A5801

128 Channel ADC Board for Hostile Environments

128	0 ÷ 10 V (differential)	200 µV
No. of Channels	Input Range	Resolution

The A5801 is a 128-channel ADC board in the CAEN EASY family for operation in magnetic fields and moderate radiation environments. It provides 128 differential inputs with a 0–10 V range and 0.2 mV LSB resolution, sampling all channels at 1 kHz and returning means averaged over a programmable number of samples. Programmable peak detection operates on individual channels or 16-channel groups, reporting peak value, relative position, over-threshold sample count and a 50 Hz time reference. Remote control is provided through a branch controller managing up to 6 EASY crates.

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Overview

Product Highlights

- 128 differential ADC channels with 0–10 V input range and 0.2 mV LSB resolution
- Designed for hostile environments: operation in magnetic fields and moderate radiation, based on CAEN’s patented EASY technology
- 1 kHz sampling on all channels with mean value averaged over a programmable number of samples
- Programmable peak detection, on individual channels or on 16-channel groups
- Detailed peak data: peak value, relative position, number of over-threshold samples and 50 Hz time reference
- Remote control via R6060C Branch Controller, managing up to 6 EASY crates from the control room

Product Description

The A5801 is a 128-channel ADC board belonging to the CAEN EASY (Embedded Assembly SYstem) family, designed to operate reliably in magnetic fields and moderate radiation environments. Built on CAEN's patented rad-tolerant and magnetic-field-resistant technology, originally developed for the main LHC experiments, the A5801 can be installed directly in the hostile area, close to detectors and front-end electronics.

The board provides 128 differential input channels with a 0–10 V range and 0.2 mV resolution (LSB). All channels are sampled at 1 kHz, and the module returns the mean value averaged over a programmable number of samples. An internal 50 Hz timer, resettable via the ISEL input on the SYx527 front panel, provides a time reference for acquired data.

A built-in peak detection mode is triggered whenever the input voltage exceeds a programmable threshold. Detection can be configured on an individual channel basis or per group, where the mean value of each 16-channel group is compared with the threshold of the group's first channel. When a peak is detected, the module acquires 250 samples and reports the peak value, its relative position within the acquisition window, the number of over-threshold samples, and a time stamp referenced to the internal 50 Hz clock. In group mode, these values are returned for all 16 channels of the group.

Like all EASY boards, the A5801 is remotely controlled from the control room through the R6060C Branch Controller, which can manage up to six EASY crates and handles each board channel as one of its own. Configuration of the crate layout is performed with the dedicated CAEN software tools.

AT A GLANCE

No. of Channels	**128**
Input Range	**0 ÷ 10 V (differential)**
Resolution	**200 µV**
Width (slots)	**2**
No. max of boards per crate	**5**
Connectors	**Std. Flat**

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Technical Specifications

Inputs	Differential, DC coupling; Unused inputs require a 100 Ohm termination
Full scale range	10 V
Common mode	±2 V
LSB	
0.2 mV	
Integral non linearity	0.1% of FSR
Conversion rate	2 s (for all channels)
Interchannel isolation	60 dB

Ordering Information

ORDERING CODE	DESCRIPTION
WE5801XAAAAA	A5801 – EASY5000 128 Channel ADC Board

1. Ordering codes and descriptions are reproduced from the product record. Availability is confirmed at order entry.

Related Products

A3801 — 128 Channel ADC Board

A3801A — 128 Channel Temperature Sensor Board

A3802 — 128 Channel DAC Board

A5802 — 128 Channel DAC Board for Hostile Environments

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