



Guard Gear 4.0

Technical Specification



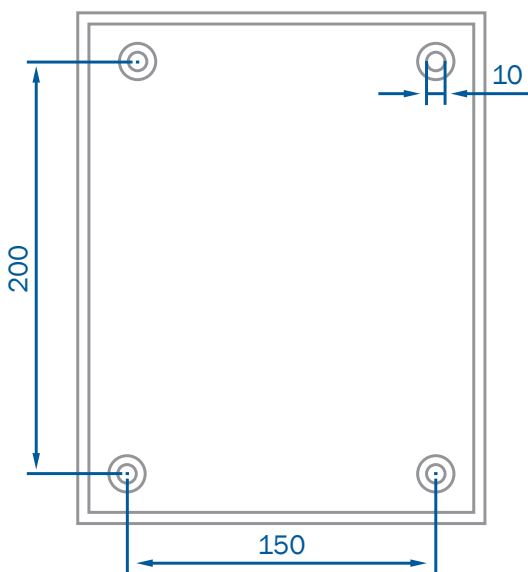
Guard Gear 4.0

Technical Specification

Kumera Guard Gear 4.0 monitors and diagnoses gear unit condition in real time 24/7.

Main unit dimensions and mechanical properties

- Operating temperature: -30...+70 °C
- Case material: steel
- Protection IP66
- Durability: IK 10
- Size metric: 250 x 200 x 150 mm
- Case mounting: 4 x 10 mm holes
- Weight: 4.5 kg
- Lock type: 3 mm double-bar lock



Mounting specifications



Data Connectivity

- LTE: 700/800/850/900/1800/1900/2100/2600/AWS
- UMTS/HSDPA/HSUPA/HSPA+: 850/900/1900/2100 MHz and AWS band (1700/2100 MHz)
- GSM/GPRS/EDGE: 850/900/1800/1900 MHz



Sensor Connectors

The monitoring device provides various inputs as follows:

- Four inputs for vibration sensors: M12 x 1 - connectors, 4-pin, female
- One input for rotational speed sensor: M12 x 1 - connectors, 4-pin, female
- One input for lubrication oil sensor: M12 x 1 - connectors, 4-pin, female



Power

Guard Gear 4.0 requires an external power supply. The power supply requirements are:

- Input voltage: 9V – 33V DC
- Input current: limited internally to 1.2A
- Power consumption: max 70 W
- M12 x 1 - connector, 4-pin female



When using an AC adapter make sure that the ambient temperature doesn't exceed the specified temperature limits of the AC adapter



Monitoring parameters

Vibration monitoring is user friendly with preset configured parameters. Kumera specialists provide detailed remote analyzing and reporting with recommendations in failure cases. Online oil monitoring gives early-stage detection of upcoming failure and detailed information of the lubrication oil quality.

- Vibration
 - *Vibration velocity overall value:*
2-1000 Hz, 2-40 Hz, 40-400 Hz, 400-1000 Hz
 - *Measuring points:* High Speed Shaft, Low Speed Shaft, Electric Motor Side, Driven Machine Side
 - *Vibration acceleration overall value:*
10-5000 Hz
 - *Envelope overall value:* 0-1000 Hz (HP filter 500 Hz)
- High Speed Shaft Rotational Speed
- Crest Factor
- Lubrication oil
 - *Temperature*
 - *Relative Humidity*
 - *Change of Conductivity*
 - *Change of Dielectric Constant*



Vibrations (IFM VSA001)

- Measurement range: ± 25 g
- Frequency: 0-6000 Hz
- Measurement axes: 1
- Sensitivity: 0,2 mg/ $\sqrt{\text{Hz}}$
- Operation temperature: -30 °C to 85 °C
- Protection IP68 / IP 69K
- EMC: EN 61000-6-2, EN 61000-6-3, EN 50178
- Type of mounting: M8 x 1.25, tightening torque 8 Nm
- Length of the sensor cable: max 250 m



Lubrication Oil

- Temperature: -25 °C - +100 °C
- Dielectric constant (ϵ_R): 1.5 - 10
- Operating pressure: < 50 bar
- Viscosity: 1 - 1000 cSt
- Pressure resistance: 600 bar
- Fluid flow velocity: < 5 m/s
- Protection class: IP 67
- Mechanical fitting: G $\frac{3}{4}$ screw thread to DIN 3852, tightening torque 30 Nm



Rotational Speed

- Sensing distance: 3 mm
- Operating temperature: 0 - 100 °C
- Protection class: IP67 / IP69K
- Length of the sensor cable: max 250 m



Diagnostics (IFM VSE002)

- Resolution: 12-bit
- Frequency range: 0 / 2 / 10...12000 Hz
- Sampling rate: ≤ 100 kSamples

Options



Power supply unit

- Nominal Input voltage: 100 V - 240 V AC
- Nominal Output voltage: 24 V DC ± 1 %
- Input voltage range: 85 V - 264 V AC, 95 V - 250 V DC
- Frequency range:
 - AC: 45 Hz - 65 Hz
 - DC: 0 Hz
- Current consumption: 0.8 A (120 V AC), 0.4 A (230 V AC)
- Output Current 2.5 A (-25 °C - +55 °C)
- Power consumption: 69.6 W
- Output power 60 W
- Operation ambient temperature: -25 °C - +70 °C (> 55 °C derating: 2.5%/K)
- Operation humidity: ≤ 95 % (at 25 °C)
- Degree of pollution: 2



Global Sales and Service

For decades, Kumera has been known as a global leader in industrial and marine gear solutions, with hundreds of thousands of Kumera gear units installed at customer locations around the world. Our global network of service providers brings local support for your gear unit through consultation, installation, training, replacements, spare parts, condition monitoring and overhauls. Contact a Kumera sales or service representative to learn more.

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