

## **COMPUTER BASED WIRE ROPE TESTER**

### **- MAGNOGRAPH™ II-USB -**

The Magnograph™ II-USB wire rope tester was developed in Canada, jointly by the Noranda Technology Centre and by CANMET. The original dual-range sensor head utilizing Hall-devices was well proven over two decades of use in Canada, the USA, UK, Europe, Australia, South America, Africa, India and the Far East. The original Magnograph™ recorded local fault, LF and loss of metallic area, LMA signals on a chart recorder and on FM tape recorder. The first computer based version was the Magnograph™ II, which used a dedicated computer and a DOS™ software. The sensor head was improved, and made somewhat smaller and lighter, than its predecessor.

The new Magnograph™ II-USB can be used with any computer with a USB input. This allows for field replacement of the computer, if needed. A new, Windows™ based software; the MagWin was developed at CANMET to complete the wire rope testing equipment. The software's main operating features were formulated to satisfy the requirements of Longview Inspection, Denver, CO, whose extensive field-testing expertise included the use of several Magnograph™ units over two decades. Heath and Sherwood (1964) Ltd is the licensed manufacturer of all models of the Magnograph™ wire rope tester family.

#### **OUTSTANDING ADVANTAGES OF THE MAGNOGRAPH II-USB INCLUDE**

- Automatic test set-up and calibration functions
- The ability to maintain records without the use of paper, and the ease/flexibility computerized handling of these data provides
- That all recorded data can be played back, regardless of whether or not these were originally displayed on the computer screen during the New Test Run
- That all measurements are recorded and displayed in terms of actual rope mass, Kg/m data, and the corresponding loss percentages
- The ability for extensive post-test data-analysis
- The ability to tailor-fit the system to specific customer needs, apart from making its regular range as all-embracing as possible

## GENERAL INFORMATION

The **Magnograph™ II-USB** wire-rope tester uses Hall-effect sensors and strong magnetic field to measure wear, corrosion, wire-breaks, and other anomalies occurring in wire ropes. Wire ropes of any construction can be tested, in sizes ranging from 12-64 mm (1/2 to 2 1/2 inches), at speeds from creep-speed to a safe limit (approximately 3m/sec, or 600 ft/min) set by the user.



The instrument provides simultaneous readings of a rope's metallic cross-sectional area (both in total and relative terms) and localized faults, such as broken wires, wire ends, wire nicks, and corrosion.

The instrument package consists of two major parts: the sensor-head with its rope guides plus adapter tubes for different sizes, and the operating/recording computer with its two special electronic interfaces. One controls the input/output signal to and from the sensor-head, while the other handles the analog to digital conversion. The computer and interfaces are housed in a waterproof carrying case. Other items included in the standard package comprise a 15m (50 ft) cable connecting the sensor-head with the computer.

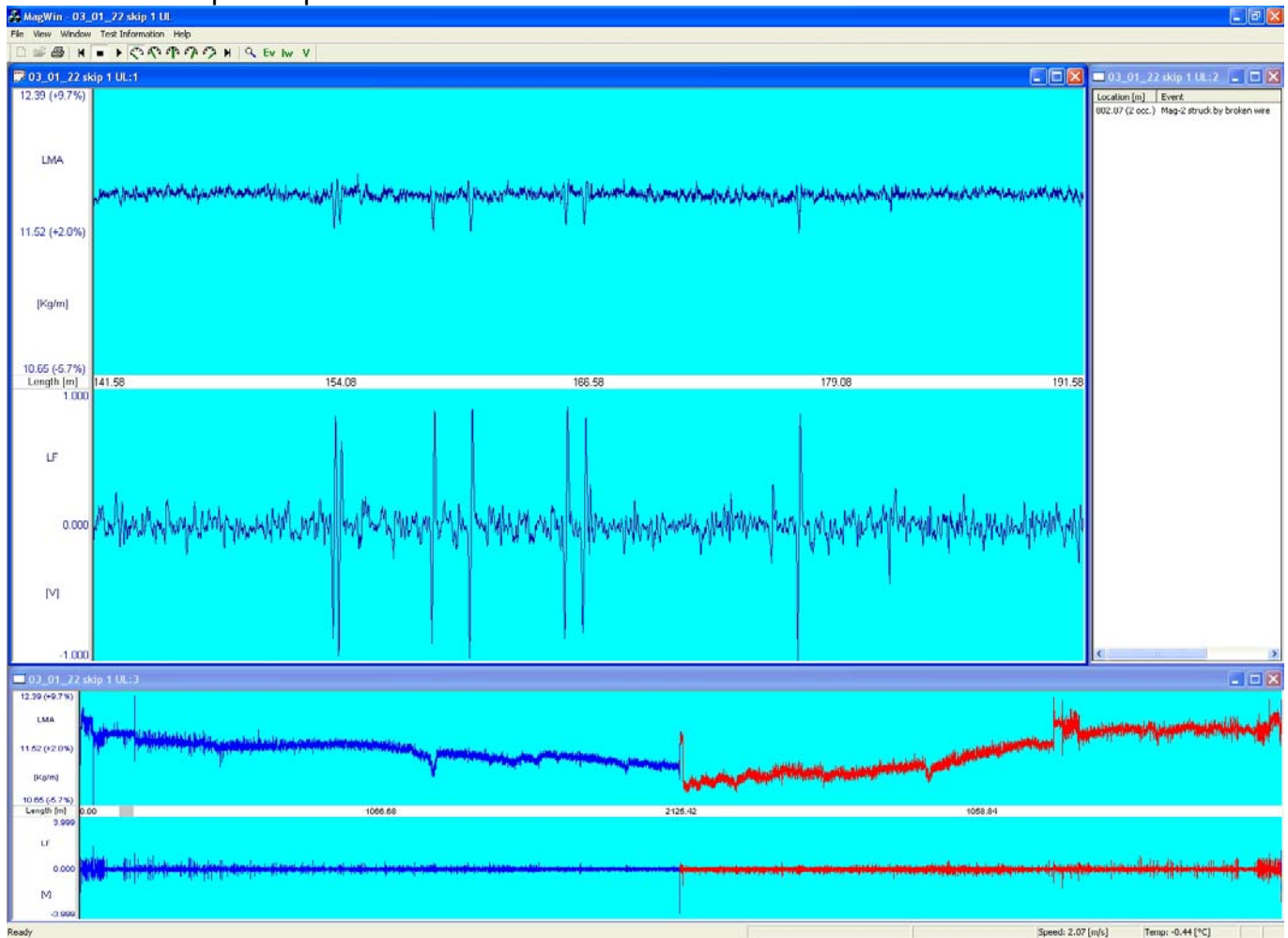
The **Magnograph™ II-USB** operates from 100/240V 50-60Hz-line voltage. While battery operation is possible, the necessary 12 V batteries and optional power-inverter are NOT included in the standard equipment package.



The upper right corner of the Magnograph™ desktop contains separate icons corresponding to five rope size ranges and another icon for the playback of data. A left click on any of these icons starts the MagWin software.

## THE MAGWIN SOFTWARE

The **MagWin** program controlling the system's operation was designed to be as practical and user friendly as extensive prior experience permitted. Numerous self-explanatory "prompting" messages are included to help the operator.



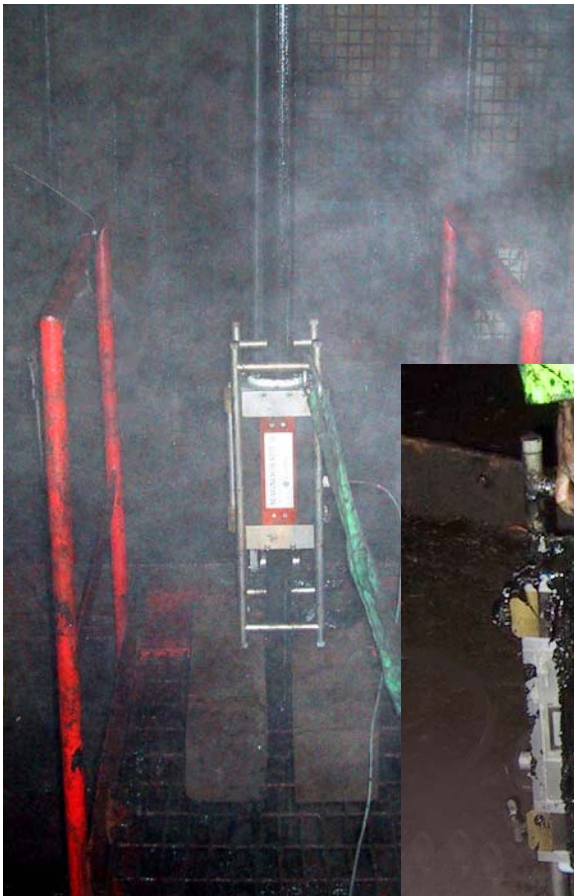
There are double LMA and LF signal displays, with one set following events on a "signal" basis, and the other set on a "trend" basis. In other words the "trend" signals continuously display ongoing "New Test Run" events, even should the "signal" displays be temporarily halted for one reason or another --- e.g. for adding "event" notes.

During playback, sections of the chart can be magnified and stretched, for better examination. The chart shown here has LMA traces on the top, LF traces below, on a 50m section of a hoist rope. Broken wires stand out clearly on both these traces. On the right side, there is a notepad for recording written notes describing anomalies.

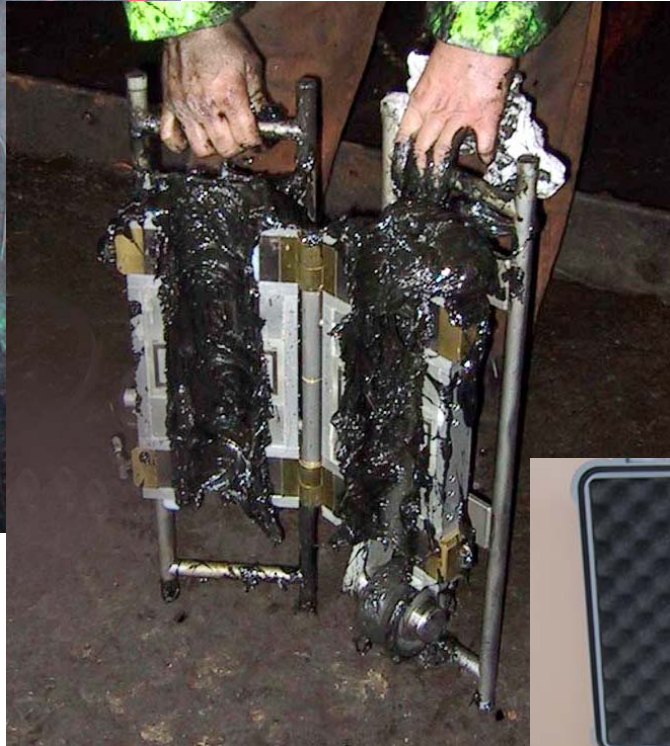
The laptop computer receives the data through a USB cable from the data acquisition unit, built into the lower section of the waterproof case. There are no internal PC-cards needed for running the **Magnograph™**. The test charts can be printed with any printer linked with the computer. USB inkjet printers are most convenient, but printing through the parallel port, or even through wireless infrared link is possible, depending on the computer model used. Long charts can be printed on banner paper. Prints are of outstanding quality.

The **Magnograph™ II-USB** is the latest model of the **Magnograph™** "family" of instruments. Older models can be upgraded to **MagWin** and USB operation, even if the sensor head is no longer functional. For those interested, please request the **Magnograph™ Upgrade** brochure, from Heath and Sherwood (1964) Ltd.





**The Magnograph™ sensor head is sealed, and permits operation in areas with relative humidity of 100%, condensing. Rope grease will not penetrate the epoxy cast electronic circuits**



**The Magnograph™ II-USB is equipped with light aluminum adapter tubes and plastic rope guides for rope sizes of 12-64mm (1/2 -2 1/2") diameters**



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