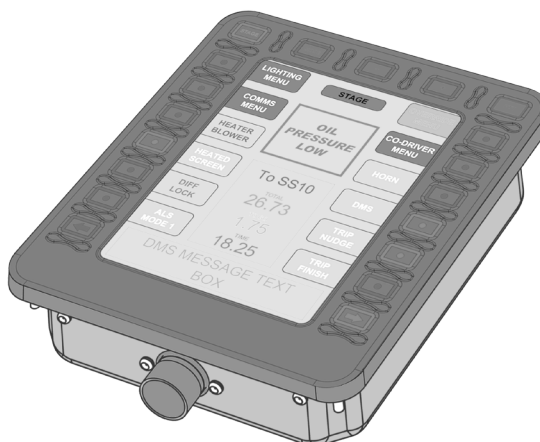


Multi Function Display (MFD)



Introduction

The MFD is designed to provide a rally driver and co-driver with context sensitive pages to control the complete vehicle system whilst displaying system data, alarms, and statistics. It is equally useful in any application where a rugged, light weight display / switch panel is needed.

It features a large, high resolution TFT VGA display with a backlight which can be adjusted over a wide range so that the display is easily visible in a vehicle during bright sunlight and at night.

- 6.5 inch display,
- 640 x 480 pixels,
- 65 536 colour,
- 12 user programmable switches linked to the page being displayed,
- 8 high side drive outputs.

There are a further seven dedicated switches:

- Page Up, Page Down, Mode,
- PTT,
- Stage,
- Indicate left, Indicate right.

All switches have multi-colour LED backlights to show switch state.

The display has eight software controllable HSD outputs suitable for driving cockpit lights, indicators, brake lights, etc.

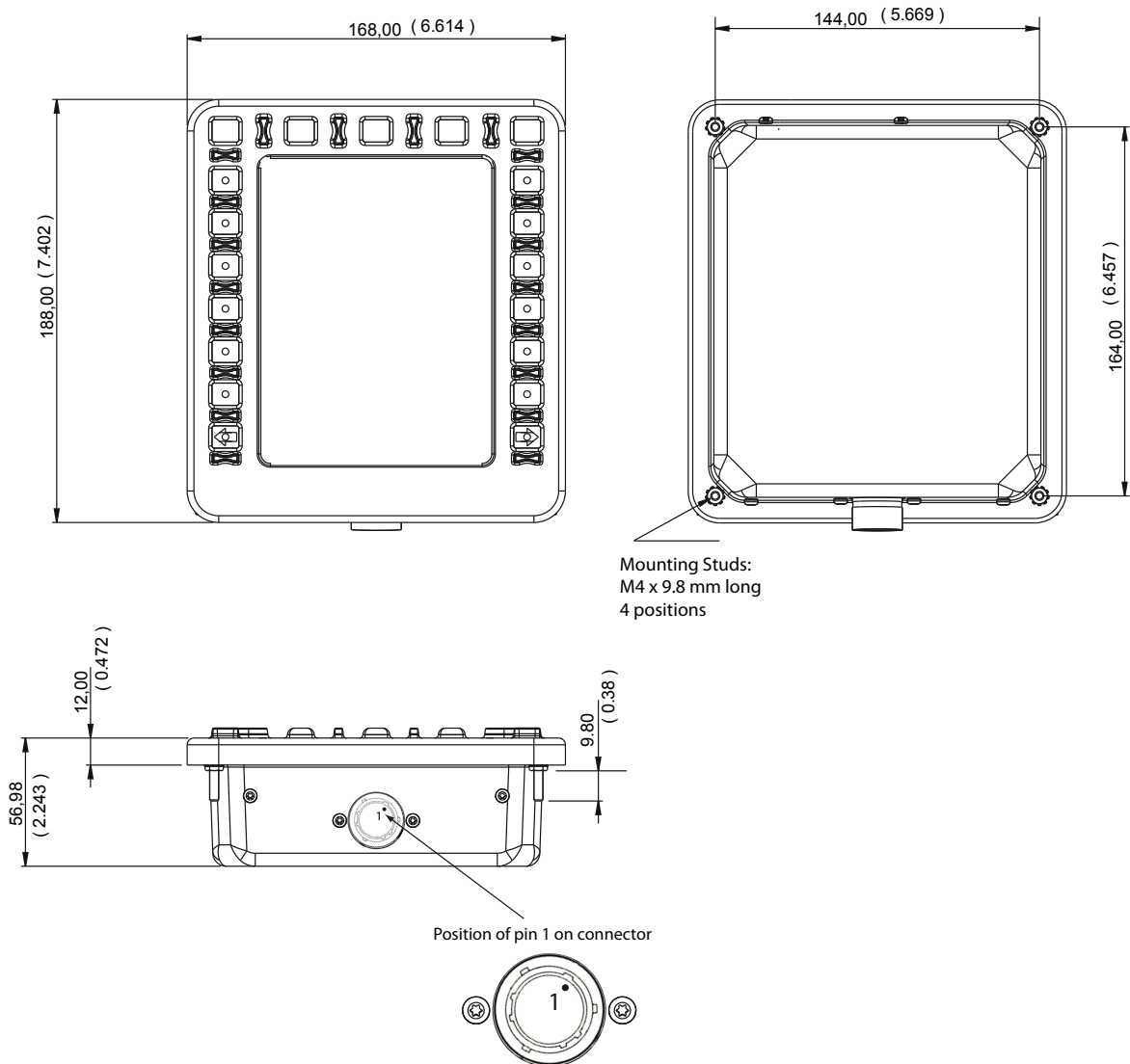
The display can receive a stream of data over either serial or CAN and is compatible with Pi / Pectel Products. e.g. Pectel MQ12 – Ford S2000 Spec.

It operates from 7V to 36V DC and has reverse polarity and over-voltage protection.

Installation

When installing the display:

- Select a position where the unit will not be in constant contact with water, fuel or oil.
- Protect the unit from vibration.
- Make sure that the unit will not be affected by heat soak.
- Make sure that air can flow over the unit to keep it below 45°C.
- Try not to place the unit near sources of electrical interference. (e.g. ignition coils, plug leads, ECUs, alternators, and telemetry antennas.)



Specifications

Description	Value
Supply voltage	+7.0V to +36.0V
Supply current (All HSD off)	0.75A at 13.8V
Operating temperature range	-10°C to +45°C
Derating	Max temperature derated to 40°C with HSD load of 56 Watts (maximum)
Storage temperature range	-20°C to +80°C
Processor	Freescale MPC5567
Memory	16Kbytes for setup and option storage
Brightness	650 cd/m ²
Contrast	600:1
Viewing Angle	80° typ.
Weight	790 grams
Environmental	IP64

Connector information

Connector	Mating connector
Autosport AS214-35PN-978M	AS614-35SN

Ordering information

Product	Part number
Multi Function Display	01D-032731

Pinout

Pin	Signal Name	Description	
1.	HSD1	High Side Driver 1 output (2 Amps)	
2.	AUXLTS-IN#	Auxiliary Lights Switch input (Internal 10K pull-up)	see note 3
3.	PTT-OUT#	Buffered PTT switch output (Open collector)	see note 3
4.	LHIND-IN#	Left indicator switch input (Internal 10K pull-up)	see note 3
5.	VBATT+	Battery supply +ve	see note 1
6.	VBATT+	Battery supply +ve	
7.	VBATT+	Battery supply +ve	
8.	VBATT-	Battery supply -ve	see note 1
9.	ETH-RX+	Ethernet RX+ to Switch Control Board	
10.	TFT-ETHRX-	Ethernet RX- to TFT Control Board	
11.	TFT-ETHTX-	Ethernet TX- from TFT Control Board	
12.	HSD7	High Side Driver 7 output (2 Amps)	see note 2
13.	HSD8	High Side Driver 8 output (2 Amps)	
14.	HSD4	High Side Driver 4 output (2 Amps)	
15.	HSD5	High Side Driver 5 output (2 Amps)	
16.	HSD6	High Side Driver 6 output (2 Amps)	
17.	HSD3	High Side Driver 3 output (2 Amps)	
18.	HSD2	High Side Driver 2 output (2 Amps)	
19.	SER-TX2	Serial port 2 RS232 data from display	
20.	PTT-IN#	PTT switch Input (Internal 10K pull-up)	see note 3
21.	VBATT+	Battery supply +ve	
22.	VBATT+	Battery supply +ve	
23.	VBATT-	Battery supply -ve	
24.	ETH-RX-	Ethernet RX- to Switch Control Board	
25.	TFT-ETHRX+	Ethernet RX+ to TFT Control Board	
26.	TFT-ETHTX+	Ethernet TX+ from TFT Control Board	
27.	CANL	CAN low signal for communication with ECU	
28.	DEBUGTX	Serial port 0 RS232 data from display (debug/code loading)	
29.	SER-RX1	Serial port 1 RS232 data to display (DMS interface)	
30.	SER-TX1	Serial port 1 RS232 data from display (DMS interface)	
31.	SER-RX2	Serial port 2 RS232 data to display	
32.	RHIND-IN#	Right indicator switch input (Internal 10K pull-up)	see note 3
33.	ETH-TX+	Ethernet TX+ from Switch Control Board	
34.	ETH-TX-	Ethernet TX- from Switch Control Board	
35.	CANH	CAN high signal for communication with ECU	
36.	DEBUGRX	Serial port 0 RS232 data to display (debug/code loading)	
37.	STARTUP-IN	Start-up system when connected to VBAT+ (Internal 1M Ω pull-down)	

Note 1: All VBATT+ and VBATT- pins should be used to ensure sufficient current capacity.

Note 2: HSD drives maximum total current not to exceed 56 Watts.

Note 3: Active low. The # symbol in the signal name indicates that the signal is active when driven to 0 Volts.

Recycling and Environmental Protection

Cosworth Electronics is committed to conducting its business in an environmentally responsible manner and to strive for high environmental standards.

Manufacture

Cosworth products comply with the appropriate requirements of the Restriction of Hazardous Substances (RoHS) directive (where applicable).



Disposal

Electronic equipment should be disposed of in accordance with regulations in force and in particular in accordance with the Waste in Electrical and Electronic Equipment directive. (WEEE)

Declaration of Conformity

We, the undersigned,

Cosworth Electronics Limited
Brookfield Technology Centre,
Cottenham,
Cambridgeshire, CB24 8PS
United Kingdom

Certify and declare under our sole responsibility that the following equipment:

Multi Functional Display – part number 01D-032731

A display for use only in motorsport applications

Conforms to the following EC directives including applicable amendments:

EMC Directive 89/336/EEC, 72/245/EEC (last amended 2004/104/EC)

The following standards have been applied:

2004/104/EC

Cottenham, 12 November 2009



George Lendrum - Divisional Managing Director