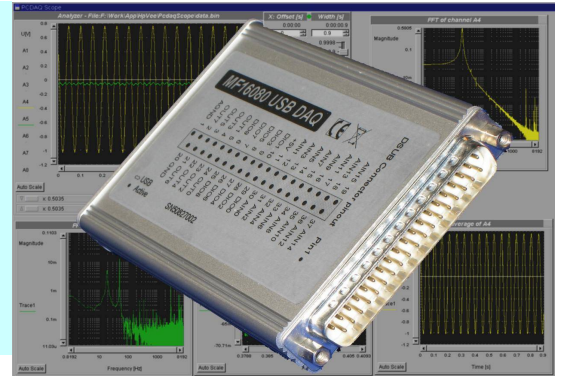


# MF16080 USB data acquisition card series

- Designed for Windows® 2000 and Windows® XP operating systems.
- Programming language support: Microsoft® Visual C++® / Visual Basic®, Microsoft® .NET C#, Borland Delphi, TransEra HTBasic, National Instruments LabVIEW, Agilent VEE
- Ready to run data logger / strip chart recorder / oscilloscope application included
- 16 analog inputs, 12 bit resolution, 100kHz sum sample rate
- 8 analog output channels using 8 DACs with 12 bit resolution
- 10 digital I/O ports
- Portable: USB bus powered, small size
- Durable: Lightweight aluminum enclosure



## Specification

### Analog Inputs

<b>Inputs:</b>	- 16 single ended channels or - 8 differential channels - Software-selectable
<b>Coupling:</b>	DC
<b>Resolution:</b>	12 bits / 4096 steps
<b>Input ranges:</b>	Ranges are software-selectable: MF16081: +10V or +/-5V MF16082: +24V or +/-12V MF16084: +4.096V or +/-2.048V (+/- ranges require differential input setting)
<b>Sample modes:</b>	Continuous Trigger Snapshot (<720 values, no trigger)
<b>Sample rate:</b>	Snapshot: 100kHz (single input) Single channel: 1Hz-30kHz Multi-channel: 1Hz-100kHz sum sample rate (16 channels, 6.25kHz/channel)
<b>Channel capture delay:</b>	10µs +/-1µs at all sample rates
<b>DNL:</b>	1.0 LSB maximum error
<b>INL:</b>	0.5 LSB typ.
<b>T/H acquisition time:</b>	600ns
<b>Gain accuracy:</b>	MF16084: 0.25% at +/-8ppm/K drift All other: 1% at +/-50ppm/K drift
<b>Reference voltage drift:</b>	< 30 ppm/K
<b>Input impedance:</b>	MF16081: 24pF    25kΩ MF16082: 24pF    40kΩ MF16084: 24pF    100kΩ
<b>Trigger:</b>	Trigger source is one of the input channels.
<b>Trigger events:</b>	- Rising (positive) edge - Falling (negative) edge. - Above threshold level. - Below threshold level.
<b>Protection:</b>	All analog inputs are protected against ESD discharge.

### Analog Outputs

<b>Outputs and Ranges:</b>	8 x 12 bit DAC with 0..+4.096V voltage outputs (1mV resolution)
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<b>Coupling:</b>	DC
<b>Sample rate:</b>	Asynchronous "port like" DAC outputs, low speed only.
<b>Accuracy:</b>	± 0.2%
<b>DNL:</b>	+/-0.5 LSB. typ.
<b>Output impedance:</b>	0.5 Ohm typ.
<b>Output current:</b>	<=2mA each output
<b>Settling time:</b>	2us to 1 LSB, at 30pF load

### Digital Port

<b>Input/Output:</b>	10 bits, direction can be set for each bit
<b>Input levels:</b>	Low: <=0.8V, High: >=2.4V High impedance inputs, I=0.01µA typ. Input capacitance 15pF typ.
<b>Output levels:</b>	Low: 0.4V @ Isink= 2mA High: >4.0V @ Isource<= 2mA (6 ports), >3.7V @ Isource<= 15mA (4 ports, connection to 5V reed relays possible)

### General

<b>Compliance:</b>	USB 2.0 full speed interface (12MBit) compatible to USB1.1
<b>Environment:</b>	Operating temperature 0...50°C Humidity < 80 % non-condensing
<b>Dimensions:</b>	105mm x 72mm x 16mm (LxBxH) including DSUB connector
<b>Mass:</b>	105g
<b>Case material:</b>	2mm Aluminum
<b>Connectors &amp; lights:</b>	37 pole male DSUB connector for signals Mini USB-B device type connector LED for activity control
<b>Power consumption:</b>	0.125W (5V/25mA) typ.
<b>Sensor power supply:</b>	+5V/50mA max.

### Accessories

- Screw clamp terminal (5mm pitch) for DIN rail mounting (Order no: MF16080-SCT)
- Mini spring clamp (2.5mm pitch) terminal, to be plugged directly into card's DSUB connector (Order no: MF16080-MCT)