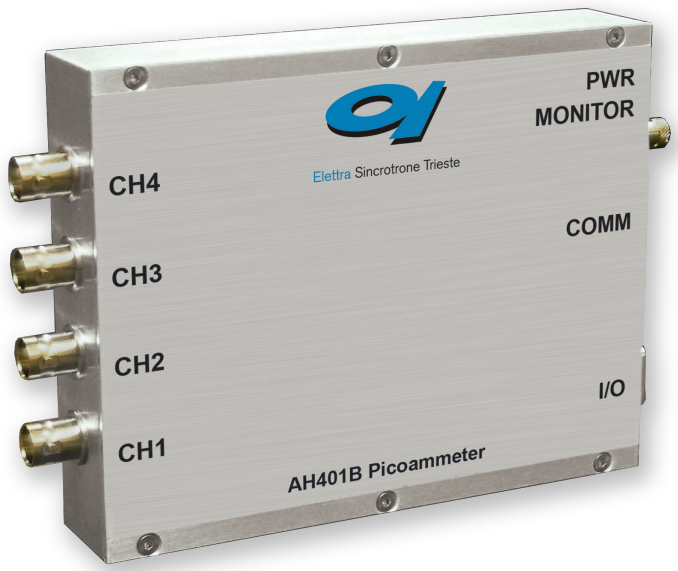
AH401B Picoammeter

For applications with multi-channel simultaneous acquisition



4-channel, 20-bit resolution, charge integration based, low noise digital picoammeter

HIGHLIGHTS

FEATURE	BENEFIT
Particularly suited for applications where multi-channel simultaneous acquisition is required, i.e. 4-quadrant photodiodes for beam displacement measurements	
Performs current measurement from 50 pA (with a resolution of 50 aA) up to 1.8 µA (resolution of 1.8 pA), with integration time ranging from 1 ms up to 1 s	Extremely low 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
Each input channel has two integrator stages	Current-to-voltage conversion can be performed continuously during the ADC conversion avoiding any dead time in the data output
Low temperature drifts, good linearity and very low noise	High-precision current measurements
Easily controlled via communication interface	Integration time, range, data format, type of acquisition, baud rate and many other parameters can be instantly set and checked
Modular communication capability	Allows the user to liberally select the type of communication interface, allowing control of the instrument with different types of programming languages and/or operating systems

APPLICATIONS

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

HOW DOES IT WORK?

The compact user-friendly AH401B 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 by a particular charge-integration input stage for low-current sensing combined with a 20-bit sigma-delta ADC converter integrating a noise reduction digital filter.

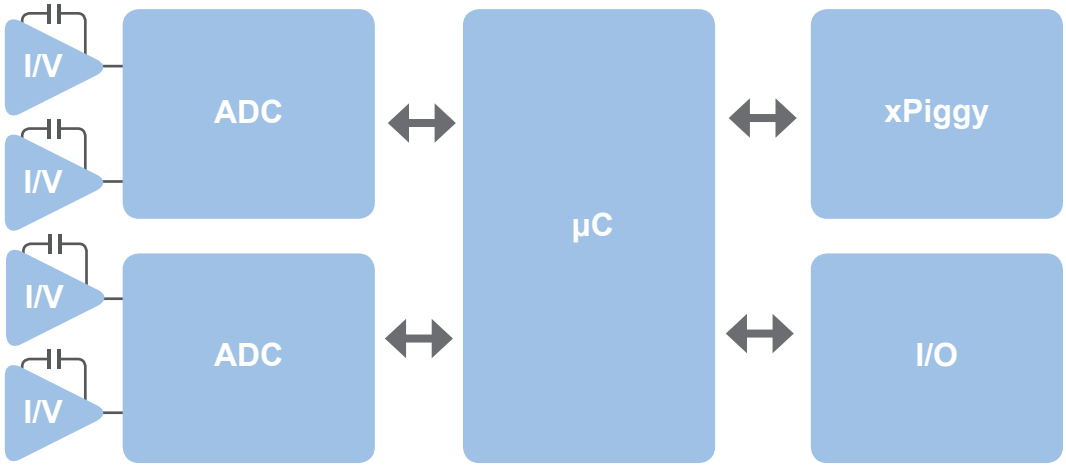
The acquisition of samples from the AH401B may be performed using either the “continuous” or “on demand” transmission modes:
• “continuous” mode: data are continuously sampled and transmitted, without external intervention, to the host device, allowing for real time data acquisition;
• “on demand” mode: data are sampled and transmitted only on a specific remote command request.

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

SPECIFICATIONS

Input channels	4
Input connectors type	BNC
Effective current measuring range	From 50 pA to 1.8 µA
Resolution	20 bit
Data transfer	Up to 1 k samples/sec
Integration time	from 1 m sec to 1 sec
Polarity	Positive
Communication modules (AH401B)	Ethernet TCP-IP/UDP, USB 2.0, RS-232/422/485
I/O Signal (AH401B)	CONV output - TRIGGER/GATE input
Supply voltage	From 9 V to 15 V
Supply current	From 100 to 350 mA depending on comm. module
Dimensions	140 x 110 x 28 mm
Weight	420 g

AH401B BLOCK DIAGRAM



DELIVERABLES

- AH401B Picoammeter
- Power supply integration PS-2209
- Preinstalled Ethernet communication module
  Other compatible modules are: RS232, RS422/485, USB and Ethernet (TCP/IP and UDP)
- Oscilloscope LabView Software

Contact us!

Industrial Liaison Office
Elettra - Sincrotrone Trieste S.C.p.A.
S.S. 14 - km. 163.5 in Area Science Park, 34149 Basovizza - Trieste, Italy
Tel. +39 040 3758303 - Fax +39 040 3758623
ilo@elettra.eu - http://ilo.elettra.eu

Elettra Sincrotrone Trieste