

FAST DIGITAL INTEGRATOR FDI2056

THE FIRST OFF-THE-SHELF INSTRUMENT TO QUANTIFY MAGNETIC FIELD TRANSIENTS



Global Market leader for precision magnetometers

The Fast Digital Integrator FDI2056 is the world's fastest and most sensitive voltage integrator. Plug in a sense coil, and for the first time it is possible - even easy - to measure fast, low-level magnetic field disturbances such as eddy currents in a switched magnet.



Speed: Up to 500 000 partial integrals per second



Resolution: Down to 10^{-14} Vs ($0.8 \mu\text{V} \times 12.5 \text{ ns}$)



Trigger sources: External, timer, encoder, software, multichannel



Input voltage: Up to $\pm 100 \text{ V}$



Accuracy and stability in the ppm range



Drift: 10^{-5} Full Scale / minute



Number of channels: Up to 3



Interfaces: Ethernet (IEEE 488.2 compliant) or RS-232



ISO 17025 ACCREDITED

ABOUT METROLAB

We are the **global market leader** for precision magnetometers.

Established in Switzerland in **1985**, we have won the trust of all the large physics laboratories and all leading players in Magnetic Resonance Imaging, **across the world**.

With Metrolab, you measure magnetic fields with **Swiss precision and quality**.

DIGITIZER

Gain	0.1, 0.2, 0.4, 0.5, 1.0, 2, 4, 5, 10, 20, 40, 50, 100	-
Dynamic range	$\pm 10 \div \text{Gain}$	V
Input overvoltage protection	$\pm 15 \div \text{Gain}$	V
Max common mode voltage	$12 \div \text{Gain}$	V
Max input bandwidth	250 @ Gain ≤ 10 , decreasing to 25 @ Gain 100 KhZ	
Noise floor (@ 1kHz bandwidth)		
Input impedance	100	k Ω
Gain accuracy	10	ppm
Digitizer resolution	18	bit
Max sample rate	500	kS/s
Nonlinearity: Single Tone	-105	dBc
Nonlinearity: Dual Tone	-95	dB

INTEGRATOR

Timer resolution	12,5	ns
Time base stability over temperature	± 0.075 (0 to 60°C)	ppm
Time base stability over time	± 0.7 (1 year)	ppm
Drift	10^{-5}	FS/min ⁽¹⁾
Drift variation	typical < Noise Floor $\div 5$ Vs/s	
Trigger sources	External, timer, encoder, software, multichannel -	
Trigger rate	0.02 to 500k	Hz
Encoder input:	Voltage 3.3 or 5 V	
Current protection	750 (Hold), 1500 (Trip)	mA
Signal type	Single-ended or differential -	
Index type	None, or 90° - 270° -	
Memory capacity	1M	PI ⁽²⁾

COMMON

SYSTEM

Industrial computer	Intel x86 architecture, Windows OS, 16 GB RAM, 32 GB Flash drive, Ethernet, USB 2.0 ⁽³⁾	
Number of channels	1-3	-
Ethernet Interface	VXI-11 (IEEE 488.2), SCPI compliant -	
Max transfer rate (Ethernet)	1000 ⁽³⁾	PI / s ⁽²⁾
RS-232 Interface	PDI5025 compatibility mode -	
Power requirements	100 - 240 V, 50 - 60 Hz, 80 A inrush current max -	
Operating temperature	0 - 40 °C	
Size and weight	445 x 130 x 245 mm (19"x3U), 7.2 kg max -	
Mounting	Horizontal or vertical, optional rack-mount kit -	
Recommended calibration interval	12	months

⁽¹⁾FS = Full Scale

⁽²⁾PI = Partial Integral, including timestamp

⁽³⁾Subject to change; contact Metrolab for exact specifications

Specifications are subject to change; for details and up-to-date specifications, see: www.metrolab.com/products/fast-digital-integrator-fdi2056/

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