E²KNOCKCON-c

E²KNOCKCON-c is an extremely compact anti-knock controller for up to 20 cylinders with a variety of extra functionality.

The c-series of the E²KNOCKCON family offers in a compact size reliable knock detection and anti-knock control with high sensitivity.

Up to 20 sensors for structure-borne sound are mounted on the engine and connected directly to E²KNOCKCON-c.

Sophisticated digital signal processing algorithms filter the knock information reliably even under challenging acoustic conditions.

E²KNOCKCON-c computes knock levels and ignition timings for each engine working cycle and transfers them to the engine control system or to the ignition system directly.

But there is far more useful data in structure-borne sound than that. E²KNOCKCON-c reliably detects misfiring with no extra sensors and considerably faster than other methods.

In combination with E²SERVICE the number and the maximum value of the knocking events as well as the number of misfires within the last 5 and 50 operating hours are displayed cylinder-individually as chart and spreadsheet. Affected cylinders will be detected instantly and thus maintenance activities can be planned efficiently.

E²KNOCKCON-c is easily integrated into engine control systems and PLCs via CAN bus.

HIGHLIGHTS

- High sensitivity and selectivity
- Cylinder-individual knock detection and anti-knock control
- Reliable misfire detection
- Misfire and knock statistics in clearly arranged form
- Direct communication to Motortech MIC3+, MIC4 and MIC5 ignition systems
- Library for Bachmann PLC included (others on request)

APPLICATION AREA

VERSION	E²KNOCKCON-c4	E²KNOCKCON-c20
Part number	3 000 300	3 000 305
Dimensions in mm (H×W×D)	124 × 113 × 65	124 × 168 × 65
Installation	35 mm top hat-rail, DIN EN 60715	
ELECTRICAL DATA		
Supply voltage	DC 24 V	
Range of supply voltage	DC 18 ... 32 V	
Typical current consumption	180 mA / 24 V	
Typical power consumption	4 W	
EMC limit values	EN 61326-1[a)], DIN EN 61000-6-2 and DIN EN 61000-6-4	
Knock sensors with piezoelectrical signal	4 knock sensors	20 knock sensors
Connection speed / timing sensors	Passive 2-wire sensors: signal threshold 2 ... 100 V_{pp} or active sensors: input voltage range DC ±53 V	
DATA INTERFACES		
Data link to ECS	CAN SAE-J1939 standard protocol or CANopen	
Data link to the ignition system (optional)	CAN SAE-J1939	
Connection to service PC	USB 2.0	
AMBIENT CONDITIONS		
Operating temperature	- 25 ... + 75 °C	
Storage temperature	- 25 ... + 85 °C	
Humidity	0 ... 95 % relative humidity; not condensing	
Vibration resistance	IACS UR E10.7 vibration, IEC 60068-2-6 2 ... 13,2 Hz: s = ±1.0 mm; 13,2 ... 100 Hz: a = ±0,7 g	
Protection class	IP20 (EN 60529)	

a) Impulse voltages › 0.5 kV (line / line) or › 1 kV (line / earth) require an external protective circuit.
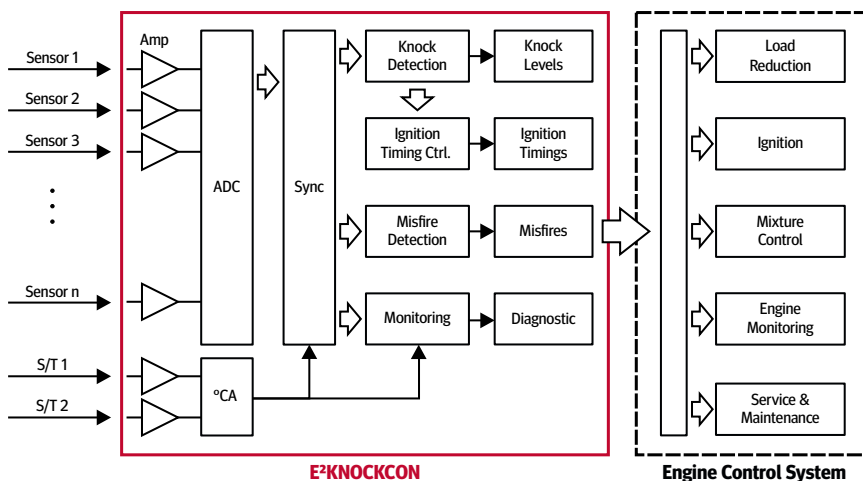
E²KNOCKCON-c computes knock levels, ignition timings and misfire information for each cylinder and every engine working cycle. This data is synchronously transmitted to the engine control or ignition system, where it is used for various purposes.