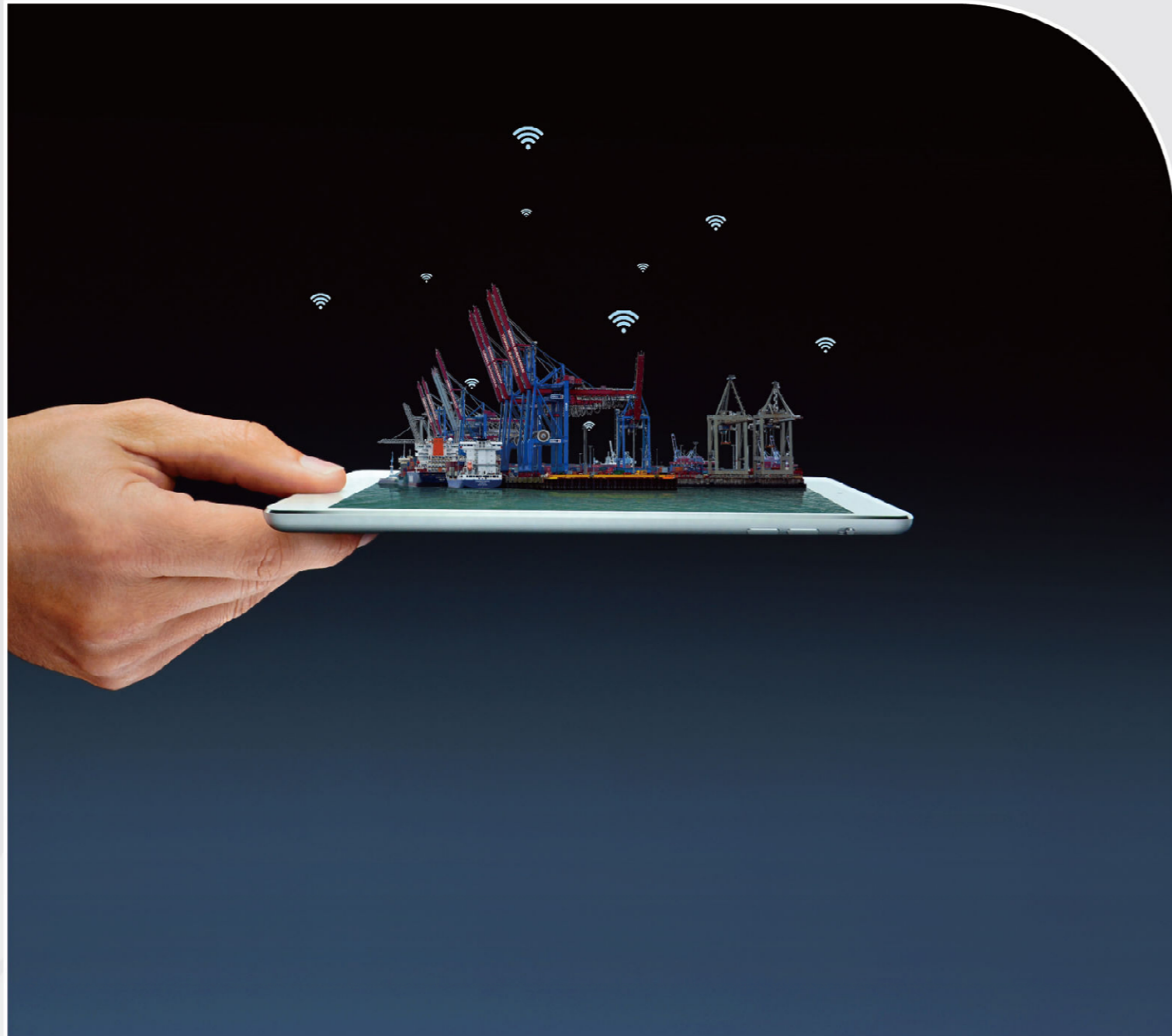




MiCRANE



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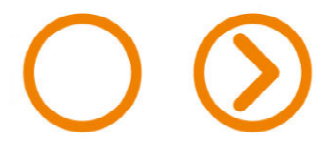
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Ideas For Crane

iMonitor System



iMonitor System

Introduction :

The iMonitor system is an equipment condition monitoring system developed by Xiamen MiCRANE Engineering Co., Ltd by utilizing its over 20 years of design and management experience for port equipment and combining the technologies of IOT, AI, big data and 5G. iMonitor build up an equipment 3D visualizing digital twin system (MiCRANE), which makes iMonitor can visualize in real time various condition data of the equipment including those from the sensors and PLC. Furthermore, the big data analysis and AI algorithm of the MiCRANE system can carry out further calculation based on the condition data to assess the health condition of the equipment and even gives alarms for potential failures and provides guidance for troubleshooting.

The data which can be collected by the iMonitor system includes vibration, temperature, oil level, humidity, oil quality, smoke, vision, sound (noise), load, stress, deformation, cracks, operation data of PLC, etc. The systems which can be monitored by the iMonitor system includes gearbox, brake, motor, electrical room, machine room, various mechanisms and structures, etc. It provides a round-the-clock and all-round monitoring mechanism for the health condition of the equipment.



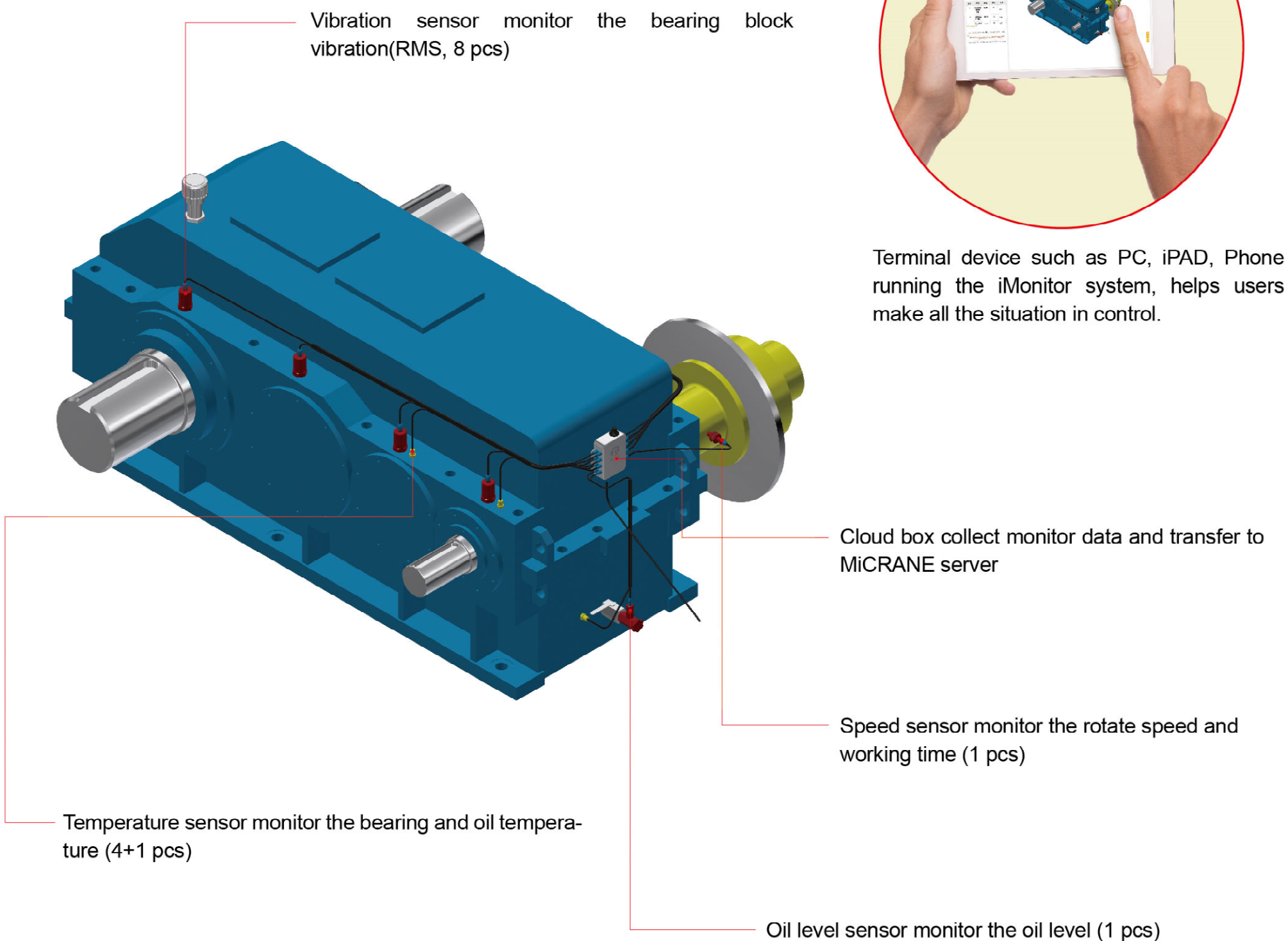
Equipment Touch Control



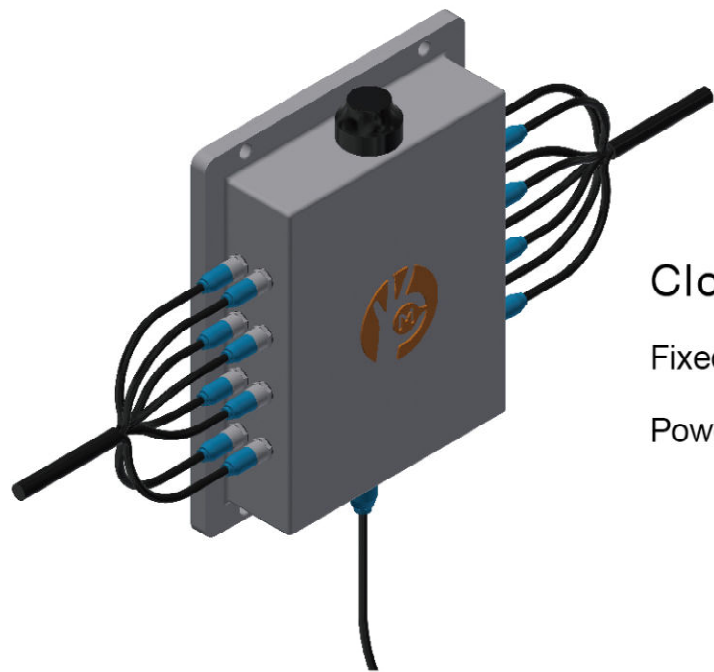
Introduction:

Gear box, the most important mechanical part of crane mechanism system, affects the crane's operate-ability. The long time delivery spare parts causes too much crane down time and great loss. the gear and bearing's early abrasion is the main reason, MiCRANE gear box iMonitor system can detect early abrasion and avoid great loss, and it is a management platform with history record, precaution, alarm function.

Solution:



Plug and play:



Cloud Box

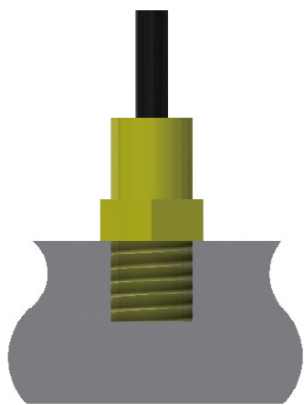
Fixed with bolts, 4pcs M8

Power cable wiring, 24VDC



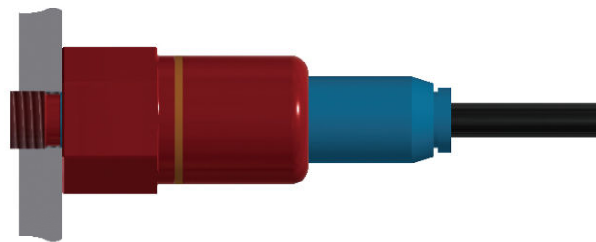
Vibration

Screw connection (blind hole) ,
M8x10mm



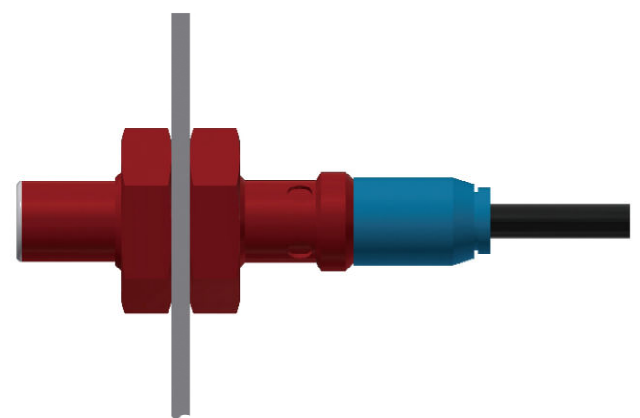
Temperature

Screw connection (blind hole) ,
M6x6mm



Oil Level

Screw connection (through hole) ,
G1/4



Rotate Speed

Screw connection (through hole) ,
M8

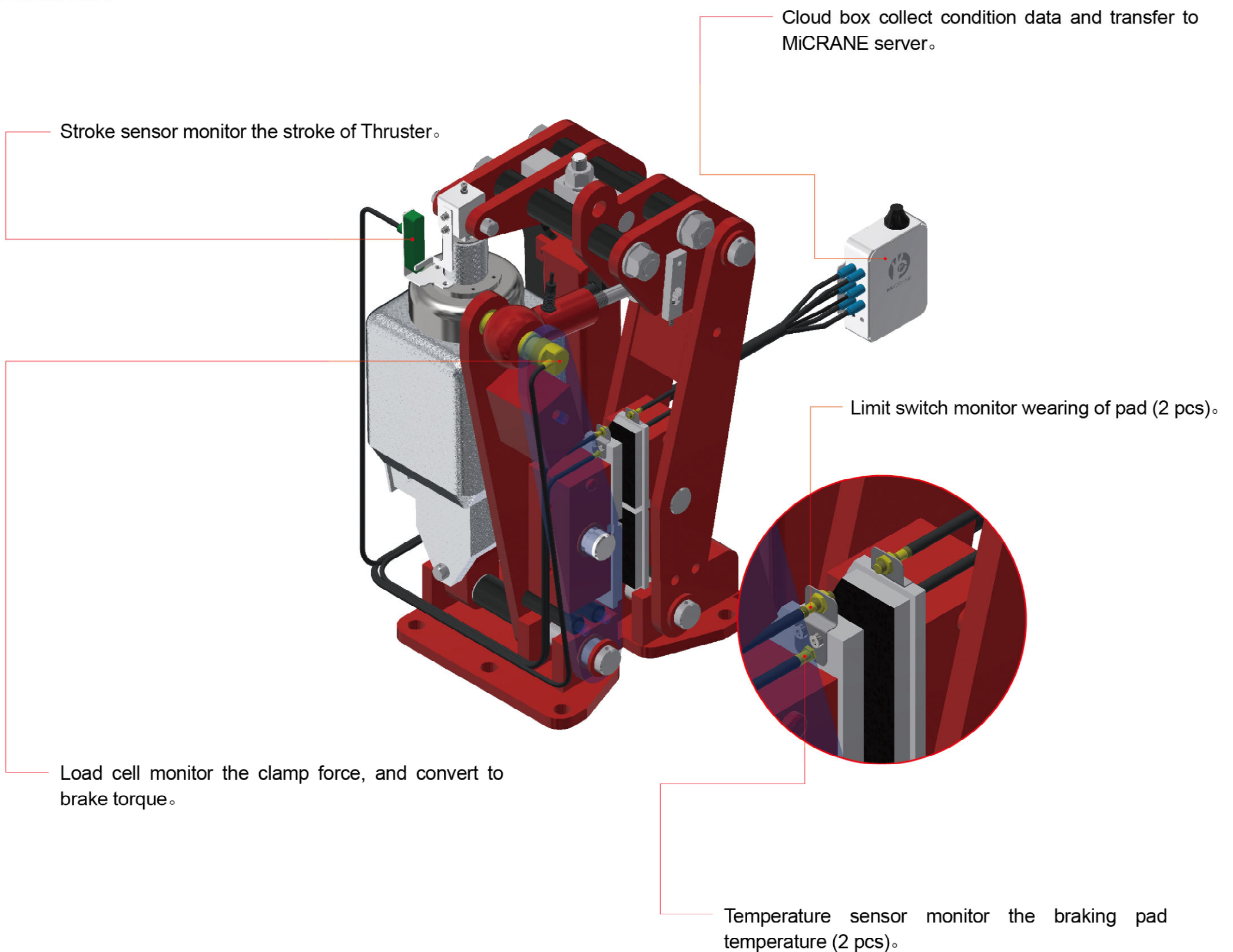
Reference information:

ID	Information (for 15-300kw mechanism of crane)	Value
1	ISO 10816-3, vibration of new installed machine	0-1.4 mm/s
2	ISO 10816-3, vibration of this zone can normally run in continuous without any restriction	1.4-2.8 mm/s
3	ISO 10816-3, vibration of this zone normally should not run in continuous, it can only run for a restricted time if have to	2.8-4.5 mm/s
4	ISO 10816-3, vibration of this zone is damaged	4.5-... mm/s
3	Recommended bearing and oil max working temperature	70 °C

Introduction:

Brake, the most important part guarantees the safety during production, especially for hoist system. MiCRANE Brake iMonitor System is monitoring the thrust stroke, brake torque, pad temperature and wearing status etc all the time, it also records the history data, analyses data and gives precaution/alarm, it even can gives maintenance management and residual life forecast.

Solution:

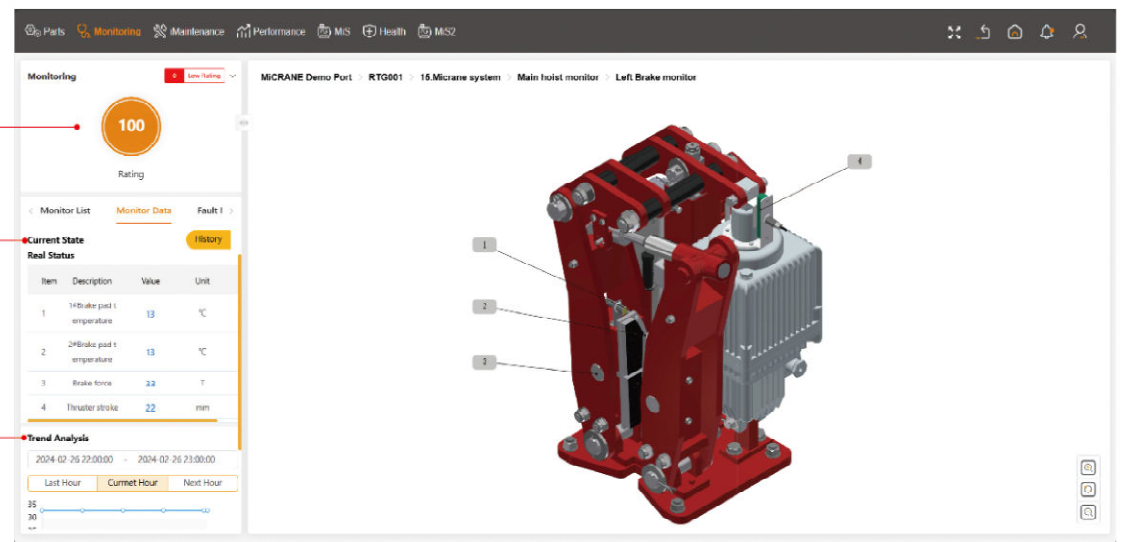


Plug and play:

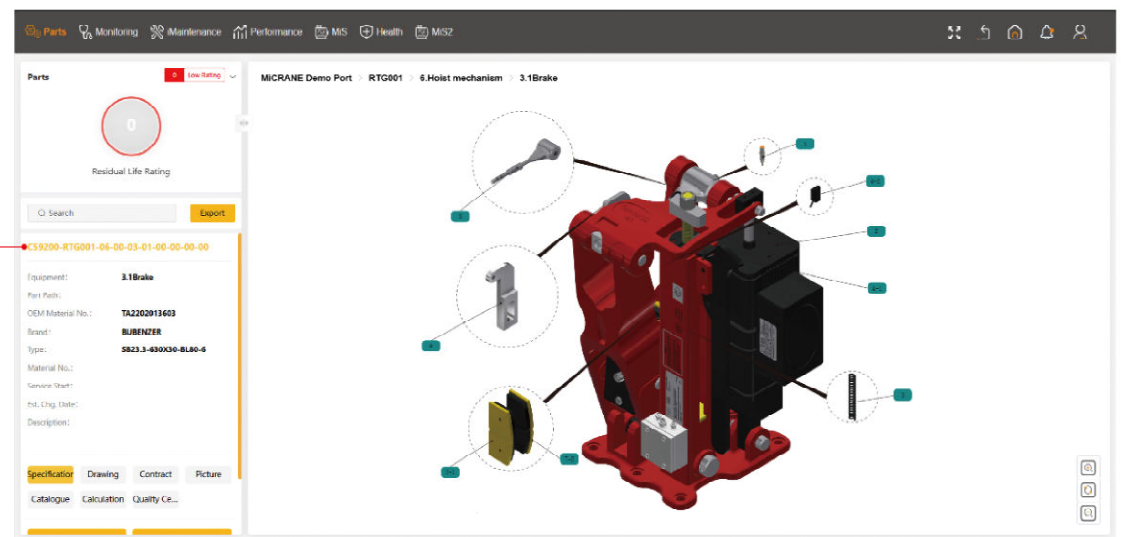
The general rating of the brake condition

The real time status and its condition rating

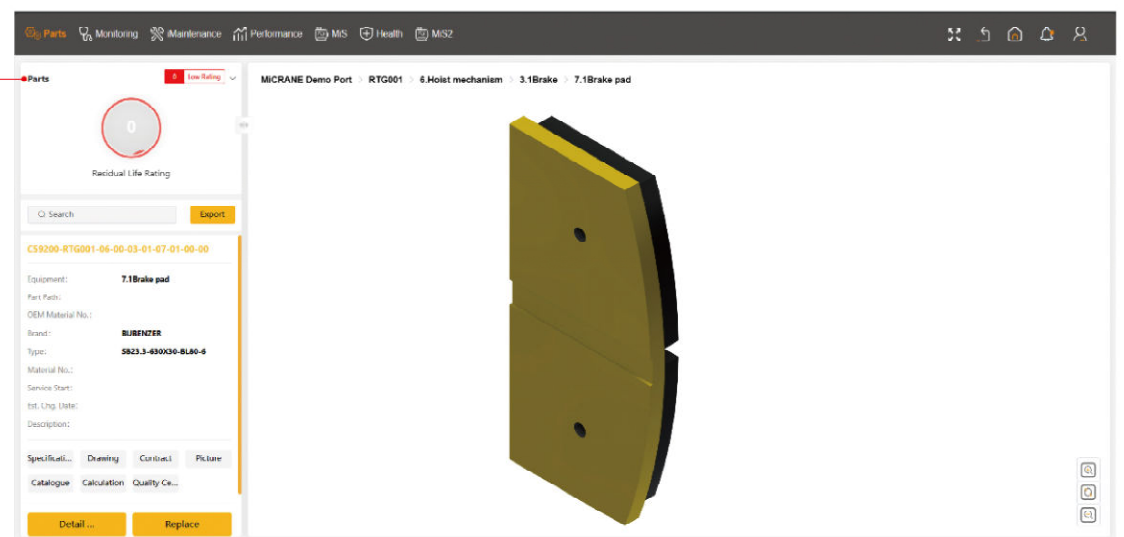
History data and its curves



Component detail information



component residual life information:
rating, design life, residual life



Reference information:

ID	Information	Value
1	Brake supplier BUBENZER, the brake torque deviation percentage: Warning / Error.	+/-10% +/-20%
2	Brake supplier BUBENZER, the brake pad over heat temperature: Warning / Error.	> 180 °C > 200 °C
3	Brake supplier BUBENZER, the thrust stroke value: Warning / Error.	< 5 mm < 3 mm

Introduction:

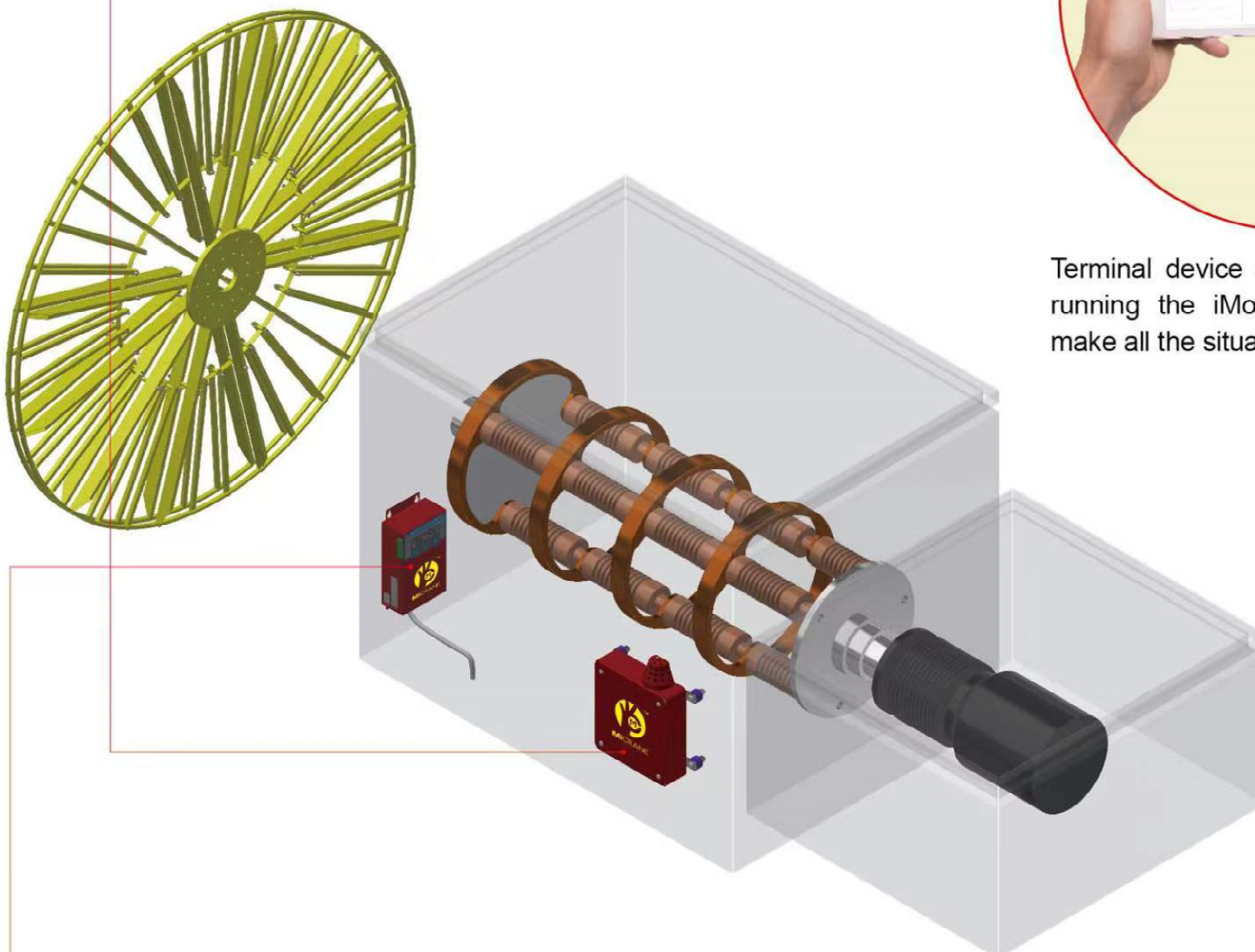
Slipring box, as the power source of the equipment, affects the equipment's operate-ability. Condensation is the most serious threat to the slipring box, which could cause short circuit, sometimes even explosion. Slipring box iMonitor system can monitor and control the humidity inside the slip ring box to avoid condensation and prevent short circuits or explosions.

Solution:

Cloud box, carry out edge calculation to the monitoring data, and inform MiCRANE platform via 4/5G.

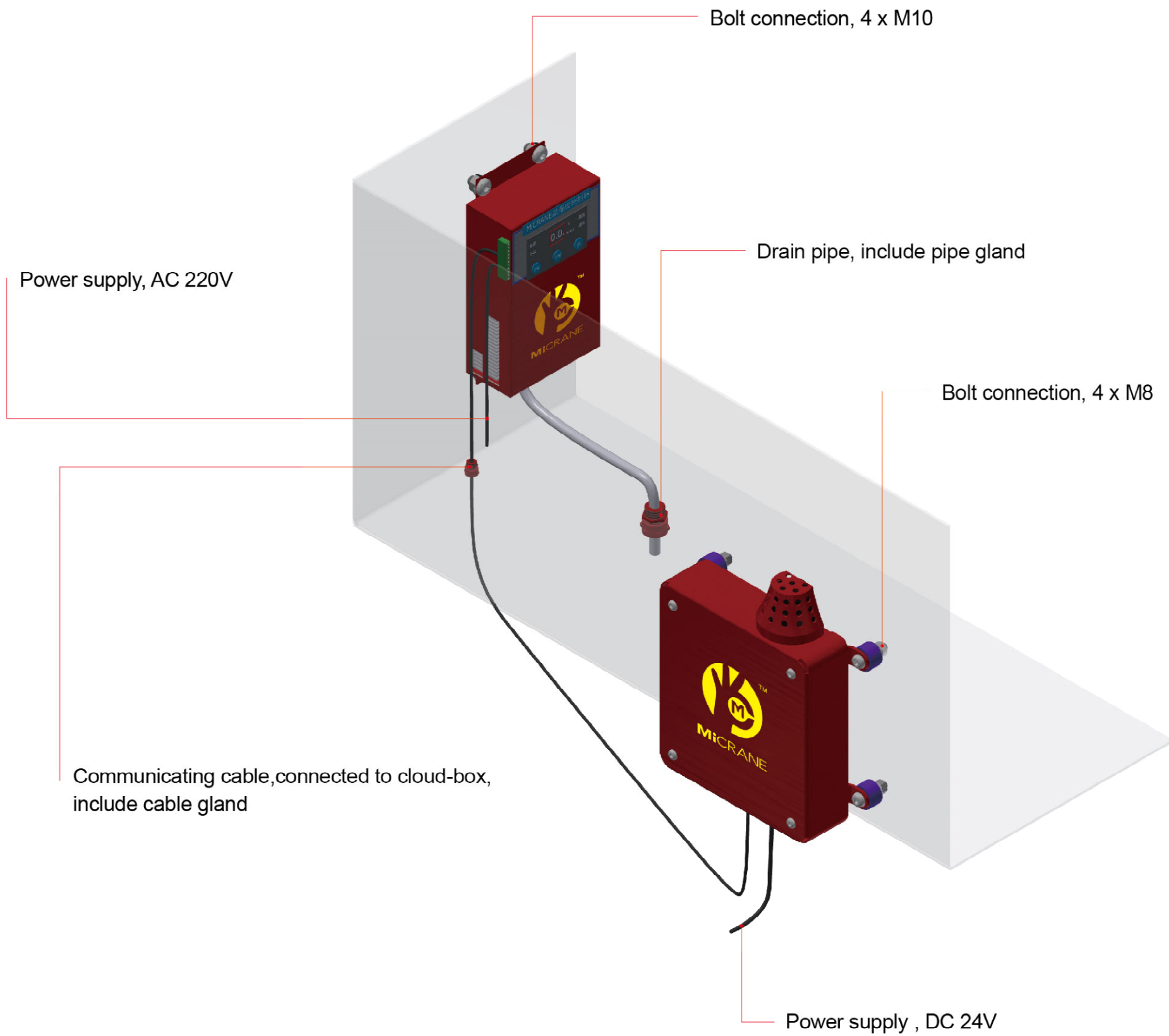


Terminal device such as PC, iPad, Phone running the iMonitor system, helps users make all the situation in control.



Smart Temperature-humidity unit, monitor and control the humidity of the slipring box, eliminate condensation possibility. It also transfer monitoring data and self-checking result to cloud box.

Plug and play:



Reference information:

ID	Information	Value
1	According to GB/T11022-2011, the average humidity value of the high-voltage cabinet within 24 hours should be less than	95%
2	According to GB/T11022-2011, the monthly average humidity value of the high-voltage cabinet should be less than	90%
3	This system start working's trigger value	65%