Opacity Meter Open Exhaust

The Opacity meter's simple design and portability make it easy to obtain accurate measurements. It provides an accurate means (± 1%) of detecting and measuring the opacity of smoke emitted by a diesel engine. The use of an Opacity (Smoke) meter promotes combustion efficiency for fuel economy and ensures compliance with diesel emission standards set by environmental air quality standards. The complete system consists of a control unit, sensor head assembly, extension pole, various connecting cables, calibration filter, instruction manual and a carrying case.

The Sensor Head Assembly

This is a partial flow sensor head and requires an open exhaust system for use. Attachment of the partial flow head depends on the shape of the stack. Both a straight and curved end is provided. The nozzles are attached with simple snap buckles. The bayonet (straight) nozzle hooks over the straight stack. The curved nozzle has a stop that allows correct positioning. The unit is held in place with strong magnets, which are part of the extension pole assembly. The connecting cable is 25 feet long. Optional lengths of up to 50 foot are available.

The Control Unit

The control unit is operated by a membrane keypad, which consists of eight tactile feedback push buttons. The display is an alphanumeric LCD, containing 16 characters by two rows. In low light situations, the display can be backlit. The display shows the prompts the operator follows throughout the test sequence or during operation. The banana jacks (red and black) allow a 0 –1 VDC output for connection to Taylor's DynPro data acquisition and control system.

Applications

The Model 6500 Smoke Meter can be used on any diesel engine, with primary application in testing trucks, busses, and cars.

Engine Instrumentation Unit required.

Electrical Specifications:

- Light Source: LED - Green Gallium Phosphide 570 NM
- Light Sensor: Si Photo Diode with IRFilter
- Display: (Backlit) Liquid Crystal Display (LCD)
- Meter Accuracy: +1.0% Nominal
- Peak Hold: No Drift
- Analog Output: 0-1 Volt
- Battery: 12V, 2.2 amp hour, sealed, lead-acid cell

Performance Specifications:

- Range: 0.0 - 100.0 % opacity
- Warm Up Time: Negligible
- Response Time/Display: 0.45 seconds for 0-90% opacity
- Linearity: + 1% from 0-100% opacity
- Zero Stability (Drift): Less than 1% in 60 minutes
- Temperature Stability, Sensor Heads: +1% from 32° - 120° F
- Battery Life: 40 hours; 1 hour after low battery indication,
- 8 hours to full charge
- Battery Life (night light on): 1/2 of the above

SMS837v004

Taylor Dynamometer

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