



## Quad MF isoPod™ (Model EPU452)



- Up to four sensor inputs
- Each channel can be set for pH, conductivity, dO<sub>2</sub> and more
- USB/virtual serial port (RS232) connectivity
- Electrical isolation minimizes noise and crosstalk
- Plug and play with Pod-Vu software

### Description

The Quad MF isoPod has four channels, each of which can be software configured as a:

- high impedance millivolt monitor
- pH & ion selective electrode meter
- dO<sub>2</sub> monitor, for Clark-style polarographic oxygen electrodes.
- biosensor monitor, for amperometric sensors, including enzymic peroxide sensors.
- conductivity monitor for two-electrode conductivity probes;
- temperature monitor using either a 30 kohm thermistor, or Pt 1000 ohm RTD, probes.

Electrical isolation between channels and ground ensures minimal signal noise and crosstalk.

### Channel Configuration

The MF Configurator software (supplied as standard) sets the function of each channel for a particular sensor (pH, Conductivity, dO<sub>2</sub>, thermistor, etc) and can calibrate the signal. Once configured, the MF isoPod will remember its channel functions, even after being turned off, until the Configurator software is used again.

### Pod-Vu Software

eDAQ Pod-Vu software (see separate brochure) is also included and is designed for plug and play compatibility with the Quad MF isoPod. Pod-Vu can be used to calibrate sensors, log data, and graphically display the signals in real time. Pod-Vu is designed for those who want to collect data but who do not want to do any programming.

### Virtual Serial Port

The Quad MF isoPod unit connects to a Windows XP or later computer with a standard USB port. A virtual serial port is automatically created.

You can write your own recording, or process control, software using the 'virtual serial protocol'. This protocol is a set of commands embedded in the isoPod, and can be accessed by:

- writing your own software, eg in LabView, C#, Visual Basic, etc.
- using terminal emulation software compatible with serial (COM) ports, eg TeraTerm ([www.logmett.com](http://www.logmett.com)), or HyperTerminal ([www.hilgraeve.com](http://www.hilgraeve.com)).
- other serial (COM) port compatible software that can log responses into a file or Excel document, eg WinWedge ([www.taltech.com](http://www.taltech.com)), or HyperAccess ([www.hilgraeve.com](http://www.hilgraeve.com)).

Using these methods you can send commands and receive responses from the isoPod, graph the signals in real time, and/or implement process control regimens. The Quad MF isoPod is compatible with any operating system that supports a 'USB CDC serial port' which is defined as part of the USB standard. This includes Windows, Mac, and Linux operating systems.

### Versatility = Economy

By allowing you to reconfigure channel functions, the MF Quad isoPod always adapts to your monitoring needs saving the cost of buying separate meters for each sensor type.



## Specifications

Channels:	4
Input connectors:	Female BNC, Teflon insulated
Communications connector:	USB Type B socket. Cable supplied.
COM port settings:	115200 baud, 8 bits, 1 stopbit, no parity, flow control NONE
Speed:*	1 /s, 1, 2, 5, 10, 15, 30 /min, 10, 15, 30 /hr
Sample averaging periods:	0.1, 0.2, 0.3 ... 1.0 s at speeds of 1 /s or slower
Isolation:	> 1500 V, independent on each channel, CAT 1
DC drift:	5 $\mu$ V/°C
DC Offset error:	< $\pm$ 0.1% full scale
Amplifier noise:	< $\pm$ 0.005% full scale
ADC:	25 kHz sampling at 24 bits resolution per channel
Dimensions (l x w x h):	170 x 130 x 35 mm, 6.7 x 5.1 x 1.4 in
Weight:	~800 g, 1 lb 12 oz
Power:	500 mA @ 5 V DC. Mains adaptor supplied.
Operating conditions:	0 – 40 °C, 0 – 90% humidity (non condensing)

### mV

Input impedance:	>10 <sup>12</sup> ohm
Input ranges:	$\pm$ 2000 mV $\pm$ 200 mV

### pH & ISE

Input impedance:	>10 <sup>12</sup> ohm
Input ranges:	$\pm$ 2000 mV (less than pH 0 to more than pH 14) $\pm$ 200 mV (pH 3.6 – 10.4)
Calibration:	Single or double point*

### Conductivity

Input ranges:	0.002, 0.02, 0.2, 2, 20, 200 mS
Excitation:	30 – 200 mV p-p sine wave, 2 – 1000 Hz
Calibration:	Single point. Conductivity or TDS

### dO<sub>2</sub>

Input ranges:	$\pm$ 20, $\pm$ 200 nA, $\pm$ 2, $\pm$ 20, $\pm$ 200 $\mu$ A, $\pm$ 2 mA
Polarization:	0, then –500 to –1000 mV in 50 mV steps*
Zero offset range:	$\pm$ 200 $\mu$ A
Typical RMS noise:	1 pA when sampling at 1/s
Calibration:	2 point*

### Biosensor

Input ranges:	$\pm$ 20, $\pm$ 200 nA, $\pm$ 2, $\pm$ 20, $\pm$ 200 $\mu$ A, $\pm$ 2 mA
Polarization range:	$\pm$ 2000 mV in millivolt steps
Zero offset range:	$\pm$ 200 $\mu$ A
Typical RMS noise:	1 pA when sampling at 1/s
Calibration:	2 point*

### RTD

Temperature range:	–25 to +500°C
Probe type:	1000 ohm platinum RTD
Probe error:	$\pm$ [0.10 + n/600] °C at n°C with ET021 RTD probe
Excitation:	190 mV p-p sine wave at 200 Hz
Noise:	< 0.001 °C at 1/s

### Thermistor

Temperature range:	–25 to +125°C
Probe type:	30 kohm thermistor
Excitation:	190 mV p-p sine wave at 200 Hz
Noise:	< 0.001 °C at 1/s

## Pod-Vu software

Operating system:	Windows XP, or later. Windows 7 or later preferred
Communication:	USB virtual serial port
Channels:	1 – 8
Saved data format:	Pod-Vu native format, or space delimited ASCII text (suitable for Excel, etc)
Data display:	Tabular and graphic
Graphic Y-axis scaling:	Full scale, autoscaling, user selected limits
Channel calibration:	As defined by isoPod firmware
Data acquisition rates:	1/s (default) 30, 15, 10, 5, 2, 1/min 30, 15, 10/h

\* Specifications when used with Pod-Vu software. User-written software may take advantage of other features of the serial command protocol, embedded in the internal memory of the isoPod.