










Hardware platforms for industrial vehicles

								
	Mini controller	Standard controller	Safety controller	Universal-Controller	Logic Modul	Load limit sensing controller	Brake Controller	Data memory
Dimensions in mm	92 x 129 x 49	152 x 150 x 56	152 x 150 x 56	189 x 160 x 52	152 x 150 x 56	152 x 150 x 56	152 x 150 x 56	92 x 129 x 49
Weight	350 g	650 g	700 g	960 g	650 g	650 g	780 g	350 g
Surrounding temperature	-40 ... +85 °C	-40 ... +85 °C	-40 ... +85 °C	-40 ... +85 °C	-40 ... +85 °C	-25 ... +70 °C	-40 ... +85 °C	-40 ... +85 °C
Alu. housing, protective categ.	IP 65, IP 69K	IP 65, IP 69K	IP 65, IP 69K	IP 65, IP 69K	IP 65, IP 69K	IP 65, IP 69K	IP 65, IP 69K	IP 65, IP 69K
Multiple plug connections	AMP, 16 pins	AMP, 42 pins.	AMP, 42 pins	AMP, 70 pins.	AMP, 42 pins	AM, 42 pins	AMP, 42 pins	AMP, 16 pins.
RS232 & CAN interfaces	1x, ---	1x, 1x	1x, 2x	1x, 2x	1x, 1x	1x, 1x	1x, 2x	1x, 1x
Microcontrollers	C167CR, 25 MHz	C167CR, 20 MHz	C167CS, 40 MHz	3 x XC167CI, 3 x 40 MHz	C167CR, 10 MHz	C167CR, 20 MHz	2 x C167CS, 2 x 40 MHz	C167CR, 22 MHz
Program memory FLASH	512 kByte	1024 kByte	1024 kByte	2 x 128 kByte 1x 1024 kByte	512 kByte	1024 kByte	2 x 1024 kByte	512 kByte
Data memory RAM in kByte	32	128	128	2 x 8, 1 x 512	128	128	2 x 128	32
Parameter memory EEPROM	64 kBit	64 kBit	64 kBit	3 x 64 kBit	64 kBit	64 kBit	2 x 64 kBit	64 kBit
Supply voltage	8 ... 32 V	8 ... 32 V	8 ... 32 V	8 ... 32 V	5 ... 32 V	8 ... 32 V	8 ... 32 V	8 ... 32 V
Current consumption at 24 V	ca. 40 mA	ca. 60 mA	ca. 160 mA	ca. 190 mA	ca. 80 mA	ca. 60 mA	ca. 160 mA	ca. 40 mA
Digital switch inputs	2 +[4]*	8 +[2]*	6 +[17]*	16	12	8	2	4
Frequency inputs	+ [2]*	+ [8]*	4 + [4]*	8	---	+ [8]*	---	1
Rev sensor input pickup	1	1	1	+ [4]*	---	1	4	---
Frequency input clamp W	---	+ [1]*	1	+ [8]*	+ [1]*	1	---	---
Analogue inputs 0 ... 5 V	---	---	+ [4 (10 Bit)]*	+ [8]*	---	---	---	2 (10 Bit)
Analogue inputs 0 ... 10 V	2 (10 Bit)	4 + [2]* (10 Bit)	4 + [4]* (10 Bit)	+ [8]*	---	3 + [1]* (10 Bit)	---	---
Analogue inputs 4 ... 20 mA	+ [2 (10 Bit)]*	2 (10 Bit)	4 (10 Bit)	8	---	1 (10 Bit)	4	---
Switch outputs (each max. load)	1 (1A), + [2 (3 A)]*	+ [4 (3A), 2 (2 A)]*	4 + [6 (3 A)]*	+ [16 (3A, Σ 32A)]*	18 (4 A, Σ 25 A)	2 (3A) + [4 (2 A)]*	2 (1 A), 1 (3 A)	2 (1 A)
Prop. outputs (each max. load)	2 (3 A)	4 (3 A)	6 (3 A)	16 (3 A, Σ 32 A)	---	2 (2 A)	4 (3 A)	---
Sensor supply (voltage level)	1 (5 V/ 8 V)	1 (5 V/ 8 V), 1 (12 V)	1 (5 V/ 8 V)	2 (5 V/ 8 V)	---	1 (5 V), 1 (12 V)	2 (6 ... 18 V)	---
EMV	Industrial application: EN 50081-2 and EN 50082-2, Road vehicles: DIN 40839 and Directive 72/245/EEC, version 95/54/EC Agricultural and forestry tractors: Directive 75/322/EEC in the version 2001/3/EEC							
Special features		Actuator output	Safety microcontroller, safety relay	Safety Integrity Level 2 (IEC 61508)	Standby operation, safety relay	PWM output, actuator output, analogue output 0 ... 10V (10 bit)	2-channel safety structure	1 MByte recording memory, real-time clock (buffered with batteries)

+ []* can be used if other inputs/outputs are reconfigured using software

Page 1/2

**Hardware platform (special)**

MGD	
	
Display	
Front panel dimensions in mm (WxHxD)	139 x 139 x 4
Housing dimensions in mm (WxHxD)	109,5 x 95,5 x 37
Weight	680 g
Temperature range	-20 ... +70 °C
Front panel (aluminium), protective category	IP 65
Housing (galvanised) protective category	IP 65
Plug connections	2 x 5 pin male connector M12x1
RS232 & CAN interfaces	1x, 1x
Microcontrollers	XC167CI, 40 MHz
Program memory FLASH in kByte	1024
Data memory RAM in kByte	1024
Parameter memory EEPROM in kByte	32
Supply voltage in V	8 ... 32 V
Current consumption at 24 V (background illumination on)	ca. 70 mA
Short-stroke keys under foil	8
Display with background illumination	128 x 128 pixel LCD
Visible image in mm (WxH)	73 x 73
Pixel size in mm	0.5 x 0.5
Pixel space in mm	0.05
Brightness/ contrast	Adjustable by software
EMV	EN 50081-2, EN 50082-2, DIN 40839
Special features	Programmable according to IEC 61131-3 with CoDeSys

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