

TEN AEM

Diesel Emissions Particle Counter



TEN AEM Particle Counter

What is a particle counter?

In recognition of the challenges to reduce pollution from diesel particulate matter, Euro 5 regulations were staged for diesel cars, with Euro 5a in 2009, Euro 5b in 2011 and Euro 6 in 2014. Both petrol and diesel cars must emit less than 0.005g/km of particulate matter, hence the introduction of regenerative diesel particulate filters (DPFs) in around post 2010, to reduce and regulate the emissions from diesel engine vehicles. With particulate this small, around 80nm which are not visible to the human eye, they cannot be measured on an existing DSM Opacity Meter.

The TEN AEM particle counter can detect and measure these soot particles emitted from the vehicle exhaust system and determine whether the DPF is fitted and functioning correctly and conforms to



The AEM particle counter is very advanced with state-of-the-art techniques that are capable of detecting minute particulate and display the number of particles per cubic centimetre (# / cm³). Typically a Euro 6 standard diesel engine with a functionally effective DPF emits less than 20,000 particles / cm³. A diesel engine with a DPF which is malfunctioning, been tampered with or even removed, may well emit millions of particles / cm³.

How does the AEM particle counter work?

The current MOT diesel exhaust measurement is performed with a free acceleration test. The accelerator pedal must be fully depressed in order that the maximum smoke emission is measured. Certainly in the early years of diesel exhaust measurement, this caused many annoyances and problems. With the new TEN AEM particle counter, measurement is performed at idle speed and will therefore, be friendlier to use. The engine will of course have to be at operating temperature before the measurement, in order to guarantee correct operation of the particle filter. A separate speed measurement is not normally necessary.

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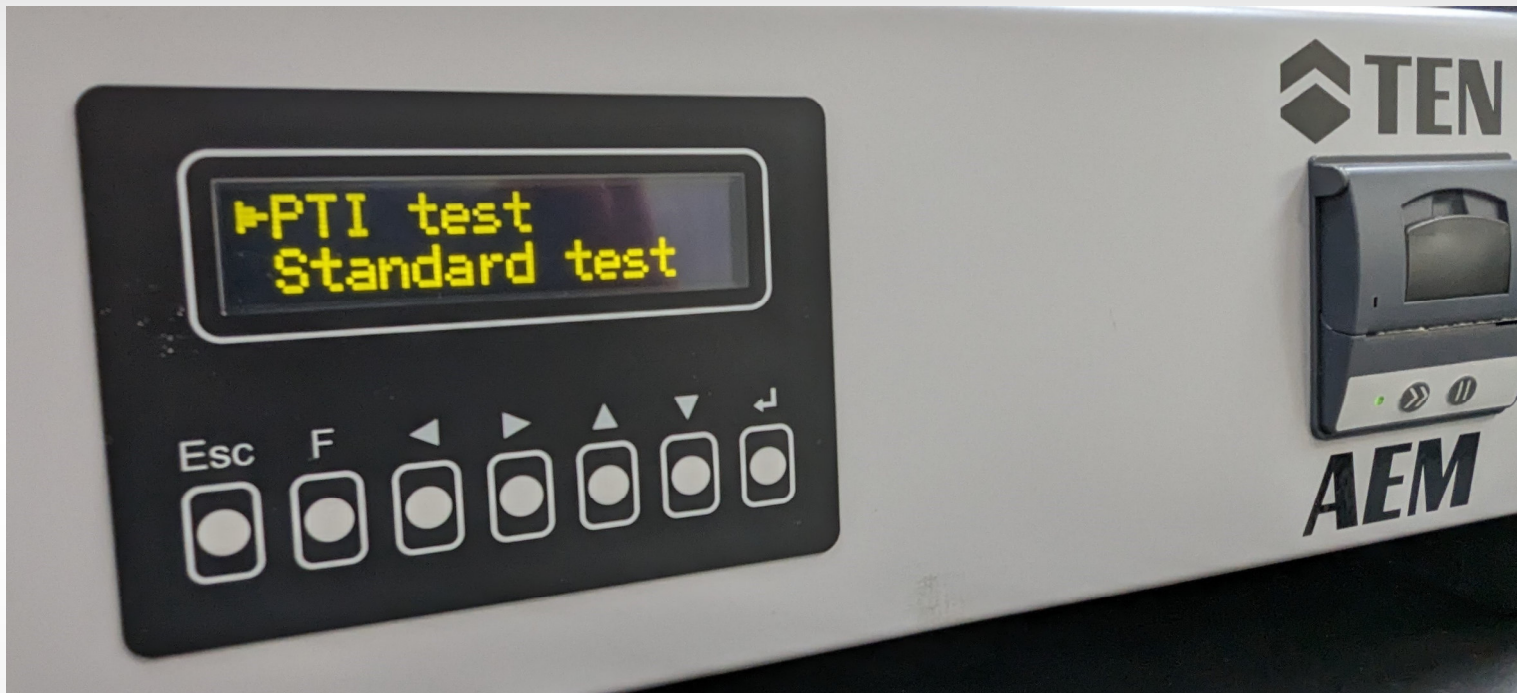
Operation of the TEN AEM Particle Counter

After switching on, the TEN AEM particle counter takes approximately 8 minutes to warm up, performing initialisation and system test routines and Leak Check.

The Main Menu allows selection of PTI Measurement Test or Standard Measurement Test

PTI Measurement Test:

The PTI Measurement Test (Periodic Test Inspection or MOT Test) is carried out in accordance with Government Testing Specification. The results can either be “connected” and sent to a central Server or printed if required.



Standard Measurement Test

Continuous measurement for various test purposes. Pre-MOT, or just to detect a leak in the exhaust system after a repair, or forced regeneration of the DPF. The standard measurement takes a maximum countdown of 900 seconds (15 minutes). After this, a zero point calibration is performed automatically and the 900 second measurement period restarts..

Leak Check test

The Leak Test checks the integrity and complete flow system of the AEM, from the sample probe to the pump. During the leak test, the exhaust probe is closed and a vacuum is created by the pump. The leakage decay must not exceed 60 hPa during the 15 second test period. The Leak Test is checked monthly, manually at any time through the main menu or according to Government Specification.

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Compact and Portable

The introduction of Particulate measurement is being introduced into many European Countries PTI Testing as well as Enforcement with random roadside testing. TEN AEM is a self-contained, portable unit with only 100w power consumption so it can be powered with an “off the shelf” 12 volt inverter or a small generator.

Features:

- Heated sample probe 2.5m or 4.0m Length
USB, RS232 and Bluetooth Communication
- Stabilized measuring chamber temperature
- Automatic flow control
- Automatic filter control
- Automatic zero cal. with HEPA filter
- Available in UK Grey or Red Cover Colour Scheme



Specifications:

Frequency : 50 Hz
Max Power : < 100 W
Display : OLED
Particle size : 80 Nm
Measuring range : 5.000 – 5.000.000 #/cm³
Measurement accuracy : 25.000 #/cm³ of \pm 25%
Response time : < 15 sec.
Measure frequency : 2 Hz
Warm-up time : < 10 min.
Weight : ca. 8 kg
Temperature range : 5 – 40 °C

