CCM Marine 2-stroke performance

*cyliner balancing on 2-stroke Diesel engines incl. performance evaluation*

- Advanced engine balancing
- Easy collection, management and comparison of engine performance data
- Performance graphs and reports show deviation and suggest actions to take
- Clearly illustrated commercial calculations allow to save money by reducing fuel and oil consumption
- Reduced emission

**Application:**
- 2 stroke diesel engines 40...900 RPM

![CCM Marine performance installed on container ship Hedda Schulte](image1)

![Installation of two-stroke combustion sensor TCS-01CA including adaptor on a Wärtsilä 6 RTFlex84 engine](image2)

**CCM Marine PC software**

The CCM Marine PC software for online combustion monitoring on marine diesel engines.
System introduction

The IMES CCM Marine 2-stroke performance is easy to use as an online solution for condition and performance monitoring on 2-stroke diesel engines. The combustion pressure is measured in each cylinder, continuously and in speed range 40...900 rpm.

Technical data

<table>
<thead>
<tr>
<th>CCM Combustion Control Module</th>
<th>Max. 12 analog inputs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multichannel data acquisition unit</td>
<td>Resolution: 0.1° CA</td>
</tr>
<tr>
<td></td>
<td>Interface: Fast Ethernet LAN 100 Mbits/s</td>
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<td></td>
<td>CAN Bus</td>
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<td></td>
<td>Power supply 24 VDC</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Cylinder pressure sensor TCS-01CA</th>
<th>Measuring range pressure</th>
<th>0...300 bar</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Over pressure</td>
<td>400 bar</td>
</tr>
<tr>
<td></td>
<td>Thermal shock 1500 RPM pm=9bar</td>
<td>&lt; +/- 0,5 bar</td>
</tr>
<tr>
<td></td>
<td>Accuracy</td>
<td>≤1% Full scale</td>
</tr>
<tr>
<td></td>
<td>Output signal range</td>
<td>4...20 mA</td>
</tr>
</tbody>
</table>

Cables

<table>
<thead>
<tr>
<th>Cables for TCS-01CA sensor</th>
<th>Habia RTFRO 3x0.75</th>
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<tbody>
<tr>
<td>CAN Bus cable</td>
<td>Lapp UNITRONIC BUS-CAN 1x2x0.34</td>
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</table>
Scope of supply

CCM Marine unit for fixed installation
- Central unit incl. multi channel data acquisition unit 4...12 cylinder
- PC WIN 7 en
- Visualisation software 2-stroke (4 ...12 cylinder) incl. diagrams:
  pressure/CA , Pmax/Pcomp, Pmax balance, Engine report
- Resolution 0.1 °CA
- Input: max. 12 channels
- Power supply: +24 VDC

Order no.
IW –8001

Sensors, cable and accessories
- TCS-01CA sensor range 0...300 bar
  IW-6100
- Sensor connecting cable 10m
  IW-8008
- Terminal box for max. 12 cylinder incl. 10m cable to CCM
  IW-8127
- Ethernet cable 20m
  IW-8130

Adaptors and extension:
- Extension for MAN B&W ME- and MC type engines
  IW-8004
- Adaptor for TCS-01CA sensor for MAN B&W engines
  IW-8005
- Adaptor for TCS-01CA sensor for Wärtsilä engines
  IW-8009
- Indicator valve thread M20x2 for MAN B&W engines
  IW-8006
- Indicator valve thread M20x1,5 for Wärtsilä engines
  IW-8010