the cylinder pressure people

## Two-stroke combustion sensor TCS-01®

for application on two-stroke diesel engines

Two-stroke combustion sensor for continuous measurement of cylinder pressure on two-stroke diesel engines (24h per day / 365 days per year).

Characteristics

- Sensor designed for 2-stroke application
- Digital electronic with event storing
- Very good thermodynamic performance
- Marine classification



## Application:

Permanent installation on two-stroke marine diesel engines for cylinder balancing and performance evaluation.
Technical Data

| Measuring range pressure | O... 300 bar |
| :---: | :---: |
| Over pressure static | 400 bar |
| Frequency range | 10 kHz |
| Thermal shock 1500 RPM pmi=9bar | <+/- 0,5 bar |
| Accuracy | $\leq 1 \%$ Fulll scale |
| Max. temperature at measuring cell | $300^{\circ} \mathrm{C}$ (short time $1 \mathrm{~min} 350^{\circ} \mathrm{C}$ ) |
| Temperature range of SCU | $-40^{\circ} \mathrm{C} \ldots+75^{\circ} \mathrm{C}$ |
| Supply voltage | 18... 32 VDC <br> @100 $\Omega$ load: min. 18.0 VDC <br> @ $250 \Omega$ load: min. 20.0 VDC <br> $@ 500 \Omega$ load: min. 24.8 VDC |
| SCU current consumption | $\leq 50 \mathrm{~mA}$ (continuous operation); 250 mA (switchon peak) |
| Output signal | 4... 20 mA |
| Sensitivity | 53,33 $\mu \mathrm{A} / \mathrm{bar}$ |
| Electrical connector | Plug DIN M12 |
| Thread | M10 $\times 1$ |
| Dimension sensor | $52 \mathrm{~mm}, \varnothing 13,5 \mathrm{~mm}$ |
| Dimension electronic | $122 \mathrm{~mm} \times \varnothing 18 \mathrm{~mm}$ |
| Tightening torque | 15 Nm |
| Weight incl. electronic | 252 g |

the cylinder pressure people

General specifications

| Degree of protec- <br> tion | IP 67 (EN 60529) |
| :--- | :--- |
| CE approval | 2004/1008/EG <br> EN 61000-6-2 <br> EN 61000-6-4 <br> EN 61326-1 |
| Marine qualification |  |
| Class NK | TA20507M |

The robust type TCS-01® ${ }^{\circledR}$ sensor for continuous measurement of cylinder pressures on two stroke diesel engines offers outstanding longevity and constant sensitivity.

Cylinder pressure measurements can be made with high precision because of its very good thermodynamic characteristics.

## Mounting

For application on 2- stroke engines the sensor should be installed in a special adapter between cylinder cover and indicator cock.

The sensor is mounted on the flat pressure canal of the adapter with less pockets or less corners this significantly reduces the build-up of combustion depositson at the sensor membrane.

The indicator valve should be opened regularly to blow out the combustion residuals.


TCS-01® mounted on an adaptor before indicator cock


The closed face makes the sensor immune to sooting.

## Connector



1 = supply
3 = pressure signal
4 = signal zero point AGND
5 = programming pin (only used for calibration)
2 = not connected


| Product No. |  |  |  |
| :---: | :---: | :---: | :---: |
| Pressure range |  |  |  |
| Sensor length | Cable length | Static over- <br> pressure |  |

## Optional Accessories

- Adaptor for application on MAN B\&W ME- and MC-C engines
- Adaptor for application on Wärtsilä RTA-/ Rtflex engines
- Adaptor for application on MAN B\&W and ME- and MC-C engines
- Protection cover

Product No.

IW-8005
IW-8009
IW-8014
IW-6211

