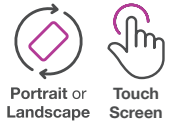


## DSEM810 – 10” Programmable Display (Non Keyed / Keyed Variants)

Part Numbers: M810-01, M810-02, M810-03, M810-04



### Overview

The DSEM810 is a 10” programmable display designed for use on vehicles and off-highway machinery. Developed for use as a standalone product or as part of a larger system, the DSEM810 provides users with outstanding flexibility. CANopen, SAE J1939 and raw CAN connectivity allow the configurable on-board I/O to be supplemented with a range of devices including DSEM64X programmable controllers or CAN enabled distributed I/O such as DSE2160 or DSE2170.

Two independent CAN interfaces and onboard Ethernet provides flexibility to connect with a range of external equipment. Panel mounting and RAM mount options are both available, along with the option to use in landscape or portrait orientation. The DSEM810 is configured using CODESYS 3.5 or Qt 6.

### Key Features

- Optically bonded 10.1” colour display for harsh environments.
- Daylight visible, anti-glare display (1000 cd/m<sup>2</sup> (nit))
- Capacitive touch screen with glove support.
- NXP i.MX 8 DualXPlus processor with GPU.
- 8 GB flash / 1 GB RAM.
- 4 outputs (Digital / PWM).
- 4 inputs (Digital, resistive, voltage, current, frequency input)
- Keyed variant features 12 configurable backlit keys.
- 2 independent CAN interfaces (J1939, CANopen and Raw CAN)
- Real time clock
- Ethernet, including CODESYS Modbus TCP Client
- Audio output
- 2 analogue camera inputs, TCP/IP camera
- Web browser
- PDF viewer
- Movie player
- USB for firmware / application updates and additional storage for files / data logs

### Product Documentation

057-357 – DSEM810 Operator Manual  
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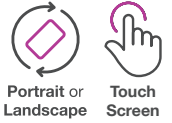
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**DSEM810 – 10” Programmable Display (Non Keyed / Keyed Variants)**

Part Numbers: M810-01, M810-02, M810-03, M810-04



Specifications	
<b>DC Supply</b>	
Continuous Voltage Rating	8 V DC to 32 V DC continuous
Maximum Operating Current	< 1500 mA at 12 V and 24 V without external loads
<b>Display</b>	
Measurement	10.1” TFT, 1280 x 800 resolution 24 bit colour. Optically bonded.
Brightness	1000 cd/m <sup>2</sup> (nit)
<b>Inputs</b>	
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
<b>Outputs</b>	
Type	Digital - High side / low side PWM - High side 0 Hz to 250 Hz
<b>Processor</b>	
iMX8DualXPlus Microcontroller	2 x ARM Cortex A35 1 x ARM Cortex M4
Speed	1.2 GHz 264 MHz
Flash	4.6 GB available for application 8 GB total
RAM	1 GB

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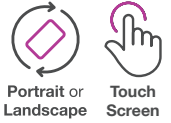
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## DSEM810 – 10” Programmable Display (Non Keyed / Keyed Variants)

Part Numbers: M810-01, M810-02, M810-03, M810-04



Specifications	
Interfaces / Communications	
<b>CAN 1 and 2</b>	CAN Interfaces 2.0 A/B, ISO11898 50 kbits/s... 1 Mbit/s CANopen, SAE J1939 or Raw CAN
<b>Ethernet</b>	10 Mbit/s / 100 Mbit/s Duplex CODESYS Modbus TCP Client
<b>USB</b>	USB host 2.0 (480 Mbit/s)
<b>WIFI</b>	WIFI 2.4 GHz IEEE 801.11 b/g/n
Temperature	
<b>Operating Temperature</b>	-30 °C to +65 °C / -22 °F to + 149 °F
<b>Storage Temperature</b>	-30 °C to +80 °C / -22 °F to +176 °F
Dimensions	
<b>Overall (W x H x D) with buttons</b>	281 mm x 181 mm x 65.5 mm / 11.0" x 7.12" x 2.58"
<b>Overall (W x H x D) without buttons</b>	281 mm x 181 mm x 61.5mm / 11.0" x 7.12" x 2.42"
<b>Panel Cut-Out (W x H)</b>	260 mm x 165 mm (R 12 mm) / 10.2" x 6.5" (R 0.5")
<b>Maximum Panel Thickness</b>	6 mm / 0.2"
<b>RAM Mountable</b>	AMPS hole pattern

Related Products		
Programmable Controllers		
<b>DSEM640</b>	Programmable Controller (68 I/O)	M640-01
<b>DSEM643</b>	Programmable Controller (34 I/O)	M643-01
Expansion Devices		
<b>DSE2160</b>	CAN Input / Output Expansion Module	2160-01
<b>DSE2170</b>	CAN RTD / Thermocouple / Analogue Output Expansion Module	2170-01
Accessories		
DSEM810 Wiring Harness 1.2 m (3' 11")		016-189
DSEM810 Connector Set (including pins)		007-1178
Panel Mount Kit		100-413-01
RAM Mount Kit		100-414-01
Ethernet Cable		016-160
USB Cable		016-161

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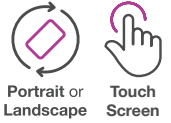
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**DSEM810 – 10” Programmable Display (Non Keyed / Keyed Variants)**

Part Numbers: M810-01, M810-02, M810-03, M810-04



Environmental Testing Standards	
<b>CE Marking</b>	
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
<b>E11</b>	
UN/ECE-R10.06	E11
<b>Water and Dust</b>	
IEC60529	IP67 / NEMA6
<b>Salt Spray</b>	
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
<b>Mechanical Tests</b>	
EN 60068-2-64	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 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 Shock pulse shape: Half sine Amplitude: 50 g Duration: 6 ms Number of shocks: 3 in each direction of each axis (9 in total of each duration)
ISO 16750-3	Bumps Amplitude: 30 g Duration: 6 ms; 24,000 shocks
<b>Load Dump</b>	
ISO 16750-2	151 V (Ri 1 Ω) 202 V (Ri 8 Ω)

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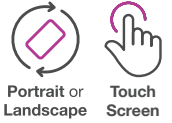
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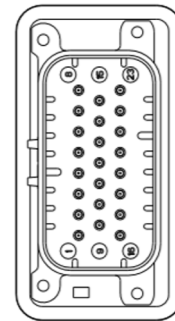
Part Numbers: M810-01, M810-02, M810-03, M810-04



Connector A	
Pin	Description
1	ECU Supply +ve
2	Audio Output +ve
3	Ignition +ve (15)
4	Camera 1 Signal +ve
5	Input -ve
6	Program Enable
7	Input 1
8	Input 2
9	ECU Supply -ve
10	Audio Output -ve
11	CAN 1 H
12	CAN 1 L
13	Camera 2 Signal +ve
14	Camera 1 & 2 Signal -ve
15	Input 3
16	VREF Output
17	Output 1
18	CAN 2 H
19	CAN 2 L
20	Output 2
21	Output 3
22	Output 4
23	Input 4

### Connector Diagrams

Connector A



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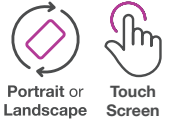
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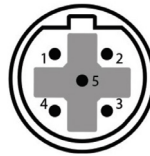
Ethernet - M12 'D' Coded	
Pin	Description
1	Tx+
2	Rx+
3	Tx-
4	Rx-
USB Host	
Pin	Description
1	+5 V DC
2	Data -
3	Data +
4	0 V
5	Shield
WIFI	
RF - SMA Female	Outside thread, female centre pin. (Suits antenna with SMA Male connector)

### Connector Diagrams

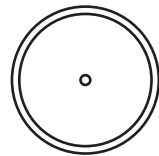
Ethernet



USB Host



WIFI



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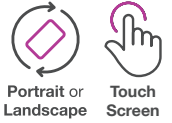
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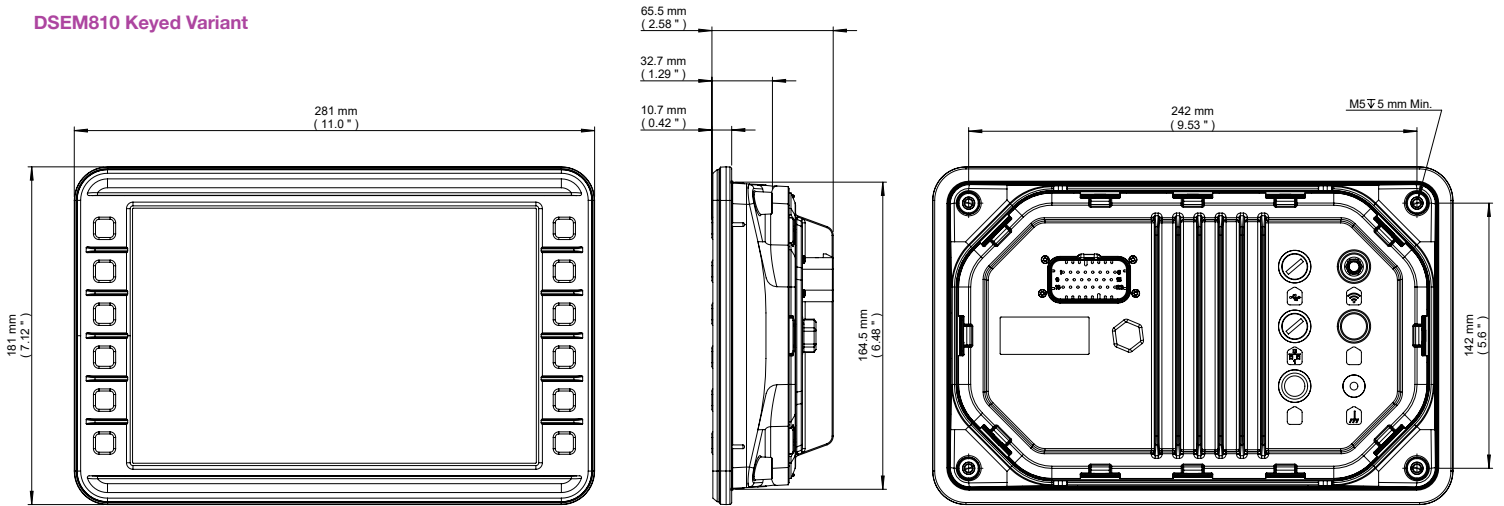
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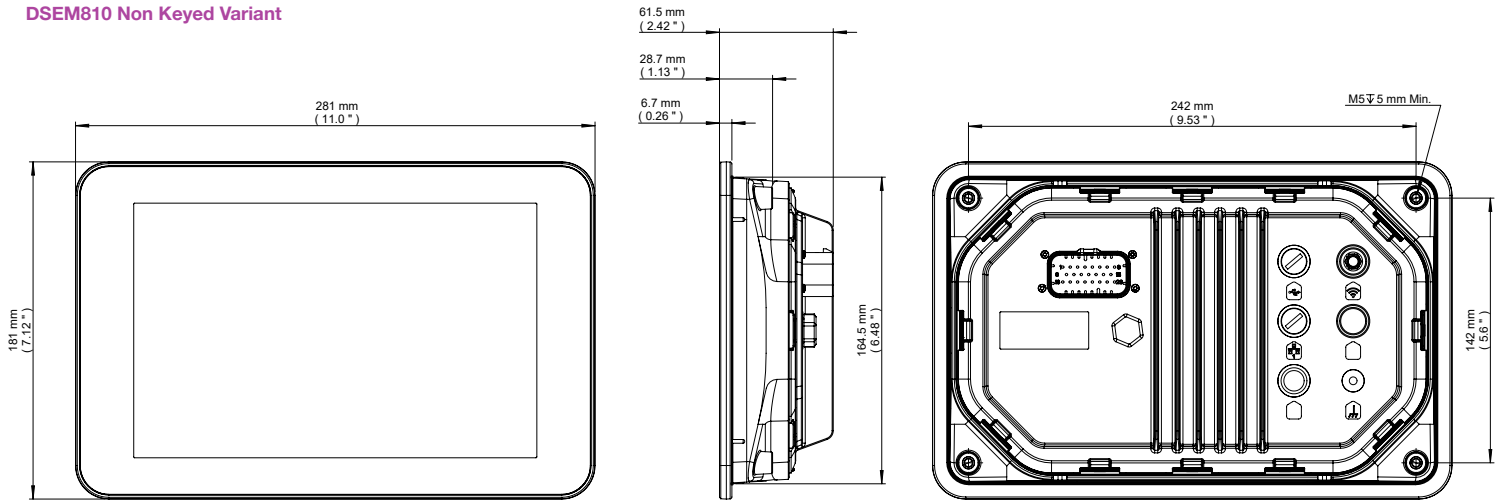


#### Technical Drawing

##### DSEM810 Keyed Variant



##### DSEM810 Non Keyed Variant



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