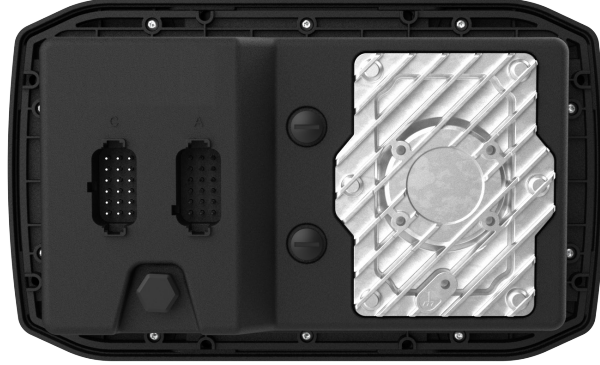
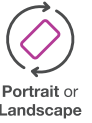




DSEM870 – 7” Programmable Display

Part Numbers: M870-01, M870-02, M870-03, M870-04



Overview

The DSEM870 is a 7” programmable display designed for use on vehicles and off highway machinery. Developed for use as a standalone product or with the DSEM640 programmable controller, the DSEM870 provides users with outstanding flexibility.

The DSEM870 is configured using CODESYS 3.5 (M870-01 / M870-02 / M870-03) or Qt (M870-04).

Key Features

- Robust HMI/programmable display specifically designed for mobile applications
- Optically bonded 7” colour screen for harsh environments
- Capacitive touchscreen (M870-02 / M870-04 variants)
- Powerful ARM Cortex A9 processor with 800 MHz clock speed
- 512 MB of DDR3 SDRAM and 2 GB of NAND mass storage
- 4 configurable inputs, 4 configurable digital outputs
- Supports landscape and portrait orientation
- 2 independent CAN interfaces, J1939, CANopen and Raw CAN
- Ethernet interface for communication
- Flexible user programming via CODESYS 3.5 or Qt
- IP67 protection/NEMA 6
- 2 camera inputs

Product Documentation

- 053-187 – DSEM870 Installation Instructions
- 057-246 – DSEM870 Installation and Operation Manual
- 057-320 - DSEM870 CODESYS Software Manual
- 057-320 - DSEM870 Qt Software Manual



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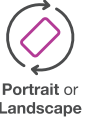
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DSEM870 – 7” Programmable Display

Part Numbers: M870-01, M870-02, M870-03, M870-04



Specifications	
DC Supply	
Continuous Voltage Rating	8 V DC to 32 V DC continuous
Maximum Operating Current	< 1000 mA at 12 V and 24 V without external loads < 1500 mA at 12 V and 24 V with Htr
Display	
Measurement	800 x 480 resolution 24 bit colour. Optically bonded.
Brightness	500 cd/m ² (nit)
Inputs	
Quantity	4
Type	Voltage 0 V to 5 V, 0 V to 10 V, 0 V to 32 V Current 0 mA to 20 mA Ratiometric Resistive 0 Ω to 3 kΩ Frequency 5 Hz to 30 kHz Digital Positive / Negative
Outputs	
Quantity	4
Type	Digital - High side / low side
Processor	
Type	ARM Cortex a9
Speed	800 MHz Clock Speed
NAND Mass Storage	2 GB
RAM	512 MB

Product Documentation

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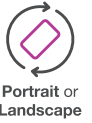
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DSEM870 – 7” Programmable Display

Part Numbers: M870-01, M870-02, M870-03, M870-04



Specifications	
Interfaces / Communications	
CAN 1 and 2	CAN Interfaces 2.0 A/B, ISO11898 50 kbits/s... 1 Mbit/s CANopen, SAE J1939 or Raw CAN
Ethernet	10 Mbit/s / 100 Mbit/s Duplex CODESYS Modbus TCP Client
USB	USB 2.0 host (480 Mbit/s)
Temperature	
Operating Temperature	-30 °C to +85 °C / -22 °F to +185 °F
Storage Temperature	-40 °C to +85 °C / -40 °F to +185 °F
Dimensions	
Overall (W x H x D) with buttons	272 mm x 165 mm x 81 mm / 10.7" x 6.5" x 3.2" (W x H x D)
Panel Cut-Out (W x H)	231 mm x 133 mm (R 12 mm) / 9.1" x 5.24" (R 0.5")
Maximum Panel Thickness	6 mm / 0.2"
RAM Mountable	AMPS Hole Pattern

Related Products		
Programmable Controllers		
DSEM643	Programmable Controller (34 I/O)	M643-01
DSEM640	Programmable Controller (68 I/O)	M640-01
Expansion Devices		
DSE2170	CAN RTD / Thermocouple / Analogue Output Expansion Module	2170-01
DSE2160	CAN Input / Output Expansion Module	2160-01
Accessories		
DSEM870 Wiring Harness 1.2 m		016-167
DSEM870 Connector A Set (including pins)		007-850
DSEM870 Connector C Set (including pins)		007-851
Ethernet Cable		016-160
USB Cable		016-161

Product Documentation

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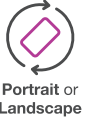
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DSEM870 – 7” Programmable Display

Part Numbers: M870-01, M870-02, M870-03, M870-04



Environmental Testing Standards	
CE Marking	
EN 61000-6-2	Electromagnetic compatibility (EMC) noise immunity
EN 61000-6-4	Electromagnetic compatibility (EMC) emission standard
BS EN 61010-1	Safety requirements for electrical equipment for measurement, control and laboratory use
E Marking	
UN/ECE-R10.05	E11
Water and Dust	
IEC 60529	IP67 / NEMA6
Mechanical Tests	
EN 60068-2-6	Vibration Resonance Search Freq range: 10 Hz to 2 kHz Acceleration: 10 g
EN 60068-2-64	Vibration Random Freq range: 10 Hz to 350 Hz
ISO 16750-3	Test VII; Commercial vehicle, sprung masses Random vibration Mounting location; vehicle body
EN 60068-2-27	Mechanical Shock: Operational Shock Pulse Shape: Half Sine Amplitude: 50 g Duration: 11 ms Number of Shocks: 3 in each direction of each axis (9 in total of each duration)
EN 60068-2-27	Mechanical Shock Amplitude: 50 g Duration: 6 ms
ISO 16750-3	Bumps Amplitude: 30 g Duration: 6 ms; 24,000 shocks
Load Dump	
ISO 7637-2	151 V (Ri 1 Ω) 202 V (Ri 8 Ω)

Product Documentation

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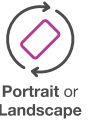
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DSEM870 – 7” Programmable Display

Part Numbers: M870-01, M870-02, M870-03, M870-04

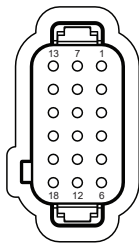


Connector A	
Pin	Description
1	ECU Supply GND
2	CAN1 SCR
3	CAN2 SCR
4	No Connection
5	Camera 1 SCR
6	Camera 2 SCR
7	ECU Supply +VE
8	CAN1 H
9	CAN2 H
10	No Connection
11	Camera 1 Signal
12	Camera 2 Signal
13	Ignition +VE (15)
14	CAN1 L
15	CAN2 L
16	No Connection
17	No Connection
18	No Connection

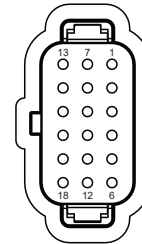
Connector C		
Pin	Description	REF
1	Input / Output Supply +VE	
2	OUT H, L	QC001
3	OUT H, L	QC002
4	OUT H, L	QC003
5	OUT H, L	QC004
6	VREF +	
7	Output Supply GND	
8	No Connection	
9	No Connection	
10	No Connection	
11	No Connection	
12	Aux 12 V -VE Output	
13	Aux 12 +VE Output	
14	AIN, DIN H, L, FREQ	IC001
15	AIN, DIN H, L, FREQ	IC002
16	AIN, DIN H, L, FREQ	IC003
17	AIN, DIN H, L, FREQ	IC004
18	VREF GND	

Connector Diagrams

Connector A



Connector C



Product Documentation

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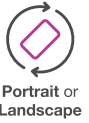
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DSEM870 – 7” Programmable Display

Part Numbers: M870-01, M870-02, M870-03, M870-04



Ethernet - M12 'D' Coded	
Pin	Description
1	Tx+
2	Rx+
3	Tx-
4	Rx-
USB Host	
Pin	Description
1	+5 V DC
2	Data -
3	Data +
4	0 V
5	Shield

Connector Diagrams

Ethernet



USB Host



Product Documentation

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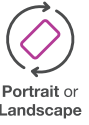
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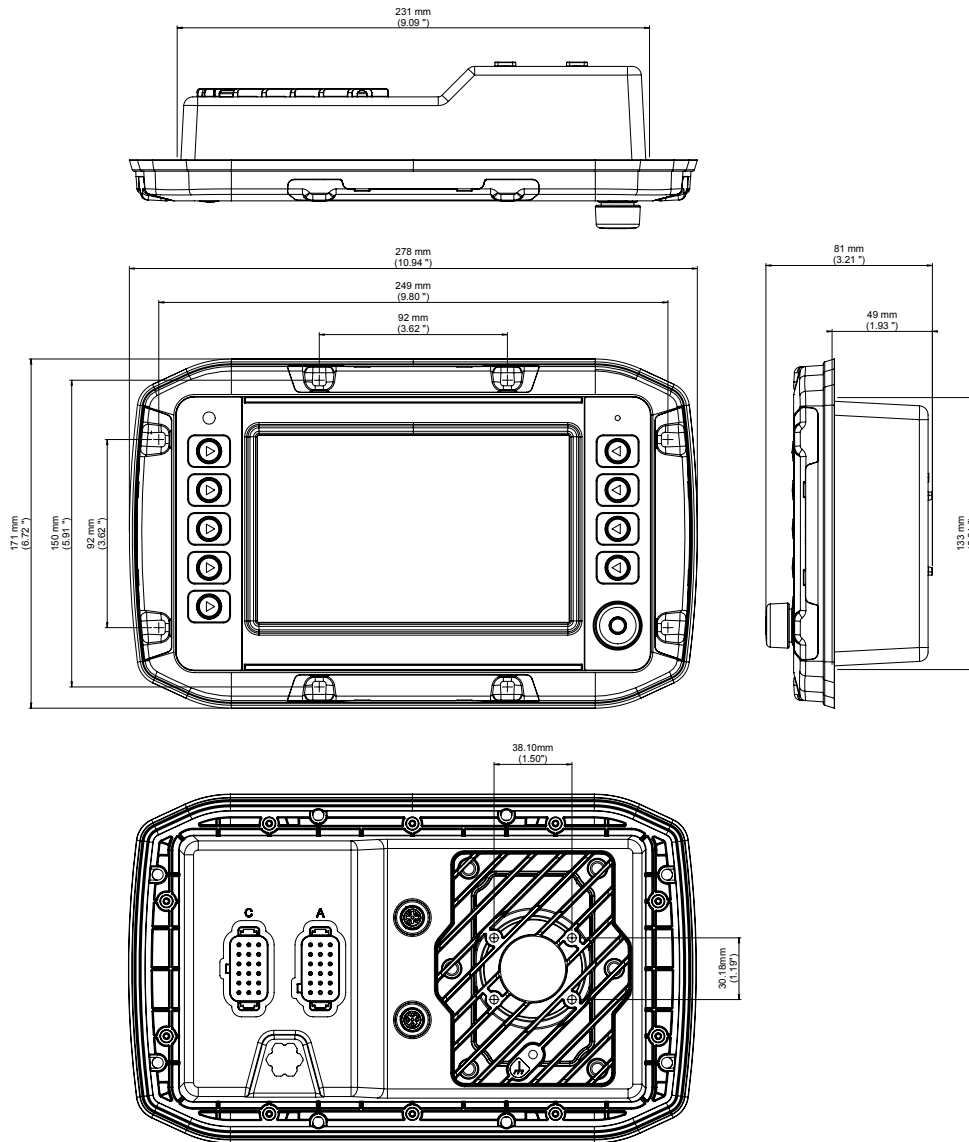


DSEM870 – 7” Programmable Display

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Technical Drawing



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