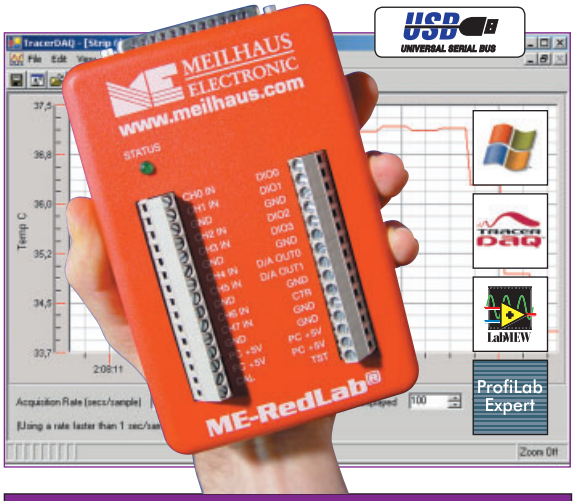
Lowcost, complete 12 bit USB mini DAQ lab

ME-RedLab 1008



The ME-RedLab 1008 is a complete USB miniature DAQ lab. It is the ideal alternative solution for simple standard DAQ and control applications at a low price, for example in education or for experimental measurement setups.

- 8 single-ended or 4 **differential** analog inputs.
- **12 bit A/D conversion** up to 1.2 kS/s, 8 kS/s up to 4000 values.
- Differential input range: ±20 V, ±10 V, ±5 V, ±4 V, ±2.5 V, ±2.0 V, ±1.25 V, ±1.0 V, programmable.
- **2 analog outputs**, 10 bit.
- 32 bit **event counter**.
- **24 digital I/O channels**, wired to the 37-pin D-sub connector. Expandable with **relays or opto-isolation** with the ME-UB series.
- 4 additional, discrete **digital I/O channels** with screw terminals.
- USB 1.1 compatible.
- Size (mm): 157 (L) x 102 (W) x 40 (H).

Software

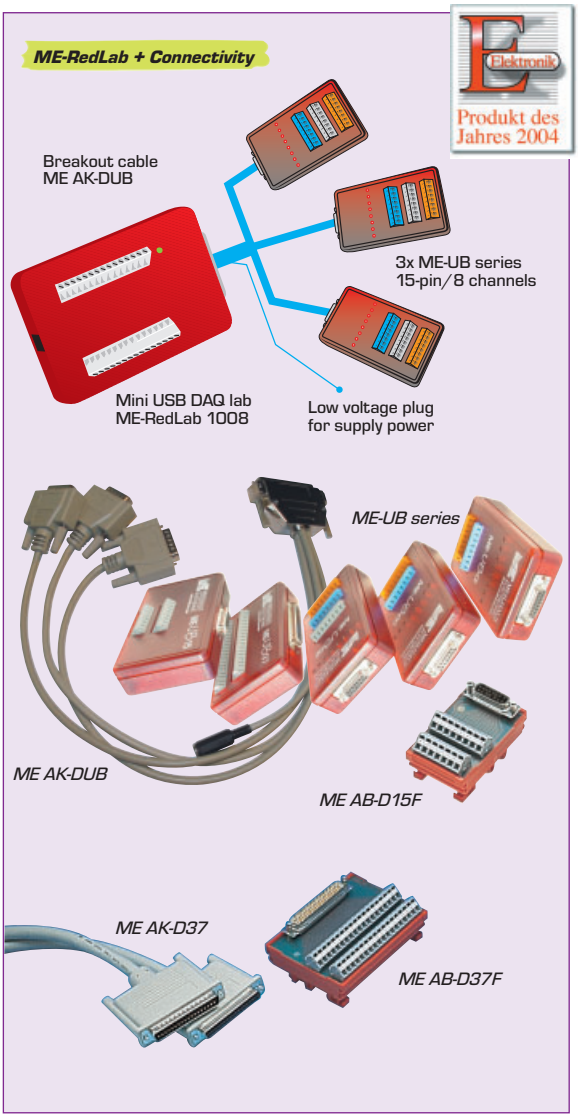
Included: TracerDAQ, Universal Library, Drivers for LabVIEW and SoftWIRE.

» Ordering codes — **ME-RedLab 1008**

Model	Description
ME-RedLab 1008	USB mini DAQ lab. Included: Multi I/O DAQ lab, USB cable, screw driver and software
ME-RedPack 1008	ME-RedLab 1008 bundled with software ProfiLab Expert

» Accessory

Model	Decription
ME AK-D37	2 m **cable**. 37-pin D-sub male-female, 1:1 contacted. Connects ME-RedLab 1008 and ME AB-D37F or ME-UB37.
ME AB-D37F	**Terminal block**. 37-pin D-sub female and spring teminals.
ME-UB37	**Termnal box**. 37-pin D-sub female and spring terminals. Can be plugged directly on the ME-RedLab connector.
ME AK-DUB	**Cable.** Connects 3 ME-UB boxes to a ME-RedLab 1008: 37-pin D-sub female and 3x 15-pin D-sub male + low voltage plug for external power supply for the ME-UB boxes.
ME-UB Serie	**External expansions boxes**, with relays or opto-isolation. For the ME-RedLab 1008 digital ports. Use in any combination: ME-UB15 (terminal), ME-UBRE (relays), ME-UBOI (opto inputs), ME-UBOO (opto outputs).
ME AB-D15F	**Terminal block**. 15-pin D-sub female and spring terminals. DIN rail moutbale. Can be used instead of ME-UB15. For digital ports.
ProfiLab-Expert	Graphic software for ME-RedLab 1008, also available as a bundle (ME-RedPack 1008)



Specifications

Analog inputs		
	Channels	8, individually configurated as 8 single-ended or 4 differential channels. Connectors: Screw terminals
	Input ranges	±20 V, ±10 V, ±5 V, ±4 V, ±2.5 V, ±2.0 V, ±1.25 V, ±1.0 V
	Rate	Max. 8 kS/s
	Resolution	12 bit differential, 11 bit single-ended
	Trigger	Source programmable external DIO0...DIO3
Analog outputs		
	Channels	2 voltage outputs. Connectors: Screw terminals
	Output range	0...5 V
	Rate	Software controlled 100 S/s (single channel), 50 S/s (2 channel)
	Resolution	10 bit
Digital I/O		
	Diskrete I/Os	4 independent, programmable as input or outputs (screw terminals), 5 V/TTL. Input, high: 3.0 V min., 15.0 V absolute max.; input, low: 0.8 V max.; output, no load: V_s - 0.4 V min., V_s typ; output, 1 mA load: V_s - 1.5 V. Protection: 1.5 kΩ serial resistor
	Port I/Os	24 I/O channels, grouped in 4x 8 bit ports, each port programmable as input or output (type 82C55). All pins with pull-up to V_s over 47 kΩ. Input, high: 2.0 V min., 5.5 V absolute max.; input, low: 0.8 V max., -0.5 V absolute min.; output high: (I_{OH}=-2.5 mA) 3.0 V min.
Counter		
	Channels	1 channel, event counter. Connector: Screw terminals
	Resolution	32 bit
	Frequency	Input frequency max. 1 MHz
	Pulswidth	High/low 500 ns min.
	Voltage	Input, low: 0 V min., 1.0 V max.; input, high: 4.0 V min., 15.0 V max.
General data		
	Size (mm)	~157 (L) x 102 (W) x 40 (H)
	Power supply	Via USB
	Interface	USB 1.1 low-speed; max. 3 m USB cable
	Connectors	Screw terminals, 37-pin D-sub male. USB: Type B
	Environmental	Storage and operating temperature -40...85°C, 0...90% rel. humidity, non-condensing

Versatile USB temperature DAQ labs

ME-RedLab TC and TEMP

Also bundled with software ProfiLab-Expert: ME-RedPack!

Now you can connect temperature sensors to your PC via USB in a very simple way with the ME-RedLab TC and TEMP! The lowcost model TC supports thermocouples only, whereas you can also connect RTDs, thermistors or semiconductor temperature sensors to the TEMP model. The sensor type is software selectable. The models CF have additional data logger functionality with CompactFlash.

- **8 independent, differential input channels for temperature measurement.**
- **ME-RedLab TC and ME-RedLab TC CF (5201)**
  Support **thermocouples** of type J, K, T, E, R, S, B, N. **Linearisation, cold junction compensation** as well as conversion to °C or °F in the module
- **ME-RedLab TEMP and ME-RedLab TEMP CF (5203)**
  Support 4 types of sensors: **Thermocouples** of type J, K, T, E, R, S, B, N, **RTDs** (2-, 3-, 4-wire, eg. four 3-wire RTDs), **Thermistors, semiconductor temperature sensors**. The 8 channels can operate with a mix of the supported sensor types without additional signal conditioning.
- **High precision 24 bit A/D converter**.
- Built-in **ambient temperature sensor** (for CJC/cold junction compensation).
- 8 additional **digital I/O lines**.
- Models CF: **Data logger function incl. 64 MB CompactFlash.** Configuration and "download" of data to the PC via USB. Stand-alone operation (battery buffered), independent from PC.
- Plug'n'Play **USB 2.0** (full-speed, USB cable incl.). Supply power via USB.

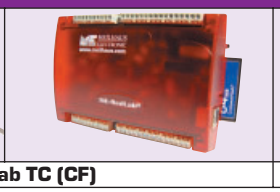
Software

Included: TracerDAQ (strip chart recorder and data logger). SoftWIRE (graphic programming environment for Visual Studio .NET). Universal Library (support for programming languages under Windows). InstaCAL Utility (for simple installation, calibration and test). LabVIEW drivers and VIs.

» Ordering codes and functions — ME-RedLab TC and TEMP

Model	Description	Supported sensors	Included
ME-RedLab TC	Temperature DAQ box	Thermo couples J, K, T, E, R, S, B, N	USB DAQ box, USB cable (type A-B), screw driver, CD with software/PDF manuals. Logger models "CF": 64 MB CompactFlash memory card
ME-RedLab TC CF (5201)	Temperature DAQ logger		
ME-RedLab TEMP	Temperature DAQ box	Thermo couples J, K, T, E, R, S, B, N, RTDs (2-, 3-, 4-wire), Thermistors, semiconductor temp. sensors	
ME-RedLab TEMP CF (5203)	Temperature DAQ logger		
ME-RedPack xxxx	ME-RedLab xxxx USB module bundled with software ProfiLab-Expert		

Specifications

Analog inputs		**ME-RedLab TC (CF)**	**ME-RedLab TEMP (CF)**
	Number	8 differential. Built-in environmental temperature sensor (CJC). Modul warm up time min. 30 min	
	Input types and specs	Thermocouples K, T, E, R, S ,B, N; ±0.080 V[1]	
		-	RTDs (100 Ω PT); 0...0.5 V[2].
		-	Thermistors (standard 2,252...30,000 Ω); 0...2 V[2].
		-	Semicon. sensors (TMP36 and aequivalent); 0...2.5 V[1]
	A/D converter	Four dual 24 bit sigma-delta converters	
	Isolation	Min. 500 VDC between DAQ connectors and USB interface	
	Input data	Voltage max. ±25 V power-on, ±40 V power-off. Impedance min. 5 GΩ. Input coupling: DC	
	Open thermocouple detect	Automatically enabled when the channel pair is configured for TC sensor. The max. open detection time is 3 s.	
	Max. throughput rate	Depending on number of channels in use between 2 S/s (1 channel) to 2 S/s per channel, total 16 S/s (8 channels). The analog inputs are configured to run continuously. Each channel is sampled twice per second	
Digital I/O		**ME-RedLab TC (CF)**	**ME-RedLab TEMP (CF)**
	Number	8 discrete, each line programmable as input or output	
	Types and specs	CMOS. Input high: 2.0 V min./5.5 V abs. max. Input low: 0.8 V max./-0.5 V abs. min. Output high (I_{OL}=2.5 mA):0.7 V max. output low (I_{OH}=-2.5 mA): 3.8 V min.	
Data logger		**ME-RedLab TC CF**	**ME-RedLab TEMP CF**
	Models CF	Configuration, data transfer to PC via USB. Stand-alone operation, independent form PC: Logging to CompactFlash	
General data		**ME-RedLab TC (CF)**	**ME-RedLab TEMP (CF)**
	Size (mm)	~127 (L) x 88.9 (W) x 35.56 (H)	
	Power supply	From PC via USB, max. 100 mA; Models "CF": Additional battery buffer	
	Interface	USB 2.0 full-speed, compatible with USB 1.1, 2.0	
	Conectors	I/O: 2x 10 and 2x 16 screw terminals. USB: Type B. Cable to type A incl. Models "CF": CompactFlash slot	
	Environmental	Operating temperature 0...70°C, -40...85°C storage temperature, 0...90% rel. humidity non-condensing	

1) 8 differential channels

2) 2-wire with one sensor: 4 differential channels. 2-wire with two sensors: 8 differential channels. 3-wire with one sensor per pair of channels: 4 differential channels. 4-wire: 8 differential channels.