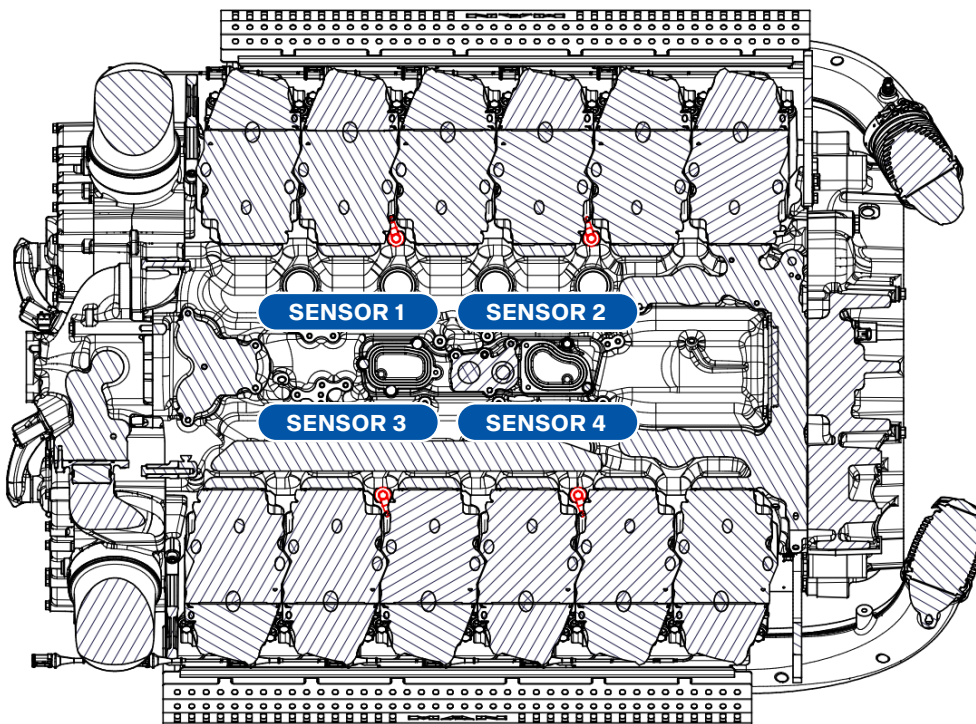


# DetCon20 – Handling of 4 knock-sensors at MAN® E3872LE2xx gas engines

The MAN® defines the standard scope of supply for E3872LE engines with pre-installed BOSCH® knock sensors (type KS4). Four sensors are mounted at the engine crankshaft body, two sensors per bank. The DetCon20 is now approved by MAN® for this engine and the DetCon20 Knock-Parameter file is available with every DetCon20 delivery.

It is mandatory that the knock detection is tested at each engine on site.

Please see further details on commissioning in the DetCon20 Manual which is delivered with each device on USB-stick.



**Figure 1: knock-sensor position E3872LE**

The MOTORTECH KnockDetection DetCon20 can be set up as follows to handle 4 knock sensors and to identify each individual cylinder in knock events.

## Knock-sensor wiring information E3872/LE with 4 knock-sensors:

- Wire knock-sensor 1 to Detcon20 input 3 and bridge to input 1 and 5.
- Wire knock-sensor 2 to Detcon20 input 9 and bridge to input 11 and 7.
- Wire knock-sensor 3 to Detcon20 input 10 and bridge to input 8 and 12.
- Wire knock-sensor 4 to Detcon20 input 4 and bridge to input 6 and 2.

## Required software:

DenEdit version 1.6.1.2 (Device software version 2.5).

The \*.dep parameter-file will be delivered with the USB-Stick of the DetCon20.

### DenEdit recommended settings:

It is required that each engine is checked in the settings when the DetCon20 is assembled. The knocking behavior of the engine should also be checked in order to fine-tune the tested settings. Especially the **Outputs options** have to be adjusted to onsite specifications:

- Ignition Reduction Limit
- Immediate Stop Limit
- Decrease Ramp
- Timing Reduction Gain
- Delay after Load Reduction

### E3872LE

### Knocking parameter settings

Mode	Knocking params	Input gains	Outputs options	CAN params
Engine type				
<input type="radio"/> In-line <input checked="" type="radio"/> V-type <input type="radio"/> Irregular				
<input type="radio"/> 2-stroke <input checked="" type="radio"/> 4-stroke           V - angle: 90           Cylinder count: 12				
Detonation window parameters				
Deton. window delay: 32,7 [°]           Deton. window width: 24,5 [°]				
Knock filter frequency: 4660 [Hz]           Ref. filter frequency: 1780 [Hz]				
Attenuation: 0,500 <input type="radio"/> KNOCK <input checked="" type="radio"/> REF				
Offline SW ver. 2.5 D-20				

### Gain settings

Mode	Knocking params	Input gains	Outputs options	CAN params
Channel 1: 300 Channel 3: 250 Channel 5: 300 Channel 7: 300 Channel 9: 250 Channel 11: 300				
Channel 2: 300 Channel 4: 250 Channel 6: 300 Channel 8: 300 Channel 10: 250 Channel 12: 300				
Default				
Offline SW ver. 2.5 D-20				

### Outputs options (settings)

Mode	Knocking params	Input gains	Outputs options	CAN params
Ignition reduction limit: 12,9 [%]           Delay after load reduction: 1,0 [s]           Trip contact inactive: <input checked="" type="radio"/> CLOSE <input type="radio"/> OPEN				
Immediate stop limit: 69,8 [%] <input type="checkbox"/> Reverse analog output				
Decrease ramp: 25,0 [%/s] <input checked="" type="checkbox"/> Enable max. output setting				
Timing reduction gain: 40,0 [%] <input checked="" type="checkbox"/> Enable knock LED latch (switch OFF/ON to reset)				
Maximum output value: 100,0 [%] <input type="checkbox"/> Enable bad sensor detect           Name of controller: Setpoints				
Offline SW ver. 2.5 D-20				

### Order information:

1 pc	43.00.020	DetCon20 Control unit
4 pcs	43.30.034-60	Detonation sensor lead, 2-pole, 180°
1 pc	43.20.002	ISU ignition sensor unit (optional required, when no MOTORTECH MICx Ignition Controller is used)