

## ARI-das1

### USB 2.0 PC-based Data Acquisition System

#### Features

- Hi-speed USB 2.0
- 18 bit SAR ADC and 18 bit multiplying DAC
- 4-ch analog inputs, 4-ch analog output
- software selectable span
- up to 150mA on analog output
- ~ 95GΩ DC analog input impedance

#### Applications

- Test and Measurement
- Laboratories
- Data Logger
- I-V tracer
- Educational
- Industrial Control

#### Software Utility

- Supported operating system: Linux
- Driver: GCC[amd64] -C/C++ API as shared library
- PC connection: USB 2.0

#### General Specifications

- I/O Connectors: eight BNC connectors, 50Ω
- Operating temperature: 0 to 50°C
- Storage temperature: -20 to 70°C
- Power requirements: ±18V @ 800 mA  
Absolute maximum rating: ±19V. Values beyond this limit may cause permanent damage to the device
- Dimensions: 234 mm (W) x 300 mm (D) x 48 mm (H)
- Weight: 2.5 kg

#### Product Illustration



General



Front



Rear

#### Standard Accessories

- Two power supply cable: circular-connector to 4mm plugs;
- USB 2.0 cable: type-A to miniB.



**Analog Input**

Channels	1 to 4 (simultaneous sampling), software selectable
ADC Resolution	18 bit
ADC type	SAR
Sampling rate	PC related, < 166.7 Hz
Input range	±10.24V, ±10V, 0 to 10.24V, 0 to 10 V, ±5.12V, ±5V, 0 to 5.12V or ±6.25V, ±6.104V, 0 to 6.25V, 0 to 6.104V, ±3.125V, ±3.052V, 0 to 3.125V
Input configuration	differential
DC input impedance	~ 95 GΩ (between positive input and negative input)
Input coupling	Low pass filter at 175kHz
Over voltage protection	±14.1 V @ 50mA
Input common mode range	±10.24V
Data transfer	PC programmed

**ADC Converter characteristics**

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS
INL	Integral Linearity Error	-6	±1.5	6	LSB
DNL	Differential Linearity Error	-0.9	±0.2	0.9	LSB
ZSE	Zero-Scale Error	-900	±80	900	µV
	Zero-Scale Error Drift		±4		µV/°C
FSE	Full-Scale Error	-0.1	±0.025	0.1	%FS
	Full-Scale Error Drift		±2.5		ppm/°C
σ	Precision( Zero-scale at ±10.24V)		1.35		LSB
σ	Precision( Near Full-scale at ±10.24V)		1.4		LSB

**Analog Output**

Channels	1 to 4 (simultaneous sampling), software and jumper selectable
DAC Resolution	18 bit
DAC type	Multiplying
Sampling rate	PC related, < 166.7 Hz
Output range	0 to 5V, 0 to 10V, -5V to 5V, -10V to 10V, -2.5V to 2.5V, -2.5V to 7.5V
Output current max	± 150 mA
Output configuration	Single ended
Output protection	Buffered
Data transfer	PC programmed

**DAC Converter characteristics (unbuffered)**

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS
DNL	Differential Nonlinearity		±0.2	±1	LSB
INL	Integral Nonlinearity		±0.5	±1	LSB
GE	Gain Error		±6	±32	LSB
	Gain Error Temperature Coefficient		±0.25		ppm/°C
BZE	Bipolar Zero Error		±1	±24	LSB
	Bipolar Zero Temperature Coefficient		±0.2		ppm/°C
	Unipolar Zero-Scale Error		±0.03	±3.2	LSB
PSR	Power supply Rejection		±0.1	±0.8	LSB/V

Usage Example:

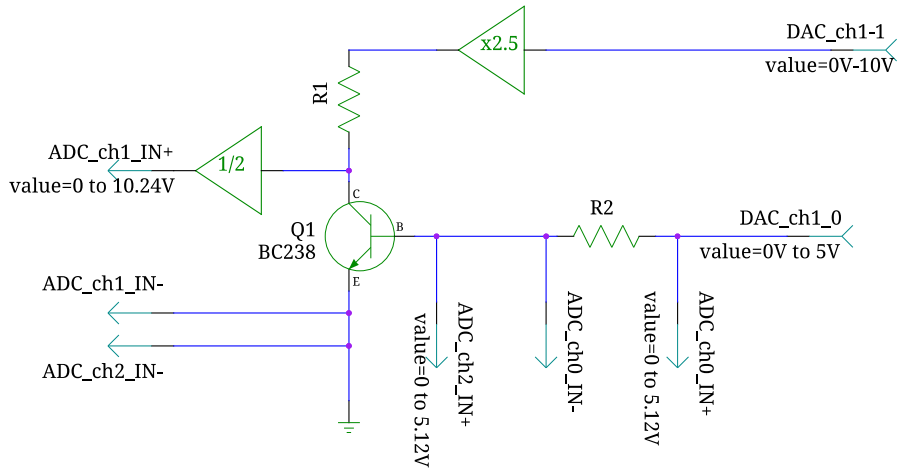


Fig. 11: Circuit for transistor parameters measure.

