ecomatDisplay: powerful, robust HMIs for mobile machines

Units for operation and monitoring

LED displays 10", 12" and 12.3" with buttons or touch screen

Housing optimised for mobile use

Optical bonding: offers optimum readability, prevents fogging of the front pane

Mounting of the devices in any orientation (portrait/ landscape)

Programmable via CODESYS, numerous interfaces such as CAN, USB 2.0 and Ethernet

E1

IP 65
IP 67

CAN open

CODESYS

Vibration and shock resistant

Display and operation in harsh environments

The new robust HMIs have been developed for use in cabins and outside vehicles. Thanks to a high protection rating and optical bonding they are optimally protected against moisture.
They withstand strong impacts and permanent vibrations as well as extreme ambient temperatures.

The high-resolution colour displays offer optimum readability even in bright lighting conditions. For operation the devices have freely programmable buttons and/or a capacitive touch screen. For pure display purposes, there is also a device version without operating elements.

The integrated powerful PLC can perform visualisation and operation tasks. It is freely programmable via CODESYS. Numerous interfaces at the back of the device, e.g. CAN, analogue video, USB 2.0 and Ethernet offer maximum connectivity.

LED displays with optical bonding	Order no.			
	CR1102	CR1204	CR1202	CR1203
Display	**10.0"**	**12.0"**	**12.3"**	
Aspect ratio	16:10	16:10	8:3	8:3
Resolution [px]	1280 x 800	1280 x 800	1280 x 480	1280 x 480
Number of colours	16.7 million	16.7 million	16.7 million	16.7 million
Touch	•	•	–	•
Controller with GPU	quad core, 1.2 GHz	quad core, 1.2 GHz	dual core, 800 MHz	quad core, 1.2 GHz
Memory (RAM) [GByte]	1	1	1	1
Memory (flash) [GByte]	8	8	4	8
Buttons (RGB backlit)	8	10	–	–
Navigation element	cross	cross	–	–
Ethernet CAN USB 2.0	2 4 2	2 4 2	1 4 1	2 4 2
Analogue video interfaces	4	4	2	4
Stereo output (amplified) Line input Headphones output	1 1 1	1 1 1	1 – –	1 1 1
Digital input BL Digital output 2.5 A	2 2	2 2	2 2	2 2

Mechanical design

The displays have a sealed diecast aluminium housing with protection ratings IP 65, IP 67. For connection sealed M12 connections and a 40-pole AMP connector are used.
The displays can be used as surface mount device using the tried-and-tested RAM mount system or can be mounted in a wall.Depending on the requirement, the displays can be installed in any orientation.

Powerful electronics

The integrated 64-bit controller allows a powerful presentation of the high-resolution graphics, processing of the application program and the device functions. Furthermore, there are many opportunities with regard to communication and networking with other systems and networks. With the integrated real-time clock it is possible to give log data a time stamp for better traceability.

Audio

All displays have extensive audio functions that, depending on the version, include recording and output.

Programming to IEC 61131-3

The CODESYS license included in the scope of supply enables clear and easy creation of the application software. The graphic elements are created via the integrated visualisation editor and can, for example, be selected via the buttons or the optional touch function.

Common technical data LED displays with optical bonding	
Housing	sealed metal housing
Installation	control cabinet with mounting frame surface mounting with RAM ® mount system
Device connection	1 x 40-pole Tyco / AMP, 2 x M12 - (CR1202) 1 x 40-pole Tyco / AMP, 4 x M12 - (CR1102, CR1203, CR1204)
Protection rating	IP 65 / IP 67
Temperature range Storage [°C]	-30...80
Operating voltage [V DC]	8...32
Power consumption [W]	29...36
Programming	CODESYS V 3.5 (IEC 61131-3)
CAN communication profile	CAN interface 2.0 A/B, ISO 11898 20 kbits/s...1 Mbit/s CANopen or SAE J 1939 or free protocol
Ethernet communication protocols	TCP/IP, UDP, Modbus TCP, OPC UA Server, EtherNet/IP
Standards and tests (extract)	CE, E1 (UN-ECE R10), EN 50 155

ISOBUS gateway for agricultural equipment

Communication interfaces

- **Reliable communication between add-on unit and tractor unit**
- **Preinstalled ISOBUS object pool for visualisation on the "Universal Terminal"**
- **Easy configuration via CODESYS using ISOBUS libraries**
- **Quick and simple implementation without additional licence costs**
- **AEF certification**

ISOBUS can be so simple

The ISOBUS gateway enables easy integration of ISOBUS functionalities in the control programme of an add-on unit for agricultural equipment. For this purpose, the function library provided is loaded via CODESYS V2.3 or V3.5 into the existing application programme where it configures the visualisation in line with the respective requirements.

Optimised processes

Thanks to optimised data processing, only the values to be visualised on the connected display are transmitted, reducing the load on the data bus significantly.
With the considerable reduction of implementation efforts, development costs are minimised. No additional licence fees for using the ISOBUS gateway will be required.

Plug & Play with the ISOBUS terminals

The ISOBUS gateway allows easy use of the existing display in the tractor unit via the ISOBUS. For this purpose, the gateway is installed between the controller in the add-on unit and the connection to the tractor unit. Using the libraries provided in CODESYS, the visualisation saved on the gateway is simply adjusted to suit the individual application. The most commonly used ISOBUS visualisation objects are available to this end.

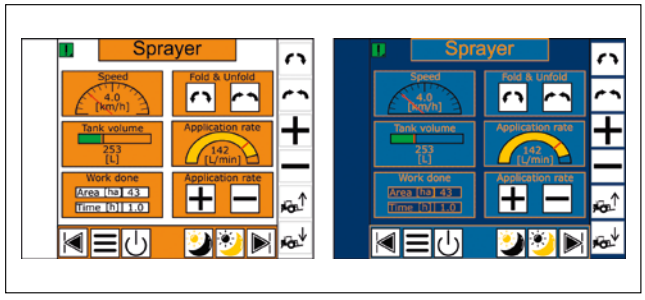
In addition, the AUX function (Auxiliary Control Function) is supported so that the respective machine handling can be individually adapted to the application. With the convenient M12 connector, the ISOBUS gateway can be easily connected with any mobile controller from ifm via the CAN interface, even subsequently.

Designed for robust applications

The ISOBUS gateway can be used in 12 V and 24 V on-board networks.

The high protection rating IP 67 and the closed surface provide protection even under adverse environmental conditions. Even extreme temperatures or permanent shock and vibration do not affect the functionality of the ISOBUS gateway.

The ISOBUS gateway serves to establish a reliable communication between the tractor unit and the add-on unit.



The visualisation is stored in the ISOBUS gateway and transmitted to the tractor unit's display. (Design example).

Type	Description	Order no.
	ISOBUS gateway	**CR3121**

Type	Description	Order no.
Compatible mobile controllers		
	ecomatController	**CR720S**
	ClassicController	**CR0032**
	BasicController	**CR0403**
	ioControl	**CR2052**

Further technical data		
Installation		Surface mounting
Dimensions	[mm]	104 x 60 x 29
Ambient temperature	[°C]	-40...80
Protection rating		IP 67
Operating voltage	[V DC]	8...32
Nominal voltage	[V DC]	12 / 24
Current consumption	[mA]	11...48
CAN interfaces	Number Protocol	2 CAN ISO11898, ISOBUS ISO11783
Default baud rate	[Kbit/s]	250
Connector		M12 (ISOBUS) M12 (CAN)
Display		2 LEDs (device status, communication)
Software		Preinstalled, universal ISOBUS visualisation