**db-MiniPOD Ethernet** is a ruggedized, portable ultrasonic inspection module that capable of simultaneous multi-channel Time-of-Flight-Diffraction (TOFD) and Pulse Echo (PE) Corrosion/Erosion Mapping capable of interfacing to a wide range of single/multi-axis manipulators including video tracking. The system comes complete with a suite of comprehensive data collection and off-line analysis software that runs under Windows XP/Win7/Win10.

Key Features

- Rugged, miniature module contains full ultrasonic inspection system
- Interfaces via 100/1000Mbit Ethernet to any Windows PC/laptop/tablet
- 4, 8 or 16 channel variants available
- Real time RF, A, B, C, D-scan displays and storage
- Multi-channel, simultaneous TOFD and Pulse Echo Corrosion/Erosion Mapping
- Position stamping from up to 2 encoders
- Corrosion Mapping using Video Tracking technique
- Comprehensive configuration, data acquisition, off-line analysis and reporting software
- Windows XP/Win7/Win10 Operating System
- Expandable by daisy-chaining additional modules
- External/internal motor drive option

Block Schematic
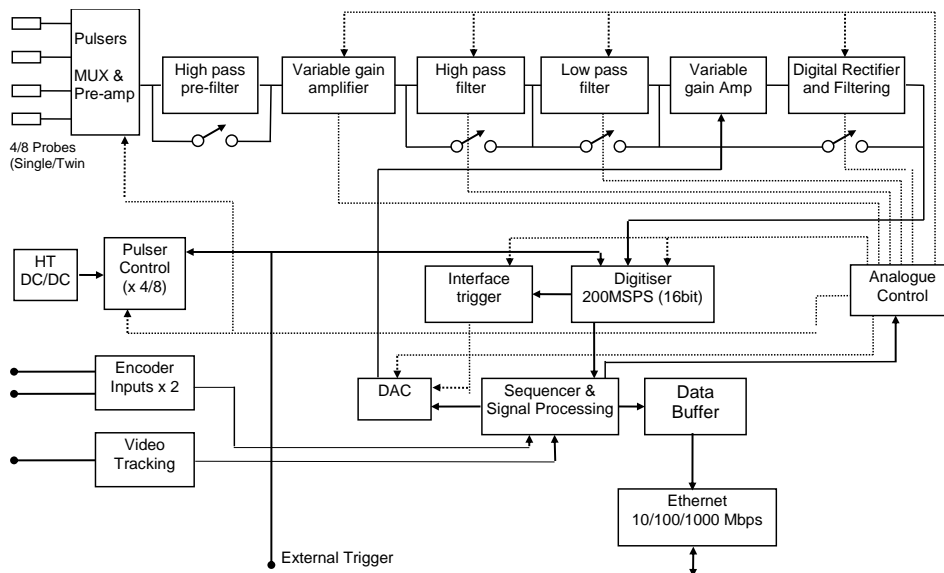
Technical Specification

Digitiser

Sampling Rate	200MHz to 6.25MHz in 6 steps
Resolution	8/12/16-bit
Points per channel	65535
Sampling Delay	65535 samples (at digitisation frequency)
Averaging	2 to 256 frames or disabled
Averaging Performance	Real-time hardware averaging of all channels at maximum digitisation rate
Averaging Memory	128k – dynamically allocated
Max. Gates per Channel	Hardware: 1, Software: 16
Peak Detection	Real-time, bi-polar, first 'n' peaks

Pulser / Receiver

Probe Connectors	4, 8 or 16
Software Channels	Up to 256
Transducer Type	Single or Twin
HT Pulse Voltage	-100V Unipolar or +/- 100V Bipolar
HT Pulse Width	15 ns to 1000 ns in 5 ns increments (with <10 ns rise time)
PRF	50 Hz to 10 kHz in 10 Hz steps (dependent upon voltage, pulse width and gate settings)

Signal Filtering & Rectification

Low Pass Filters	1MHz, 2MHz, 6MHz, 7.5MHz, 9MHz, 10MHz, 15MHz, 20MHz, 25MHz, 40MHz & 60MHz (at 200MHz digitiser)
High Pass Filters	0.1MHz, 0.5MHz, 1MHz, 2.5MHz, 4MHz, 5MHz, 8MHz, 10MHz, 15MHz, 20MHz & 16.5MHz. (at 200MHz digitiser)
Rectifier	Digital - Full-wave, Positive half-wave and RF (unrectified)
Post-Rectification Filters	Digital – as per Low Pass Filters

Amplifier

Gain Range	-2 dB to +110 dB in 0.5 dB steps
Bandwidth	0.1 - 20 MHz
Input Noise Level	$1.5nV/(Hz)^{1/2}$
Impedance (Damping)	75Ω, 125Ω, 180Ω & 300Ω

Distance Amplitude Correction (DAC)

Gain Range	-2 dB to +110 dB in 0.5 dB steps
DAC Curves	8
DAC Memory	16kByte
DAC Points per Curve	Up to 4096
DAC Frequency	¼ to 1/32 of digitisation rate
DAC Reference	TX pulse or Interface Echo

Manipulator Interface

Type	Encoder, Video or motorised (by external unit)
Number of Axes	2
Encoder Type	Single/Differential
Encoder Voltage	5V (TTL)
Encoder Counts	$\pm2^{31}$ quadrature counts. 1MHz maximum

Video Tracking Interface

Maximum Image Size	768 x 576 (PAL)
Detection speed	50 Hz (PAL)
Standard	PAL or NTSC

Physical, Power & Interface

PC Interface Type	100/1000 Mbps Ethernet
Interface Max Speed	750Mbps (on Gigabit)
Dimensions	95mm x 54mm x 23mm (4 channel)
Weight	0.25 kg
Rating	IP65
Power	DC 9V-36V @ 5W
Temperature	0°C to 50°C operating (-20°C to 80°C storage)