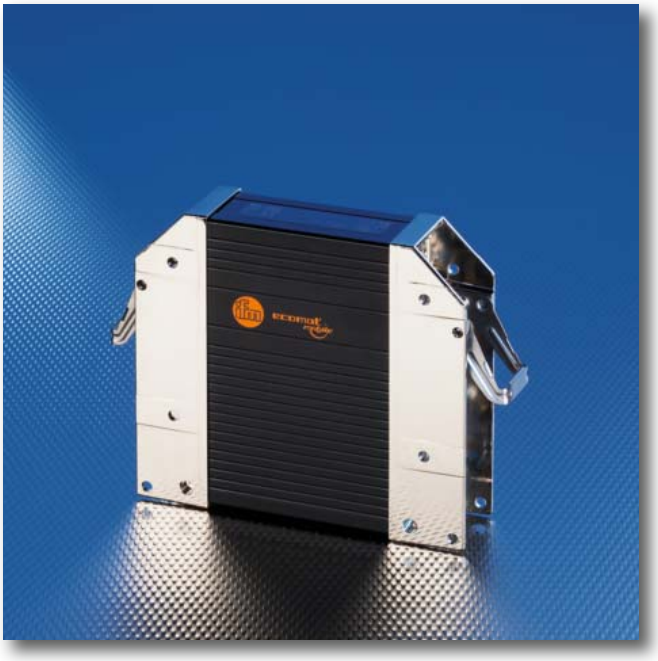
Many inputs and outputs for little money



SmartController XL with 64 multifunctional inputs and outputs

- **Analogue and digital I/O with diagnostic function for mobile applications**
- **For complex control functions in mobile machines**
- **3 CAN interfaces with CANopen and SAE J 1939 protocol**
- **Freely programmable with CODESYS 2.3 to IEC 61131-3**
- **E1 type approval of the Kraftfahrtbundesamt (German Federal Motor Transport Authority)**

ecomat® mobile

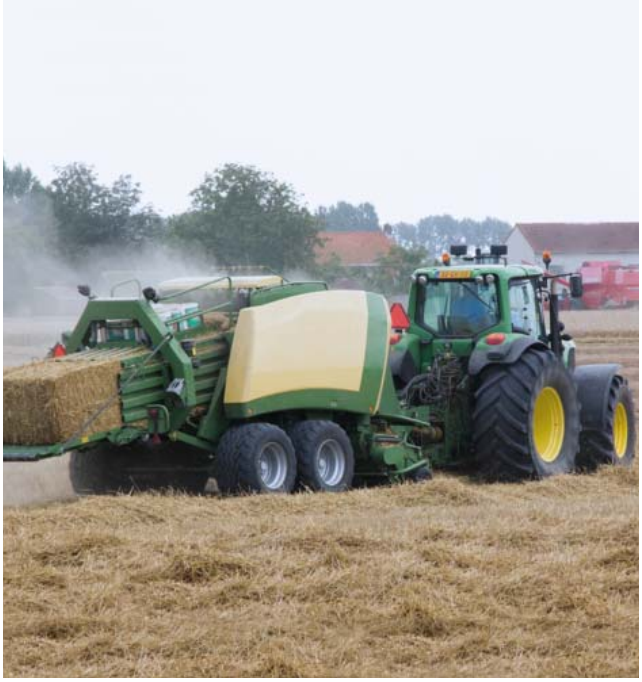
E1 | IP 67 | Vibration and shock resistant | CAN open®

SmartController for mobile machines

ifm electronic has launched the SmartController XL in response to market demand for a low-cost compact controller for mobile applications. Offering 64 inputs and outputs, it can be used as a main controller for small machines or in applications for processing of analogue and digital sensor and actuator signals.
The SmartController XL was developed particularly for use in off-highway and mobile machines on the basis of the current standards and long-term experience.

Flexible networking

Networking of the modules with the CANopen protocol on the powerful CAN bus allows quick implementation of the application. Three integrated CANopen interfaces serve for the flexible and powerful extension of the system with further I/O or control modules. Also, the exchange of SAE J 1939 engine data is easy to carry out via these interfaces.



Functions and advantages

- **Mechanical design**

  The two-part control electronics integrated into a compact metal housing provides all necessary connections for the inputs and outputs, communication and programming via the reverse-polarity protected central plugs suitable for mobile applications.

- **Powerful electronics**

  The integrated 32-bit processor and the electronics are optimised for mobile applications. The inputs and outputs distributed over two device units can be adapted to the application via the user program. The two-colour status LED displays the most important system messages.

- **Configurable inputs / outputs**

  The inputs / outputs can be freely configured by the user. Digital inputs, analogue inputs for current or voltage, inputs with diagnostic capability and fast pulse inputs are available. The outputs can be set as digital outputs, PWM and current-controlled outputs.

- **Programming to IEC 61131-3 with CODESYS**

  The CODESYS software enables clear and easy creation of the application software for the user. The SmartController XL supports all common CODESYS programming languages. Simple and clearly structured function libraries are available for communication and special device functions.

- **CAN-interfaces with CANopen protocol**

  The SmartController XL is equipped with three CAN interfaces to ISO 11898. Using these, data can for example be exchanged with the connected display, further I/O modules or an engine controller. The interfaces support, among other things, the CANopen and the J 1939 protocol.

  The CAN interfaces are also used for programming. To do so, the device electronics are directly and conveniently activated via the powerful PC interface CANfox. This enables users to load the operating system and the application program or to change parameters.
  The basic unit of the controller is linked directly to the integrated, pre-configured I/O extension via a CAN connection.

Applications:

- Compact construction machines
- Agricultural machines
- Municipal vehicles

Products

Description	Order no.
SmartController XL, 32 bits, 16 I / 16 O	**CR2532**
Connector, 55 poles (wirable)	**EC2013**
Cable with connector 55 poles, 1.2 m	**EC2086**
Programming cable with USB adapter, 2 m	**EC2096**
Programming software CODESYS, German V2.3	**CP9006**
Programming software CODESYS, English V2.3	**CP9008**

Technical data

SmartController XL CR2532		
Housing		closed metal housing with flange fastening
Device connection		AMP connector 55 poles latched, protected against reverse polarity
Protection		IP 67
Operating voltage	[V DC]	8...32
Current consumption	[mA]	≤ 100
Temperature range	[°C]	-40...85
Indicators	LED	red / green
Controller		Freescale PowerPC
Number of inputs (configurable)		32
Digital (positive / negative sensor signals), Diagnosis, analogue (0...10 / 32 V, 0...20 mA, ratiometric)		8
Digital (positive sensor signals), diagnosis Resistance measurement (16 Ω...30 kΩ)		4
Digital (positive sensor signals) Frequency (≤ 30 kHz)		8
Digital (positive sensor signals)		12
Number of outputs (configurable)		32
Digital, positive-switching, PWM output (2 A)		16
Digital, positive-switching, PWM output (2 A) Current-controlled (2 A)		4
Digital, positive-switching, PWM output (4 A) (alternative 2x analogue output 0...10 V)		8
Digital, positive-switching (2 A)		8
Interfaces		3 x CAN
Supported CAN protocols		CANopen (CiA DS 301 V4), SAE J 1939
Program memory	[kB]	1536
Data memory RAM	[kB]	592
Data memory non-volatile	[kB]	2
Programming software		CODESYS V 2.3
Standards and tests (extract)		CE, E_1 (UN-ECE R10) EN50155 / EC50121