** lubricating oil pressure is low.
  - Pressure lower:** lubricating oil pressure is lower.
  - Water temperature high:** cooled water temperature is high.
  - Water temperature higher :** cooled water temperature is higher .
  - Power:** switch indication;
  - Alarm:** data overpass alarm or shutdown alarm;
  - Run:** the diesel engine working indication;
  - Charge:** battery charge indication;
  - Start:** starting the diesel engine indication.
  - Stop:** Stop signal output indication;

## 2. Meaning and application of keys and buttons

**Start:** Press the key, the monitor will give the signal to start the diesel engine.

**Self-Test:** When there is no rotating speed, press down this key to make each channel of the Monitor simulate external working situations for self-inspection item by item. When the set value for alarming is reached, the Monitor sends out sound and light alarm signals; and when the set value for stop is reached, the Monitor sends out automatic stop signal.

**Timer:** Hold down this button, the rotational speed displaying window shows diesel engine accumulated running time, after 5 seconds, it will automatically show the rotational speed.

**Mute:** When has the alarm signal, hold down this key, the sound alarm will be off, the alarm light becomes plain light.

**Reset:** Press down this key to reset the Monitor.

**Stop:** This key is for stopping the machine. Press down this key, the Monitor will send out stop signal to stop the diesel engine compulsively.

## 3. Meanings of letters on the interface of display

**Rotational speed:** rotational speed of diesel engine;

**Timer:** accumulating running time of the diesel engine;

**Lubricant pressure:** lubricating oil pressure of the diesel engine;

**Water temperature:** cooled water temperature of the diesel engine;

**Lubricant temperature:** lubricating oil temperature of the diesel engine.

**Battery voltage:** voltage of the storage battery;

## V. Installation and application

### 1. Installation

a. Mounting hole: Set up 4 mounting holes on the vertical panel of the instrument with its center as the benchmark symmetry, which are 120mm in length and 85mm in width.

b. Install the Monitor at a proper position and fasten it.

c. Install the revolution speed transducer on the cover of the speed measurement gear. During the installation, rotate the transducer till it

touches the outer margin of the gear firstly, then drop back the transducer by a half circle to produce a gap of 0.5-1.5mm between the transducer and the outer margin of gear, and fasten the clamp nuts finally.

d. Install each transducer at corresponding position, plug in and screw down them, and pay attention to water proofing.

e. Connect wires properly according to the attached wiring diagram.

## 2. Application

Open the power switch, ensuring the fully correct installation and wiring. Wait till the Monitor enters into monitoring state, and then restart up the diesel engine to make the Monitor enter into normal state automatically. Subsequently, the Monitor will test the rotating speed, oil pressure, water temperature and oil temperature of the diesel engine in a real-time way, and send out corresponding signals after the set parameters are reached. When some alarm signal occurs, corresponding display windows flicker, alarm lamps turn on, and alarm apparatus alarms. And here, press down "Mute" key, the alarm sound of the alarm apparatus disappears. When stop signal occurs, wait till the diesel engine stops stably, close the Monitor and eliminate failures, and then open the Monitor and restart up the machine.

## VI. Cautions

1. It is necessary to start up the diesel engine 10 seconds after opening the power source of the Monitor.
2. Don't press down the buttons such as "Test", "Stop", "Reset" and "Start" etc. at random during the normal operation of the Monitor.
3. Check frequently if the plug of the transducer is eroded by oil and water, becomes loose or falls off.
4. Distant transmission cables and power cables shall be arranged separately for avoiding electromagnetic interference.

## **VII. Maintenance period**

Since the date of leaving plant, the quality maintenance period is the same as the diesel main engines. If there's any quality problem, we will supply repair service without asking any payment.

## VIII. Failure phenomena and repair method

Failure phenomena	Causation	Repair method
When power on, power indicator light and LED is not light.	Power line or FUSE open circuit, polarity is on the contrary	Check-up circuit replacing FUSE
LED display unclear, or power light is light with no display	Battery voltage too lower	Battery charge or replacing it
LED display is not full, or alarm signals are given incorrectly.	Monitor is not on initialization state.	Press button 'RESET', or hold down the switch of 'Power'.
Pressure indication error	Cable breaks off or plug contacts error. Pressure transducer doesn't work.	Check-up cable plug and pressure transducer.
Temperature indication error	Cable breaks off or plug contacts error. Temperature sensor doesn't work.	Check-up cable plug and temperature sensor.
Speed indication error	Cable breaks off or plug contacts error. Speed sensor doesn't work.	Check-up cable plug and speed sensor.