Solar / battery powered water quality measurement …

Remote monitoring of CSO & SuDS

PPM has considerable experience providing bespoke solar & battery powered water quality measurement systems, using robust sensor technology. Measurement data is transmitted, to a secure website allowing for secure data retrieval and graphical representation. The measurement parameter may be selected to suit application. Turbidity is commonly used to monitor water quality associated with Sustainable Drainage Systems (SuDS) and optical UVT / derived TOC measurement is beneficial for Combined Sewer Overflows (CSO) applications.

Solar Powered System (sized to suit application)

Instrument: IQ Sensor Net / TrioS

Description: A GRP kiosk houses the water quality instrument controllers, GSM communications package, solar charging system & battery packs. Concrete plinth required to secure kiosk & solar charging panels. Water quality sensors externally mounted using interconnecting cables, length to suit application.

Parameter selection depends upon specific requirements. GSM data transmission to secure website for data representation & retrieval.

Battery Powered IQ System (short term deployment)

Instrument: IQ Sensor Net

Description: The digital controller can accept multiple sensors using a common waterproof connector to allow for simple field exchange, to suit the monitoring application. The

integral data logger will collect data, provide local trending & transfer to pen drive via USB. Option for GSM data transmission. Field replaceable lithium-ion battery packs (external or integrated versions available).

Robust Digital Sensors (individual sensor options)

Instrument: IQ Sensor Net/Trios

Description: A wide selection of robust digital IQ sensors allow for single or multiple submersible probe installation including pH, turbidity, conductivity & dissolved oxygen. Various installation armatures & cable lengths to suit requirements.

Trios measurement technology supports optical measurement of UVT, derived TOC & nitrate NOx). Wiper of optical windows may be integrated. Various cable lengths to suit site requirements (wiper 10.0m cable).

Pollution & Process Monitoring

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Various sensors may be integrated providing complete measurement flexibility using the very best, sensor technology. Solar powered systems are designed for the application, with sufficient battery packs to accommodate continual measurement although periodic maintenance (calibration & cleaning may be required). Portable systems used for short term deployment, allow for field exchange of the lithium ion battery pack on a weekly interval. The table below provides a brief summary of the measurement parameters available:

Measurement ♦ Parameter	**Instrument** ♦ IQ ♦ TriOS ♦ Realtech	**Measuring ranges** ♦ User selectable ♦ Model dependant	**Description** ♦ Measurement Technology & Features
Ammonium	♦ **IQ**	**0.1 … 2,000mg/L N** **0-40◦C**	IQ - digital ISE probe technology for in-situ ammonium analysis with integral temperature measurement & compensation & option for potassium correction. Typically used to monitor >5.0mg/L N.
Conductivity	♦ **IQ**	**10uS/cm … 1,000mS/cm** **0…60◦C**	IQ - digital 4 electrode sensor with integral temperature measurement & compensation. Typically used to identify salt ingress.
Dissolved Oxygen (DO)	♦ **IQ**	**0…20.00mg/ l** **0…200.0% sat** **0…50◦C**	IQ - digital optical sensor with integral temperature measurement & compensation. Typically used to indicate untreated effluent pollution & water quality.
Nitrate	♦ **IQ** ♦ **TriOS** ♦ **Realtech**	**0.1 …2,000mg/L N** **0…40◦C**	IQ - digital ISE probe with integral temperature compensation (option for chloride correction). TriOS / Realtech - optical UV determination with pathlength to suit measurement range.
pH	♦ **IQ**	**0…14.00pH** **0…60◦C**	IQ - digital armature / replaceable combination electrode & integral temperature measurement / compensation. (pH or ORP by exchanging sensor).
Redox / ORP	♦ **IQ**	**-2,000 … +2,000mV** **0…60◦C**	IQ - digital armature / replaceable combination electrode & integral temperature measurement / compensation. (pH or ORP by exchanging sensor).
Turbidity (NTU)	♦ **IQ**	**0.05 … 4,000 FTU**	IQ - digital probe (IR) nephlometric measurement. Typically used to monitor raw or treated water quality to indicate suspended solids.
UVT / TOC	♦ **TriOS** ♦ **Realtech**	**0-100 % UVT** **0-880 mg/L TOC** **(Depends on pathlength & application)**	Digital probe technology using UV absorption to measure water quality & calculate TOC equivalent. (Depending upon model selection, combined TOC & nitrate may be measured).

Measurement ♦ Parameter	**Instrument** ♦ PPM ♦ TriOS	**Measuring ranges** ♦ Model dependant	**Description** ♦ Measurement Technology & Features
Oil on Water	♦ **OFD**	**Oil film detection**	Non-contact laser to identify oil films at visible traces or above 1 micron thickness. Sensor mounted up to 1.5m above water surface.
Oil in Water	♦ **TriOS**	**0-50, 500, 5000 PPB**	Detection of Poly Aromatic Hydrocarbon (PAH) in water. Enviroflu or MicroFluV2 HC available affecting price & specification.