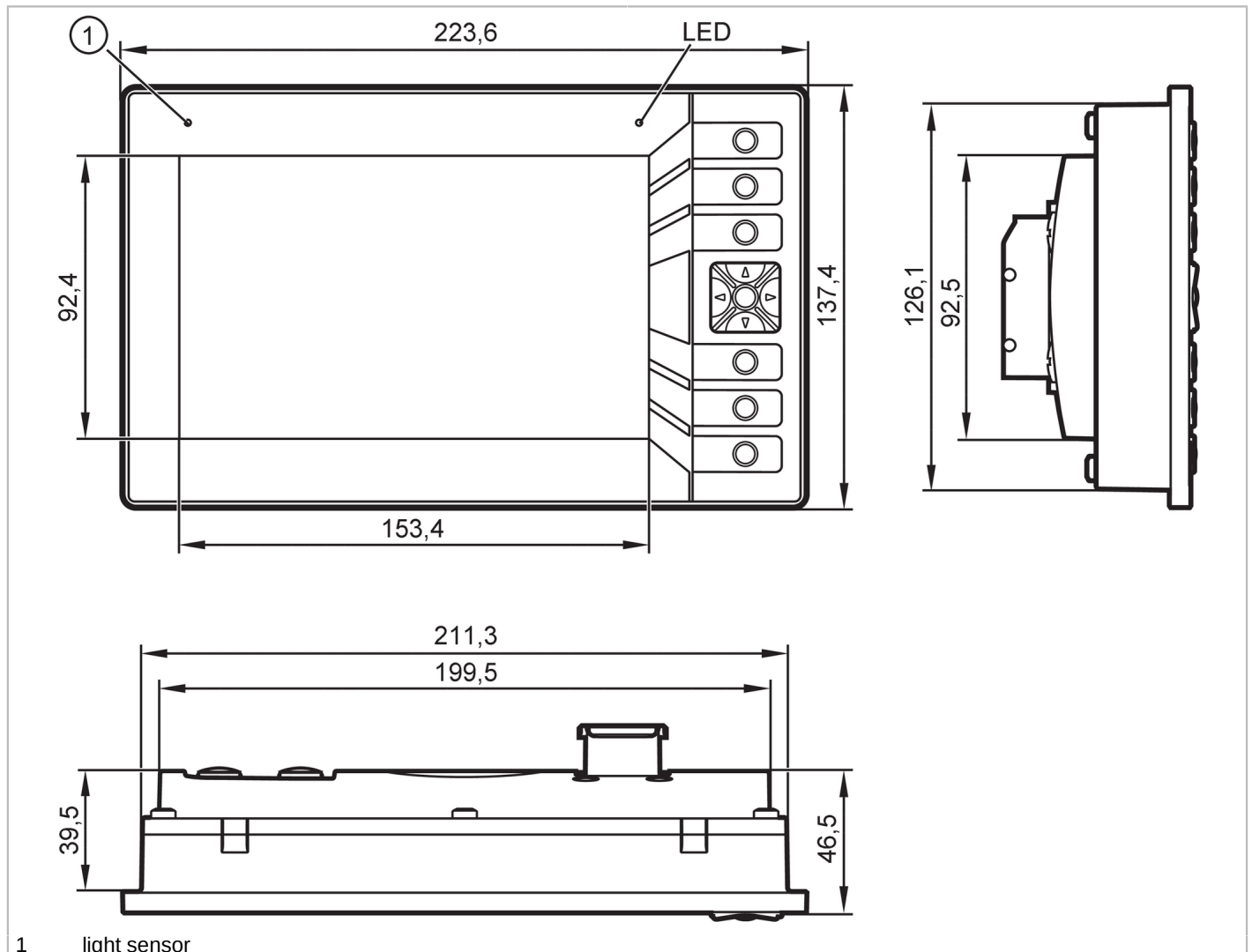


CR1077



Programmable Human Machine Interface

ecomatDisplay/7"/Touch



Product characteristics

Communication interface	Ethernet; CAN; USB	
Operating elements	6	freely programmable backlit function keys
	1	Navigation key with pushbutton
Display type	color display with touch function	

Electrical data

Operating voltage	[V]	8...32 DC
Nominal voltage DC	[V]	12 / 24
Current consumption	[mA]	< 5000
Power consumption	[W]	27
Reverse polarity protection	yes; (in case of supply via the on-board system / battery)	

Inputs / outputs

Number of inputs and outputs	Number of digital inputs: 2; Number of digital outputs: 2
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Inputs

Number of digital inputs	2
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ecomatDisplay/7"/Touch

Number of video inputs	4; (analog)
Video input	1 Vss, 75 Ohm, PAL, NTSC
Audio input	Stereo Line-In; -10 dBV (= 0,316 V); Max 0 dBV (= 1 V)
Outputs	
Number of digital outputs	2
Max. current load per output [mA]	2500
Switching frequency DC [Hz]	< 20
Audio output	Stereo Class D; 1W; 8 Ω; BTL
Software / programming	
Parameter setting options	CODESYS 3.5
PLC function to IEC 61131-3	yes
Operating system	Embedded Linux 4.14
Interfaces	
Communication interface	Ethernet; CAN; USB
Number of CAN interfaces	4
Number of Ethernet interfaces	2
Number of USB interfaces	2
CAN	
Transmission rate	20 kBit/s... 1 MBit/s
Protocol	CANopen; SAE J1939; free protocol
Profile	CiA DS 301 Version 4; CiA DS 401 Version 1.4
Interface	CAN Interface 2.0 A/B ISO 11898
Factory settings	Transmission rate: 250 kBit/s
Ethernet	
Transmission standard	10Base-T; 100Base-TX
Transmission rate	100 MBit/s
Protocol	TCP/IP; UDP; Modbus TCP; OPC UA; EtherNet/IP
Note on interfaces	OPC UA Micro Embedded Device Server
USB	
Transmission rate	< 480 MBit/s
Version	USB 2.0
Operating conditions	
Ambient temperature [°C]	-35...60
Note on ambient temperature	2000 m: -30...65 °C 3000 m: -30...60 °C The temperature of the mainboard must not exceed 85 °C. for further information please see the operating instructions
Storage temperature [°C]	-35...85
Max. relative air humidity [%]	90; (non condensing)
Max. height above sea level [m]	3000
Protection	IP 65; IP 67; (for inserted connectors with individually sealed cores and inserted M12 connectors or sealing caps: IP 67)
Degree of soiling	2



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Chemical media	ISO 16750-5	AA, BA, BD, CC, DB, DC, DD, ED only one chemical permitted at a time
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Tests / approvals

EMC	UN/ECE-R10 Noise emission and noise interference:	100 V/m
	DIN EN 61000-6-2	
	DIN EN 61000-6-4	
	ISO 10605 ESD	
	DIN EN ISO 13766-1	8 kV air discharge / function state C
	ISO 7637-2 pulse 1	severity level 4 / function state C (24 V)
	ISO 7637-2 pulse 2a	severity level 4 / function state A (24 V)
	ISO 7637-2 pulse 2b	severity level 4 / function state C (24 V)
	ISO 7637-2 pulse 3a	severity level 4 / function state A (24 V)
	ISO 7637-2 pulse 3b	severity level 4 / function state A (24 V)
	ISO 7637-2 pulse 4	severity level 4 / function state A (24 V)
	ISO 7637-2 pulse 5	severity level 3 / function state C (24 V)
	ISO 7637-2 pulse 4	severity level 4 / function state A (12 V)
Continuous shock resistance	ISO 16750-3	30 g 6 ms / 24000 shocks
Vibration resistance	ISO 16750-3 Test VII	random, mounting place car body
	EN 60068-2-6 sine	10...500 Hz / 10 cycles/axis, sine
Climatic tests	EN 60068-2-30 damp heat: cyclical	55 °C upper temperature limit / 6 cycles
	EN 60068-2-78 damp heat: constant	40 °C 93 % rH / test period 21 days
Salt spray test	EN 60068-2-52 Salt spray	severity level 3 / motor vehicle
MTTF [years]		37
Railway applications	DIN EN 50155 Pkt 12.2	
	EN 50121-3-2	
	EN 55016	

Mechanical data

Weight [g]		1549.8
Housing		rectangular
Type of mounting		panel/surf.
Dimensions [mm]		137.4 x 223.6 x 46.5
Material	housing: diecast aluminium powder-coated; Display: glass anti-reflective and hardened	
Information on service life	Pushbuttons:	1000000 Betätigungen
	Navigation key with pushbutton:	1000000 Betätigungen
	Display LED lifetime:	> 70000 h

Displays / operating elements

Display	Status LED	1 LED, multi-color freely programmable
	Display	display rotation: 4 x 90°
Operating elements	6	freely programmable backlit function keys
	1	Navigation key with pushbutton
Display resolution		800 x 480
Display type		color display with touch function
Display size		7"
Aspect ratio		16:10
Display background illumination		LED
Color depth		18 Bit

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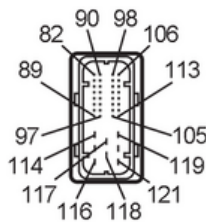


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Brightness	[cd/m ²]	< 800; (adjustable: 0...100 %; In steps of: 1 %)
Contrast ratio		1000:1
Touchscreen version		PCAP; (recognition up to 10 fingers, optimized for wet conditions and gloves)
Hardware		
Processor		ARM Quad Core 64 Bit 1,2 GHz
Working memory		1 GByte RAM
Mass storage		8 GByte Flash
Non-volatile memory		16 kByte
Data memory		
Real-time clock		yes; UTC, battery buffered
Accessories		
Items supplied		battery: 1 x CR1225 (3 V, 48 mAh), fitted
Remarks		
Pack quantity		1 pcs.

Electrical connection - AMP connector



Inputs	
82	VIDEO3_GND
90	VIDEO3_SIGNAL
98	VIDEO0_GND
99	VIDEO1_GND
100	VIDEO2_GND
101	AUDIO_IN_R
102	AUDIO_GND
106	VIDEO0_SIGNAL
107	VIDEO1_SIGNAL
108	VIDEO2_SIGNAL
109	AUDIO_IN_L
115	IN0
116	IN1
Interfaces	
83	IFM0-
84	CAN0_L
85	CAN1_L
86	CAN2_L
87	CAN3_L
88	IFM1-
89	SERVICE1
91	IFM0+
92	CAN0_H
93	CAN1_H
94	CAN2_H
95	CAN3_H
96	IFM1+
97	SERVICE0



Programmable Human Machine Interface

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Outputs

103	HEAD_OUT_R
104	AUDIO_OUT_R-
105	AUDIO_OUT_L-
111	HEAD_OUT_L
112	AUDIO_OUT_R+
113	AUDIO_OUT_L+
117	OUT0
118	OUT1

voltage supply

114	VBB0
119	VBB15
120	GND
121	VBB30

Electrical connection - Ethernet

Connector: 2 x M12; coding: D

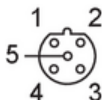


ETH0, ETH1

1	TxD+
2	RxD+
3	TxD-
4	RxD- Schirm am Gehäuse aufgelegt

Electrical connection - USB

Connector: 2 x M12; coding: B



USB0, USB1

1	+ 5 V DC
2	- Data
3	+ Data
4	ID
5	GND Schirm am Gehäuse aufgelegt