ioControl – rugged I/O module with integrated controller

I/O modules

I/O module for mobile applications with high protection rating and DEUTSCH connectors or M12 connectors.

Can be used as independent, CODESYS-programmable mini controller

Display and keyboard interface for parameter setting

Configurable input/output function

Two CAN interfaces with CANopen and J1939 protocol

Decentralised I/O module and mini controller in one unit

ioControl is a decentralised I/O module connected to the controller via CAN bus. It is installed away from the controller on remote machine parts right where the signals are generated. The high protection rating makes it suitable for outdoor installation in wet and dirty areas.

DEUTSCH connectors or alternatively M12 connectors, which are widely used in mobile automation, ensure an easy and safe connection of sensors and actuators. Networking of the CAN bus is effected via prewired drop cables.

ioControl can either be used as a configurable I/O module or as a mini controller in the field. CODESYS is used as a programming system.

Features and benefits

The decentralised I/O modules of the ioControl system connect binary and analogue sensors to a controller via CAN bus using the CANopen protocol. Furthermore, I/O modules provide additional functions for signal preprocessing.
The compact, glass-fibre reinforced housing features reverse-polarity protected DEUTSCH connectors or M12 connectors suitable for mobile use, providing all the necessary connections for inputs, outputs, communication and programming. An integrated two-colour LED display with keyboard serves to indicate the most important system messages, the baud rate and the node number as well as for device configuration.
An extensive range of connection cables completes the offer.

- **Configurable inputs and outputs**

  A high degree of flexibility is provided by the configurable inputs and outputs. There is a choice of analogue and digital inputs. The analogue inputs can be set as current inputs (0...20 mA) or voltage inputs (0...10 V / 0...32 V).
  For digital and analogue I/O modules, the profile DSP 401 has been defined. The input/output functions of the module are configured via the device object directory.

- **The electronics**

  The core of the controller, which has been designed according to the applicable standards for electronics in mobile applications, is a modern 32-bit processor. Its monitoring and protective functions enable reliable operation even under extreme operating conditions.

  Programmable to IEC 61131-3 with CODESYS

  Apart from their application as I/O modules, all units can also be used as freely programmable mini controllers with CANopen and J1939 among others. Programming is done via CODESYS by means of the standardised IEC 61131-3 languages, allowing the user to build the application software with ease.
  In addition, libraries are available for special functions of the controller.

- **Communication interfaces**

  ioControl is equipped with two CAN interfaces to ISO 11898 for programming and data exchange with connected modules, controllers, displays or an engine controller.

Products

ioControl	Order no.		
M12	CR2040	CR2041	CR2042
DEUTSCH	CR2050	CR2051	CR2052
Number of inputs (can be configured)			
Analogue multifunctional/digital	8	–	–
Analogue multifunctional/ frequency/digital	–	–	4
Frequency/digital	4	–	–
Resistance/digital	4	–	4
Number of outputs (can be configured)			
PWMi/digital 4.0 A	–	4	4
PWM/digital 4.0 A	–	4	–
PWMi/digital 2.5 A	–	4	4
PWM/digital 2.5 A	–	4	–

Common technical data – ioControl		
Housing		impact-resistant polyamide
Device connection	inputs/outputs CAN interface 1	6 poles (Deutsch DT04-6p) or 5-pole (M12 connector)
	supply voltage CAN interface 2	6 poles (Tyco/AMP)
Protection		IP 65, IP 67
Operating voltage	[V DC]	8...32
Current consumption	[mA]	≤ 200 (without external load)
Temperature range operation/storage	[°C]	-40...85
Interfaces	CAN	2.0 A/B CiA DS 301 V4, CiA DS 401 V 1.4 ISO 11898, 20 Kbits/s...1 Mbit/s (default 250 Kbits/s)
Protocols	CAN	CANopen, SAE J 1939 or free protocol
Programming		CODESYS V 2.3
Total memory		1536 kBytes
Application memory		512 kBytes
Standards and tests (extract)		CE, E1 (UN-ECE R10), EN 50 155

Accessories

Description	Order no.	
	DEUTSCH	M12
Connection cable for 1 input, 2 m	E12544	EVM085
Connection cable for 2 inputs, 2 m	E12562	EVM093
Connection cable for 1 output, 2 m	E12550	EVM085
Connection cable, CAN, 1m	E12556	EVC953
Connection cable, AMP for module supply, 2 m	E12565	
CAN programming interface CANfox	EC2112	
Adapter set CAN/RS232 for CANfox	EC2113	

We reserve the right to make technical alterations without prior notice. · 04.2021