ecomatController V3 – standard and safety controller in one unit

Controllers

- Powerful 32-bit triple-core controllers with large application memory in one unit

- Can be used as safety controller (SIL 2 / PL d) with CANopen Safety support

- Independent internal controllers with scalable I/O assignment for standard and safety applications

- Two Ethernet ports with internal switch

Ethernet

CODESYS

IP 65 IP 67

Temperature range −40...+85°C

SIL 2 PL d

E₁

Powerful standard and safety PLC in one unit

Modern vehicles and mobile machines need very powerful control electronics to process the high number of input and output signals.
That is why the new third generation ecomatController was developed. It has two independent, internal PLCs, one of them certified as a safety controller.

In addition to its multifunctional inputs and outputs with diagnostic capabilities, the unit features two Ethernet ports and four CAN interfaces. The CAN interfaces support all important bus protocols (CANopen, CANopen Safety and J1939) as well as the transparent and preprocessed data exchange. The control functions are easily integrated into the application program thanks to CODESYS programming (version 3.5).

Features and benefits

Sturdy mechanical design

The control electronics are integrated into a compact metal housing with front-mounted, coded central plugs for mobile use, providing all the necessary connections for inputs, outputs, communication and programming. RGB status LEDs indicate the most important system messages.

• Powerful electronics

The core of the controller, which has been designed according to the applicable standards for electronics in mobile applications, is one of the most advanced multi-core 32-bit processors with 300 MHz clock frequency. Its 6 MByte application memory includes a 1 MByte file storage system.

Two internal, independently programmable controllers allow for subdivision of the application software if required. Consequently, the safe program part can be executed without interference from the general program execution. This ensures reliable operation even with complex control functions. The controller can be used in applications up to ISO 13849 PL d and IEC 62061 SIL CL 2.

• inputs and outputs

The inputs and outputs can be configured as digital, frequency or analogue inputs with diagnostic function or as inputs for resistance measurement. The analogue inputs enable both current and voltage measurement. The outputs can be configured as digital or PWM outputs with diagnostic capabilities, with or without current control.

All inputs and outputs can also be configured as safe channels if required. Thus, safe sensors and actuators can be directly connected and processed in the application software.

• Programmable to IEC 61131-3 with CODESYS

Programming is done by means of the standardised IEC 61131-3 languages. Established and certified libraries are available for special functions and safe applications.

Maintenance, diagnosis and updates are performed using TFTP via Ethernet and the maintenance tool. Additionally, these functions can be accessed via an application interface for ifm's PDM displays and via a software development kit for customer applications.

• Interfaces with extended functionality

Besides an RS-232 interface and the Ethernet interface with internal switch, all controllers provide four CAN interfaces to ISO 11898.
All CAN interfaces support the essential bus protocols CANopen, CANopen Safety and J1939.

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ecomatController	Order no.		
	CR711S	CR720S	CR721S
Number of inputs (can be configured)			
Analogue Multifunctional/digital	16	24	24
Frequency/digital (pos./neg. signals)	8	16	16
Resistance/digital	4	4	4
Digital	4	16	24
Sensor supply	•	•	•
Number of outputs (can be configured)			
PWMi/digital 4.0 A/ H-bridge	6	8	12
PWMi/digital 4.0 A	3	4	6
PWMi/digital 2.5 A	9	12	18
Digital 2.5 A	9	12	18
Analogue output	1	2	2

Common technical data ecomatController		
Housing		metal housing
Device connection		1 x 81-pole Tyco/AMP, 4 x M12 – CR071x
		2 x 81-pole Tyco/AMP, 4 x M12 – CR072x
Protection		IP 67
Operating voltage	[V DC]	8...32
Temperature range operation/storage	[°C]	-40...85
Indication		8 x status LED
CAN interface	CAN	ISO 11898, 20 kbits/s...1 Mbit/s
	Ethernet RS232	10/100 Mbits/s 9.6...115.2 kbits/s
Protocols	CAN	CANopen, SAE J 1939 or free protocol
	Ethernet	TCP/IP, Modbus
Programming		CODESYS V 3.5
Application memory	[MB]	6
Safety-related characteristics		IEC 62061 SIL CL 2 ISO 13849-1 PL d
Standards and tests (extract)		CE, E1 (UN-ECE R10), EN 50 155

Accessories Description	Order no.
Connection cable, 58-pole, 2.5 m, plug code A	**EC0710**
Connection cable, 81-pole, 2.5 m, plug code A	**EC0711**
Connection cable, 47-pole, 2.5 m, plug code B	**EC0720**
Connection cable, 73-pole, 2.5 m, plug code B	**EC0721**
Plug unwired incl. contacts, code A	**EC0701**
Plug unwired incl. contacts, code B	**EC0702**
Ethernet cable cross-link, 2 m, M12/RJ45, PVC	**E11898**
CAN programming interface CANfox	**EC2112**
Adapter set CAN/RS232 for CANfox	**EC2113**

For further technical details please visit: ifm.com