

ehb SMARTdisplay 835

PROGRAMMABLE DISPLAY FOR USE IN
VEHICLES AND OFF-HIGHWAY MACHINERY

ehb 5498



KEY FEATURES / SUMMARY

- Robust HMI/programmable display specifically designed for mobile applications
- Optically bonded 3.5" colour screen
- Auto on / off heated display for use in low temperatures
- Powerful processor with ARM Cortex M7, 400 MHz clock speed
- 512 KB of SDRAM and 8 MB of flash storage
- 4 configurable inputs, digital and analogue capability
- 3 configurable digital outputs
- 1 VREF output (to external sensors)
- CAN interfaces, J1939 (Raw CAN by request)
- PCAN interface for programming
- Flexible user programming via CODESYS 3.5
- IP67 protection / NEMA 6

ADDITIONAL HARDWARE

ehb SMARTdisplay 835 connector harness
ehb SMARTdisplay 835 configuration harness
Deutsch Connector A, 18-pin compl. with pins /
Plug set for self-assembly

PART

ehb2399
ehb2400
ZUB0004

OVERVIEW

DC SUPPLY

8 V DC to 32 V DC

CURRENT CONSUMPTION

OPERATING CURRENT

< 1000 mA at 12 V and 24 V without external loads

DISPLAY

320 px x 240 px

24 bit colour

Optically bonded

INPUTS (4)

CONFIGURABLE INPUTS 1 to 4

Configurable as: binary, current, voltage,

resistance

0 V to 10 V

0 mA to 20 mA

0-3 k Ω

OUTPUTS (3)

DC OUTPUTS 1 to 3

Typical 1 A at supply voltage

VREF OUT

100 mA at 10 V / 5 V

INTERFACES

CAN 1

CAN Interface 2.0 B, ISO11898

50 kbits/s... 1 Mbit/s

SAE J1939 or Raw CAN

Configurable internal software

120 Ω resistor

DIMENSIONS

OVERALL (W x H x D)

112.5 mm x 115 mm x 49 mm

PANEL CUT-OUT

80 mm /

TORQUE SETTING

8 Nm

WEIGHT

< 1 kg

STORAGE TEMPERATURE RANGE

-40 ° C to +85 ° C

OPERATING TEMPERATURE RANGE

-40 ° C to +85 ° C

(Heated display)

PROTECTION RATING

IP67 (with mating connectors)

RELATED MATERIALS

TITLE

ehb SMARTdisplay 835 Operators Manual

ehb SMARTdisplay 835 Installation Instructions

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Technical Data
ehb SMARTdisplay 835

Supply		Connector A
Operating voltage	8 V DC to 32 V DC	Pin 7
Unit power supply maximum current consumption, full backlight (no external loads)	< 1000 mA at 12 V and 24 V	
Fusing		Connector A
Unit power supply external protection fuse rating	3 A	Pin 7
Housing		
PC PBT alloy plastic resin		
Dimensions		
Overall (W x H x D)	112.5 x 115 x 49 mm	
Weight		
	< 1 kg	
Temperature		
Operating temperature	-40 °C to +85 °C	
Storage temperature	-40 °C to +85 °C	
Protection Rating		
	IP67 (mating connectors)	
Display		
Resolution, pixel	320 px x 240 px	
Colour	24 bit	
Format	3.5" diagonal	
Mounting	Optically bonded	
Illumination	LED (lifetime > 30,000 hrs)	
Connectors		
Connector A	18 pin DT16-18SA-K004	
Digital Inputs		Connector A
Digital inputs configured high or low		Pin 5, 6, 12, 18
Analogue Voltage Inputs		Connector A
Programmable voltage range	0...5V / 0...10V / 0...32V	Pin 5, 6, 12, 18 00
Resolution	12 bits	
Accuracy	± 1% Full Scale Deflection	
Input resistance	≥ 7.5 kΩ	
Sampling rate	500 Hz	
<i>FSD = Full Scale Deflection</i>		

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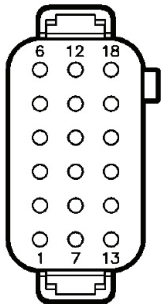
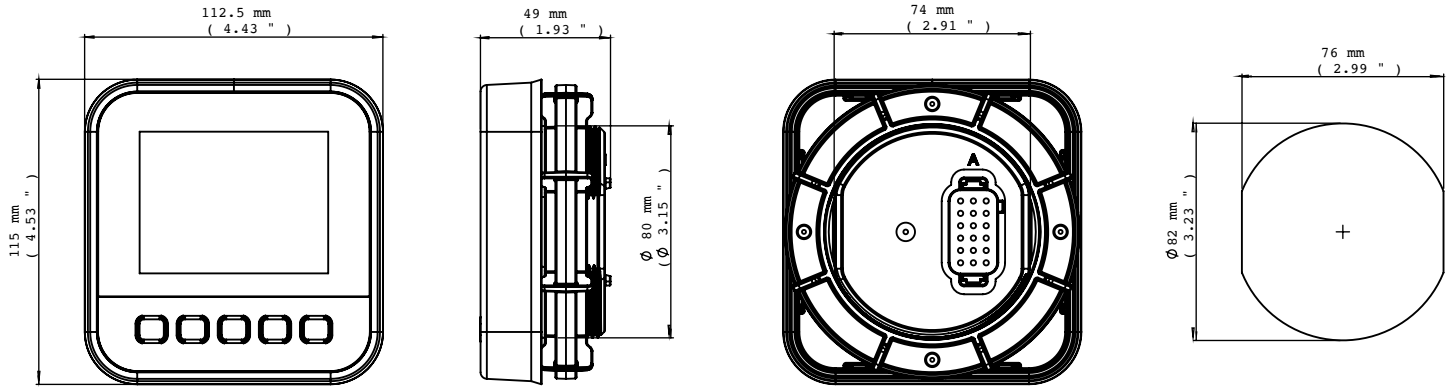
Analogue Current Inputs		Connector A
Current measurement direction	Current sink only	Pin 5, 6, 12, 18
Current measurement ranges	0 mA to 20 mA	
	4 mA to 20 mA	
Current measurement resolution	12 bits	
Current measurement accuracy	± 1% Full Scale Deflection	
Current measurement input sink resistance	150 Ω ± 1%	
Current measurement sampling rate	500 Hz	
<i>FSD = Full Scale Deflection</i>		
Analogue, Resistive Inputs		Connector A
Resistance measurement range	0 Ω to 3200 Ω	Pin 5, 6, 12, 18
Resistance measurement source voltage	12 V maximum	
Resistance measurement current	3 mA	
Resistance measurement resolution	12 bits	
Resistance measurement accuracy	± 1% Full Scale Deflection	
Resistance measurement sampling rate	500 Hz	
<i>FSD = Full Scale Deflection</i>		
Digital Outputs High Side		Connector A
Switching current	1 A	Pin 14, 15, 16
Digital output active high 'ON' state internal voltage drop at rated current	< 100 mV	
Digital output active high 'OFF' state leakage current	< 120 µA at 24 V	
Reference Voltage		Connector A
Reference voltage output	Programmable 5 V or 10 V, max. 100 mA, accuracy ±5%	17
		VRef GND Pin 13
CAN Interfaces		Connector A
Number of CAN ports	1	Pin 2, 3, 4 / 8, 9, 10
Supported protocols	J1939	
	Raw CAN (by request)	
Supported programmable baud rates	50 kbit/s, 125 kbit/s, 250 kbit/s, 500 kbit/s, 800 Mbit/s, 1 Mbit/s	
Processor		
Typ	ARM Cortex M7	
Frequency	400 MHz	
Memory		
Flash	8 MB	
RAM	512 KB	
Remanent storage (non volatile)	16 KB	

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Environmental and Testing		
Electro Magnetic Compatibility	Immunity standard for industrial environments Emission standard for industrial environments Road vehicles - Component test methods for electrical disturbances from narrowband radiated electromagnetic energy. Road vehicles - Electrical disturbances from conduction and coupling. Electrical transient transmission by capacitive and inductive coupling via lines other than supply lines.	EN 61000-6-2 EN 61000-6-4 ISO 11452 ISO 7637-3
Electrical Safety	Safety requirements for electrical equipment for measurement, control & laboratory use Part 1: General requirements Part 2-030: Particular requirements for testing measuring circuits	EN 61010 EN 61010 EN 61010-2-30
Electrical tests	Road vehicles - environmental conditions and testing for electrical & electronic equipment Part 2: Electrical loads 4.6.3 Starting profile 4.6.4 Load dump	ISO 16750-2
Climatic tests	Damp heat, cyclic upper temperature 55°C, number Damp heat, steady state test temperature 40 °C / 93% RH	EN 60068-2-30 EN 60068-2-78
Mechanical tests	Test Fc: Vibration (sinusoidal) Test Ea: Shock	EN 60068-2-6 EN 60068-2-27
Temperature	Ab / Ae cold test -40 °C (-40 °F) Bb / Be dry heat +85 °C (185 °F)	EN 60068-2-1 EN 60068-2-2
Chemical	Chemical testing for electrical and electronic equipment - road vehicles	ISO 16750-5
Degrees of protection	IP67 / NEMA 6	EN 60529

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Connector A

PIN	DESCRIPTION
1	GND
2	CAN Screen
3	CAN L In
4	CAN H In
5	Input 4
6	Input 1
7	VDC Batt +
8	CAN Screen
9	CAN L Out
10	CAN H Out
11	GND
12	Input 2
13	GND Batt
14	Output 1
15	Output 2
16	Output 3
17	VREF-Out
18	Input 3