

Features

- Fully computer controlled
- 14-bit fixed conversion time ADC
- DNL enhancement circuit
- Fast processing time <600ns
- Peripheral I/O control
- Suitable for SDD, NaI(Tl), HPGe and other detector technologies
- Ethernet, USB, RS232 or RS485 communications interfaces

Description

The ADC/MCA is a state-of-the-art, high performance PHA processor combined with a Multi-channel Analyzer. It is intended for use in systems, where existing shaping amplifiers require high performance analog signal processing and spectra capturing. The industry standard interface options provide users with great flexibility at low cost.

A variety of options ranging from OEM modules to ready-for-use stand-alone devices are available.

The small footprint makes this device ideal for portable applications, as well as for customer-specific installations.

The ADC/MCA is fully supported by our SpectLab software. Software specifications are available to potential developers.

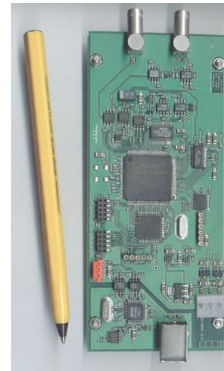
Specifications

ADC INPUT – accepts positive unipolar pulses for PHA with amplitude 0-5V (0-2.5V optional). Rise time >300ns, pulse width > 600ns, Z = 1kΩ. Coupling: BNC or Lemo 00 series connector.

PUR/TRIGGERR – TTL/LVTTL input level. Coupling: BNC or Lemo 00 series connector.

GATE – TTL/LVTTL input level. Enable / disable module operation. Forced low by 10kΩ pull-down resistor. Polarity selected through software. Coupling: 2mm pitch plug.

D_T – TTL/LVTTL input level. External dead time signal input. Active high. Forced to inactive state by 10kΩ pull-down resistor. Coupling: 2mm pitch plug.



SCK, SDI, SDO – TTL/LVTTL 3-wire serial interface clock and data. Used to control user-specific features of front-end electronics. Coupling: 2mm pitch plug.

I/O 0..7 – TTL/LVTTL user-specific I/O signals. Coupling: 2mm pitch plug.

+3.3v, GND – power output for external logic. 100mA max. Coupling: 2mm pitch plug.

Software controls

ADC LLD – 0 to 100% of full scale. 4096 levels.

ADC ULD – 0 to 100% of full scale. 4096 levels.

ADC D_T – 0 to 100% of full scale. 4096 levels.

ADC conversion range – 512, 1024, 2048, 4096, 8192 channels.

Real time preset – up to 2³² sec.

Live time preset – up to 2³² sec.

Communication

USB – Standard USB port using type B connector.

ETHERNET – Optional Ethernet port using TCP/IP, replaces USB interface.

RS485/RS232 – Optional.

Performance

INTEGRAL NONLINEARITY – < 0.1%

DIFFERENTIAL NONLINEARITY – < 0.5%

ADC+MCA DEAD TIME – 600ns after peaking time

Power consumption

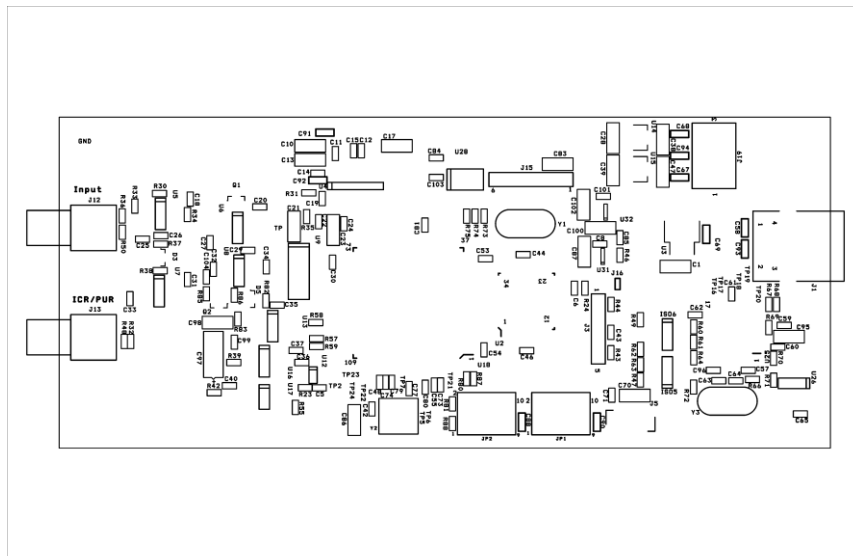
When USB powered only: + 5V, 380mA.

When dual powered: + 12V, 180mA, +5V, 70mA from USB.

Dimensions

140 x 60 x 20 mm (PCB module)

150 x 70 x 30 mm (with metal housing)



JP1 pinout

PIN	Name	Comment
1	GND	Ground connection
2	SCK	3-wire serial clock, LVTTTL
3	FRAME	LVTTTL
4	SDO	3-wire serial data out, LVTTTL
5	IO4	LVTTTL
6	IO5	LVTTTL
7	IO6	LVTTTL
8	IO7	LVTTTL
9	VCC	+3.3V
10	GND	Ground connection

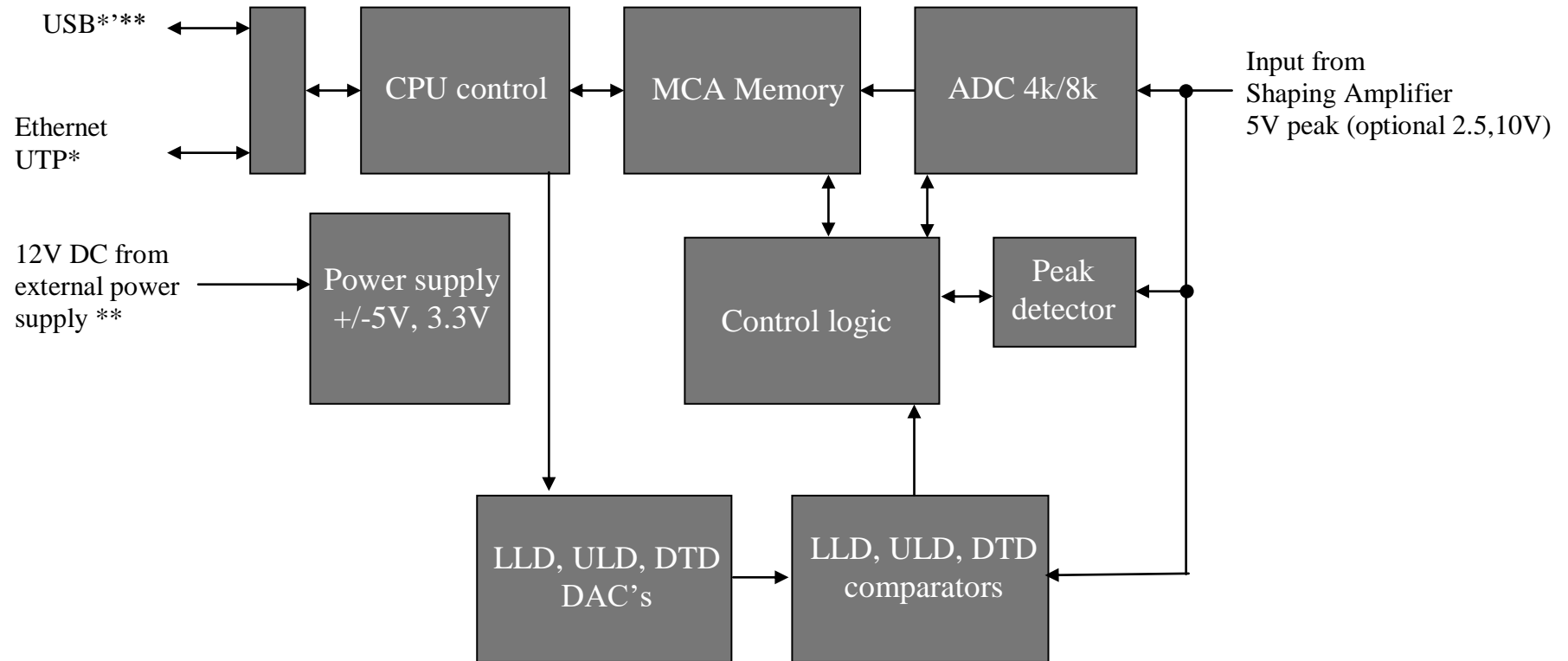
JP2 pinout

PIN	Name	Comment
1	GND	Ground connection
2	D_T	LVTTTL
3	GATE	LVTTTL
4	IO0	LVTTTL
5	IO1	LVTTTL
6	IO2	LVTTTL
7	IO3	LVTTTL
8	SDI	3-wire serial data in, LVTTTL
9	VCC	+3.3V
10	GND	Ground connection

J19 pinout

PIN	Name	Comment
1 (central)	+12V	+12V power supply
2 (shell)	GND	Ground connection

Block Diagram



* Depending on interface option
** USB power supply possible