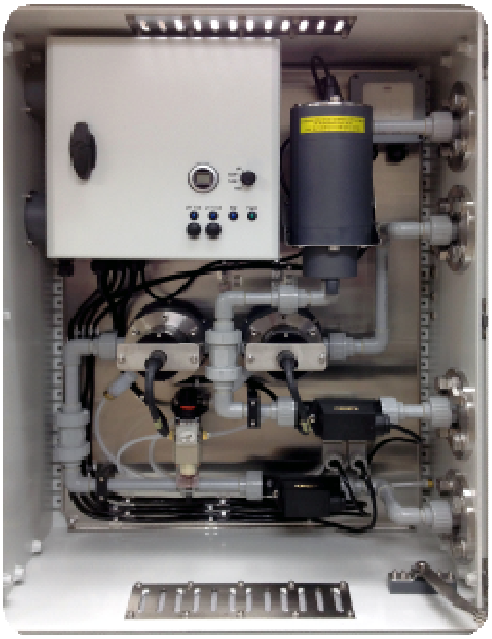
TurbiLux

Miniature IR turbidity fluorometer

APPLICATIONS

- Turbidity, particle studies/gravimetric analysis
- Process control (industrial feed meter indicators)
- Reservoir monitoring
- Profiling on CTDs
- Coastal pollution monitoring
- Biogeochemical oceanography
- Environmental impact assessment
- Waste/recycled water quality monitoring
- Effluent detection
- Towed, moored or ROV deployments



The TurbiLux can be deployed in a wide range of applications including flow-through systems for process monitoring and in-situ deployments in rivers, lakes and oceans

FEATURES

- Designed for compliancy with ISO7027:1999
- Small, low cost *in-situ* turbidity sensor
- Digital output in engineering units
- Additional analogue output as standard
- User selectable sampling rate, 0.1Hz - 3Hz
- Low power consumption
- High rejection of ambient daylight
- Low noise, high sensitivity
- User adjustable dynamic range
- RS232 & analogue output (or RS422 option)
- Acetal C housing
- Easy integration with RS232, 4-20mA, 0-5V, RS422 and SDI-12 interfaces

DESCRIPTION

The TurbiLux is a sensitive, low cost digital IR turbidity sensor designed for compliancy with ISO 7027:1999 standard that offers the user significantly increased functionality when compared to existing turbidity sensors. The TurbiLux can be deployed in a wide range of applications including flow-through systems for process monitoring and in-situ deployments in rivers, lakes and oceans. The TurbiLux has an acetal resin housing suitable for deploying independently as well as from submersible vehicles, moored or profiling systems. This robust, compact, lightweight turbidity sensor has very low power consumption, is easy to use and gives accurate and repeatable measurements.

The turbidity sensor utilizes an IR LED light source and photodiode which combined with phase sensitive detection, provides highly sensitive measurement capabilities. Sophisticated electronic signal processing, enables the TurbiLux to operate successfully in high levels of ambient light when deployed in-situ. For process control and laboratory use, a flow through manifold is available.

Two signals are obtained from the standard TurbiLux: a digital RS232 serial output in engineering units and a calibrated analogue voltage between 0.5V to 5V. Single RS422, SDI-12 and 4-20mA outputs are also available as options. This flexibility makes the TurbiLux ideally suited for integrating into many different systems and platforms.

A Windows based Graphical User Interface (GUI) is provided that allows the user to both plot and record time stamped data when operating the TurbiLux directly from a PC and gives control over a many instrument parameters, including: sampling rate, sensitivity, dynamic range and calibration factors.

SPECIFICATION

Performance

Excitation wavelength:	860 mm
Emission wavelength:	860 mm
Calibrated range:	0 to 100 NTU
Limit of detection:	0.01 NTU
Optical geometry	90°
Excitation beam divergence	~1°
Compliance	To ISO7027:1999

Mechanical

Size:	70mm dia x 149mm
Weight in air:	0.8 kg
Weight in water:	0.15 kg
Pressure housing:	Acetal C
Depth rating:	600 metres
Connector:	Impluse MCBH6M

Environmental

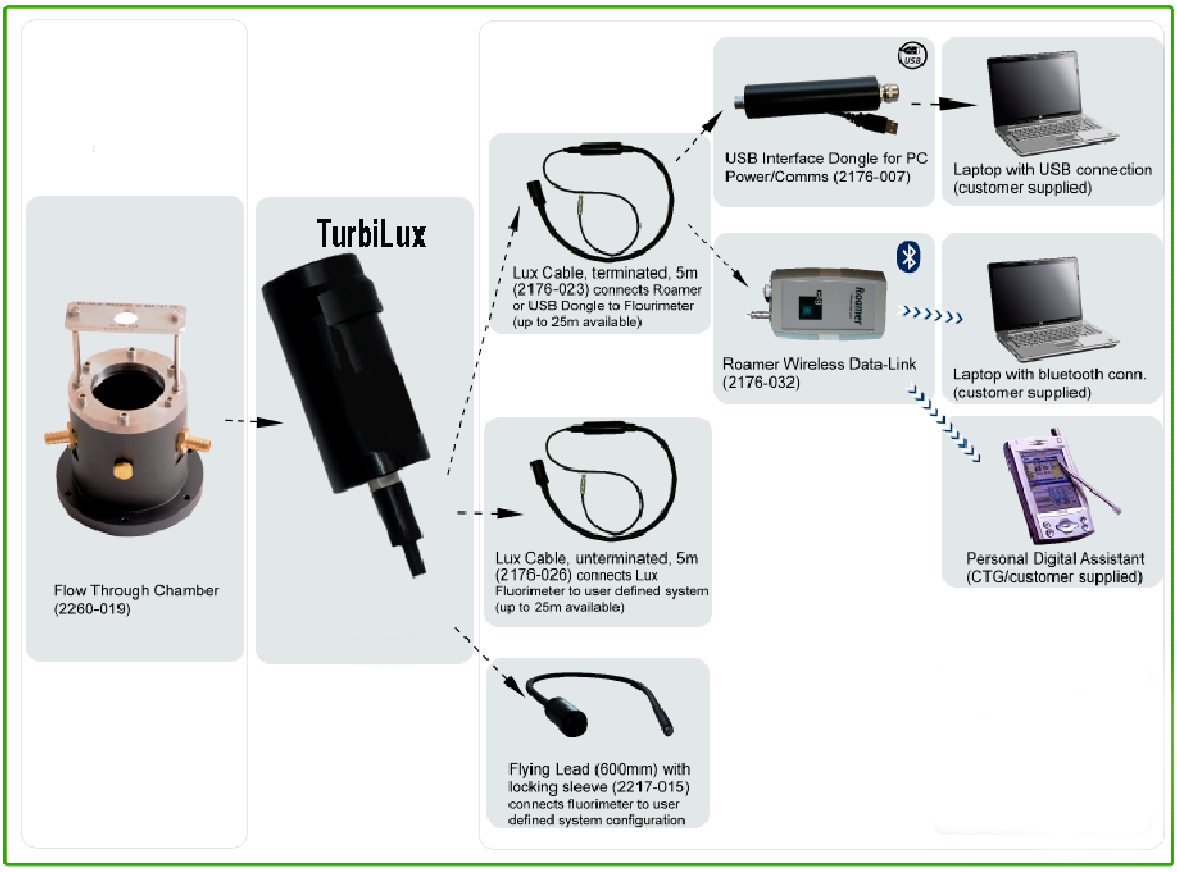
Operating Temperature:	-2ºC to +40ºC
Storage Temperature:	-40ºC to +70ºC

Electrical

Input voltage:	9 to 36 Vdc	
Data output:	**Digital Output**	**Analogue Output**
	RS232 or	0.5 – 5V or 4 – 20 mA
	SDI-12	0.5 – 5V or 4 – 20 m
	or RS422	
Power requirements:	<1 Watt @ 12 Volt	

ACCESSORIES

The standard TurbiLux turbidity sensor is supplied with transit case, handbook and Windows based Graphical User Interface (GUI). There is now a range of accessories available to compliment the sensor:



Flow Through Chamber (2250-019)

The Flow Chamber has been designed for in-line measurement applications. Incoming flow is directed across the face of the measurement window to minimise the build-up of silt while also ensuring good sample mixing. It is rated to 10Bar.

Lux Cable (2176-023) – Connects Roamer or USB Dongle to the TurbiLux (terminated, 5m)

A standard 5m cable is available to provide a connection between the TurbiLux and the Roamer or USB dongle. This cable comprises a 600mm length of neoprene cable with moulded connector and locking sleeve for attachment to the TurbiLux spliced to a thinner polyurethane clad cable with a connector suitable for both the Roamer and the USB Dongle. Cable lengths up to 25m can be supplied.

Lux Cable (2176-026) - Connects the TurbiLux to user defined system (un-terminated, 5m)

An un-terminated 5m cable is available to provide a connection between the TurbiLux and user defined system. This cable comprises a 600mm length of neoprene cable with moulded connector and locking sleeve for attachment to the TurbiLux spliced to a thinner polyurethane clad un-terminated cable for configuration to user defined system. Cable lengths up to 25m can be supplied.

Flying Lead (600mm) with locking sleeve (2217-015)

A standard 600mm cable with moulded connector and locking sleeve at one end and bare conductors at the other is available for integrating the TurbiLux into user defined system.

USB Interface Dongle for PC power/communications (2176-007)

The Lux USB Interface Dongle connects the TurbiLux to a USB host port on a computer. The interface draws the 5V power from the USB port and converts it to 13.7V to supply the sensor. Using the supplied drivers the Interface is accessible to software on the host PC as a serial port, compatible with Lux software.

Mechanical

Size:	26.5mm dia x 145mm (not including integrated leads)
Weight in air:	100g
Housing:	Acetal C
Connector A:	USB A plug
Connector B:	Fischer quick fit connector

Electrical

Input voltage:	5V dc (from USB port)
Input current:	500mA dc max
Power requirements:	< 2.5 Watt @ 5V
Voltage output:	13.7V dc
Power output	<2 Watt
Comms interface - instrument:	Digital - RS232
Comms interface - PC:	Digital - USB

Roamer
Wireless Data-Link (2176-032)

The Roamer supplies the TurbiLux with power as well as acting as an interface to send and receive data over a bluetooth wireless link to either a PDA (operating a CTG Windows Mobile application) or a PC (operating the Lux Graphical User Interface). When used in conjunction with a PDA, the software provided with the Roamer enables users to record and display (in either tabular or graphical form) Lux data. If a GPS enabled PDA is used, all data can be position stamped.

Performance

Wireless range:	Up to 10m (50m within line of sight).
Batttery Life:	7hrs Battery recharge time: 1hrs

Mechanical

Size:	145mm x 94mm x 26mm
Weight in Air:	340g
Depth rating:	Splash proof
Connector:	Power Jack

Cable lengths available

1-25m instrument cable

Electrical

Input voltage:	9 to 12Vdc
Data Output	Bluetooth Serial Stream
Power requirements:	<0.5 Watt @ 12 volt

Software

PDA: Windows Mobile 5 application enabling recording and display of data to PDA

PC: Lux Graphical User Interface designed for Microsoft Windows XP and Vista.

Personal Digital Assistant (PDA)

The PDA receives the TurbiLux data over bluetooth and displays and logs it. CTG can supply the PDA complete with software, or if client wishes to use his own PDA/PC, the application software is provided. The client's own PDA needs to operate with Windows Mobile 5, have bluetooth connectivity and a touch screen. The PC requires a bluetooth connection and Windows XP/Vista.

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