

CARDEV

OIL FILTRATION & COOLANT HANDLING



ETLFlow

FLOW METERS & INSTRUMENTATION



ETLConMon

CONDITION MONITORING



Oil Filtration & Condition Monitoring for Offshore, Subsea & Marine Applications



Introduction

Environmental Technologies Ltd is a privately owned company based in North Yorkshire, England. Our core competencies are oil filtration, coolant handling & recycling, oil condition monitoring, high performance / biodegradable lubricants and subsea flowmeters. We are a truly international company, with many distributors worldwide, as well as an impressive portfolio of UK clients.

Almost everything we do involves technologies and products that help minimise environmental impact; be it to extend oil life, reduce coolant waste, lessen the effect of an oil spill or measure fuel consumption.

For some this "green" benefit alone is enough, but the way in which we achieve these results means we also deliver considerable cost savings and significant operational improvements.

We're passionate about our business and we believe in our products absolutely. We're big enough to deliver on a global level yet small enough to be flexible, and to truly value each client. If you would like to discuss your individual requirements please get in touch with us.

Should you require further information or technical support, please feel free to contact us or one of our global distributor. Please visit www.env-t.com.

Our Brands



The CARDEV brand has been synonymous with offline filtration solutions for over twenty five years. The impressive water removal capabilities and high quality construction make our technology perfect for the demanding applications found on/offshore, and first choice for many of the industry's leading OEMs.

Maintain your oil in "cleaner than new" condition with zero downtime. Our filtration systems remove particle and water contamination whilst your equipment runs, improving reliability, reducing component wear and reducing operating costs as well as reducing your carbon footprint.



The ETL ConMon range includes portable particle counters, moisture sensors and oil sampling equipment to monitor and report the cleanliness and condition of oils and fuels. There are also instruments for measuring pressure, temperature, flow and RPM to carry out maintenance procedures.



We can supply and design a wide portfolio of standard and custom produced flow meters for subsea and topside use. They are suitable for use on low to medium viscosity fluids, with a wide range of threaded or langed connections.

We are proud to be members with the following organisations.



Our Filtration

More than 3/4 of all problems in fluid systems can be traced back to contaminated oil!*

Oil cleanliness is critical to the reliability of your machinery. As technology advances, the demands placed on a lubricant are ever-increasing: pressures and temperatures are higher, reservoir sizes are lower and component tolerances are smaller.

CARDEV offline & by-pass filtration is capable of maintaining oil in a "cleaner than new" condition, extending oil life, reducing component wear and increasing system reliability. We work predominantly with hydraulic and engine oil but the technology is also suitable for transformer oil, gear oil and neat cutting oil.

Filtration Types

By-pass



Permanently installed filtration using the flow and pressure of the system that is being filtered.

Benefits of By-pass Filtration

- Constant filtration whilst the system is working - clean the entire system, not just the oil in the reservoir.
- Fit and forget - Just change the filter element as part of routine servicing.

Why Do Modern Hydraulic Systems Require Microfiltration?

Hydraulic systems these days have smaller tank volumes, less hydraulic oil, increased system pressures and flow rates. System components are much more sensitive to contamination.

With inline filtration there is always a trade-off between fineness of filtration and the flow / pressures of the machine. This means that inline filtration typically serves only to protect equipment from very large particles and immediate, catastrophic failure.

Offline



Mobile or permanently installed filtration systems that work independently of the system being filtered, relying on integrated pumps to provide pressure and flow.

Benefits of Offline Filtration

- Filtration even when the system is inactive – ideal for systems that operate infrequently – cranes, lock gates etc.
- One system can service an entire facility.

* (Bosch Rexroth, re08016)

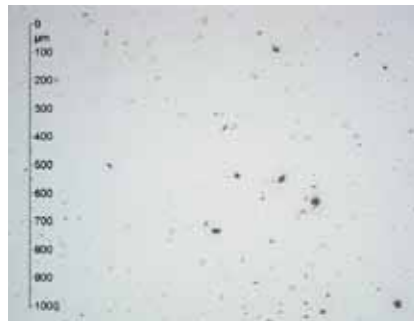
Understanding Oil Cleanliness Levels

Code ISO 4406	Number of particles/100ml			NAS 1638		
	>4µm	>6µm	>14µm			
23/21/18	8.000.000	2.000.000	250.000	12	Very contaminated - Breakdowns inescapable	
22/20/18	4.000.000	1.000.000	250.000	-		
22/20/17	4.000.000	1.000.000	130.000	11		
22/20/16	4.000.000	1.000.000	64.000	-	Minimum required cleanliness class for high pressure-, servo valve hydraulic systems, new/fresh oil DIN51524	
21/19/16	2.000.000	500.000	64.000	10		
20/18/15	1.000.000	250.000	32.000	9		
19/17/14	500.000	130.000	16.000	8		
18/16/13	250.000	64.000	8.000	7		
17/15/12	130.000	32.000	4.000	6		
16/14/12	64.000	16.000	4.000	-		
16/14/11	64.000	6.000	2.000	5		(Achievable) result after CARDEV Microfiltration
15/13/10	32.000	8.000	1.000	4		
14/12/9	16.000	4.000	500	3		
13/11/8	8.000	2.000	250	2		
12/10/8	4.000	1.000	250	-		
12/10/7	4.000	1.000	130	1		
12/10/6	4.000	1.000	64	-		

Note: 100-times magnified, 1 scale mark = 10 µm



NAS Class 3



NAS Class 8



NAS Class 12



CARDEV Results & Benefits

- Removes free and dissolved water contamination
- Removes microparticles and salt
- Increases system reliability
- Prevents system corrosion
- Reduces component wear
- Extends oil life and generates CO₂ savings
- Reduces operating costs



Before

After

Water Removal

- Removes upto 99.9% water - both free and dissolved water

Particle Removal

- Removes microparticles including dissolved salt from seawater leaving oil "cleaner than new levels".



Reduced Carbon Footprint

- Less waste oil created
- Less new oil required

The CARDEV SDFC has a 4 micron absolute rating (ISO 16889, 1999). In use particles of 1 micron or less in size are removed, achieving oil cleanliness levels which are "cleaner than new" – as low as 13/11/8 (ISO 4406); NAS Class 2.

Each SDFC filter element can remove up to



2.5kg of particle contamination



780ml water contamination



By-pass filtration system

Suitable for Subsea applications

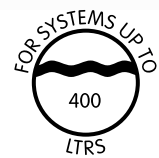
By-pass filter with hard anodised housing and 316 grade stainless steel hardware - resists harsh sea water corrosion. Permanently installed filtration using the flow and pressure of the system that is being filtered.

SDU-H350UW-S

By-pass Oil Filter

By-pass hydraulic oil filter designed to operate in a Subsea / Offshore environment. Suitable for installation on ROV's, LARS, TMS and winches etc.

- Robust construction - hard anodised housing and 316 grade stainless steel hardware
- Input pressure 6-350 Bar
- Flow through filter controlled at 2 litres per minute
- Air bleed valve - eliminate air after a filter change
- Sample point / pressure gauge connection point
- Factory fitted by ROV manufacturers worldwide

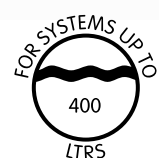


SDU-H8-UW

By-pass Oil Filter

By-pass hydraulic oil filter, designed for Subsea / Offshore environment. Suitable for installations on ROV's, HPU's and winches.

- Robust construction - hard anodised housing and 316 grade stainless steel hardware
- Input pressure 2-6 Bar
- Flow through filter at 2-4 litres per minute
- Air bleed valve - eliminate air after a filter change

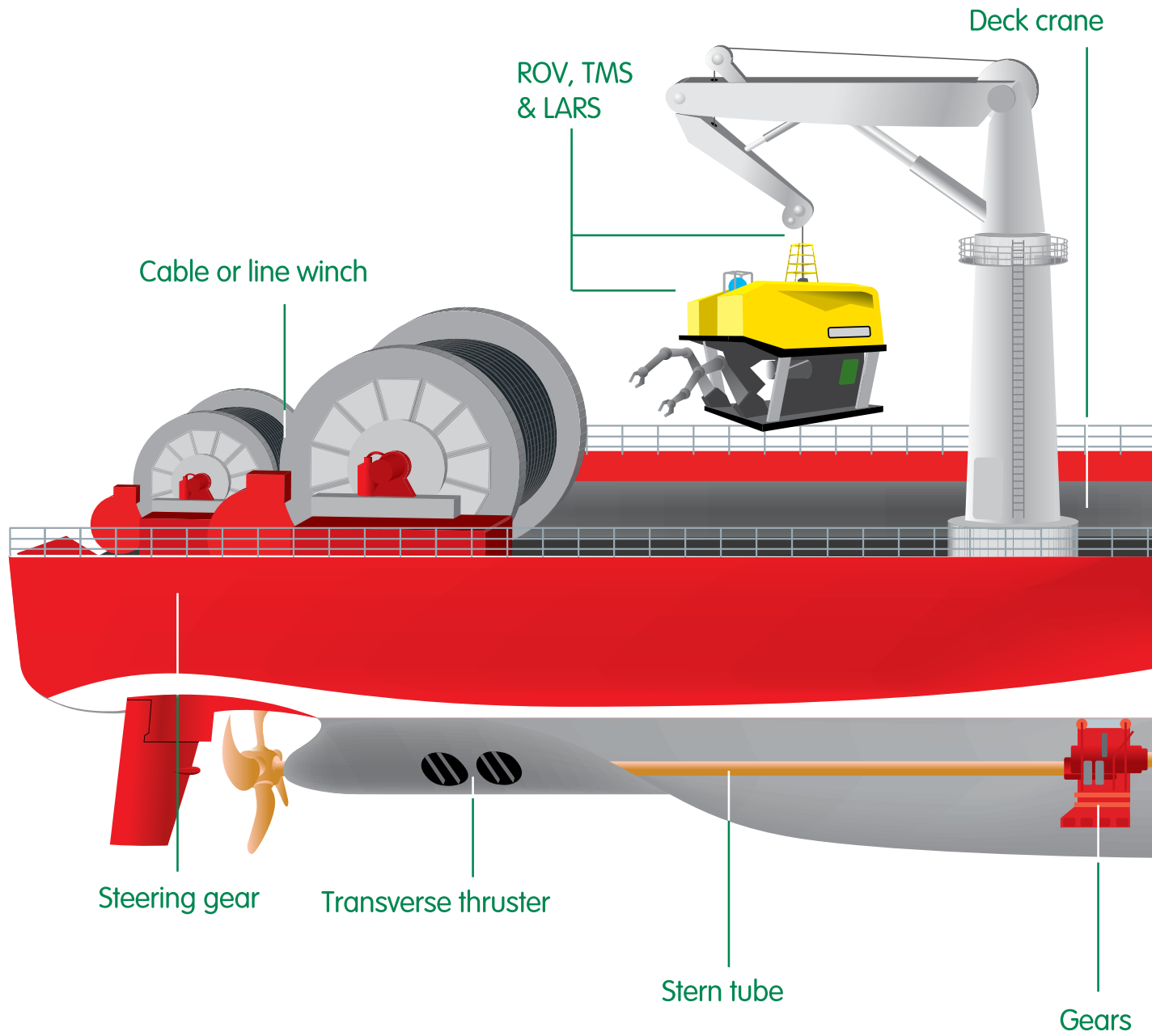




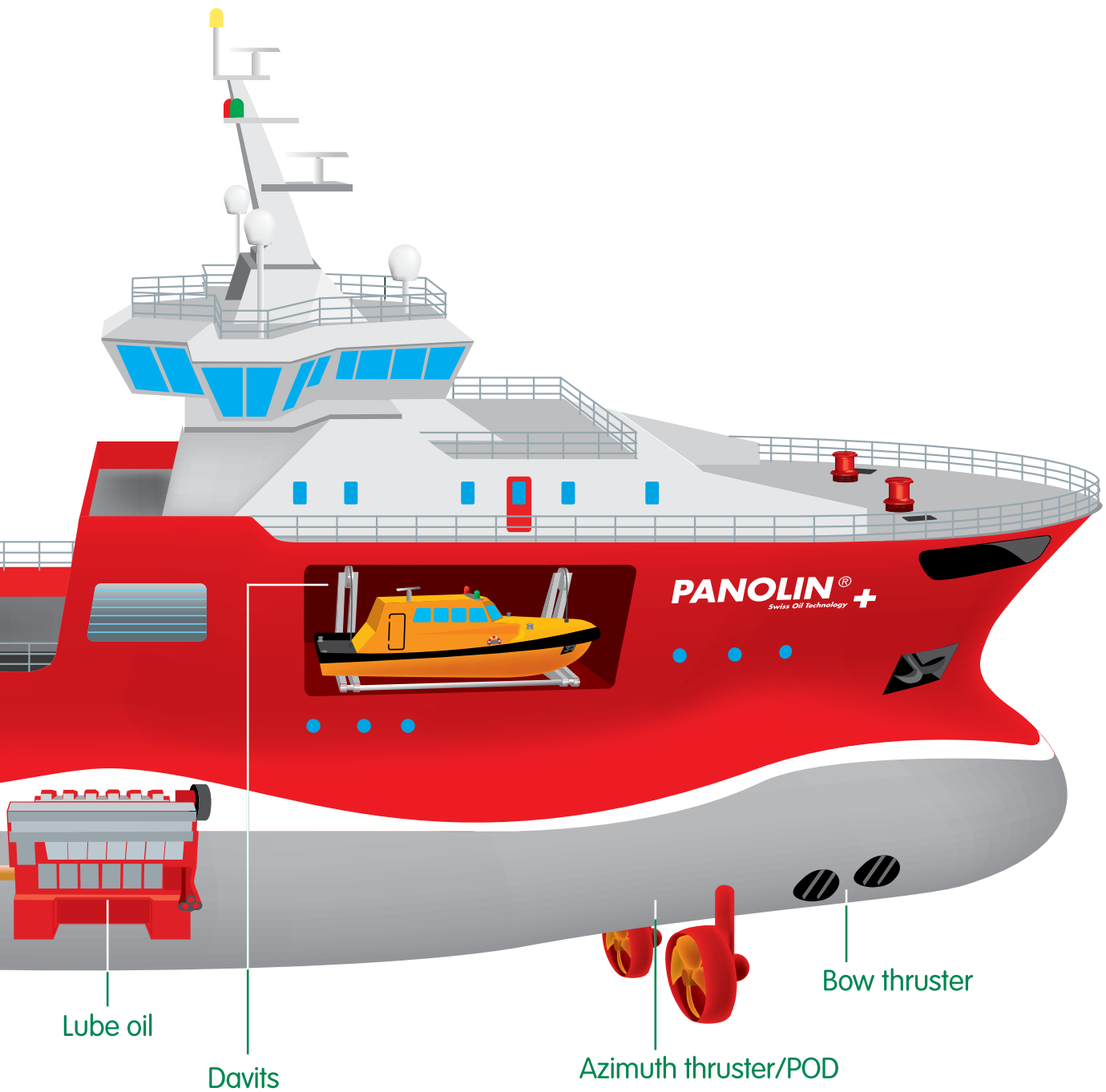
SDU-H350UW-S

Work class ROV fitted with 2x SDU-H350UW-S

CARDEV Oil Filtration Application Guide



Graphic courtesy of PANOLIN International Inc.



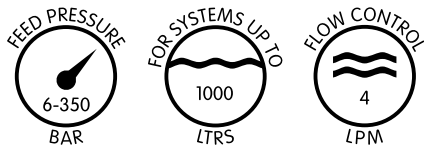
By-pass Filtration For Larger Systems

Rugged construction by-pass filter for HPU's with larger oil volumes - higher contamination levels. Suitable for offshore and marine applications such as winches, cranes on vessels and offshore platforms.

2S-350-C4 By-pass Oil Filter

By-pass filter comprising 2x SDU filter housing.

- Input pressure 6-350 Bar
- Flow through filter controlled at 4/8/12 litres per minute
- Rugged construction – capable of withstanding the harshest environments e.g. mining, piling, offshore
- Integrated sample points - take a bottle sample or connect one of our ETL ConMon icountOS particle detectors for a real time check on fluid condition (ISO / NAS code and moisture content)



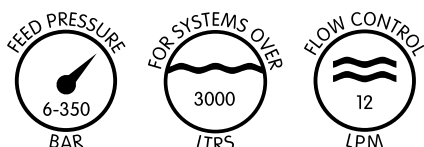
4S-350-C8 By-pass Oil Filter

By-pass filter comprising 4x SDU filter housing.



6S-350-C12 By-pass Oil Filter

By-pass filter comprising 6x SDU filter housing.





ROV flushing unit fitted with CARDEV SDU-H350 By-pass filtration

Static/Mobile Offline Filtration Systems

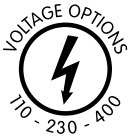
These systems can be fitted to a hydraulic tank, enabling filtration during operation or shutdown. Suitable for Offshore and Marine applications such as: HPU's / Lube systems on deck or under deck, oil / gas platforms and drilling rigs.

1S-140PG

Static Offline Filtration System

Comprising 1 SDU filter housing.

- Simple to install and use on multiple systems
- Rugged enclosed construction powder coated mild steel frame
- Over-pressure protection
- Gear pumpset - 110V, 230V & 400V (50/60Hz) options available. Also available with air diaphragm pump (product code 1S-140A)

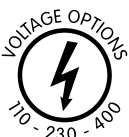
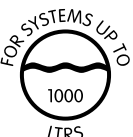


2S-500BS "Deck pack"

Static Offline Filtration System

A portable off-line filter system often used to maintain oil of ROVs on deck in between dives, comprising 2 SDU filter housing. Recommend for systems upto 1000 litres.

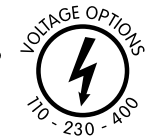
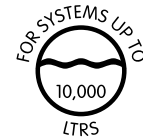
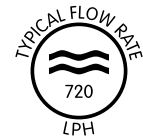
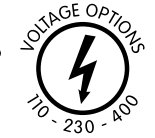
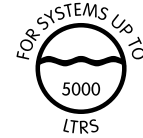
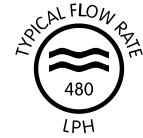
- Designed for continuous operation
- Can be temporarily mounted or permanently installed
- Rugged enclosed construction, powder coated mild steel frame
- Progressive cavity pumpset - 110V, 230V & 400V (50/60Hz) options available
- Integrated sample points - take a bottle sample or connect one of our ETL ConMon icountOS particle detectors for a real time check on fluid condition (ISO / NAS code and moisture content)



4S-RS / 6S-RS

Static Offline Filtration System

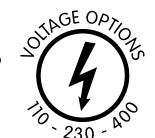
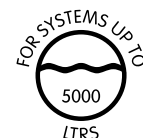
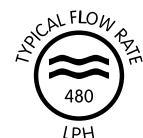
- Simple to install and use on multiple systems
- Designed for continuous operation
- Can be temporarily mounted or permanently installed
- Transfer pump function for fast movement of fluid
- Rugged enclosed construction, powder coated mild steel frame
- Over-pressure protection
- Progressive cavity pumpset - 110V, 230V & 400V (50/60Hz) options available
- Integrated sample points - take a bottle sample or connect one of our ETL ConMon icountOS particle detectors for a real time check on fluid condition (ISO / NAS code and moisture content)



4S-500EX

Static Offline Filtration System

- Suitable for use within ATEX Zone 1
- Products approved under ATEX directive 94/9/EC
- Simple to install and use on multiple systems
- Designed for continuous operation
- Can be temporarily mounted or permanently installed
- Transfer pump function for fast movement of fluid
- Rugged enclosed construction, stainless steel frame (SS316) and hardware
- Over-pressure protection
- Progressive cavity pumpset - 110V, 230V & 400V (50/60Hz) options available
- Integrated sample points - take a bottle sample or connect one of our ETL ConMon icountOS particle detectors for a real time check on fluid condition (ISO / NAS code and moisture content)





The ETL ConMon range includes portable particle counters, moisture sensors and oil sampling equipment to monitor and report the cleanliness and condition of oils and fuels. There are also instruments for measuring pressure, temperature, flow and RPM to carry out maintenance procedures, and be part of a maintenance schedule.

icountOS

Portable Particle Detector

The icountOS (IOS) is an innovative solution to the challenge of measuring the quality of hydraulic oils and hydrocarbon fuels in many different applications: from renewable energy, marine and offshore, to manufacturing, mobile, agriculture, military and aerospace.

Compact, lightweight and robust, the truly portable IOS makes field analysis simple, quick and easy.

- Select either the ISO4406:1999 or NAS1638 standard.
- Relative humidity in percent (RH%)



icountOS - WiFi



Wireless Portable Particle Detector

The icountOS (IOS) is an innovative, solution to the challenge of measuring the quality of hydraulic oils in many different applications.

Fully WiFi enabled, the IOS delivers highly accurate, instant data, operating effectively in virtually every type of industrial environment; from renewable energy, marine and offshore, to manufacturing, mobile, agriculture, military and aerospace.

The IOS uses WiFi capability as a smart solution for effective remote control and data log transfer from the IOS to a laptop, mobile phone or tablet.





We manufacture and design a complete range of flowmeters and flowmeter solutions for the offshore, marine and subsea industry.

Subsea

Flow Meters

RS232 &
RS485



PPW
PULSE
OUTPUT

Stainless steel turbine, female threads, 4000 metre depth rated fitted with PPW pulse pick up.

FC7
4-20ma
OUTPUT



Female thread, fitted with 4-20ma pick up (4000 - 6000 metre depth).

CUSTOM
OPTIONS / OUTPUTS



Bespoke systems available with various connections, options and materials of manufacture..

Subsea Displays

Single or Dual Display

Subsea displays are available in various configurations. They can be battery or mains powered with a single or dual display.

These displays can be configured to give a rate and volume measurement. Completely programmable through a windows interface.



SEN-SS400

Subsea Moisture Sensor

- Measures dissolved moisture level in oil
- 4000 metre depth rating
- Stainless steel housing





Environmental Technologies Limited
Grimbald Crag Road
Knaresborough HG5 8PY
United Kingdom
+44 (0)1423 522 911 sales@env-t.com
www.env-t.com

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PANOLIN[®] + 
Swiss Oil Technology

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ETLConMon
CONDITION MONITORING

