



ecomatmobile Basic – integrate, activate, operate.



Automation of mobile vehicles – easy, modular, cost-optimised.

- ▲ Easy installation thanks to a well-coordinated mechanical concept.
- ▲ Connection of sensors and actuators without further external wiring.
- ▲ Indication of system messages and visualisation of machine functions.
- ▲ High-performance CAN interfaces for various communication tasks.
- ▲ Programmable to IEC 61131-3 with CoDeSys.



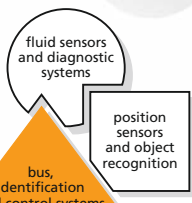
ecomatmobile Basic

In many small and compact mobile applications, the requirements on control tasks are increasing. Cost-optimised and modular mini controllers for mobile use have not been available so far. Based on comprehensive market research ifm electronic has developed an appropriate control system. The result: ecomatmobile Basic.

ecomatmobile Basic consists of three components which are well-adapted to each other: BasicRelay, BasicController, BasicDisplay.

The ecomatmobile Basic control system has a modular design, is easy to install and to operate and is cost-optimised. Besides pure control functions it provides solutions for wiring and protection.

In addition, a graphical visualisation module ensures the indication of system messages and simple display instruments.





BasicRelay
Facilitates the connection
and wiring.

Functions and advantages

The easily expandable relay and safety module finally brings order to your wiring. Thus, it becomes a small, decentralised “control room” for easy applications.

• **The mechanical structure**

Easy installation allows the use of the module exactly where it is needed.

The BasicRelay is ready for connection and can be used without any external terminals.

Due to an increase of the protection rating through a cover and a pluggable cable seal, the BasicRelay can now also be used in areas that are exposed to splashing water.

• **The powerful wiring**

The BasicRelay features locations for automotive ISO relays. The additional 2.8 mm spring contacts allow the use of solid state and logic relays with diagnostic capability.

In order to protect the individual load circuits there are ten locations for automotive fuses available.

By a common power rail and additional star points the load currents in the module can be distributed. The integrated, confusion-free screw terminals allow for a connection to the battery cables. This means that no further external terminals are needed for the wiring.

The wiring of the relay locations and fuse contacts is done on the spot with easy-to-install cable links or a ready-to-use cable tree.

Applications:

- compact construction machines
- attachable units
- mini vehicles

Products

Description	Order no.
BasicRelay	
BasicRelay	CR0421
Accessories	
BasicRelay contact set	EC0457
Cover IP 54 without display recess, with cable seal	EC0401

Technical data

BasicRelay		
Housing		plastic
Locations for relays (5 contact holders 6.3 mm, 4 contact holders 2.8 mm)		6
Locations for automotive fuses up to 30 A (Splittable into 3 supply circuits)		10
Supply rails for supply voltage and ground connection (GND)		2
Protection with EC0401 cover		IP 20 IP 54
Operating voltage	[V DC]	≤ 30
Total current	[A]	≤ 80
Temperature range	operation [°C] storage [°C]	-40...85 -40...85
Standards and tests (extract)		CE, e1 (RL 2009/19/EC), BN 411 002



BasicController
Small, compact, robust.

Functions and advantages

The compact, flexible and inexpensive mini controller replaces the conventional relay logic and also demanding and complex process controllers.

• The mechanical structure

The control electronics integrated in a compact plastic housing provide all the necessary connections for the inputs and outputs, communication and programming. The coded connectors for mobile use are easy to handle and available all over the world. The connection of sensors and actuators is carried out without further external wiring. Due to an increase of the protection rating through a cover and a pluggable cable seal the BasicController can also be used in areas that are exposed to splashing water.

• The powerful electronics

The integrated 32-bit processor and the electronics are optimally tailored to the application. By means of the application software the inputs and outputs can be configured to adapt to the respective application.

A status LED indicates the current operating status of the module.

• Programming to IEC 61131-3

The CoDeSys software enables a clear and easy creation of the application software for the user. The control module BasicController supports all common CoDeSys programming languages. For communication and special unit functions simple and clearly structured function libraries are available.

• The communication interfaces

The BasicController is equipped with two CAN interfaces to ISO 11898. These interfaces are for example used to exchange data with the connected BasicDisplay, further BasicController modules or the engine controller. The interfaces support the CANopen and the J1939 protocol among others.

For programming, the CAN interfaces are used as well. To do so, the unit electronics are directly and conveniently activated via the powerful PC-CAN interface CANfox. In this way, operating system and application programme can be loaded or parameters changed.

Applications:

- compact construction machines
- attachable units
- mini vehicles

Products

Description	Order no.
BasicController	
BasicController 12 I / 12 O	CR0403
Starter set	
includes BasicRelay, BasicController, BasicDisplay incl. software, power supply, cable and accessories	EC0400
Accessories	
Cover IP 54 without display recess, with cable seal	EC0401
Cover IP 54 with display recess, with cable seal	EC0402
Connection cable for 2 BasicControllers, 50 cm	EC0451
Plug set for BasicController	EC0456
CAN programming interface CANfox	EC2112
Adapter set CAN/RS232 for CANfox	EC2113
Programming software CoDeSys V2.3, German	CP9006
Programming software CoDeSys V2.3, English	CP9008

Common technical data

BasicController		
Housing		plastic, potted
Device connection		AMP blade male terminals 6.3 mm
Protection with EC0401, EC0402 cover		IP 20 IP 54
Operating voltage	[V DC]	8...32
Current consumption	[mA]	≤ 45
Temperature range	operation [°C] storage [°C]	-40...85 -40...85
Processor		PowerPC 5517E 50 MHz
Indication		LED (red/green)
Data memory SRAM	[kB]	208 / 592
Data memory Flash	[kB]	1536
Data memory (retain), FRAM	[kB]	1
Inputs (total):		12
digital, analogue, frequency		4
digital, resistance measurement		4
digital		4
Outputs (CR0401, CR0402, total):		8
digital, PWM, 2 A		2
digital, PWM, 1 A		4
digital, PWM, 4 A		2
Outputs (CR0403, total):		12
digital, PWM, 2 A		4
digital, PWM, current-controlled, 2 A		2
digital, PWM, 1 A		4
digital, PWM, 4 A		2
Supported CAN protocols (CANopen only CR0403)		CANopen (DS 301 V4.1) SAE J 1939
Standards and tests (extract)		CE, e1 (RL 2009/19/EC)



BasicDisplay
To be fully in the picture.

Functions and advantages

The high-resolution colour display and a unique visualisation concept replace the conventional analogue display and, in part, the rudimentary operating elements of the machine.

• **The high-resolution display**

Protected by a continuous membrane the modern display, which can even be read in sunlight, provides a resolution of 320 X 240 pixels with an aspect ratio of 4:3. Graphics can be shown with a colour depth of up to 256 colours.

• **The mechanical structure**

The BasicDisplay has a sealed plastic housing with protection rating IP 67. The integrated M12 connector provides all important connections for supply and communication. The display can be easily mounted using a centralised fixing nut, either directly on the operator panel or in the module cover.

• **The powerful electronics**

The integrated 32-bit processor and the electronics tailored to the applications are optimally adapted to the application area. A status LED indicates the current operating status of the display. Stand-alone operation of the BasicDisplay is possible via the integrated watchdog.

• **Programming to IEC 61131-3**

The CoDeSys software enables a clear and easy creation of the application software for the user. Function libraries are available for the special functions of the BasicDisplay.

The graphic elements are created and animated via the integrated visualisation.

• **The communication interface**

The BasicDisplay is fitted with a CAN interface to ISO 11898. These interfaces are for example used to exchange data between the connected controller, the decentralised input / output modules or the engine controller.

For this purpose the interface supports the CANopen and the J1939 protocol among others. With the master functionality of the CANopen protocol, networks can be built via decentralised input / output modules.

Applications:

- compact construction machines
- attachable units
- mini vehicles

Products

Description	Order no.
BasicDisplay	
BasicDisplay, 2.8" , 320 x 240 pixels	CR0451
Accessories	
Mounting frame for panel mounting BasicDisplay	EC0403
Connection cable BasicDisplay, 10 cm, internal	EC0452
Connection cable BasicDisplay, 10 cm, internal 2 BasicControllers, 50 cm	EC0453
CAN programming interface CANfox	EC2112
Adapter set CAN/RS232 for CANfox	EC2113
Programming software CoDeSys V2.3, German	CP9006
Programming software CoDeSys V2.3, English	CP9008

Technical data

BasicDisplay	
Housing	plastic
Device connection	M12 connector
Protection	front IP 67 back IP 65
Operating voltage [V DC]	8...32
Current consumption [mA]	≤ 70
Temperature range	operation [°C] -20...70 storage [°C] -30...80
Display	2.8" TFT LCD display 320 x 240 256 colours
Processor	PowerPC 5517E 50 MHz
Indication	LED (red/green)
Data memory SRAM [kB]	592
Data memory Flash [kB]	1536
Data memory (retain), FRAM [kB]	1
Function keys with softkey function, backlit	5
Rocker switch with cursor function, backlit	1
Supported CAN protocols	CANopen (DS 301 V4.1) SAE J 1939
Standards and tests (extract)	CE, e1 (RL 2009/19/EC)