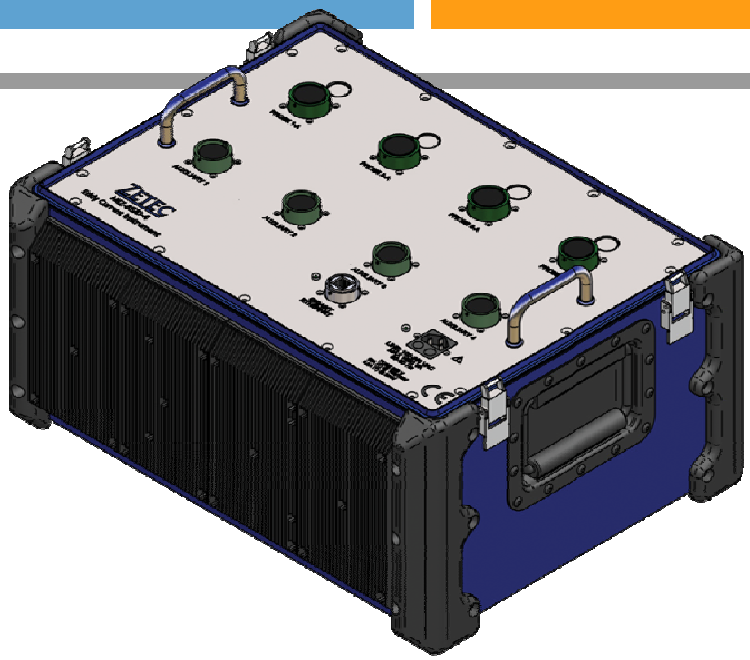
MIZ-85iD-4

Preliminary Product Data



General Specifications

Power:
Electrical: 100-240 VAC 50-60 Hz

Operating Temperature Range:
32°F to 113°F (0°C to 45°C)

Storage Temperature Range:
-4°F to 140°F (-20°C to 60°C)

Inputs/Outputs:
1ea RJ-45 Ethernet 10/100Base T
4ea 36 pin probe connectors
1ea Multi-contact Auxiliary Connector
- Encoder Inputs
- Start/Stop/Pause/Balance
- MIZ-iD Bus Extension

Size: TBD

Weight: TBD

Compliance: ASME, JEAG, CE, RoHS

Probe Technologies

4 Probes will be supported at one time. 2x 36pin connectors are provided.

An internal electronic probe adapter circuit eliminates the need for probe adapter cables

Electronic balance circuit eliminates the need for external reference probes.

Bobbin:
Standard Bobbin
DF Bobbin

MRPC®:
Probe heads up to 8 diff pairs
Brush & Servo motor units

Array:
MHI Intelligent Probe
X-Probe

Eddy Current Specifications

Frequency Range:
20 Hz to 2 MHz

Drive Modes:
Multiplexed Mode
Continuous Mode
Super-Multiplexed

Probe Drives: 8

Drive Voltage: 0-20Vpp std, 0-60Vpp I-Probe

Input Coil Channels: 4x 8

Output Channels: (x4)
40 Continuous Mode
512 Multiplexed Mode
640 Super Multiplexed Mode

Gain:
23-53 dB in 1 dB steps, variable

Digitizing Rate:
100 Hz to 40 kHz

Probe Modes:
Bobbin Mode
Support both standard bobbin and DF bobbin probe modes

MRPC Mode
Supports Pancake, +Point and MRPC motor control

Intelligent Probe Mode
Provides 60Vpp drive and probe multiplexer control line

Array Probe Mode
Support all current X-Probe model

Other Specifications

Automation - Hardware Inputs:
Differential encoder inputs

Automation - Hardware Control:
Start/Stop/Pause/Balance control

Automation – Auto locating
Real-Time landmark detection within tester for locating structures in tube

System Intelligence:
Probe & Hardware MIZ-iD Bus

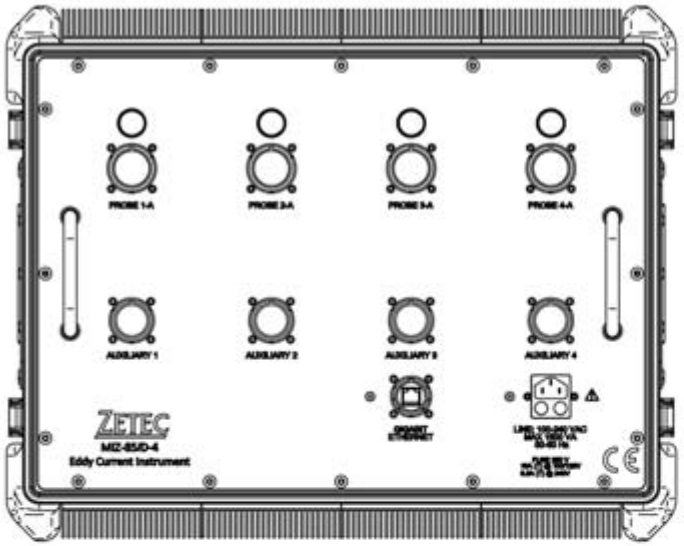
System Diagnostics:
Built-in Web Server for setup and diagnostics

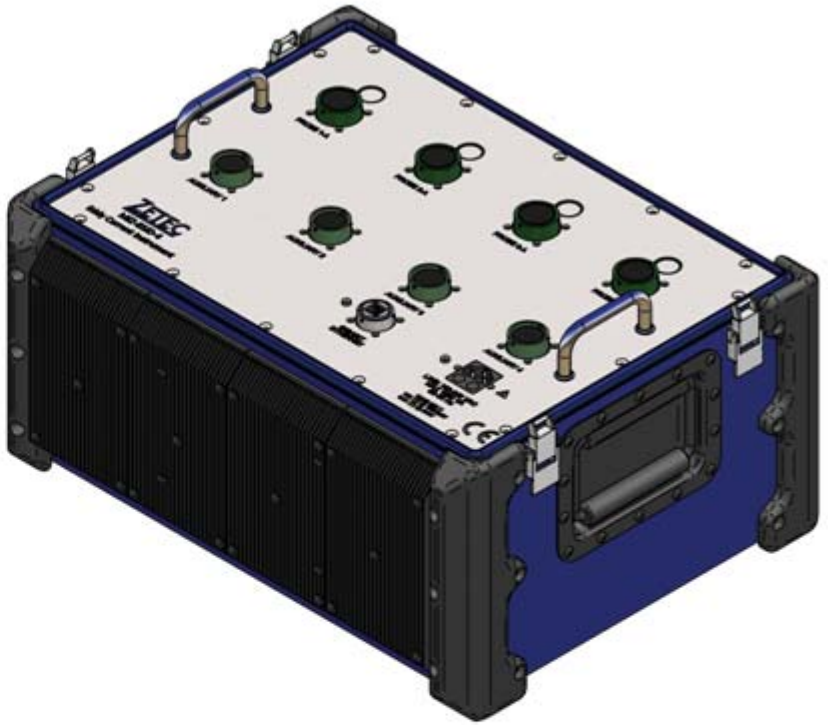
Networking:
Single point network connection. 4 separate IP addressed board sets.

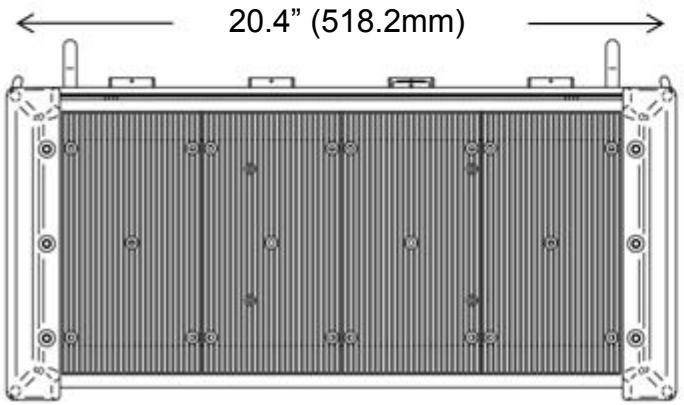
Probe Adapter:
Internal electronic probe adapter

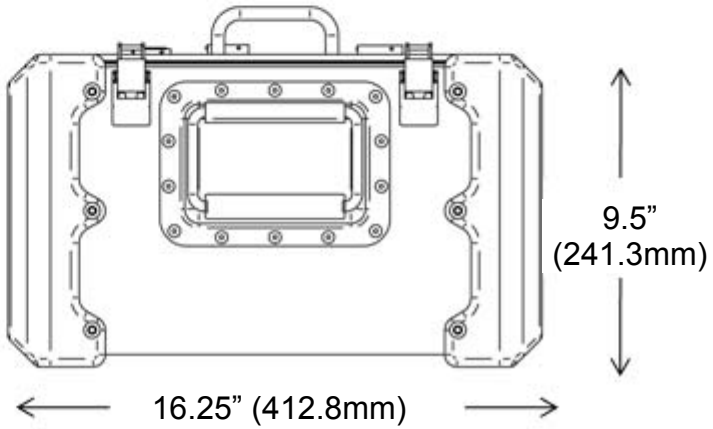
Probe Absolute Channel Reference:
Internal electronic balance reference circuit

MIZ-85iD -4 Packaging









MIZ-85iD to TC7700 Comparison Matrix

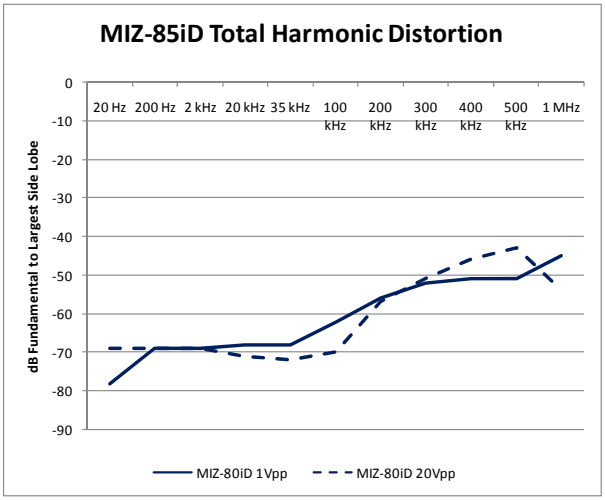
Feature	TC7700J (PIM712 MIM11)	MIZ-80iD (single system)	MIZ-85 -4
Power Consumption	467W	<50W (Instrument only)	< 200W
Operating Temperature range	5°C to 50°C	0°C to 45°C	
Aux Cooling Required for Airtight Use	Yes	No	
Simultaneously operated test probes	Up to 4	1	Up to 4
Excitation Modes	Continuous or Multiplexed	Continuous or Multiplexed	
Eddy Current Amplifiers per Acquisition Board(Drive/Inputs)	2 / 8	2 / 8	
Frequency Range	20 Hz to 6 MHz	20Hz to 1 MHz	20 Hz to 2 MHz (S/G & HX tubing range)
Frequency Accuracy	<0.1%	< 0.01%	
Total Harmonic Distortion	> 60dB below fundamental	> 43dB below fundamental	
Quadrature error	±0.25°	±0.1°	
Output Drive Voltage	0-20 Vpp, 0-60 Vpp	0-20 Vpp, 0-60 Vpp (with I-Probe Adapter)	
Simultaneous Frequencies	4	5	
Acquisition Timeslots	16	64	
Adjustment Range of Gain	32dB to 62 dB in 1 dB steps	23dB to 53 dB in 1 dB steps	
Amplitude Linearity	± 1%	± 0.25%	
Phase Linearity	± 1°	± 0.6%	
Digital Data	16-Bit	16-Bit	
A/D Conversion	16-Bit	14-Bit high speed sampling	
Acquisition Rate (depending on setup)	1 Hz to 40 kHz	100 Hz to 40 kHz	
Exciter I-Probe Drive	0-60 Vpp, 0.5 A peak/timeslot	0-60 Vpp, 0.5 A peak/timeslot	
I-Probe Power Supply	±9.3 to ±20 V	±9.3 V fixed	
Acquisition Trigger Modes	Internal or External	Internal or External	
Acquisition Board Clock Synchronization	Yes	Yes	
Balance with External Reference	Yes	Yes	
Balance with Electronic Reference	No	Yes	
On-Board Calibration Report Web service	No	Yes	
On-Board Diagnostics Web Service	No	Yes	
On-Board Network Configuration Web Service	No	Yes	
On-Board Firmware Maintenance Web Service	No	Yes	
On-Board Serialized Instrument Hardware Report Web Service	No	Yes	
MIZ-iD Instrument Monitoring	No	Yes	
MIZ-iD Probe Monitoring	No	Yes	
MIZ-iD Aux Hardware Monitoring	No	Yes	
On-Board Real-Time Landmark Detection (LMD)	No	Yes	
On-Board Tube End Detection (TED)	No	Yes	
Sealed Enclosure	No	Yes	
Internal Electronic Probe Adapter	No	Yes	
Designed for RoHs Compliance	No	Yes	
Network	Ethernet 10/100Base-T	Ethernet 10/100Base-T	
24 VDC Solenoid Control	Yes (x1)	Yes (x1)	Yes (x4)
Probe Pusher Analog Control	±0-5 VDC (x2)	±0-10 VDC (x1)	±0-10 VDC (x4)
Pusher Wheel Analog Control	±0-10 VDC (x1)	±0-10 VDC (x1)	±0-10 VDC (x4)
MRPC Brushed Motor Supply	Yes (x2)	Yes (x1)	Yes (x4)
MRPC Brushless Motor Supply	No	Yes (x1)	Yes (x4)
Auxiliary Differential Encoder Inputs	Yes (x2)	Yes (x1)	Yes (x8)
Auxiliary Limit Switch Input	No	Yes (x1)	Yes (x4)

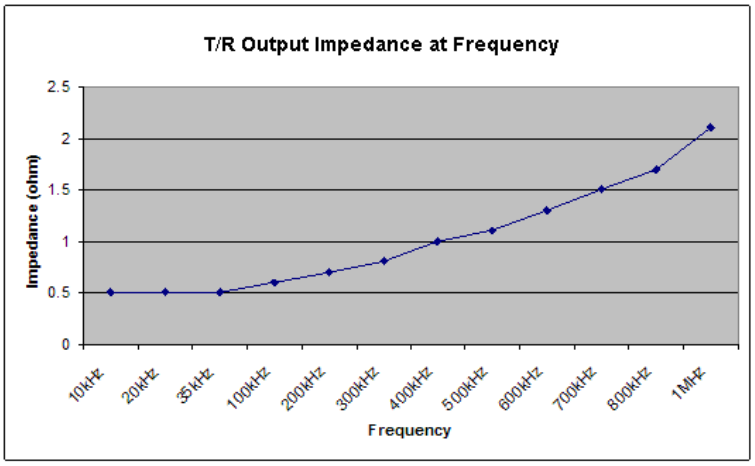
MIZ-85iD-4 A/D Conversion

Analog signals from the test coil are routed through a high frequency sampling 14-bit A/D converter before being processed in the digital circuitry. This high frequency sampling A/D converter provides multiple measurements of the analog data for each digital data slice. These multiple samples are averaged to provide a low noise signal output with a resultant dynamic range that exceeds that of the A/D converter. The digital circuitry consists of a demodulator, narrow band low pass filter, hardware null, and programmable gain before exiting as 16-bit raw digital data.

The MIZ-85iD will be based on the MIZ-80iD instrument design and will target the same performance specifications relative to instrument characterization. The table and graphs below define the preliminary performance specifications for the MIZ-85iD. The actual values may vary slightly but should remain very close to the following specifications.

Total Harmonic Distortion
The MIZ-85iD total harmonic distortion is expected to be better than -40dB in the range of 1Vpp to 20Vpp drive.

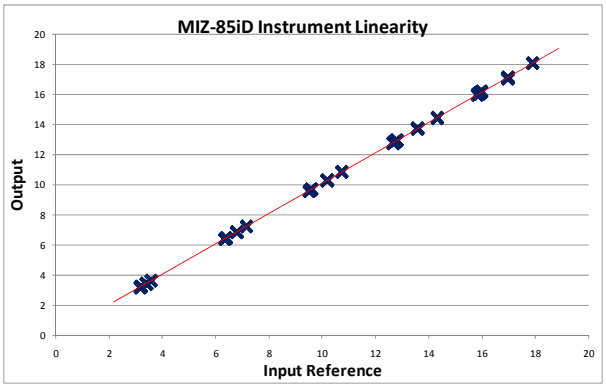


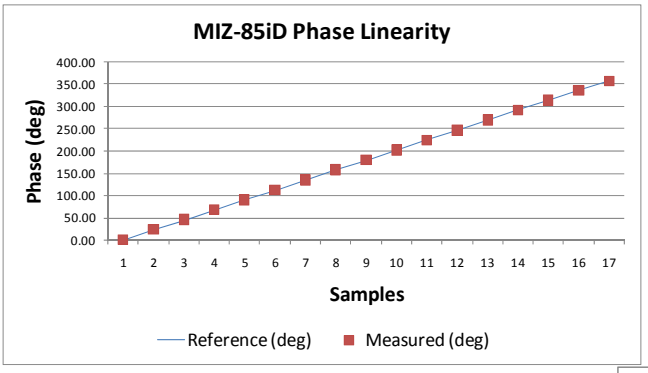


Output Impedance
The output impedance for the MIZ-85*i*D will be fixed at 100Ω in the impedance drive mode. In Transmit/Receive mode impedance will range from 0.5 ohms at 10 kHz to 2.1 ohms at 1 MHz.

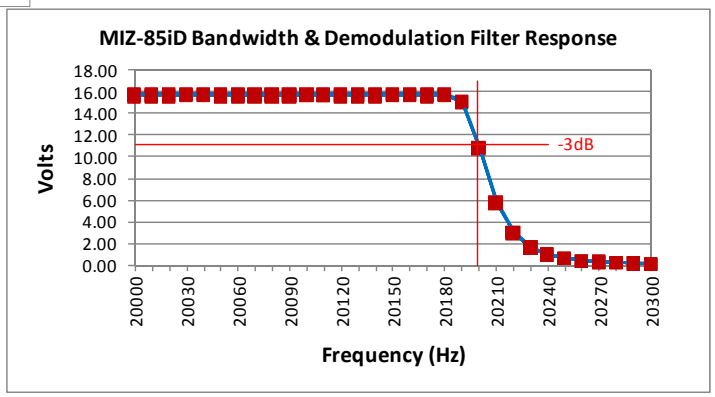
Input Impedance
Input Impedance for the MIZ-85iD will be set at 1770Ω.

Amplifier Linearity
The amplifier linearity will be better than +/- 0.205% for all inputs at an injected frequency of 200 kHz frequency across the gain range on all inputs.

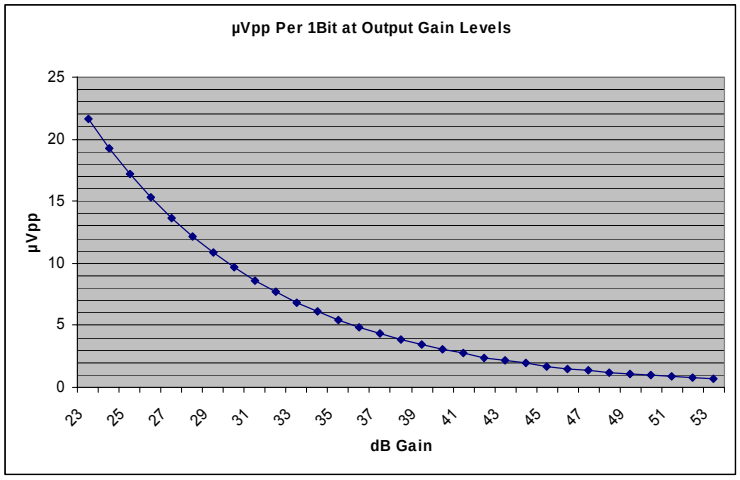




Phase Linearity
The Phase linearity for the MIZ-85iD will be ±0.58˚ to reference at maximum deviation using a best fit plot

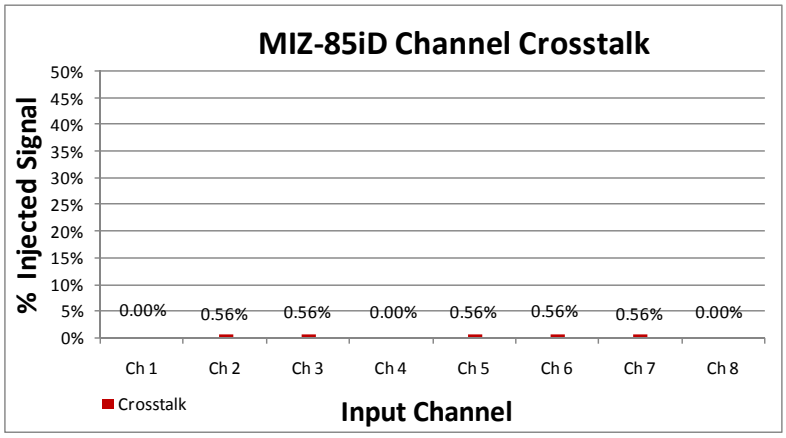


Bandwidth & Demodulation Filter Response
The MIZ-85iD will have 400 Hz bandwidth at a -3dB roll off from peak 15.81 volts, at 20.20 kHz



A/D Resolution
The A/D Resolution for the MIZ-85iD will be 21.6 µVpp per bit at 23 dB gain

A/D Dynamic Range
The MIZ-85iD will produce 16 bits (65,535 binary counts) ECT data



Channel to Channel Crosstalk
The maximum crosstalk across all channels for the MIZ-85iD will be 0.56% with respect to the input voltage