EXOR
Tech-note

UniOP eMAC303 and eMAC305

The eMAC (Modular Automation Controller) family of products offers a convenient and compact solution to HMI and control needs. A single unit includes a high-performance logic controller and a flexible HMI. The controller is compatible with IEC 61131-3 and includes digital and analog inputs/outputs and remote I/O expandability via CANopen bus.

The eMAC303 and eMAC305 are the entry-level solutions, featuring high-performance at a low cost. The unit works well as a stand-alone controller as well as a communication gateway and Web server.

- Compact design integrates HMI and control
- Space and time saving for small automation systems
- Graphic display (120x32 pixels)
- Keypad with programmable key functions and slide-in legends
- CoDeSys 2.x controller
- Built-in 10/100 Ethernet interface
- Serial communication interface
- CANopen interface for I/O espansion
- HMI fully compatible with UniOP
- Full communication capabilities with field devices and PLCs

Highlights

The eMAC303 and eMAC305 are compact and high-performance products particularly suited for factory automation and remote control. They offer to OEMs a convenient solution for saving space and time in making their applications. The HMI subsystem is fully compatible with UniOP.

- Powerful and intuitive HMI programming with the UniOP Designer 6 software
- More than 150 communication drivers for industrial devices available
- Dual-driver communication capability
- Display dynamic data in numerical, text, bargraph and graphic image formats
- Recipe data storage. Recipe data can be transferred to a host computer using the Ethernet connection.
- Multilanguage applications. The number of runtime languages is limited only by the available memory.
- Powerful macro editor
- Alarms and historical alarm list. Alarm and event information can be printed or transferred to a host computer using the Ethernet connection.
- Eight level password protection.

- Report printing to serial printer. Reports are freely configurable using Designer.
- Ethernet-based UniNet network to share data between UniOP HMIs and to serve data using UniNet OPC Server.
- High-speed MIPS CPU for fast PLC run-time logic execution
- Controller programming using CoDeSys 2.x. Supports retentive memories
- Includes digital inputs and outputs. DI can be configured as counter or encoder inputs
- Software-configurable analog input and outputs
- CANopen port for I/O expansion
- FTP server
- Web server with CGI support
- Supports connection to external GPRS modems for wireless Internet access
- Data acquisition module

Technical Data

HMI Data	
Display	
Type	Monochrome LCD
Resolution	120x32 pixel
Active display area	70x21 mm
Backlight	LED
Contrast adjustment	Software

Memory	
User memory	512 KB Flash
Recipe memory	16 KB with battery back-up

Front panel	
Function keys	eMAC303 4
	eMAC305 9
	with slide-in legends
Numeric keypad	eMAC303 no
	eMAC305 yes
User LED indicators	eMAC303 5
	eMAC305 10

Interfaces	
PLC port	RS-232, RS-485, RS-422
	Software configurable
Ethernet port	10/100 M bps
CAN port	1 M bps max

Functionality	
Dual driver capability	Yes
UniNet network	Client/Server
Alarms	1024
Event list	256
Password	Yes
Hardware RTC	Yes, battery back-up
Buzzer	No

Controller Data	
PLC Unit	
Software	CoDeSys 2.x
Code memory	1 MB
Data memory	1 MB
Processing time	Boolean/Integer 18 µs/K

Integrated I/O	
Digital Inputs (DI)	12: 24 VDC, optical isolation DI0-DI3 and DI4-DI7 configurable as encoder inputs DI6 and DI7 configurable as counter inputs, max frequency 40 KHz
Digital Outputs (DO)	8: 24 VDC, 0.5 A

Analog Inputs (AI)	4: software programmable 0-10 V ±10 V 0-20 mA 4-20 mA RTD (PT100) Thermocouple (J, K, T) 12 bit resolution
Analog Outputs (AO)	2: software programmable ±10 V 0-20 mA
I/O Expansion	CANopen DS 401

General Specifications Ratings	
Power supply voltage	24 V DC (18 to 30 V DC)
Current rating	
Fuse	Automatic, non replaceable
Battery	Lithium, rechargeable, not user replaceable
Weight	Approx 1.0 Kg

Environmental Conditions	
Operating temperature	0 to 50 °C [note 1] (vertical mounting)
Storage temperature	-20 to +70 °C
Operating and storage humidity	5 – 85% RH non-condensing
Protection class	IP65 (front) IP20 (rear)

Dimensions	
Faceplate LxH	149x109 mm (5.86x4.29")
Cutout AxB	136x96 mm (5.35x3.78")
Mounting depth D	88 mm (3.46")

Approvals	
CE	Emission EN 61000-6-4, 2001 Immunity EN 61000-6-2, 2005 for installation in industrial environments

Note 1: the specification of the maximum operating temperature is valid for an average I/O load not higher than 50% of the maximum rated I/O load. The maximum operating temperature is reduced to 45 °C for an average I/O load up to 100% of the maximum rated I/O load.

Dimensions

Cut-out
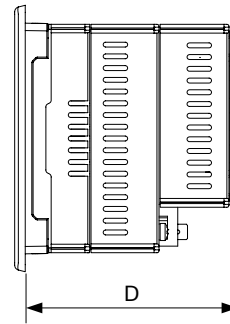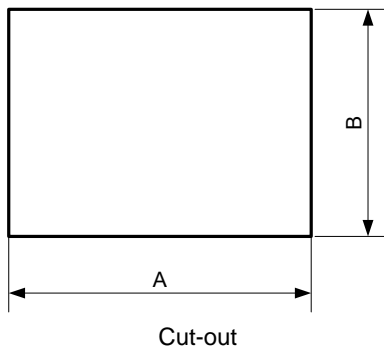
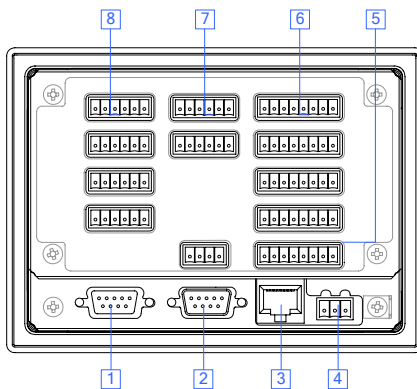## Front View and Keypad Layout

Front View
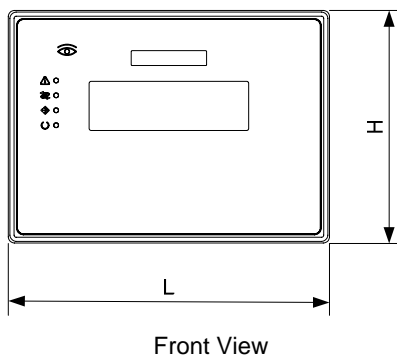
eMAC303

eMAC305

Connections

1   Serial Port
2   CANopen Port
3   Ethernet Port
4   Power Supply
5   Digital Outputs
6   Digital Inputs
7   Analog Outputs
8   Analog Inputs

Ordering Information

eMAC303	Compact HMIcontrol unit, 120x32 graphic display, CoDeSys, Ethernet interface, CANopen interface
eMAC305	Compact HMIcontrol unit, 120x32 graphic display, numeric keypad, CoDeSys, Ethernet interface, CANopen interface