



# FIRST FOR DIAGNOSIS

Filtertechnik's award winning Particle Pal - PPM displays the parts per million of water moisture levels.



The PPM Pal offers real time measurement and display of water in parts per million (ppm) compensating temperature for fuels and oils.

## Extensively specified into:

- Plant equipment Hire
- Steel Production
- Manufacturing
- Automotive Industry
- Injection Moulding

## INTRODUCTION

The Particle Pal is a self-contained system, complete with integral pump and controlled flow rate. An upgrade from the original Particle Pal now incorporates a WMS500 sensor that measures absolute water content (PPM) and compensates for temperature in diesel fuel, hydraulic oils, silicon oils and bio oils.

Powerful trending software will allow for data to be displayed in graphical format for real-time trend analysis. The Particle Pal will identify the cleanliness code of the fuel or oil, which will alert to the need for corrective action. It can draw from oil stored in tanks or from sample bottles. Fluid samples are analysed quickly and accurately, thereby minimising the frequency of laboratory analysis.

## FEATURES

- /// Incorporates latest laser particle counting technology
- /// Real time PPM measurement of water
- /// Real time graphic display via software
- /// Laptop connectivity for data transfer
- /// Archive creation via Excel
- /// Re-chargeable battery
- /// Output of absolute water content in ppm
- /// Calibrated against a Karl Fisher titration (ASTM D1533)
- /// Temperature compensation

## BENEFITS

- /// Compact, lightweight unit with robust casing
- /// Accurately measures the quality of oils in real time
- /// Accurate, repeatable and consistent results
- /// Ideal survey tool for fluid and laboratory use
- /// Sample direct from fuel tank, sample bottle, fuel polishing cabinet or oil reservoir

## FUEL MONITORING

Modern fuels with ever increasing biofuel percentages, have created several challenges to industry in recent years. Fuel blends are highly hygroscopic which enables them to absorb greater amounts of moisture. This in turn leads to higher levels of microbiological activity which are seriously troublesome to fuel systems.

## OIL TESTING

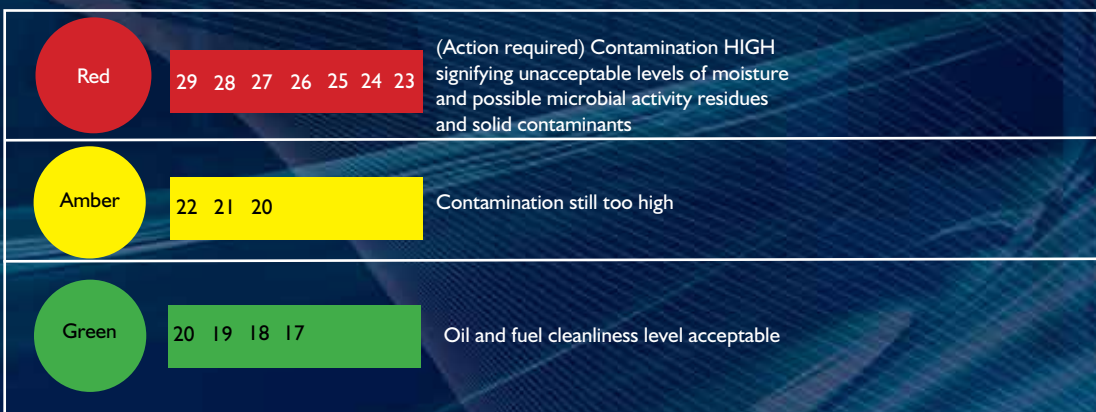
In Hydraulic and Lubrication systems, real time cleanliness data can prevent serious system failure and component damage. By trending oil cleanliness in real time, the necessary protection can be put in place to protect sensitive components. Samples can be taken directly from the reservoir of fluid power systems or from a oil sample taken from the system.

## HYDRAULIC SPECIFICATION FOR FLUID POWER COMPONENT CLEANLINESS

Element	Type	ISO Code 4406
Pump	Piston (slow speed, in line)	22/20/16
	Piston (high speed, variable)	17/15/13
	Gear	19/17/15
	Vane	18/16/14
Valve	Directional	20/18/15
	Pressure Control	19/17/14
	Flow Control	19/17/14
	Check Valve	20/18/15
	Cartridge Valve	20/18/15
	Proportional	18/16/13
	Servo valve	16/18/15
Motor	Axial Piston	18/16/13
	Radial Piston	19/17/13
	Gear	20/18/15
	Vane	19/17/14
Actuator		20/18/15
Station Nozzle	World Wide Fuel Charter Cleanliness standard for fuel delivered	18/16/13
EN590 Fuel		18/16/13

**PLEASE NOTE THAT THE TYPICAL CLEANLINESS OF NEW HYDRAULIC OIL FROM A MANUFACTURER IS 20/18/15**

What do Particle counts mean and how can they be interpreted into oil and fuel cleanliness



With diesel the maximum recommended allowable water content level is 200ppm. When high water content is present, a series of problems may occur:

- ▀ Fuel oxidisation
- ▀ Formation of paraffin and asphalt long chain polymers
- ▀ Microbial growth and associated contamination
- ▀ Additive depletion
- ▀ Acid formations
- ▀ Gel formations

## PARTICLE PAL - PPM TECHNICAL SPECIFICATION

Case	HPX® high performance resin construction with press & pull latches and durable soft-grip handles.
Dimensions	241 (W) x 191mm (D) x 108mm (H)
Weight	4kg
Battery Type	Lithium Ion
Run time	3 hours continuous
Charge time	5hrs
Principles of Measurement	Temperature compensated, continuous monitoring in PPM, calibrated to a single fluid type.
Modes of Operation	Tank sampling Bottle sampling (minimum sample 100ml)
Displayed information	Absolute water content in PPM (parts per million) Combined numerical and graphical representation 2.4" TFT 320x240 pixel (QVGA) colour display Visual high level alarm indication Startup splash screen can be OEM branded
Measuring range	0-300ppm standard (others available on request)
Accuracy	± 50ppm
Viscosity Range	1 –424 cst
Fluid Compatibility	Diesel & mineral oils (each unit is restricted to one fluid type)
Fluid Temperature	-10...60°C (oils) -10 ...50°C (diesel)
Environmental:	Lid closed: IP67 (un-certificated) Lid open: IP54 (un-certificated)
Ambient Temperature	-40...85°C
Maximum Humidity	97% relative humidity, non condensing
Supplied	1 metre suction tube fitted with 80 MESH strainer (6mm OD) 1 metre discharge tube (6mm OD) Battery charger (UK 3 pin plug) Manual
Certification	Calibration certificate valid for a single fluid type, calibrated against Karl Fischer titration (ASTM D 1533)
Verification frequency	12 months recommended

