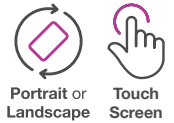


DSEM812 – 12” Programmable Display (Non Keyed / Keyed Variants)

Part Numbers: M812-01, M812-02, M812-03, M812-04



Overview

The DSEM812 is a 12” Programmable Display designed for use on vehicles and off highway machinery and is the largest display in DSE’s programmable display range. Developed for use as a standalone product or with the DSEM64X programmable controllers, the DSEM812 provides users with outstanding flexibility. The DSEM812 is configured using CODESYS 3.5 or Qt, can be RAM or panel mounted and has the option to use in portrait or landscape orientation.

Key Features

- Robust HMI/programmable display specifically designed for mobile applications
- Optically bonded 12.1” TFT, 1280 x 800 16:10 resolution, colour
- Capacitive touch with glove support
- Two hardware variants available, one with keys with configurable colour back light and touchscreen. One with touchscreen only (non keyed)
- iMX6 quad processor
- 16 GB flash, 2 GB RAM
- Wake-up providing fast boot functionality
- USB host connections
- 4 analogue (composite video) camera support (PAL/NTSC)
- 3 independent CAN interfaces. Each configurable as J1939, CANopen or Raw CAN
- 2 independent Ethernet interfaces, via M12 connectors (Camera support - RTP, RTSP, H264, MJPEG)
- 6 configurable outputs
- 6 inputs (digital, resistive, voltage, 0 – 20 mA, 4 – 20 mA, frequency input)
- Wi-Fi support (external antenna required)
- GPS (external antenna required)
- Flexible user programming via CODESYS 3.5 or Qt
- Built-in Web browser for communicating data over HTML to 3rd party devices

Product Documentation

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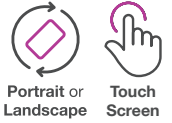
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DSEM812 – 12” Programmable Display (Non Keyed / Keyed Variants)

Part Numbers: M812-01, M812-02, M812-03, M812-04



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
Display	
Measurement	12.1” TFT, 1280 x 800 resolution 24 bit colour. Optically bonded.
Brightness	500 cd/m ² (nit)
Inputs	
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	
Type	Digital - High side / low side PWM - High side 20 Hz to 2 kHz
Processor	
iMX6 Quad Microcontroller	ARM A9
Speed	1 GHz
Flash	16 GB (12.5 GB to CODESYS)
RAM	2 GB

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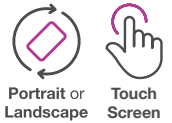
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DSEM812 – 12” Programmable Display (Non Keyed / Keyed Variants)

Part Numbers: M812-01, M812-02, M812-03, M812-04



Specifications	
Interfaces / Communications	
CAN	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 host 2.0 (12 Mbit/s)
WIFI	WIFI 2.4 GHz IEEE 801.11 b/g/n
Temperature	
Operating Temperature	-20 °C to +70 °C / -4 °F to + 158 °F
Storage Temperature	-30 °C to +80 °C / -22 °F to +176 °F
Dimensions	
Overall (W x H x D) with buttons	330 mm x 210 mm x 63.5 mm / 12.99" x 8.26" x 2.5"
Overall (W x H x D) without buttons	330 mm x 210 mm x 59.7mm / 12.99" x 8.26" x 2.35"
Panel Cut-Out (W x H)	313 mm x 193 mm (R 12 mm) / 12.32 " x 7.56 " (R 0.5")
Maximum Panel Thickness	6 mm / 0.23 "
RAM Mountable	AMPS Hole Pattern

Related Products		
Programmable Controllers		
DSEM640	Programmable Controller (68 I/O)	M640-01
DSEM643	Programmable Controller (34 I/O)	M643-01
Expansion Devices		
DSE2160	CAN Input / Output Expansion Module	2160-01
DSE2170	CAN RTD / Thermocouple / Analogue Output Expansion Module	2170-01
Accessories		
DSEM812 Wiring Harness 1.2 m		016-185
DSEM812 Connector Set (including pins)		007-1073
Panel Mount Kit (with keys)		100-411-01
Panel Mount Kit (without keys)		100-411-02
Ethernet Cable		016-160
USB Cable		016-161

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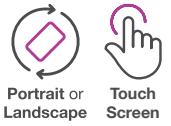
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DSEM812 – 12” Programmable Display (Non Keyed / Keyed Variants)

Part Numbers: M812-01, M812-02, M812-03, M812-04



Environmental Testing Standards	
CE Marking	
EN61000-6-2	Electromagnetic compatibility (EMC) noise immunity
EN61000-6-4	Electromagnetic compatibility (EMC) emission standard
BS EN 61010: 2010 +A1: 2019	Safety of information technology equipment, general requirements
E11	
UN/ECE-R10.06	E11
Water and Dust	
IEC60529	IP67 / NEMA6
Salt Spray	
BS EN 60068-2-52	Test Kb - Salt Mist Cyclic (Sodium Chloride Solution) Severity 3 One test cycle consisting of: Salt mist temperature: +15 °C to +35 °C Spray period: 2 hours Followed by humidity storage period: 20 - 22 hours at 93+2-3% rh and +40 °C ± 2 °C Four test cycles (as above) to be applied followed by a Storage Period: 3 days @ 45-55% rh and +23°C ±2°C
Mechanical Tests	
BS EN 60068-2-6	Vibration Resonance Dwell Freq range: 5 Hz to 500 Hz Acceleration: 5 g
EN60068-2-6	Vibration Resonance Search Freq range: 10 Hz to 2 kHz Acceleration: 5 g
EN60068-2-64	Vibration Random Freq range: 10 Hz to 350 Hz
ISO 16750-3	Test VII; vibration Random 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)
EN60068-2-27	Mechanical Shock Amplitude: 50 g Duration: 6 ms
ISO 16750-3	Bumps Amplitude: 30 g Duration: 6 ms; 24,000 shocks
Load Dump	
ISO16750-2	151 V (Ri 1 Ω) 202 V (Ri 8 Ω)

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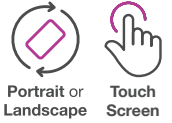
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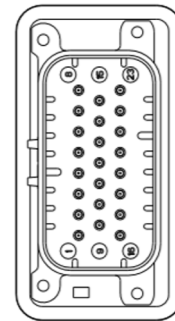
Part Numbers: M812-01, M812-02, M812-03, M812-04



Connector A	
Pin	Description
1	Product Supply +ve/battery
2	Wake Up
3	Ignition +ve (15)
4	Camera 1 Signal
5	Camera 1 GND
6	Program Enable
7	Camera 2 Signal
8	Camera 2 GND
9	Product Supply -ve/battery
10	CAN1_shield/GND
11	CAN 1 H
12	CAN 1 L
13	Camera 3 Signal
14	Camera 3 GND
15	Camera 4 Signal
16	Product Supply -ve/battery
17	CAN2_shield/GND
18	CAN 2 H
19	CAN 2 L
20	CAN3_shield/GND
21	CAN 3 H
22	CAN 3 L
23	Camera 4 GND

Connector Diagrams

Connector A



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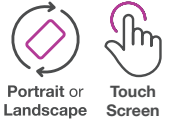
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DSEM812 – 12” Programmable Display (Non Keyed / Keyed Variants)

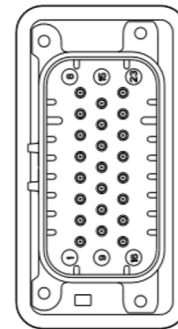
Part Numbers: M812-01, M812-02, M812-03, M812-04



Connector B		
Pin	Description	
1	I/O Supply +ve	
2	Output 1	OUT H, PWM
3	Output 2	OUT H, PWM
4	GND	
5	GND	
6	Output 3	OUT H, L
7	Output 4	OUT H, L
8	GND	
9	I/O Supply +ve	
10	Vref Out +ve	
11	GND	
12	GND	
13	Input 1	AIN
14	Input 2	AIN
15	GND	
16	AGND	
17	Input 3	AIN
18	Input 4	AIN
19	Output 5	OUT H, L
20	Output 6	OUT H, L
21	Input 5	AIN
22	Input 6	AIN
23	GND	

Connector Diagrams

Connector B



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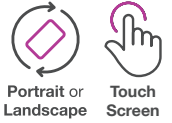
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Part Numbers: M812-01, M812-02, M812-03, M812-04



Ethernet - M12 'D' Coded	
Pin	Description
1	Tx+
2	Rc+
3	Tx-
4	Rc-
USB Host	
Pin	Description
1	+5 V DC
2	Data -
3	Data +
4	0 V
5	Shield
WIFI	
RF - SMA Female	Outside thread, female centre pin. (Suits antenna with SMA Male connector)
GPS	
RF - SMA Female	Outside thread, female centre pin. (Suits antenna with SMA Male connector)

Connector Diagrams

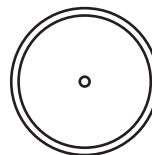
Ethernet



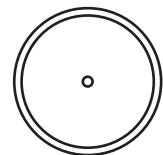
USB Host



WIFI



GPS



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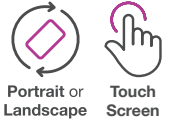
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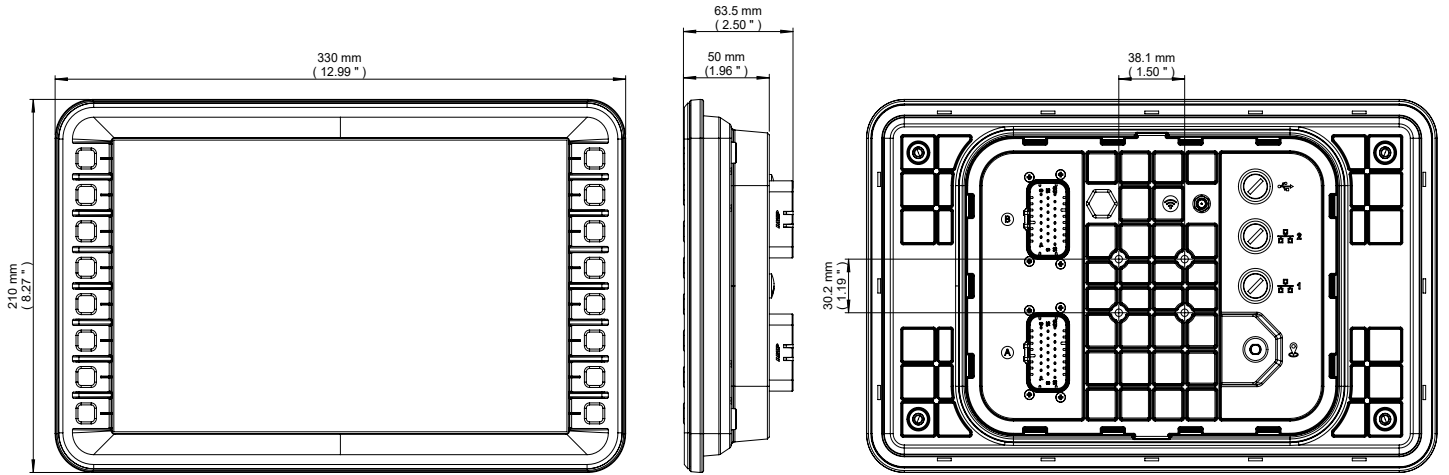
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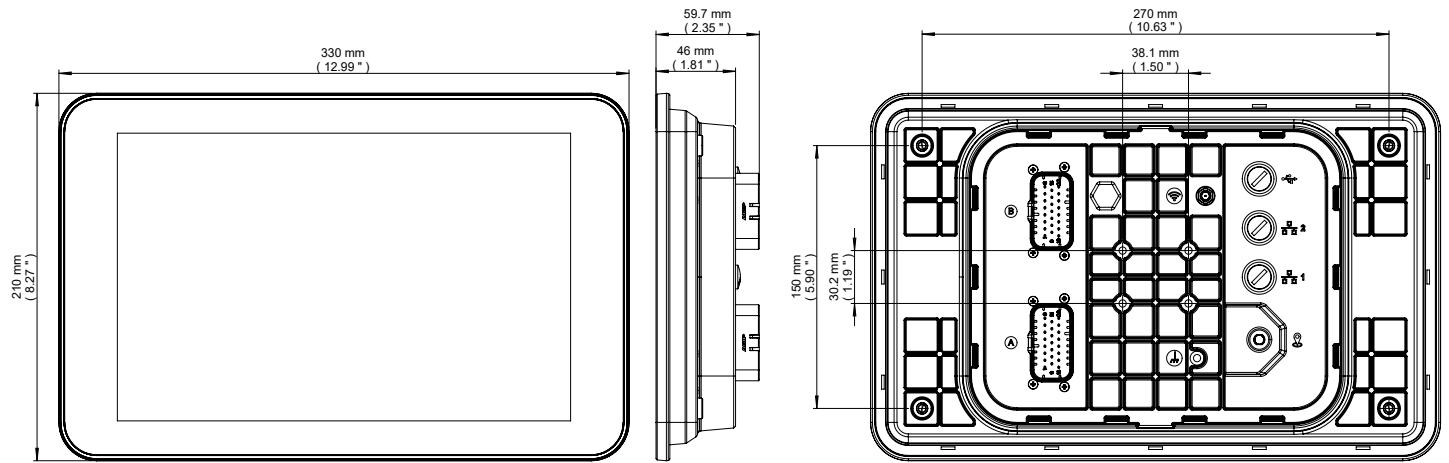


Technical Drawing

DSEM812 Keyed Variant



DSEM812 Non Keyed Variant



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