BeCOMS®
ADVANTAGES

» **Easy installation**
» **Online and continuous monitoring**
» **Optimisation of the availabilty and reliabilty of the engine**
» **Early and reliable detection of bearing anomalies**
» **No unnecessary inspections of any bearing**
» **Minimising engine maintenance and service costs**
» **Maintenance free**

TECHNICAL DATA

Power supply	24V DC +30% / -25%
Power consumption	continuous 0.8A, peak at startup max. 2.0A
Alarm level	adjustable in: • 5 steps for Thermosignal • RPM for overspeed alarm
Outputs	3 isolated relay contacts: • Shutdown | Main alarm • Pre-alarm • System Ready
Data interface	• RS485 to PC • Modbus (RS422 or RS485) • CAN bus (optional)
Ambient temperature	0 - 70°C for Evaluator 0 - 85°C for SRE

motcom®, BeCOMS® are registered trade marks of motcom GmbH

мотcom GmbH
Kurt-Schumacher-Str.28-30
D-66130 Saarbrücken

Phone +49 (0) 681 – 8837904-0
Fax +49 (0) 681 – 8837904-19
eMail info@motcomgmbh.com
Internet www.motcomgmbh.com
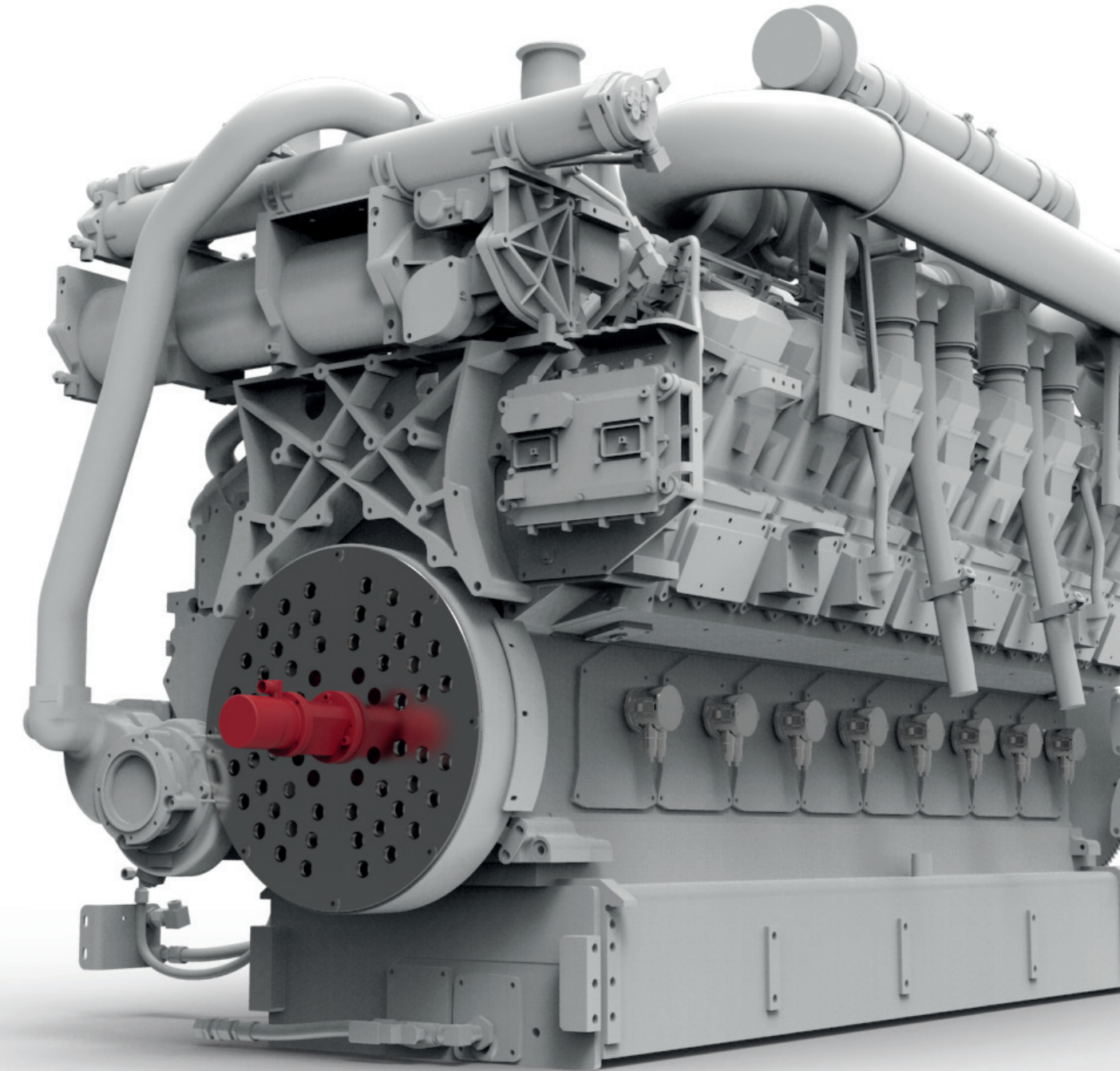
BeCOMS®
Bearing Condition Monitoring

мотcom GmbH | Kurt-Schumacher-Str.28-30 | D-66130 Saarbrücken
Phone +49 (0) 681 – 8837904-0 | **Fax** +49 (0) 681 – 8837904-19
**eMail** info@motcomgmbh.com | **Internet** www.motcomgmbh.com

INTRODUCTION

Damages to bearings can be caused by metal particles within the bearing cleance, low oil pressure, overheated oil, etc.

The result of such malfunctions is a tearing oil film between the sliding parts. As soon as the lubrication film is torn a thermoelectric voltage occurs due to the friction between the different metallic alloys.

The BeCOMS® system utilises this thermoelectric (Seebeck) effect for monitoring the condition of the engine/machine, bearings and slip surfaces, allowing to recognise failures at an early stage. This prevents large-scale part damages resulting in long down times and costly repair.

BeCOMS® Evaluator

Slip Ring Encoder (SRE)
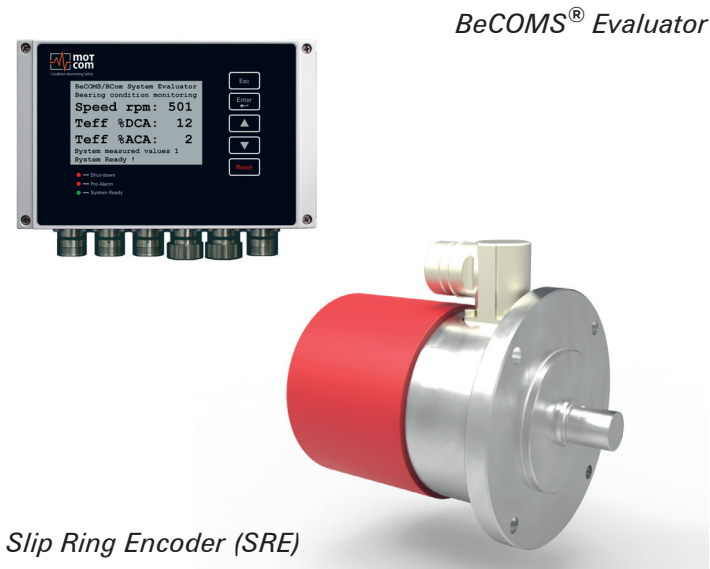
FUNCTIONAL DESCRIPTION

The BeCOMS® system is an online condition monitoring system which measures and analyses the thermoelectric voltage together with the angular positon of the rotating shaft.
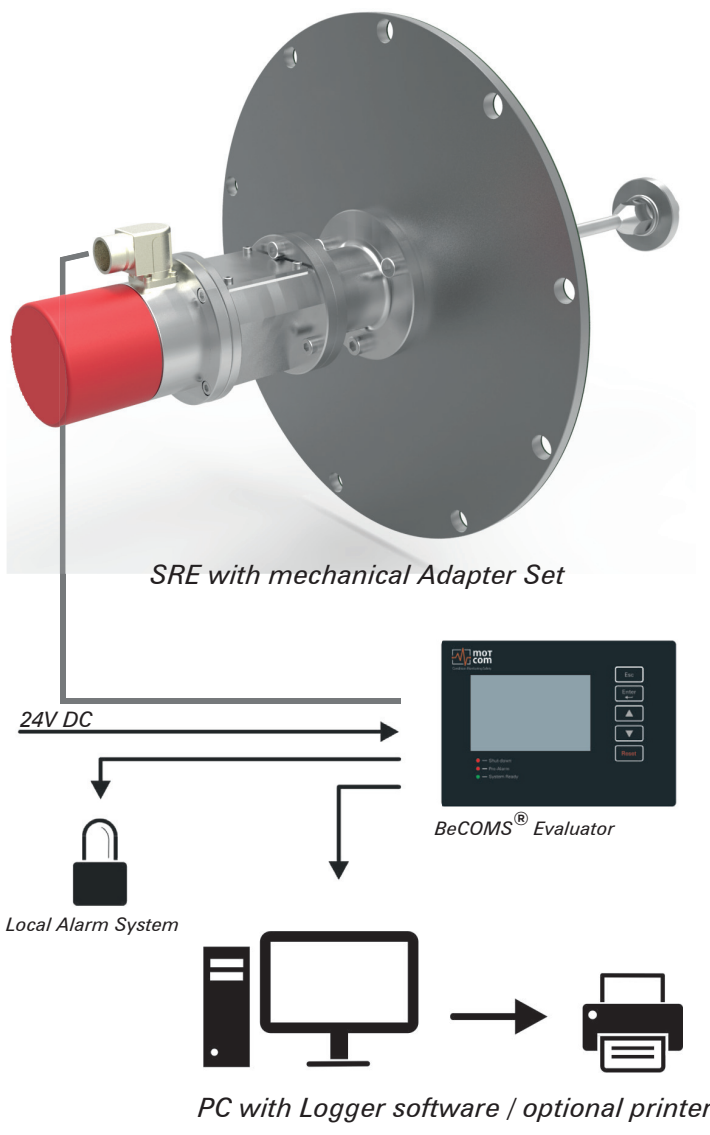
Installed on diesel or gas engines, the BeCOMS® system measures and evaluates the thermoelectric voltage between the crankshaft and bearing shells, signalling changes that can be interpreted as dangerous.

The main parts of the system are the Slip Ring Encoder (SRE), the Evaluator and the specially designed Data Logger software.

SLIP RING ENCODER (SRE)

The Slip Ring Encoder (SRE) contains a specially designed sensor unit with redundant carbon brushes to ensure a fail safe operation. This unit receives the thermo voltage signal from the crankshaft-engine system.

The SRE is also equipped with an incremental encoder to correlate the measured signal with the position of the rotating crankshaft. The SRE is installed on the cover of the free end of the crankshaft. The rotating shaft of the SRE is mechanically attached to the free end of the crankshaft, usually with a vibration damper.

SRE with mechanical Adapter Set

24V DC

Local Alarm System

BeCOMS® Evaluator

*PC with Logger software / optional printer*

EVALUATOR

The Evaluator is designed to withstand the environment in the engine room. Its vibration resistance allows an installation close to the engine without any special support. For installation on the engine, a specially designed vibration damping feature is available. The housing of the Evaluator is water, dust and shock resistant, EMC-proof and complies with protection class IP 66.

The Evaluator consists of a alloy case, a liquid crystal display (LCD), three LEDs indicating the system status and five membrane buttons for user interaction.

A powerful micro controler inside the Evaluator analyses the measured data continously, displays the data on the LCD and triggers the alarm relays in case of dangerous thermoelectric voltage value or overspeed. The bargraph display makes recognising the current measurement data easy. The Evaluator continously checks all system functions, connected sensor and shows detailed messages in case of any error.
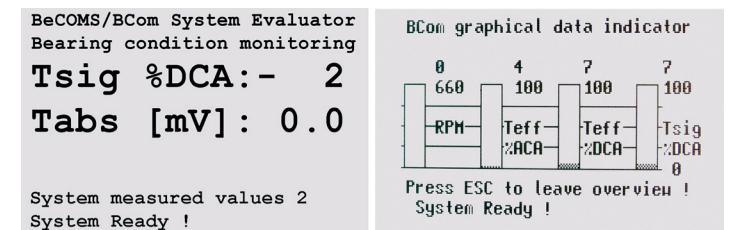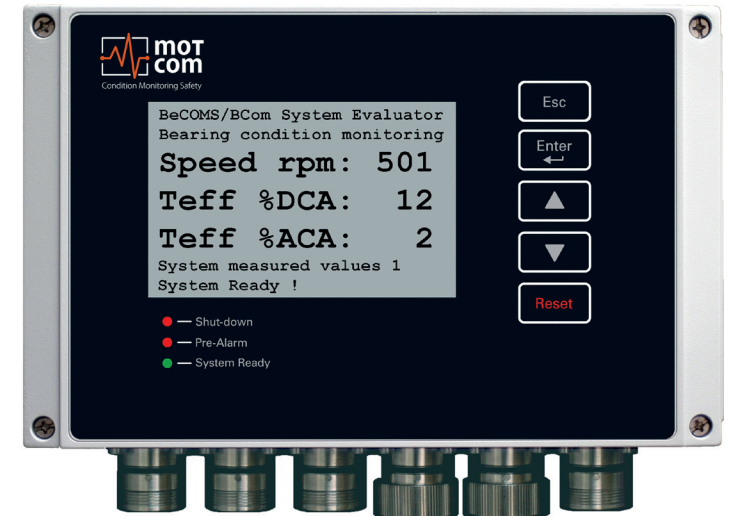
Graphical display BeCOMS® Evaluator

DATA LOGGER SOFTWARE

The Data Logger software is capable of processing measurement data of up to six connected Bcom systems simultaneously. It is used to display and store the data for later analysis. The Data Logger software also supports the localisation of the damage inside your engine. This is done by additionally using the cylinder firing sequence of the engine and the incremental encoder of the SRE.

The combined information is displayed as the "Polar Diagram". It shows the measured thermoelectric voltage over the engine rotation. The diagram also contains the firing sequence of the engine so the operator is able to recognise easily which bearing is affected. The recorded data on the hard disk can be viewed later and analysed in the Data_Indicator application or in the motcom Loganalyser software. This makes long-term trend analysis of engine condition possible enabling the user to exactly determine the optimal moment for maintanance and repair.