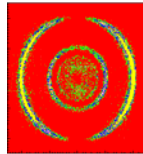# The USB-IO1 10V DA/AD converter

RoentDek
Handels GmbH

Supersonic Gas Jets
Detection Techniques
Data Acquisition Systems
Multifragment Imaging Systems

The **RoentDek** **USB-IO1** is a unit for digitally measuring/setting analogue voltages (0-10V) and digital switch states (high/low). It is controlled via USB by a PC. Simple C++ example code, a LabView example and direct integration into the data acquisition software *CoboldPC* are provided.. The **USB-IO1** can for example be used to control **RoentDek** high voltage power supplies (**HV2/4** and **BIASET3** and higher, for this a separate GUI-control program is provided). Among other designated applications is vacuum pressure logging with certain gauges (as obtainable from **RoentDek**).

Generally, experimental parameters (e.g. the beam current in storage rings or accelerator devices) can be logged/controlled in correlation with acquired data.
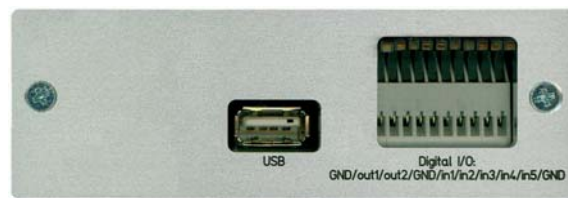
Figure: Front and rear panels of the USB-IO1 device with 2 LEMO analogue in-/output sockets, optional sub-D adapter (left picture), 5 digital input / 2 digital-output connections and the USB-port for the PC-connection.

Summary of features:
• 2 analogue outputs and 2 analogue inputs (0-10V, typ. 2mA, max. 5mA)
• resolution: input 14bits, output 16bits
• Input non-linearity: $\pm$ 3mV (max.) at 0 .. 10V (equivalent to 0.03%)
• Output non-linearity: $\pm$ 6mV (max.) at 0 .. 10V (equivalent to 0.06%)
• Zero offset for output: 30mV (max.)
• Zero offset for input: 3mV (max.)
• Input resistance of analogue inputs: 100kOhm

• 5 digital in (probes connection to ground potential, max. 5V, 1mA)
• 2 digital out (open collector: act like 2 controllable switches, max. 24V, 2mA)
• Temperature range: 0…40 degrees Celsius.