

MRT10-S

Professional manufacturer, best quality with competitive price ●
Recommended by the world UT NDT inspection association for training and examination ●
Core technology with independent intellectual property rights, certificate of CE, GOST and etc.. ●

MITECH Wire Rope Flaw Detector



Overview

MRT10-S wire rope computer detector is the latest NDT product developed by MITECH CO.,LTD. Based on the principle of magnetic leakage, it can real-time detect the internal and external wire rope defects such as broken wire, corrosion. It is widely used in all kinds of industries of hoisting machinery, coal mine hoist, the oil field mining machine, elevator, cableway, port machinery, cable bridge, mine, oil wells, wharf, shipbuilding, war industry, water conservancy, electric power, railway, construction and other industries related with testing broken wires on wire rope and the wear.

Technical Parameters

- Detection range: $\Phi 1.5-300\text{mm}$ (User should choose sensor according to the diameter of wire rope as different sensors have different ranges.)
- Detection efficiency: 0.0 to 6.0 m/s (relative speed between sensor and wire rope)
- The best detection efficiency: 0.3 to 1.5m/s
- Allowed clearance: 0-15mm (allow clearance between guide sleeve and wire rope)
- The best clearance: 2-6mm
- Broken wires qualitative accuracy: 99.99%
- Broken wires quantity error: allow monofilament miscalculation
- No error quantitative detection for the number of focused broken wires on single point: $\geq 92\%$ for more than 100 times
- Error sensitivity: $\pm 0.055\%$
- Accuracy indication error: $\pm 0.2\%$
- Length indication error: $\pm 0.2\%$
- Power: 5v battery of computer power
- Sensor weight: specifications $< 10\text{kg}$

Features

- Adopts virtual instrument technology, uses software to do directly sampling, with accurate result and good repeatability.
- Adopts electromagnetic qualitative, quantitative and orientation methods to do online overall NDT of broken wires, corrosion, wear, metal, loose strands, jump wire cross-sectional area, deformation and material anomalies of wire rope.
- In accordance with the regulation of national metrology and the national production safety law, each instrument was inspected by the third party according to American ASTM1571 standards and awarded with the test report and legal qualifications.
- Combines international advanced MRT magnetic sensor with independent research and development data collection module, stores the data directly in computer through RS232 or USB bus driver.
- High strength permanent magnet steel excitation, combines the principle of magnetic flux leakage and magnetic flux change achieving comprehensive detection on crack, rust and rod wear.
- Using display wide-angle hall element to achieve no leakage detection.
- Guide bush floating centered in sensor to make collection signal stability.
- Software can make data acquisition and control, data analysis, data display and data storage, and other functions.
- Realizing functions of AD analog-to-digital conversion, wavelet transform, noise rejection etc..
- Visual characteristics, which can continuously and dynamically observe the change of data signals, real-time display the results.
- Real-time sound and light alarm when exceeding the set value, humanized design, practical and reliable.
- Automatic evaluation function, can analyze the results conveniently and automatically.
- Manual analysis function can guarantee the accuracy of the results and avoid missed detection.
- Partial defects shows the percentage of section and total area.
- Testing waveform figure can be printed at any time.
- The analysis and evaluation of the original results are generated in word format and displayed intuitively.
- Instrument operation is simple, you can learn well in 10 minutes.

Working Principle

The principle of MRT10-S is that when the wire rope quickly passes the sensor, the permanent magnet steel axial of the sensor magnetizes steel wire rope deeply until saturate. Defects such as broken wires and wear synchronously produce magnetic leakage field and magnetic flux change, magnetic signals spreading space is concentrated by poly copper and converted into voltage, changes into digital values by wide angle hole array element group, then compress and send digital signal to computer. Decompress the data real time by the three dimensional mathematical model software. Then displays specific quantitative number to show the inside and outside of broken wire, corrosion, wear, metallic cross-sectional area changes of the wire rope, in accordance with the current standard to generate assessment of safety and service life of wire rope.

Configuration

- Temperature: -20°C ~ +50°C
- Pressure: 86~106Kpa
- Related humidity: ≤85%

Configuration

| | NO. | Description | QTY | Marks |
|--------------------|-----|--------------------------------------|-----|---|
| Standard Config | 1 | Sensor(DN 20mm) | 1 | Four core interface, sampling interval of 1.88 |
| | 2 | Real-time alarm | 1 | |
| | 3 | Charger | 1 | |
| | 4 | Signal conversion cable 8344 | 1 | |
| | 5 | USB cable | 1 | RS232 |
| | 6 | Signal real-time processing software | 1 | |
| | 7 | Flexible traction safety line | 1 | Flexible connection of sensor unit |
| | 8 | Documents | 1 | |
| Optional config | 9 | Small sensor(DN 10mm) | 1 | Four core interface, sampling interval of 1.88 |
| | 10 | Small sensor(DN 15mm) | 1 | Four core interface, sampling interval of 1.88 |
| | 11 | Small sensor(DN 25mm) | 1 | Four core interface, sampling interval of 1.88 |
| | 12 | Middle sensor(DN 30mm) | 1 | Five core interface, sampling interval of 2.54 |
| | 13 | Middle sensor(DN 35mm) | 1 | Five core interface, sampling interval of 2.54 |
| | 14 | Middle sensor(DN 40mm) | 1 | Five core interface, sampling interval of 2.54 |
| | 15 | Middle sensor(DN 45mm) | 1 | Five core interface, sampling interval of 2.54 |
| | 16 | Middle sensor(DN 50mm) | 1 | Five core interface, sampling interval of 2.54 |
| | 17 | Middle sensor(DN 55mm) | 1 | Five core interface, sampling interval of 2.54 |
| | 18 | Large sensor(special-made) | 1 | Five or six core interface, sampling interval of 3.14 |

