**KISTLER**

measure. analyze. innovate.

# Engine Peak Meter

**Type 2516A2**

## Cylinder Pressure Measuring Instrument for Gas and Diesel Engines

The Engine Peak Meter Type 2516A2 is a rugged measuring instrument for monitoring engines with a speed of up to 4 000 min$^{-1}$. The software for data evaluation contained in the included accessories allows changes in peak pressure to be shown graphically and recorded

- Immediate on-site data evaluation
- 2x20 memory locations
- Software for data evaluation included
- Easy to operate

### Description

The battery-operated measuring instrument measures between 1 and 100 pressure cycles from which it calculates the arithmetic average values of the peak pressure, standard deviation, maximum gradient of the pressure curve as well as the average pressure curve. The numeric data are shown on the LC display and can be saved as required. The average pressure curve plotted can be analyzed with the software for data evaluation contained in the included accessories. Since long indicator pipe cause gas oscillations which falsify the measuring signal, the cylinder pressure signal can be smoothed with an adjustable low-pass filter. The measurement data can be stored in two areas of the memory, each of which holds 20 records ("As found"/"As left"). This enhanced functionality makes the new engine peak meter ideal for balancing the cylinders of gas and diesel engines.

An additional measuring function allows the peak pressure to be displayed without time limitation and sending the analog sensor signal at the monitor output. For continuous monitoring it is recommended to use the power adapter Art. No. 5.510.293.

### Application

The engine peak meter Type 2516A2 is appropriate where sensors of the Type 6613C… are already being used for continuous monitoring. It allows rapid testing of the sensor and the localization of faults in the entire monitoring system.

### Technical Data

| Measuring range | | |
|---|---|---|
| Type 2516A2 | bar | 0 ... 250[1] |
| Input voltage range | | |
| Type 2516A2 | V | 1 ... 7 |
| Sensor sensitivity (adjustable) | mV/bar | 7 ... 40 |
| Accuracy of the pressure value display | % | ≤±0,5 |
| Resolution | bar | 0,1 |
| Range of engine speed | min$^{-1}$ | 50 ... 4 000 |
| Operating temperature range | °C | 0 ... 50 |
| Number of pressure cycles (adjustable) | – | 1 ... 100 |
| Low-pass filter (5th order Butterworth) | Hz | 300, 500, 1 500, 5 000 |
| Number of data memories | | 2 |
| Memory capacity per memory | Data record[2] | 20 |
| Sampling rate per revolution | – | 720 |
| LCD graphic display | Dots | 128x64 |
| Monitor output | – | BNC neg. |
| Output (Monitor) | V | 5 |
| RS-232C interface | – | D-Sub 9 pol. neg. |
| Dimensions Type 2516A2 | mm | 183x92x45 |
| Weight | g | 350 |
| Battery | Type 3 | 9 V/EC6LR61 |
| Life expectancy | h | >10 |

[1]   in combination with Type 6613CA

[2]   A data record consists of numerical measurands, curve trace, number, date and time of the memory location

**KISTLER**

*measure. analyze. innovate.*

## Measuring Functions

| | |
|---|---|
| $p_{max}$ | Maximum peak pressure |
| $p_{min}$ | Minimum peak pressure |
| $p_{av}$ | Average peak pressure |
| $S_{dev}$ | Standard deviation of the peak pressure |
| dp/ca | Maximum gradient of the pressure curve |
| r/min | Speed |
| $p_{peak}$ | Current peak-pressure; measuring function unlimited in time |

## Auxiliary Function

$p_{av}$    Average cylinder peak pressure value $p_{av}$ of the engine. This value is calculated from $p_{av}$ stored in the memory block 1. The calculated value is displayed and instantly updated as new data is entered.

## Pressure Curve

Average pressure curve with a resolution of 720 measuring points per revolution, which can be printed out via the RS-232C interface (ASCII file).

## Software

These pressure curves can be displayed graphically by means of Windows® Software contained in the included accessories. The pressure curves of all cylinders can be overlapped – a feature for verifying the cylinder balancing of the engine.

## Auxiliary Functions

Setting of all measuring parameters with keyboard via LCD menu.

## Monitoring Functions

Battery display with symbol; the Engine Peak Meter switches off automatically 2 minutes after the last button actuation unless this function is deactivated.
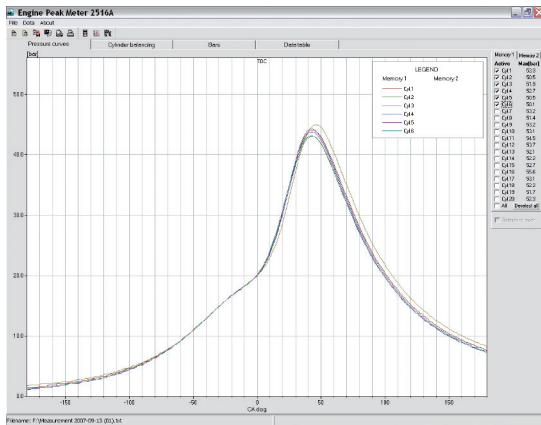


Fig. 1: Cylinder pressure curves of a 6-cylinder gas engine, before and after the maintenance work ("as found"/"as left")
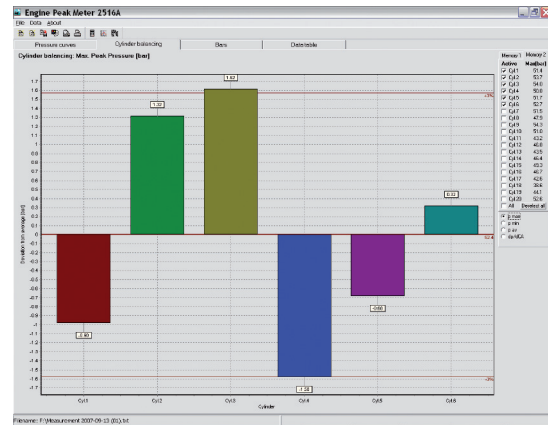


Fig. 3: Cylinder peak pressure deviation $p_{av}$ of each individual cylinder compared to the calculated average peak pressure of the engine, before and after the maintenance work ("as found"/"as left")



Fig. 2: Data table with the numeric values, before and after the maintenance work ("as found"/"as left")
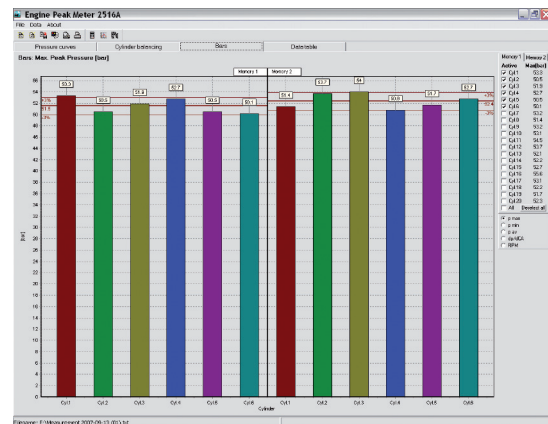


Fig. 4: Bar diagram

2516A_000-553e-04.11

**Ordering Code and Accessories Included**          **Type/Art.No.**

**Engine Peak Meter Type 2516A2**
(without sensor and measuring set in case)
- Software for data evaluation          7.642.025
- RS-232C cable for data transfer          5.590.250
- Adapter cable          5.590.270

**Optional Accessories**
- USB/RS-232C converter          2867

Fig. 5: Scope of delivery Type 2516A10

2516A_000-553e-04.11

SUNSTAR   http://www.sensor-ic.com   TEL: 0755-83376489 FAX 0755-83376182 E-MAIL: szss20@163.con