



# SE**M870**

## PROGRAMMABLE DISPLAY FOR USE IN **VEHICLES AND OFF-HIGHWAY MACHINERY**



#### **KEY FEATURES / SUMMARY**

- Robust HMI/programmable display specifically designed for mobile applications
- Optically bonded 7" colour screen for harsh environments
- 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, digital and analogue capability
- 4 configurable digital outputs
- 2 independent CAN interfaces, J1939, CAN open and Raw CAN
- Ethernet interface for communication
- Flexible user programming via CODESYS 3.5 and QT
- IP67 protection/NEMA 6
- 2 camera inputs

ADDITIONAL HARDWARE	DSE PART
Deutsch connector A, 18 way complete with pins	007-850
Deutsch connector C, 18 way complete with pins	007-851
M870 connector harness	016-167
M870 panel gasket	020-579
Ethernet programming cable	016-160
M12 to USB cable	016-161

#### OVERVIEW

DC SUPPLY 8 V DC to 32 V DC

#### **CURRENT CONSUMPTION**

#### OPERATING CURRENT

< 1000 mA at 12 V and 24 V without external loads

< 1500 mA at 12 V and 24 V with Htr.

#### DISPLAY

800 px x 480 px 24 bit colour Optically bonded

#### INPUTS/OUTPUTS (total)

4 inputs / 4 outputs

Configurable, Digital inputs (positive / negative) Analogue inputs (Voltage 0 V to 5 V, 0 V to 10 V, 0 V to 32 V, current 4 mA to 20 mA, Ratiometric, Resistive, Frequency)

Configurable
Digital Output High-Sided/Low-Sided

#### INTERFACES

CAN Interfaces 2.0 A/B, ISO11898 50 kbits/s... 1 Mbit/s CAN Open, SAE J1939 or Raw CAN ETHERNET 10 Mbit/s / 100 Mbit/s, Duplex

#### USB

USB Host 2 0 (12 Mbit/s)

#### DIMENSIONS

272 mm x 165 mm x 81 mm (W x H x D) 10.7" x 6.5" x 3.2" (W x H x D)

#### WEIGHT

# STORAGE TEMPERATURE RANGE -40 ° C to +85 ° C

-40 ° F to +185 ° F

**OPERATING TEMPERATURE RANGE** 

-30 ° C to +85 ° C -22 ° F to +185 ° F

### PROTECTION RATING

IP67/NEMA 6 (with mating connectors)

#### MOUNTING

8 x M5 bolts / RAM arm

**RELATED MATERIALS** 

TITLE

PART NO. M870 Installation Instructions 057-187 057-246 M870 Operator Manual

DEEP SEA ELECTRONICS LTD UK

Highfield House, Hunmanby Industrial Estate, Hunmanby YO14 0PH **TELEPHONE** +44 (0) 1723 890099 EMAIL sales@deepseaelectronics.com WEBSITE www.deepseaelectronics.com DEEP SEA ELECTRONICS INC USA

3230 Williams Avenue Rockford II 61101-2668 USA **TELEPHONE** +1 (815) 316 8706 **FACSIMILE** +1 (815) 316 8708 EMAIL usasales@deepseaelectronics.com WEBSITE www.deepseaelectronics.com





### **Technical Data**

DSE <b>M870</b>			
Supply		Connector A	
Operating voltage	8 V DC to 32 V DC	Pin 7	
Unit power supply maximum current consumption, full backlight (no external loads)	< 1000 mA at 12 V and 24 V		
Unit power supply maximum current consumption, full backlight and heater (no external loads)	< 1500 mA at 12 V and 24 V		
Unit power supply current consumption after controlled shutdown has occurred due to the ignition being turned off	< 5 mA at 24 V		
Fusing		Connector A	
Unit power supply external protection fuse rating	3 A	Pin 7	
High current outputs supply input external fuse protection rating (i.e. sum of output currents from all outputs provided for by an individual supply to < external fuse rating in total)	10 A	Pin 1	
Housing			
PC PBT alloy plastic resin			
Dimensions			
140 mm x 230 mm x 60 mm (W x H x D) / 10.8" x 6.3" x 3.15" ( W x H x D)			
Weight			
< 1 kg			
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		
Protection Rating			
	IP67 (with mating connectors)		
Display			
Resolution, pixel	800 px x 480 px		
Colour	24 bit		
Format	7" diagonal		
Mounting	Optically bonded		
Illumination	LED (lifetime > 50,000 hrs)		
Connectors			
Connector A	18 pin TE connectivity DT16- 18SA-K004		
Connector C	18 pin TE connectivity DT16- 18SC-K004		
Ethernet	M12, D-coded 4 pole socket		
USB	M12, B-coded 5 pole socket		
Digital Inputs		Connector C	
Digital inputs configured high or low		Pin 14, 15, 16, 17	
High level voltage threshold	> 6 V		
Low level voltage threshold	< 2 V		
Analogue Voltage Inputs		Connector C	
0 V to 5 V programmable voltage range	0 V to 5 V	Pin 14, 15, 16, 17	
0 V to 10 V programmable voltage range	0 V to 10 V		
0 V to 32 V programmable voltage range	0 V to 32 V		
Voltage measurement resolution	12 bits		
Voltage measurement accuracy	± 1% FSD		
Voltage measurement input resistance	≥ 30 kΩ		
Voltage measurement sampling rate	500 Hz		
FSD = Full Scale Deflection			





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Analogue Current Inputs		Connector C
Current measurement direction	Current sink only	Pin 14, 15, 16, 17
Current measurement ranges	0 mA to 20 mA	
	4 mA to 20 mA	
Current measurement resolution	12 bits	
Current measurement accuracy	± 1% FSD	
Current measurement input sink resistance	100 Ω ± 1%	
Current measurement sampling rate	500 Hz	
FSD = Full Scale Deflection		
Analogue Resistive Inputs		Connector C
Resistance measurement range	0 $\Omega$ to 3200 $\Omega$	Pin 14, 15, 16, 17
Resistance measurement source voltage	12 V maximum	
Resistance measurement current	1 mA	
Resistance measurement resolution	12 bits	
Resistance measurement accuracy	± 1% FSD	
Resistance measurement sampling rate	500 Hz	
FSD = Full Scale Deflection		
Analogue Ratiometric Inputs		Connector C
Voltage ratiometric measurement voltage range		Pin 14, 15, 16, 17
Voltage ratiometric measurement Vref	Supply/Vref	
Voltage ratiometric measurement	Ratio of input pin to supply voltage	
Voltage ratiometric measurement accuracy	± 1% FSD	
FSD = Full Scale Deflection		
Frequency Inputs		Connector C
Frequency range	5 Hz to 30 Hz	Pin 14, 15, 16, 17
Resolution	100 Hz at max. freq	
Accuracy	400 Hz at max. freq	
Maximum space voltage	< 1.4 V	
Minimum mark voltage	> 2 V	
Digital Outputs High Side		Connector C
Switching current	2 A	Pin 2, 3, 4, 5
Digital output active high 'ON' state internal voltage drop at rated current	< 100 mV	
Digital output active high 'OFF' state leakage current	< 10 µA at 24 V	
Digital Outputs Low Side		Connector C
Switching current	2 A	Pin 2, 3, 4, 5
Digital output active low 'ON' state maximum voltage at rated current	< 100 mV	
Digital output active low 'OFF' state leakage current	< 5 μA at 24 V	
Reference Voltage		Connector C
Reference voltage output	Programmable 5 V or 10 V, 500 mA accuracy ±5%	6
		VRef GND Pin 18
Auxiliary Voltage		Connector C
12 V auxiliary voltage	max 100 mA	Pin 13
7		





Paral time clock		DSE <b>M870</b>			
Camera	RTC				
Analogue video input (supported video standards: PAL 8 NTSC)	Real time clock		Supe	r Cap, backup time ~800	
Number of CAN ports	Camera				Connector A
Number of CAN ports	Analogue video input (si	upported video standards: PAL & NTSC)	2		5, 6, 11, 12
Supported protocols	CAN Interfaces				Connector A
CAN open   Raw CAN   Supported programmable baud rates   Supported thirds, 800 kbit/s, 8	Number of CAN ports		2		Pin 2, 3, 8, 9, 14, 15
Supported programmable baud rates Supported programmable baud rates Supported programmable baud rates Supported thereface	Supported protocols		J193	9	
Supported programmable baud rates  Ethernet Interface  W12, 4 pole  M12, 4 pole Supported Ethernet ports  Supported Ethernet ports  Supported data rates  Supported protocols  M6dbus TCP  CODESYS 3.5  USB Interface  M12, 5 pole  M13, 5 pole  M14, 5 pole  M15, 5 pole Supported USB version  M16, 5 pole Sucket  M17, 5 pole  M18, 5 pole  M19, 5 pole Sucket  M19, 5 pole  M			CAN	open	
Monther   Mon			Raw	CAN	
Number of Ethernet ports         1 D-coded 4 pole socket           Supported data rates         10/100 Mbit/ts           Supported protocols         Modulus TCP           CODESYS 3.5           USB Interface         W12,5 pole           Number of USB host ports         1         B-coded, 5 pole socket           Supported USB version         2         B-coded, 5 pole socket           Supported USB version         Fell ill speed (12 Mbit/s)         B-coded, 5 pole socket           Supported Guss supported         B-coded, 5 pole socket           Supported Miles Supported Guss supported         B-coded, 5 pole socket           B-cyported Miles Supported	Supported programmab	ole baud rates	kbit/s	s, 500 kbit/s, 800 Mbit/s,	
Supported data rates         10/100 Mbit/s         Modebus TCP           Supported protocols         Market TCP           USB Interface         W12,5 pole           Number of USB host ports         1         B-coded, 5 pole socket           Supported USB version         2         Full speed (12 Mbit/s)         Full speed (12 Mbit/s)           Supported Illing system         FAT32         Fat32         Fat32           Processor           Technexion Freescale iMX6-SOL Microcontroller         ARM A9         ARM A9         ARM A9           Memory           Flash         2 GB         Fat32         Fat32           Memory           Flash         Pat32         Fat32         Fat32           Memory         Fat332         Fat332         Fat34           Memory         Ferocessor         Ferocessor           Technexion Freescale iMX6-SOL Microcontroller         ARM A9         Beat MB A9           Memory         Ferocessor         Fat332         Processor           Technexion Freescale iMX6-SOL Microcontroller <t< td=""><td>Ethernet Interface</td><td></td><td></td><td></td><td>M12, 4 pole</td></t<>	Ethernet Interface				M12, 4 pole
Supported protocols  Wiley and Supported Protocols  Wiley and Supported Supported USB host powers and supported USB version 2 Supported USB version 2 Processor 5 Supported Supp	Number of Ethernet por	ts	1		D-coded 4 pole socket
USB Interface  USB Interface  Number of USB host ports  1	Supported data rates		10/10	00 Mbit/s	
USB Interface       Number of USB host ports     1     B-coded, 5 pole socket       Supported USB version     2     Full speed (12 Mbit/s)       Speeds supported     68 (Mass Storage)     Full speed (12 Mbit/s)       Device class supported Supported Filing system     68 (Mass Storage)     FAT32       Processor       Technexion Freescale iMX6-SOLO Microcontroller     ARM A9     Fax12       No MHz       Bish     2 GB     Fax12       Memory       Flash     2 GB     Fax12       RAM       Description     Operation     State       State       Colour     Description     State       N/A     Off       Green     Unit powered up, application program loaded but not numing     Static     Application stopped       Mylication stopped       Unit powered up, but no application program loaded but not numing     5 Hz flash     No application running       Amber     Bootloader functioning normally, firmware present     Static     Bootloader mode       Firmware stat start-up       Unit stopped due to a serious fault     Static     Firmware start-up       Unit stopped due to a serious	Supported protocols		Modi	ous TCP	
Number of USB host ports  Supported USB version  Speeds supported  Full speed (12 Mbit/s)  Device class supported  Supported filing system  FAT32  Processor  Technexion Freescale iMX6-SOLO Microcontroller  Remony  Filash  RAM  Solo MHz			COD	ESYS 3.5	
Supported USB version       2       Full speed (12 Mbit/s)       Percentage (12 Mbit/s)	USB Interface				M12, 5 pole
Speeds supported  Device class supported  Device class supported  Device class supported  RATS2  Processor  Technexion Freescale iMX6-SOLO Microcontroller  ARM A9  800 MHz  Memory  Flash  ABM  Description  Description  Device not powered  Unit powered up, application program loaded but not running Unit powered up, but no application program loaded  Amber  Bootloader functioning normally, firmware present Firmware is at start-up Unit stopped due to a serious fault  Bootloader is reading an image from the USB  Fatal system/hardware fault - LEd may be driven directly by microcontroller error pin or firmware is in a fault condition Unit running with a fault, see CODESYS error flags  FATS2  ARM A9  ARM A9  Bootloader  ARM A9  BOOMHz  ARM A9  BOOMHz  ARM A9  BOOMHZ  BOO	Number of USB host po	rts	1		B-coded, 5 pole socket
Device class supported Supported filing system Processor  Technexion Freescale iMX6-SOLO Microcontroller Remory Flash RAM Solo MHz  Solo MHz  Solo MHz  ARM A9  ABM A9  BOWNE  Flash Solo MHz  Solo MHz  Solo MHz  Bowner  Flash Solo MHz  S	Supported USB version		2		
Supported filing system  Processor  Technexion Freescale iMX6-SOLO Microcontroller  ARM A9  800 MHz  Memory  Flash  FAT32   ARM A9  800 MHz   Bootloader is decrypting the downloaded image  Bootloader is reading an image from the USB  Red  Fatal system/hardware fault - LEd may be driven directly by microcontroller error pin or firmware is in a fault condition  Unit place im ARM A9  ARM A9  ARM A9  800 MHz  ARM A9  800 MHz	Speeds supported		Fulls	speed (12 Mbit/s)	
Processor  Technexion Freescale iMX6-SOLO Microcontroller  RAM A9 800 MHz  Memory  Flash 2 GB RAM 512 MB  LED Status  Colour Description Operation State None Device not powered N/A Off Green Unit powered up, application program loaded but not running Static Application stopped Unit powered up, application program loaded and running 1 Hz flash Application running Unit powered up, application program loaded and running Static Application running Unit powered up, application program loaded and running Static Application running Unit powered up, application program loaded and running Static Application running Unit powered up, application program loaded S Hz flash No application Description Static Bootloader mode Firmware is at start-up Static Firmware is at start-up Unit stopped due to a serious fault Static Application exception Bootloader is decrypting the downloaded image 1 Hz flash Decrypting image Bootloader is reading an image from the USB S Hz flash Reading image from USB  Red Fatal system/hardware fault - LEd may be driven directly by microcontroller error pin or firmware is in a fault condition Unit running with a fault, see CODESYS error flags	Device class supported		08 (N	lass Storage)	
Technexion Freescale iMX6-SOLO Microcontroller  RAM A9  800 MHz    Memory	Supported filing system		FAT3	2	
Memory	Processor				T
Flash   2 GB	Technexion Freescale iN	MX6-SOLO Microcontroller	ARM	A9	
Flash RAM  Description  Description  Device not powered  Unit powered up, application program loaded but not running Unit powered up, but no application program loaded  Firmware is at start-up Unit stopped due to a serious fault  Bootloader is reading an image from the USB  Red  Fatal system/hardware fault, see CODESYS error flags  Tebus Description  State  N/A Off Application Static Application stopped Application running Application running 1 Hz flash No application Application Static Bootloader mode Firmware is at start-up Unit stopped due to a serious fault Static Application exception  Static Firmware start-up Static Application exception  Static Firmware start-up Static Application exception  Static Firmware start-up Static Application exception			1 008	ИНz	
Description   Description   Operation   State			<u> </u>		T
LED Status         Colour         Description         Operation         State           None         Device not powered         N/A         Off           Green         Unit powered up, application program loaded but not running         Static         Application stopped           Unit powered up, application program loaded and running         1 Hz flash         Application running           Unit powered up, but no application program loaded         5 Hz flash         No application           Amber         Bootloader functioning normally, firmware present         Static         Bootloader mode           Firmware is at start-up         Static         Firmware start-up           Unit stopped due to a serious fault         Static         Application exception           Bootloader is decrypting the downloaded image         1 Hz flash         Decrypting image           Bootloader is reading an image from the USB         5 Hz flash         Reading image from USB           Red         Fatal system/hardware fault - LEd may be driven directly by microcontroller error pin or firmware is in a fault condition         1 Hz flash         Fatal error           Unit running with a fault, see CODESYS error flags         1 Hz flash         Faulty application running			_		
Colour         Description         Operation         State           None         Device not powered         N/A         Off           Green         Unit powered up, application program loaded but not running         Static         Application stopped           Unit powered up, application program loaded and running         1 Hz flash         Application running           Unit powered up, but no application program loaded         5 Hz flash         No application           Amber         Bootloader functioning normally, firmware present         Static         Bootloader mode           Firmware is at start-up         Static         Firmware start-up           Unit stopped due to a serious fault         Static         Application exception           Bootloader is decrypting the downloaded image         1 Hz flash         Decrypting image           Bootloader is reading an image from the USB         5 Hz flash         Reading image from USB           Red         Fatal system/hardware fault - LEd may be driven directly by microcontroller error pin or firmware is in a fault condition         Static         Fatal error           1 Hz flash         Faulty application running	RAM		512	MB	
None Device not powered N/A Off Green Unit powered up, application program loaded but not running Static Application stopped Unit powered up, application program loaded and running 1 Hz flash Application running Unit powered up, but no application program loaded 5 Hz flash No application  Amber Bootloader functioning normally, firmware present Static Bootloader mode Firmware is at start-up Unit stopped due to a serious fault Static Firmware start-up Unit stopped due to a serious fault Static Application exception  Bootloader is decrypting the downloaded image 1 Hz flash Decrypting image Bootloader is reading an image from the USB 5 Hz flash Reading image from USB  Red Fatal system/hardware fault - LEd may be driven directly by microcontroller error pin or firmware is in a fault condition Unit running with a fault, see CODESYS error flags	LED Status				
Green  Unit powered up, application program loaded but not running Unit powered up, application program loaded and running Unit powered up, but no application program loaded  Amber  Bootloader functioning normally, firmware present Firmware is at start-up Unit stopped due to a serious fault  Bootloader is decrypting the downloaded image Bootloader is reading an image from the USB  Fatal system/hardware fault - LEd may be driven directly by microcontroller error pin or firmware is in a fault condition Unit running with a fault, see CODESYS error flags  Application stopped  Application stopped  Application running  No application  Static Bootloader mode Firmware start-up Static Firmware start-up  Decrypting image  Fatal system/hardware fault - LEd may be driven directly by microcontroller error pin or firmware is in a fault condition Unit running with a fault, see CODESYS error flags	Colour	Description		Operation	State
Unit powered up, application program loaded and running Unit powered up, but no application program loaded 5 Hz flash No application  Bootloader functioning normally, firmware present Firmware is at start-up Unit stopped due to a serious fault Static Firmware start-up Unit stopped due to a serious fault  Bootloader is decrypting the downloaded image Bootloader is reading an image from the USB  Fatal system/hardware fault - LEd may be driven directly by microcontroller error pin or firmware is in a fault condition Unit running with a fault, see CODESYS error flags	None	Device not powered		N/A	Off
Unit powered up, but no application program loaded 5 Hz flash No application  Bootloader functioning normally, firmware present Static Bootloader mode  Firmware is at start-up Unit stopped due to a serious fault Static Application exception  Bootloader is decrypting the downloaded image 1 Hz flash Decrypting image  Bootloader is reading an image from the USB 5 Hz flash Reading image from USB  Red Fatal system/hardware fault - LEd may be driven directly by microcontroller error pin or firmware is in a fault condition Unit running with a fault, see CODESYS error flags	Green	Unit powered up, application program loaded but not ru	nning	Static	Application stopped
Amber Bootloader functioning normally, firmware present Static Bootloader mode Firmware is at start-up Unit stopped due to a serious fault Static Application exception  Bootloader is decrypting the downloaded image 1 Hz flash Decrypting image Bootloader is reading an image from the USB 5 Hz flash Reading image from USB  Red Fatal system/hardware fault - LEd may be driven directly by microcontroller error pin or firmware is in a fault condition Unit running with a fault, see CODESYS error flags		Unit powered up, application program loaded and runni	ng	1 Hz flash	Application running
Firmware is at start-up  Unit stopped due to a serious fault  Bootloader is decrypting the downloaded image  Bootloader is reading an image from the USB  The fatal system/hardware fault - LEd may be driven directly by microcontroller error pin or firmware is in a fault condition  Unit running with a fault, see CODESYS error flags  Static  Firmware start-up  Application exception  Decrypting image  Fatalsh  Reading image from USB  Static  Fatal error  The flash  Faulty application running		Unit powered up, but no application program loaded 5 Hz flash		5 Hz flash	No application
Unit stopped due to a serious fault  Bootloader is decrypting the downloaded image  Bootloader is reading an image from the USB  Fatal system/hardware fault - LEd may be driven directly by microcontroller error pin or firmware is in a fault condition  Unit running with a fault, see CODESYS error flags  Static  Application exception  Decrypting image  Reading image from USB  Static  Fatal error  The flash  Faulty application running	Amber	Amber Bootloader functioning normally, firmware present Static		Static	Bootloader mode
Bootloader is decrypting the downloaded image  Bootloader is reading an image from the USB  Fatal system/hardware fault - LEd may be driven directly by microcontroller error pin or firmware is in a fault condition  Unit running with a fault, see CODESYS error flags  1 Hz flash  Decrypting image  Reading image from USB  Static  1 Hz flash  Fatal error  The flash  Faulty application running		Firmware is at start-up		Static	Firmware start-up
Bootloader is reading an image from the USB  Fatal system/hardware fault - LEd may be driven directly by microcontroller error pin or firmware is in a fault condition  Unit running with a fault, see CODESYS error flags  Fatal system/hardware fault - LEd may be driven directly by Static  Fatal error  1 Hz flash  Faulty application running		Unit stopped due to a serious fault		Static	Application exception
Red Fatal system/hardware fault - LEd may be driven directly by microcontroller error pin or firmware is in a fault condition  USB  Static Fatal error  1 Hz flash Faulty application running		Bootloader is decrypting the downloaded image		1 Hz flash	Decrypting image
microcontroller error pin or firmware is in a fault condition  1 Hz flash Faulty application running with a fault, see CODESYS error flags		Bootloader is reading an image from the USB		5 Hz flash	
Unit running with a fault, see CODESYS error flags running	Red				
				1 Hz flash	





### DSE**M870**

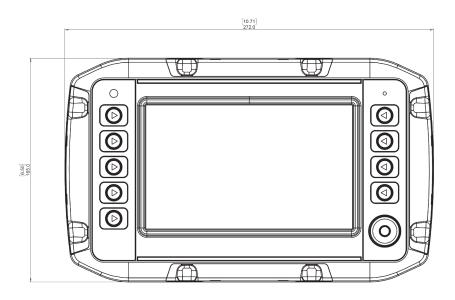
Environmental and Test	Environmental and Testing		
CE marking	Electromagnetic compatibility (EMC) noise immunity Electromagnetic compatibility (EMC) emission standard	EN 13309 EN 13766	
E11 marking	Emission standard noise immunity with 100 V/m	UN/ECE-R10	
Electrical tests	Pulse 1, severity level: IV; function state C Pulse 2a, severity level: IV; function state B Pulse 2b, severity level: IV; function state C Pulse 3a, severity level: IV; function state A Pulse 3b, severity level: IV; function state A Pulse 4, severity level: IV; function state B Pulse 5a, severity level: III; function state C	ISO 7637-2	
Climatic tests	Damp heat, cyclic upper temperature 55 °C, number Damp heat, steady state test temperature 40 °C / 93% RH Test duration: 21 days Salt spray test severity level 3 (vehicle)	EN 60068-2-30 EN 60068-2-78 EN 60068-2-53	
Mechanical tests	Test VII; vibration, random mounting location: vehicle body Vibration, sinusoidal 2000 Hz: 0.73 mm / 10g: 10 cycles/axis Bumps 30 g / 6 ms; 24,000 shocks	ISO 16750-3 EN 60068-2-6 ISO 16750-3	

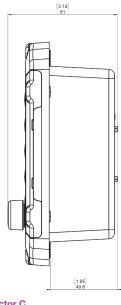


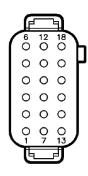


# **SEM870**

## PROGRAMMABLE DISPLAY FOR USE IN **VEHICLES AND OFF-HIGHWAY MACHINERY**

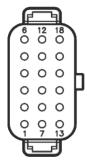






#### **Connector A**

PIN	DESCRIPTION
1	EGU Supply GND
2	CAN1 GND
3	CAN2 GND
4	No connection
5	Camera 1 GND
6	Camera 2 GND
7	ECU Supply +VE
8	CAN1 H
9	CAN 2 H
10	No connection
11	Camera 1 signal
12	Camera 2 signal
13	Ignnition +VE (15)
14	CAN1 L
15	CAN2 L
16	No connection
17	No connection
18	No connection



#### **Connector C**

PIN	DESCRIPTION	REF
1	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	Output supply GND	
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	



### **Ethernet**

M12 'D' coded - 4 pin female

Pin - 01	TX+
Pin - 02	RC+
Pin - 03	TX-
Pin - 04	RC-



**USB Host** 

M12 'B' coded - 5 pin female

Pin -01	5 V
Pin - 02	Data+
Pin - 03	Data-
Pin - 04	0 V
Pin - 05	Shield

