

SmartOil **M**TM

Safe, Accurate, Autonomous,
LIVE Sampling of In-Service
Oils & Coolants.



LUBRICATION
ENGINEERING

SmartOil M™



The SmartOil™ M is the world's first and most advanced fully autonomous fluid sampling device that enables the collection of live fluid samples from machinery without direct contact with the fluid system.

- ✓ All SmartOil M units feature sensors that monitor oil pressure and temperature in real-time.
- ✓ Each unit is pre-programmed with the parameters of the oil to be sampled.
- ✓ Using proprietary algorithms, the integrated edge processor in each unit, calculates the required time for the sample valve to remain open to ensure the correct sample volume is collected every time.
- ✓ Each unit is programmed by the user for their required sample interval, IE: operating hours or calendar date.
- ✓ Each unit features Bluetooth® connectivity that enables users to program the devices and remotely triggers the sampling events using iOS smart devices and a free proprietary app.

SmartOil™ M Improves Safety

People interacting with live machinery has always been a critical safety issue within all industry sectors and the taking of oil samples from live equipment remains a critical risk for both the employer and employee.

The extraction of fluid samples from machinery has not changed much since its inception. Naturally, there have been incremental improvements to sampling tools, equipment, and the overall understanding of the importance of fluid monitoring however, today's methods still rely on people interacting with live equipment.

Currently people are placed in potentially hazardous environments including but not limited to:



Entanglement & Crushing



Stored Energy Release



Vehicle Movement

The SmartOil M unit addresses these concerns by removing people from the task. Samples are taken automatically at timed intervals or remotely via the free SmartOil app installed on a suitable smart device.

SmartOil™ M Improves Sample Accuracy

Fluid analysis is integral to monitoring the health of machinery compartments and the fluid itself. Without accurate data, the money spent on fluid analysis programs is simply wasted. Perhaps even more alarming are the engineering decisions that may be made based on poor or misleading results, adding unnecessary costs to your Business.

The accuracy of any fluid sample being analysed has always relied on two primary control measures being maintained.

- The method of extraction
- The location of extraction

By far, the method of extraction, has had the biggest impact on the accuracy of sample results.

This issue is primarily caused by a combination of the following:

- Inadequate training
- Variability of sampling technique
- Variability of people obtaining the sample

Any of these will directly impact the accuracy of the analysis results.

The SmartOil M unit solves these problems because people are excluded from the sample extraction. All fluid samples are now obtained completely autonomously, leaving technicians to collect only full sample bottles ready for shipment to the laboratory for testing. Full sample bottles can be collected during maintenance periods, inspections, refueling events, or any other time that the machine can be safely accessed.

How does SmartOil™ M Work?

All SmartOil M unit versions feature internal sensors that continually monitor oil pressure and temperature. Each unit is pre-programmed with the parameters of the oil to be sampled on your machine or compartment. Using proprietary algorithms, the integrated edge process in each unit, calculates the required time for the sample valve to remain open to ensure the required sample volume is taken every time, no matter the conditions.

Each unit is programmed by you, the end-user, for the required sample interval, IE: operating hours or calendar hours. All SmartOil M devices feature long-range Bluetooth wireless connectivity that enables users to view the sample status, live pressure, and temperature and even remotely trigger a sampling event using a compatible iOS smart device and the free proprietary app.



SAFE, Hands-free LIVE Sample Collection

Automated sample collection removes operators, mechanics, and technicians from the dangers of collecting fluid samples from LIVE systems, saving valuable time while preventing potential accidents and lost time injury.



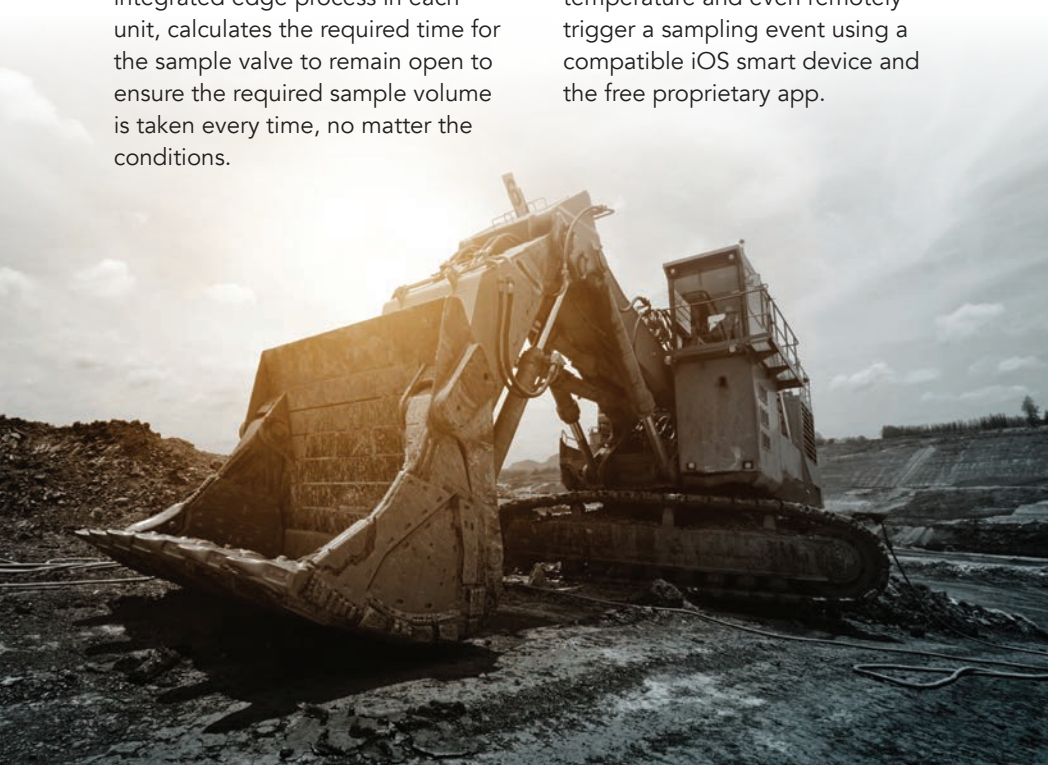
In-Service Lubricant Sample Collection

Automated sample collection of in-service fluids ensures Reliability Engineers and Condition Monitoring Specialists collect fluid samples that are truly representative of the current equipment condition.



Accurate, Trendable, Data Driven Decisions

Contaminate-free, in-service fluids collected at precise sample interval periods provides fluid analysis labs with high integrity samples from which to generate reliable data useful in basing data driven decisions condition.



SmartOil™ M Device Options

There are 2 primary versions of the SmartOil devices that are available. These are the M1 and the more advanced M3. Each of these is available in 2 different build standards for various applications and industry requirements.

COMMON TO ALL M1 & M3 SMARTOIL DEVICES

Construction

3-Piece Modular
Construction with Machined
Solid Billet Aluminium

Fluid pressure

Maximum of 6.9Bar
(100psi) for internal sensors

Flow Path

Bi-directional

Ambient Temp

-40° to 70°C

Fluid Temp

-40° to 85°C

Battery Backup

6-Months of Real-Time-
Clock Function (2X Safety
Factor). Permanent.

Sampling

Manual and Autonomous

Sample Volume

Configurable by user

Viscosity Range

1-320 cSt (at 25°C)

FEATURE DETAIL	M1		M3	
	INDUSTRIAL	HARSH OPERATION	INDUSTRIAL	HARSH OPERATION
ENVIRONMENT				
Indoor	S	S	S	S
Outdoor	-	S	-	S
GENERAL				
Viton® O-rings	S	-	S	-
Primary - Viton® O-rings, Secondary - TPU Compression Seal	-	S	-	S
Humidity Control - Conformal Coating on PCBA	S	-	S	-
Humidity Control - WL Gore PolyVent® Waterproof Vent, Conformal Coating on PCBA	-	S	-	S
Environmental Rating - IP67	S	-	S	-
Environmental Rating - IP68, IP69	-	S	-	S
COMMUNICATIONS				
Wired	-	-	+	+
Wireless - Bluetooth® 5.1	S	S	S	S
Power In (24 VDC) - M8X1 3-pole, IP67, Nickel Plated Brass	S	-	S	-
Power In (24 VDC) - LEMO 1M Series, 5-pole, IP68, Anodized Aluminum, Ratcheting Closure	-	S	-	S
Data Out	-	-	O	O
External 3rd Party Sensor Connectors	-	-	O	O
FLUID SAMPLING EVENT CONTROL				
Manual Sample - Local User Control Panel	S	S	S	S
Manual Sample - Wireless	S	S	S	S
Remove Manual Sample Access via Local User Control Panel	-	O	-	O

Standard (S) Not Offered (-) Optional (O) Optional M3+ Variant (+)