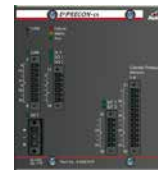
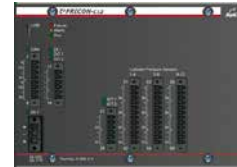


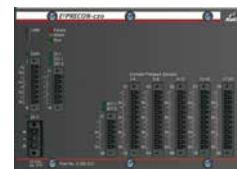
E²PRECON-c20 for up to 20 sensors



E²PRECON-c4



E²PRECON-c12



E²PRECON-c20

E²PRECON-c

E²PRECON-c processes data from up to 20 cylinder pressure sensors and provides real-time combustion characteristics for monitoring and closed-loop control.

With the E²PRECON family AVAT has pioneered cylinder pressure based engine control since 2006.

The c-series offers comprehensive real-time cylinder pressure analysis in a compact size.

E²PRECON-c supports a wide range of cylinder pressure sensors from various manufacturers. Using well-proven digital signal processing algorithms E²PRECON-c computes combustion characteristics for each cylinder and every combustion cycle. These are the key parameters engine builders need to implement advanced combustion control, monitoring and diagnosis.

Incorporating thermodynamic models, E²PRECON-c calculates the net heat release rate (netHRR). From this, important combustion parameters such as heat release (HR), start, duration and center of combustion (SoC/DoC/CoC) are computed. Indicated mean effective pressures (IMEP), peak pressures and knock levels are also provided.

Since cylinder pressure sensors have a limited life time, sensor health monitoring and signal plausibility checks are included.

E²PRECON-c is easily integrated into engine control systems and PLCs via CAN bus.

HIGHLIGHTS

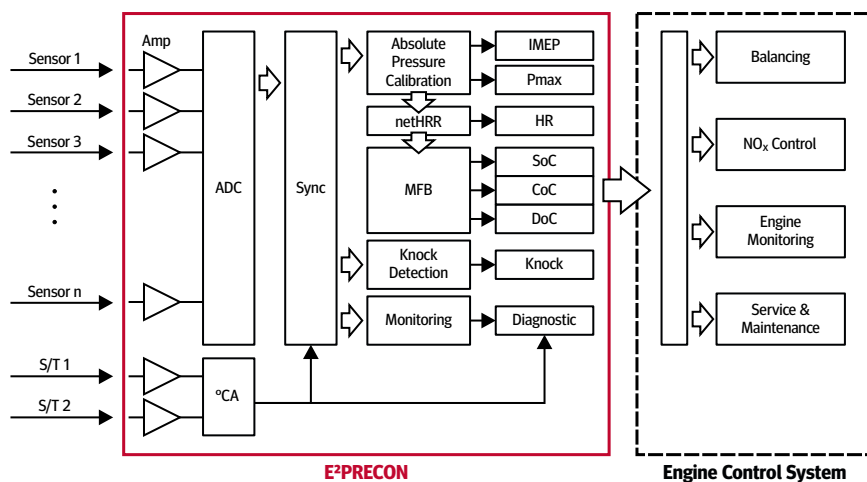
- Your key to cylinder pressure based combustion control
- Enables balancing, misfire and knock detection
- Cylinder-individual combustion characteristics
- Service tool assists in engine diagnostics and optimization
- Library for Bachmann PLC included (others on request)

APPLICATION AREA

DESIGNATION	E ² PRECON-c4	E ² PRECON-c12	E ² PRECON-c20
Part number	3 000 310	3 000 311	3 000 312
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 ... 25 Hz: s = ±1.6 mm; 25 ... 100 Hz: a = ±4 g		
Protection class	IP20 (EN 60529)		
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		
Cylinder pressure sensors 4 ... 20 mA (0 ... 5 V) ^{b)}	4 sensors	12 sensors	20 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		
Ignition system (option)	CAN SAE-J1939 or CANopen		
Connection to service PC	USB 2.0		
MECHANICAL DATA			
Dimensions in mm (H×W×D)	119 × 110 × 61	119 × 165 × 61	119 × 165 × 61
Installation	35 mm top hat-rail, DIN EN 60715		

a) Impulse voltages >0.5 kV (line/line) or >1 kV (line/earth) require an external protective circuit.

b) On request.



E²PRECON-c computes IMEP, peak pressure, heat release, combustion timings and knock levels for each cylinder and every engine working cycle. This data is transmitted synchronously to the engine control system where it is used for various purposes.