MFD900

The most industrial ultrasonic test system for flaw detection and thickness measurements

Guaranteed the lowest possible down time over many years.

Pure ultrasonic testpower for high speed off- line and in line testing

* Combines the best of analog and digital techniques
* Very easy to use and quick system integration
* Local and remote control

Inspection Technology Europe BV
Allied NDT Engineers

MFD900

The only computerized system in the world that keeps working even if its central computer would fail

Each MFD900 channel is a complete independent flawdetector / thickness tester with individual outputs, constructed as a plug-in module from the rear of the system.
Replacement - if needed - can be done in the field by non specialized personel.

The central computer module is also field replaceable in case of service. As the computer section is only used for external communication, for the display and to set up the channels , the individual channels remain operational including their outputs in case the computer section would fail.

This guarantees the lowest possible down time over many years.

Contact:

Inspection Technology Europe BV
Allied NDT Engineers

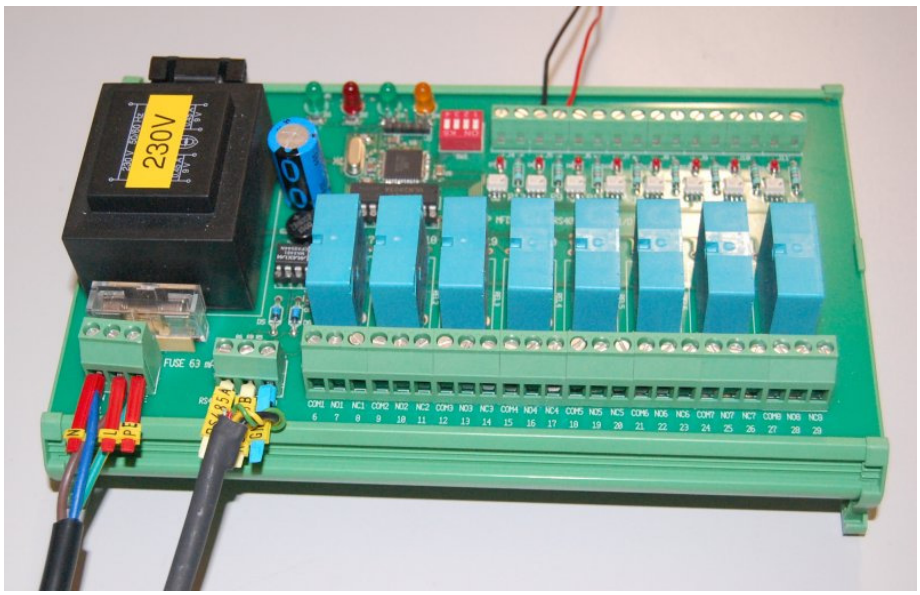
Inspection Technology Europe BV
Vogelenzangsweg 286
2114CH Vogelenzang.
The Netherlands
Tel. +31 (0)23 5267975
Fax +31 (0)23 5267977
info@inspection-technology.com
www.inspection-technology.com

GENERAL:

- **The MFD900 has been designed for flexibility, ease of use and efficiency.**
- **Quick field service possible by its modular design**
- **Optimal test results are achieved using a combination of hardware and software techniques to obtain the highest performance in test speed and reliability.**
- **The MFD900 can be supplied as a 2 channel system for research, production or C-Scan applications or with 10 module each equipped with a second pulser receiver . It can also be supplied as a multi channel, multiplexed or a combination of both systems for ultrasonic testing up to 30 MHz.**
- **Easy integration by direct accessible analog outputs of signal amplitude and dual TOF (thickness) of each channel as well as digital alarm outputs of all gates and alarm conditions.**
- **Outputs can be configured to customers requirements**
- **Very high power square wave pulsers**
- **Very low noise resulting in high sensitivity.**
- **Various noise reject filters built in.**

Directly accessible I/O module.

User defined input /output to control external alarms, auxiliary functions, inputs with switch buttons , PLC in- and outputs etc.



POSSIBLE CONFIGURATIONS:

Each single ultrasonic channel can be equipped with a second pulser/receiver module which makes it a dual channel multiplexed unit.
Most parameters and gate settings in this multiplexed mode are yet independent for both pulser/receivers which allows a high freedom for various applications.

One mainframe of the MFD900 can be equipped with 10 channel modules working in parallel at full prf speed. When each channel is equipped with a second pulser/receiver it contains 20 channels.

Optionally it is possible to work with 4 channel multiplexed modules when speed is less important, making it an even more economic system.

Applications:

- **Thickness and corrosion inspection.**
  Measuring with contact or immersion transducers
- **ID/OD. Measuring water path from transducer to front wall for dimensional measurements as well as wall thinkness**
- **Weldinspection including a couplng check phase of the transducers for 100% reliability.**
- **Working with most of customers own transducers.**
- **Non couplant testing with airprobes with external probe adapters.**
- **Billet testing with large transducers**

MFD KEY FEATURES

- **2 to 20 channels (1 to 10 channels non multiplexed)**
- **independent parameter set up on each channel**
- **touch screen for ease of operation**
- **each channel equipped with 5 flaw gates with analog peak detectors, alarm logic and gated amplifier**
- **selective attenuation and gain on each gate**
- **one water path meter and one universal thickness meter available on each channel**
- **segmented TCG on each channel**
- **up to 10 KHz PRF per channel**
- **2 encoder inputs for in line production testing and displaying real time graphics**
- **industrial I/O and PLC interface**
- **high speed real time analog and alarm output option**
- **position programmable paint marker output**
- **ethernet and RS232 interface**
- **4 USB connections**
- **VGA connection for external monitor**
- **available in table top or 19" rack mount version**
- **also available in 'box' version for remote applications**

MFD900 Technical Specification:

In general, an MFD 900 system consists of a main frame with PC, display and system controller and 1..10 input plug in boards.

Main frame Specification:

Supply voltage	**: 90.. 240V (internally selectable)**
Supply voltage tolerance	**: 190..240V / 80..120V AC 50/60Hz**
Power consumption	**: max. 250W (10 channels installed)**
Dimensions	**: 450 x 270 x 570 mm (WXHXD) 19 inch 6U**
Weight	**: 25 kg**

PC Section:

PC Type	**:**	**Lanner LEC7500**
Interfaces	**:**	**6 x USB (4externally available)**
		1 x RS232
		2 x Gigabit Ethernet,)1 externally available)
		DUAL VGA, (1 externally available)
Disp lay	**:**	**TFT 800 x 600 or 1024 x 768 12,1 inch**
Graphics	**:**	**Intel Hardware accelerated**
Keyboard	**:**	**External USB**
Human interface	**:**	**Surface Acoustic Wave Touch screen and/ or USB mouse**
	:	**Dedicated 5 knob control panel with alarm indicators**
Hard disk	**:**	**80 GB, 10 GB for operating system**
Operating system	**:**	**Windows XP or XP embedded**
PC Power	**:**	**12V @ 4A max**

System Controller Section:

Construction	**:**	**Plug in board**
PC Interface	**:**	**Gigabit Ethernet UDP/IP Protocol with error correction**
System interface	**:**	**16 bits bus for data, 16 bits bus for settings**
External	**:**	**16 Inputs, 16 Outputs (1=dedicated fast alarm output)**
Encoders mode	**:**	**2, quadrature or clock / direction 4 x resolution in quadrature**
Encoder freq.	**:**	**2 MHz maximum**
Remote I/O	**:**	**RS485 / High Speed Output**
Options	**:**	**Real Time Output unit**
Trigger	**:**	**Input / output via BNC with frequency limit, TTL level**

Pulser / Receiver specification :

The MFD900 uses up to 10 dual pulser / receivers. Therefore a maximum of 20 US channels can be installed in the mainframe.
Flaw detection is not dependant on software and will continue to work with control software closed.

Power supply	**:**	**12V @ 0.8Amax**
Channels	**:**	**2 pulser / receivers**
Interface	**:**	**16 bits data / 16 bits setting with separate buses**
Digitizer	**:**	**100 MHz 8 bits (150 MHz optional)**
Sampling	**:**	**Real time with digital peak detectors**
Multiplexing	**:**	**1:2 or 1:1 when 1 channel is used**
TOF	**:**	**2, measuring between IP and IF echo (water path)** **Measuring between 2 echoes in gate 4 blanking** **and zero crossing detection (Thickness gauge)**
Blanking	**:**	**0.037 mm to 600 mm in 0.02 mm steps @5900m/sec**
TOF Clock	**:**	**50 MHz (TOF1) / 160 MHz (TOF2)**
Detector	**:**	**5 Digital peak detectors @ 100 MHz (150 MHz optional)**
Flaw gates	**:**	**5, each with peak detector, alarm logic and gated amplifier**
Alarm	**:**	**OFF, POS, NEG**
Alarm filter	**:**	**1..200 (consecutive alarms)**
Interface	**:**	**Via dedicated interface gate**
Gate Trigger	**:**	**OFF, IP/IF/ARTIF**

Receiver specifications (A / B receiver)

Channels	**:**	**2**
Connectors	**:**	**BNC**
Gain control	**:**	**-10 .. +90 dB**
Bandwidth	**:**	**100 KHz .. 30MHz (-6/-6 dB)**
Filters	**:**	**HPF (Off, 1MHz, 2.5MHz, 5MHz) @ 12dB/oct** **BPF (Off, 1MHz, 2.25MHz, 5MHz, 7.5MHz, 10MHz** **15MHz, 25MHz) 100% bandwidth** **LPF (Off, 5MHz, 10MHz, 20MHz) 24dB/oct**
Output	**:**	**RF, HW-, HW+, FW, FW+F1, FW+F2, Fw+ F3**
Input impedance	**:**	**50 Ohm / 1 kOhm selectable in through transmission modes**
Linearity	**:**	**Better than 1% of full scale**
Eq. Input Noise	**:**	**50uV RMS (10KHz .. 50MHz)**
Gated Gain	**:**	**-20 .. +20dB**
TCG Type	**:**	**Segmented with 18 segments**
Control Range	**:**	**-20 .. +50 dB**

Trigger	**:**	**OFF, IP/IF/ARTIF**
Time range	**:**	**0.1 .. 500 us in 10 ns steps**
Point Entry	**:**	**Direct entry as gain/position pairs or interactive via on screen display**

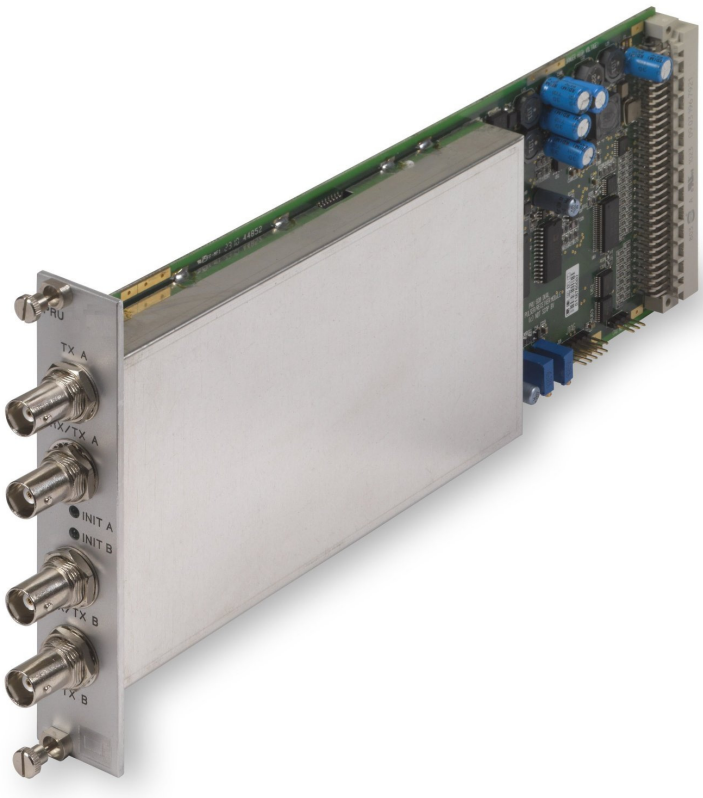
Pulser Specifications (A/B Pulser)

Output	**:**	**Negative Square wave**
Connector	**:**	**BNC**
Width	**:**	**25 .. 500 ns adjustable in 1 ns steps**
Voltage	**:**	**-50 .. -350 V**
Fall time	**:**	**< 5 ns (-200V pulse)**
Rise time	**:**	**<10 ns (Damping 50 Ohm, no load, -200V pulse)**
Impedance	**:**	**<3 Ohm**
Repetition Rate	**:**	**max 10 kHz, adjustable per pulser**
Damping Range	**:**	**25 .. 315 Ohm in 5 Ohm steps**
Modes	**:**	**PE, Dual, Through transmission**

MFD900 pulser receiver module.

Supplied as single channel or dual multiplexed channel

Sequencer configuration possible for puls-echo channels and/or through transmission



Specifications can be changed without notification.