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**TD Handy-Scan, a New Alternative in Hand Held Advanced Ultrasonic
Equipment**

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Abstract

Over the past few years ultrasonic phased array and other forms of computerised ultrasonics have seen a phenomenal rise to prominence in NDT and the amount of systems on offer has increased tremendously. Some systems only provide for phased array, others are multi-functional and provide facilities for other techniques like ToFD and pulse-echo, in many different forms. The features offered by the various manufacturers are many and varied and systems can be broadly categorised by price and functionality into high, mid and low bands. Only a few systems have emerged however that are truly portable and are used routinely in both large production environments *and* by jobbing NDT service providers. The TD Handy-Scan is a new multi-functional computerised ultrasonic system that was developed by AGR Field Operation as an alternative to the advanced systems already entrenched in the portable phased array/ToFD/pulse-echo market.

Keywords: Multi-functional, Handy-Scan, computerised UT, hand-held, phased array, ToFD, pulse echo

1. Description

The TD Handy-Scan is a portable multi-functional advanced ultrasonic instrument that provides facilities for pulse echo, ToFD, and phased array simultaneously. The instrument has 64 connections for phased array of which 32 may be pulsed simultaneously and 8 conventional probe connections for ToFD or pulse echo. The display is an 8.5 inch TFT screen and the unit is controlled by a tactile keypad consisting of mouse pad, shortcut keys and telephone style alphanumeric keys.

The unit is attractively housed in a light 280x290x85 mm silver poly-carbonate enclosure with a distinctive industrial looking blue rubber protection bumper and carry handle.

The system also sports video input and output, 2 USB, Ethernet, 110-240v mains power and positional encoder connections. Internally the system has 1 GB RAM and 20 GB HDD. The system can also run on the removable lithium ion battery provided that can be recharged either in situ or using the charger supplied as an optional extra.

2. Development

The TD Handy-scan was designed and developed by the Technology Design engineering department in consultation with field operators and other technical specialists. Its design is aimed at field usability, functionality and mobility. The electronics were developed specifically with high multi-functional performance, minimum footprint and low cost in mind. The result is an elegant instrument that allows the user a wide range of application options and is arguably one of the most powerful small-format ultrasonic systems on the market.

3. Software

AGR has utilised its existing TD-Scan Advanced Ultrasonic Software on the Windows XP® platform with several intuitive additions to enhance the users' ability to control the system in locations where access is a challenge. The user interface is almost identical for the different instruments in the TD range with slight differences depending on the hardware present. This uniformity and internationally recognised ease of use makes for smooth management of personnel skills acquisition and minimising of errors due to unfamiliarity across a range of disparate software and hardware systems.

The design brief of marrying existing familiarity with a light and portable hardware package was achieved and has resulted in an instrument that certainly provides a technically and commercially attractive addition and alternative to the portfolio of small computerised UT systems already on the market.