

AH501B Picoammeter

For applications with multi-channel fast acquisition



24 bit, 40 k sample/sec, 4-channel, low noise and wide dynamic range digital picoammeter

HIGHLIGHTS

FEATURE	BENEFIT
	Especially suited for applications where multi-channel fast acquisition is a concern, i.e. feedback systems
This device performs current measurement from ± 2.5 nA (with a resolution of 298 aA) up to ± 11 mA (resolution of 1.35 nA) with sampling frequencies of up to 26 kHz (for 1 channel and a 16-bit resolution) and 6.5 kHz (4 channels, 16 bit/sample)	Extremely low current measurements Bipolar current measurements
Housed in a light and extremely compact box	Can be placed close to the signal sources in order to reduce cable lengths and minimize possible noise pick-up
Low temperature drifts, good linearity and very low noise	High-precision current measurements
Straightforward remote control via communication interface	Integration time, range, data format, type of acquisition, baud rate and several other parameters can be instantly set and checked
Modular communication capability	Allows the user to freely select the type of communication interface, allowing control of the instrument with different types of programming languages and/or operating systems
Buffered voltage monitors that are proportional to the measured input current	Allows direct analogue monitoring on the oscilloscope
High voltage (30 V) output	Detector biasing

APPLICATIONS

- Ultra-low current measurements
- Diamond detectors readout
- Beam position monitoring
- Ion chamber readout

HOW DOES IT WORK?

A compact user friendly AH501B Picoammeter covers the whole acquisition, counting and digitization chain. To a great extent this simplifies and streamlines the read out at high speed and with extremely low noise X-ray detectors.

It is composed of a particular transimpedance input stage for current sensing combined with several analogue signal conditioning and filtering stages with state-of-the-art electronics.

Acquisition of samples from the AH501B may be performed using either “continuous” or “on demand” transmission modes:

- “Continuous” mode: data are continuously sampled and transmitted, without external intervention, to the host device, allowing for real time data acquisition
- “On demand” mode: data are sampled and transmitted only on a specific remote command request.

The external TRIGGER/GATE input signal is available for the purpose of synchronizing the acquisition of the picoammeter with external events (i.e. laser triggering). Furthermore, digital samples can be transferred using either the ASCII format or the RAW binary data format for fast data transmission.

The AH501B is available in different configurations: analogue cut-off frequency (the standard value is 1 kHz but it has been successfully tested up to 10 kHz), communication interface (xPiggy) and input connectors (SMA or BNC).

The availability of trigger input and output signals on an RJ11 connector allows for the synchronization of the acquisition to external events.

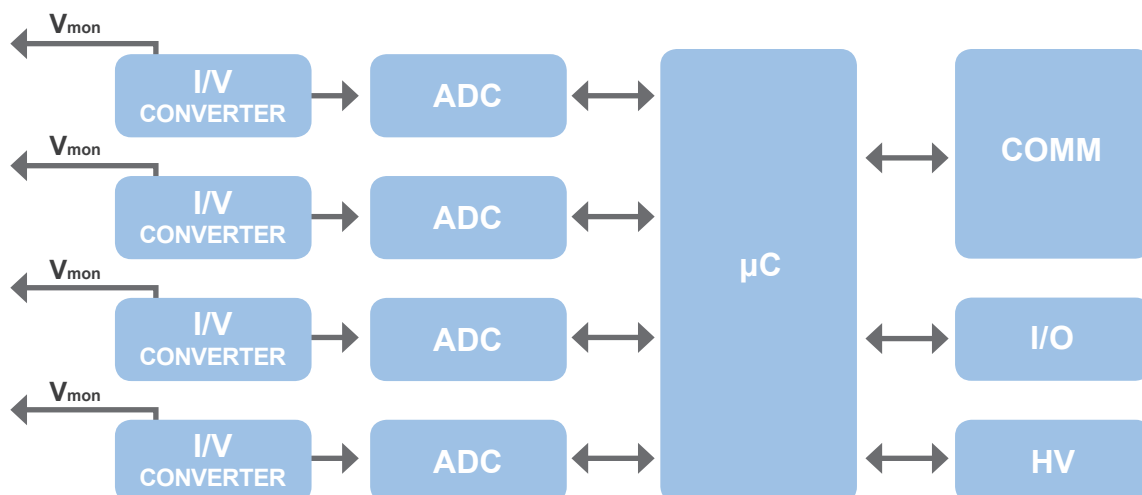
SPECIFICATIONS

Input channels	4
Input connectors type	SMA or BNC
Effective current measuring range	From ± 2.5 nA to ± 11 mA
Resolution bits	16 or 24
Data transfer	Up to 26 ksamples/sec (1 ch. 16 bit)
Analogue cut-off	Configurable (tested up to 10 kHz)
Polarity	Bipolar
Communication modules	Ethernet TCP-IP and UDP, USB 2.0, R-S232
Supply voltage	From ± 6 V to ± 9 V
Supply current	From 270 to 410 mA depending on comm. module
Dimensions	160 x 108 x 45 mm
Weight	500 g
Weight	420 g

DELIVERABLES

- AH501B Picoammeter
- Preinstalled Ethernet communication module
Other compatible modules are: RS232, RS422/485, USB and Ethernet (TCP/IP and UDP)
- Power supply integration PS-2209
- Oscilloscope LabView Software

AH501B BLOCK DIAGRAM



Contact us!

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