ENSERV Knocking Control

KNOCK DETECT

Reliable protection of your engine against damage due to knocking combustion

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▶ Easy installation / commissioning

The knock frequencies of a large number of measured engines (e.g. MAN, LIEBHERR, MITSUBISHI, DEUTZ / MWM ...) are already stored in the device.

Special mounting bolts and pre-assembled cables for the knock sensors and the ignition coil of cylinder 1 (trigger signal) are available as standard.
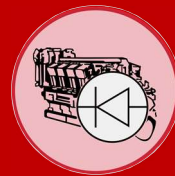
▶ Internet browser as user interface

No additional software for programming and diagnosis is required. Connect the device to your PC via the network of your computer.

On the screen are shown i.a. the current measured values of each individual cylinder, the sum signal of all knock events, the trigger signal of the ignition, the measured speed and the status of the digital inputs and outputs.

▶ Multifunctional interfaces
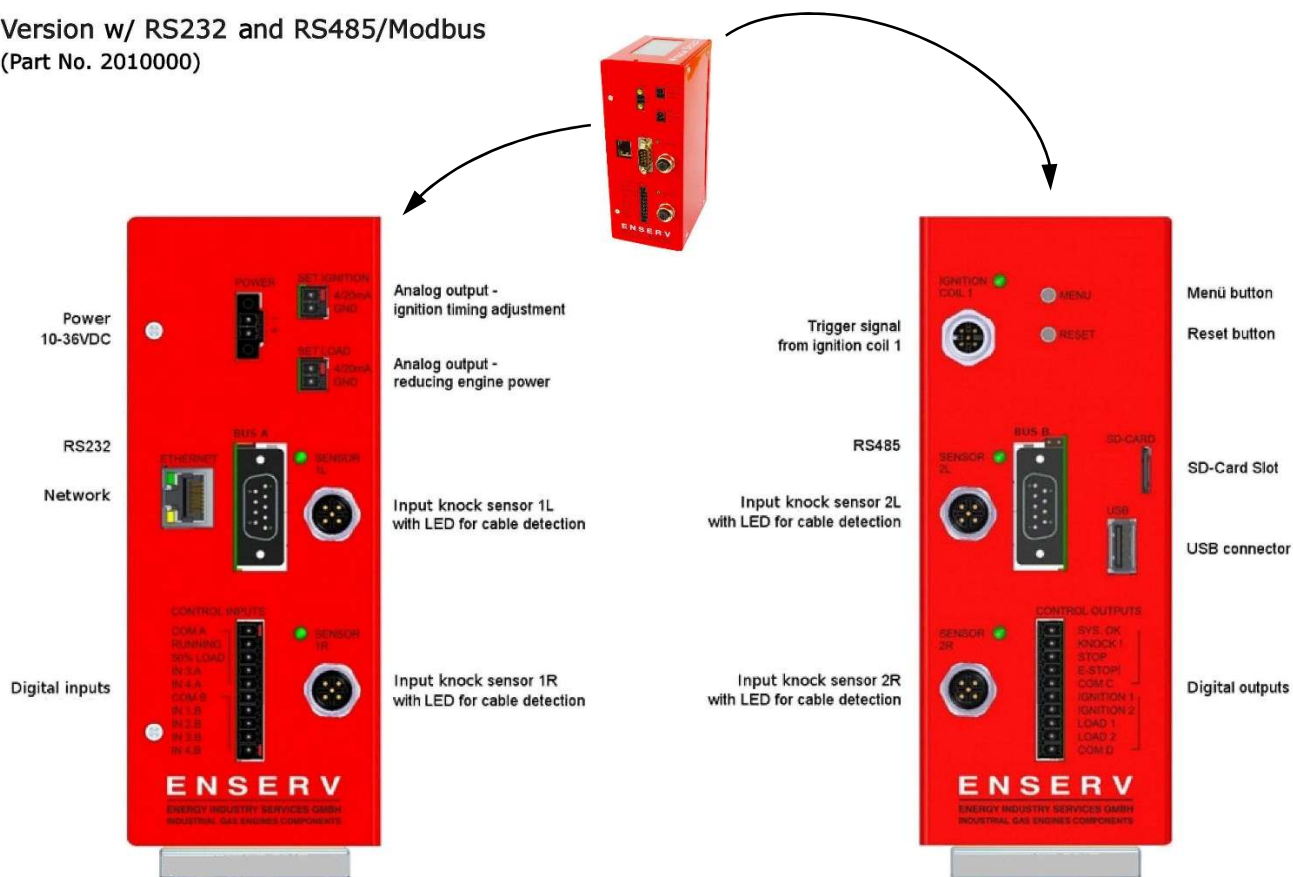
The device has 2 analog (4-20 mA) and 3 digital outputs as well as 2 digital inputs that are freely available for control signals.

Supports Modbus TCP / RTU or alternatively CANopen and Profibus.

ENSERV

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Knock Detect

Version w/ RS232 and RS485/Modbus
(Part No. 2010000)

Power 10-36VDC

POWER — SET IGNITION — Analog output - ignition timing adjustment
4/20mA GND

SET LOAD — Analog output - reducing engine power
4/20mA GND

RS232

Network — ETHERNET — BUS A — SENSOR 1L — Input knock sensor 1L with LED for cable detection

Digital inputs — CONTROL INPUTS
COM A
RUNNING
50% LOAD
IN 3 A
IN 4 A
COM B
IN 1 B
IN 2 B
IN 3 B
IN 4 B
— SENSOR 1R — Input knock sensor 1R with LED for cable detection

IGNITION COIL 1 — MENU — Menü button
RESET — Reset button

Trigger signal from ignition coil 1

RS485 — BUS B — SD-CARD — SD-Card Slot

SENSOR 2L — Input knock sensor 2L with LED for cable detection

USB — USB connector

SENSOR 2R — Input knock sensor 2R with LED for cable detection

Digital outputs — CONTROL OUTPUTS
SYS. OK
KNOCK 1
STOP
E-STOP!
COM C
IGNITION 1
IGNITION 2
LOAD 1
LOAD 2
COM D

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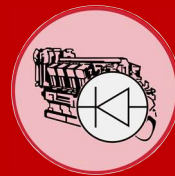INDUSTRIAL GAS ENGINES COMPONENTS

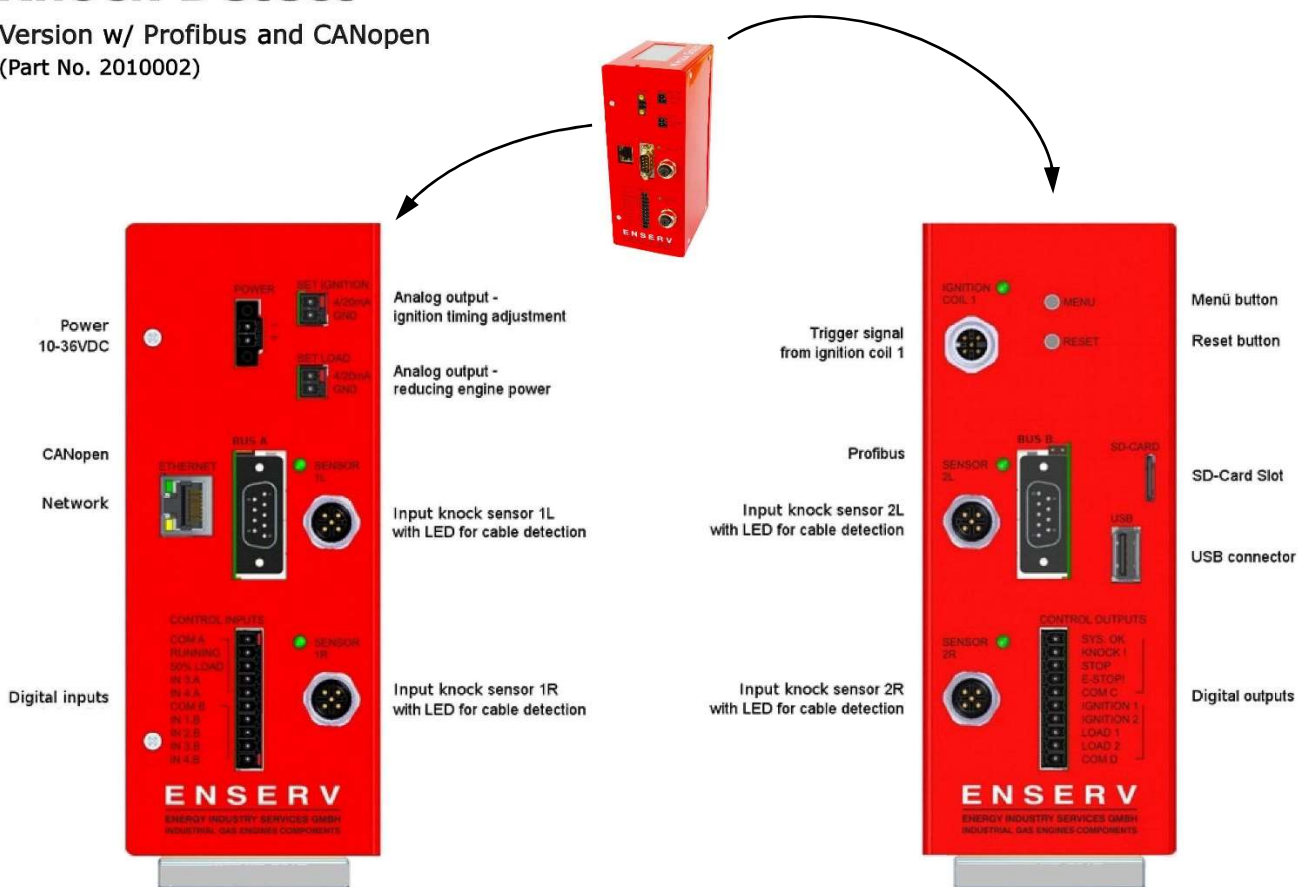**Knock sensor**
P/N 2010010

Accessories

Knock sensor cable
P/N 2010030-x

Various adapter bolts for sensor mounting
P/N – see last page

Knock Detect

Version w/ Profibus and CANopen
(Part No. 2010002)

Power
10-36VDC

POWER SET IGNITION 4/20mA GND

Analog output -
ignition timing adjustment

SET LOAD 4/20mA GND

Analog output -
reducing engine power

CANopen
Network

ETHERNET

BUS A

SENSOR 1L

Input knock sensor 1L
with LED for cable detection

Digital inputs

CONTROL INPUTS
COM A
RUNNING
50% LOAD
IN 3 A
IN 4 A
COM B
IN 1 B
IN 2 B
IN 3 B
IN 4 B

SENSOR 1R

Input knock sensor 1R
with LED for cable detection

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INDUSTRIAL GAS ENGINES COMPONENTS

IGNITION COIL 1

MENU
RESET

Menü button
Reset button

Trigger signal
from ignition coil 1

Profibus

SENSOR 2L

BUS B

SD-CARD

SD-Card Slot

Input knock sensor 2L
with LED for cable detection

USB

USB connector

SENSOR 2R

CONTROL OUTPUTS
SYS- OK
KNOCK !
STOP
E-STOP!
COM C
IGNITION 1
IGNITION 2
LOAD 1
LOAD 2
COM D

Digital outputs

Input knock sensor 2R
with LED for cable detection

ENSERV
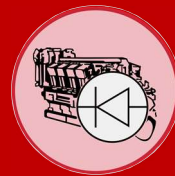ENERGY INDUSTRY SERVICES GMBH
INDUSTRIAL GAS ENGINES COMPONENTS

Trigger cable for ignition impuls cylinder 1
P/N 2010031-x

Trigger cable for Diesel- and Bi-Fuel engines
P/N 2010015 – w/ mechanical injection
P/N 2010016 – w/ electronical injection

Accessories

**Water plug adapter
for MAN engines**
P/N 2010044

Available system components

Part No.	Description
2010000	*KNOCK DETECT* with RS232 and RS485/Modbus
2010002	*KNOCK DETECT* with CANopen and Profibus
2010003	*KNOCK DETECT* for Diesel- and Bi-Fuel engines
2010009	*KNOCK DETECT* Demo case
2010010	*Knock sensor* (on each engine application are max. 4 sensors possible)
2010020	*ModConCabinet* Control cabinet, 300 x 300 x 200 mm
2010030-4	*Sensor cable,* cable length 4 m
2010030-6	*Sensor cable,* cable length 6 m
2010031-1,5	*Trigger cable* to ignition coil cylinder #1, cable length 1,5 m
2010031-4	*Trigger cable* to ignition coil cylinder #1, cable length 4 m
2010031-6	*Trigger cable* to ignition coil cylinder #1, cable length 6 m
2010031-8	*Trigger cable* to ignition coil cylinder #1, cable length 8 m
2010015	*Trigger cable* for Diesel- and Bi-Fuel engines, mechanical injection
2010016	*Trigger cable* for Diesel- and Bi-Fuel engines, electronical injection
2010040	*Adapter bolt* for knock sensor, M10 x 1,5/M8, with nut M8
2010041	*Adapter bolt* for knock sensor, M12 x 1,5/M8, with nut M8
2010042	*Adapter bolt* for knock sensor, M14 x 1,5/M8, with nut M8
2010043	*Adapter bolt* for knock sensor, M12 x 1,25/M8, with nut M8
2010044	*Water plug adapter* for 8 and 12 cyl. MAN engines
2010045	*Adapter bolt* for knock sensor, M12 x 1,75/M8 with nut M8 (for DEUTZ 2015)
2010046	*Adapter bolt* for knock sensor, M14 x 2,0/M8, with nut M8
2010047	*Adapter bolt* for knock sensor, M8 x 1,25/M8, with nut M8 (for DOOSAN, MAN)
2010048	*Spacer* for DEUTZ 2015

Subject to changes and errors.