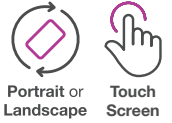




DSEM810 – 10” Programmable Display (Non Keyed / Keyed Variants)

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/m² (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 Variants

- M810-01 - CODESYS (Keyed)
- M810-02 - CODESYS (Non Keyed)
- M810-03 - Qt (Keyed)
- M810-04 - Qt (Non Keyed)

Product Documentation

- 057-357 – DSEM810 Operator Manual
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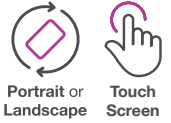
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Part Numbers: M810-01, M810-02, M810-03, M810-04



| Specifications | |
|-------------------------------|--|
| DC Supply | |
| 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 |
| Display | |
| Measurement | 10.1” TFT, 1280 x 800 resolution 24 bit colour. Optically bonded. |
| Brightness | 1000 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 0 Hz to 250 Hz |
| Processor | |
| 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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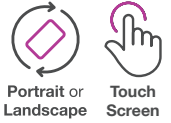
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DSEM810 – 10” Programmable Display (Non Keyed / Keyed Variants)

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



| Specifications | |
|--|---|
| Interfaces / Communications | |
| 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 host 2.0 (480 Mbit/s) |
| WIFI | WIFI 2.4 GHz IEEE 801.11 b/g/n |
| Temperature | |
| Operating Temperature | -30 °C to +65 °C / -22 °F to + 149 °F |
| Storage Temperature | -40 °C to +80 °C / -40 °F to +176 °F |
| Dimensions | |
| Overall (W x H x D) with buttons | 281 mm x 181 mm x 65.5 mm / 11.0" x 7.12" x 2.58" |
| Overall (W x H x D) without buttons | 281 mm x 181 mm x 61.5mm / 11.0" x 7.12" x 2.42" |
| Panel Cut-Out (W x H) | 265 mm x 165 mm (R 12 mm) / 10.2" x 6.5" (R 0.5") |
| Maximum Panel Thickness | 6 mm / 0.2" |
| 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 | | |
| 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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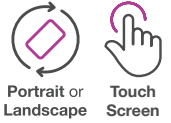
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DSEM810 – 10” Programmable Display (Non Keyed / Keyed Variants)

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



| Environmental Testing Standards | |
|---------------------------------|--|
| 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 | |
| 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 |
| Load Dump | |
| ISO 16750-2 | 151 V (Ri 1 Ω) 202 V (Ri 8 Ω) |

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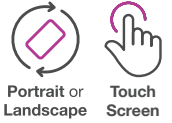
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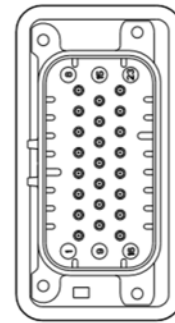
Part Numbers: M810-01, M810-02, M810-03, M810-04



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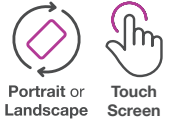
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Part Numbers: M810-01, M810-02, M810-03, M810-04



| 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 |
| WIFI | |
| RF - SMA Female | Outside thread, female centre pin. (Suits antenna with SMA Male connector) |

Connector Diagrams

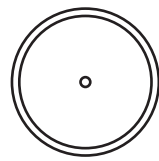
Ethernet



USB Host



WIFI



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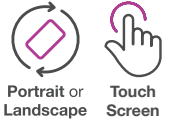
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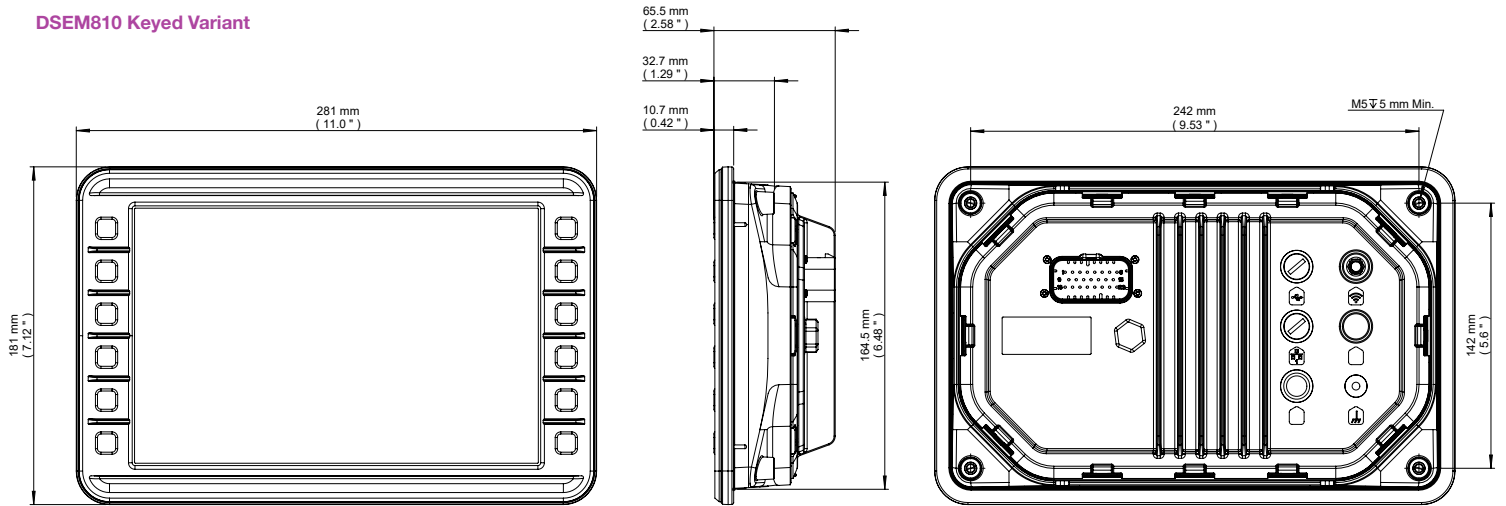
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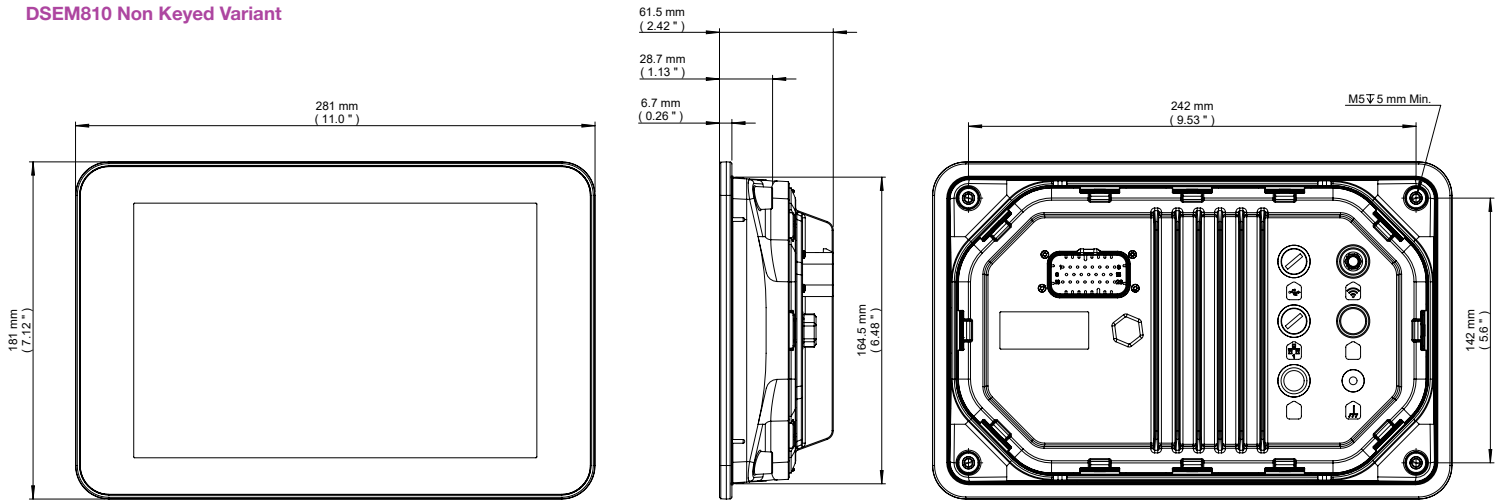


Technical Drawing

DSEM810 Keyed Variant



DSEM810 Non Keyed Variant



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