



# HANDSFREE

# R5

## R5 Fixed Vehicle Device for ESN

### Introducing R5

– 02 OCTOBER 2020

Presenter:  
Matthew Johnson



[Voice Calling]

KODIAK

[Flexible]



[Secure Hotspot]

# ESN LTE FIXED VEHICLE DEVICES

LTE

[Push-to-talk]



[Mobile Data]



POLICE DO NOT CROSS





# Handsfree Group Speaker Bio



**Matthew Johnson**  
Managing Director

Matthew co-founded Handsfree Company in 2004 alongside his business partner Scott Cassell. They have built up a strong reputation within the industry for in-vehicle technology working with large fleets, transport and logistics and the emergency services, throughout the UK, Ireland and USA.

Matthew is heading the ESN project, working alongside an expert team to provide a suite of products and applications built with the help of Advantech to deliver mission critical communication systems to the emergency services in the UK and Global markets.



Handsfree Group  
Driven Technology

Our mission is to help clients manage their fleet more safely and efficiently by providing the right combination of high quality products and installation services.

Our goal is to exceed client expectations and deliver an excellent service that provides real value.

Each member of the Handsfree team strives for exceptional performance while establishing strong and lasting relationships with our clients and partners.



## Handsfree Group Partners

KODIAK

PEI TEL

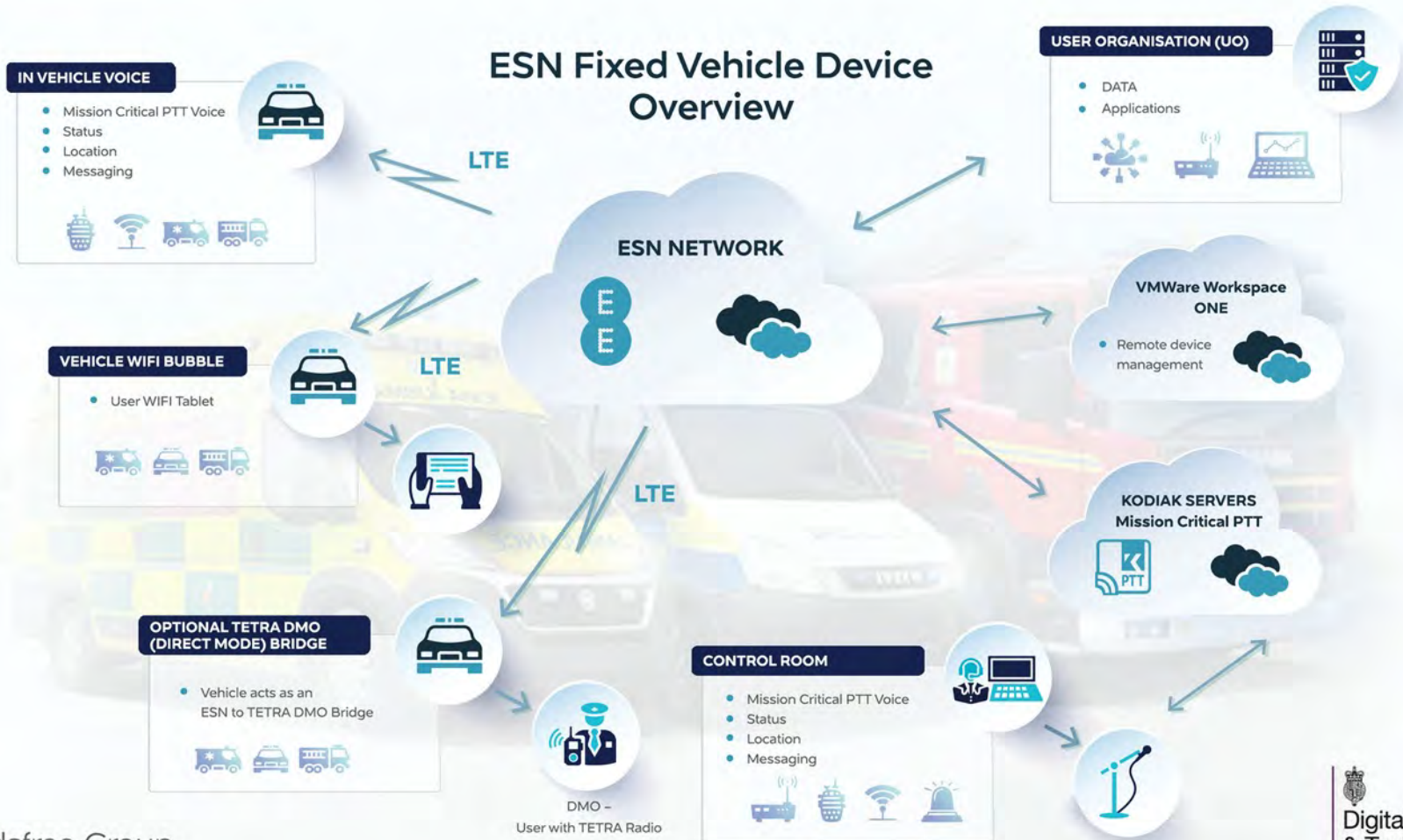


ADVANTECH



[ Push-to-talk ]

# ESN Fixed Vehicle Device Overview





# Handsfree Fixed Vehicle Device System Overview



# USER INTERFACE



# Touchscreen User Interface

## Touchscreen User Interface

- ✓ Touchscreen available in 5.7 & 7 Inch, IP67 touchscreen
- ✓ 5 programmable hot keys
  - Siren and lighting control
  - Talk Group Select
  - Operational Status
  - Messages (OSM)
- ✓ Rugged, built for harsh environments
- ✓ 1.8 mm Gorilla Glass
- ✓ Dedicated buttons for PTT & other standard controls
- ✓ Sunlight readable display
- ✓ Emergency, volume, brightness hard key controls
- ✓ AMPS mounting solution





## 5.7 Inch User Interface Button Layout



# Mounting Bracket Solutions



Standard Round Mounting Plate



Single DIN Mount – Round Plate

# CONTROL UNIT





# Control Unit

## Main Features

-  ESN PTT
-  4G Mobile network technology LTE
-  Voice Calling
-  GPS technology
-  Multiple or Second Screen
-  In vehicle high speed WIFI hot spot
-  Bluetooth connected devices
- DMO** Direct Mode (Device to Device)  
Airwave Integration



[ Push-to-talk ]



BACK CASING  
OPEN

# ACCESSORIES



# TELEPHONE HANDSET



## Telephone Handset

### Characteristics

- Dynamic ear capsule
- Electret microphone capsule
- Solid, flame resistant plastic housing
- Durable spiral cable

### Specifications

Housing:	Flame resistant per UL94 V-0
Dimensions with cradle:	Height 36.2 mm, width 50 mm, depth 160 mm
Weight:	190 g / 6.7 oz
Connection:	Spiral cable with RJ45 plug, extension length max. 2 m
Storage Temperature:	-30 °C to +70 °C / -22 °F to +158 °F
Operating Temperature:	-25 °C to +60 °C / -13 °F to +140 °F
Scope of delivery:	Handset with spiral cable and A8 cradle with screws
<b>Microphone (electret)</b>	
Frequency range:	100 Hz to 10 kHz at -30 dB
Sensitivity (in LRGP):	13 mV/Pa (-38 dBV/Pa ± 3 dB) at 3 V/2 kΩ
Impedance:	1.4 kΩ ± 20 % at 1 kHz/R <sub>e</sub> = 2 kΩ
Directivity:	Omnidirectional
<b>Earpiece (dynamic)</b>	
Frequency range:	400 Hz to 4 kHz at -10 dB
Sensitivity:	20 dBPa/V ± 3 dB (IEC 3.2 Low-Leak coupler)
Impedance:	110 Ω ± 20 % at 1 kHz
Maximum output:	10 mW

## Handset Alternatives



3 m Curly Cable (1.5 m resting)





# Fist Microphone



[ Push-to-talk ]

3 m Curly Cable (1.5 m resting)



## Fist Microphone

### Characteristics

- Electret microphone capsule
- Solid plastic housing
- Protection class IP67 IP54
- PTT button, emergency button and one button for toggling the volume level
- LED for displaying the selected volume level and the emergency function (detachable)
- 360° rotating clip
- Headphone jack (3.5 mm jack with thread)

### Specifications

Dimensions:	Height 90 mm, width 66 mm, depth 31 mm
Weight:	200 g / 7.05 oz
Connection:	Spiral cable, extension length max. 1.5 m
Storage Temperature:	-30 °C to +75 °C / -22 °F to +167 °F
Operating Temperature:	-25 °C to +70 °C / -13 °F to +158 °F
Scope of delivery:	Remote speaker microphone with 360° rotating clip and spiral cable with RAC plug
<b>Microphone (electret)</b>	
Frequency range:	150 Hz to 10 kHz at -30 dB
Sensitivity:	6 mV/Pa (44 dBu/Pa ± 3 dB)
Impedance:	2.2 kΩ ± 20 % at 1 kHz
Directivity:	Omnidirectional
<b>Speaker</b>	
Frequency range:	650 Hz to 7 kHz at -30 dB
Effective sound pressure:	81 dB/1 W/1 m ± 3dB
Impedance:	8 Ω ± 15 % at 1 kHz
Maximum output:	2 W (max. 2.5 W)



# Microphones



Overmoulded  
2 Pin Molex  
Connection



3 m Cable

## Microphones

### Characteristics

- Electret microphone capsule
- With directional effect
- Solid plastic housing
- Microphone pre-amplifier

### Specifications

Dimensions:	Height 12.7 mm, width 31.5 mm, depth 21 mm
Weight:	55 g / 1.9 oz
Connection:	Cable
Storage temperature:	-30 °C to +70 °C / -22 °F to +158 °F
Operating temperature:	-25 °C to +60 °C / -13 °F to +140 °F
Scope of delivery:	Surface mount microphone with cable, gasket
Microphone (electret)	
Frequency range:	100 Hz to 8 kHz at -10 dB
Sensitivity:	180 mV/Pa (-15 dBV/Pa ± 3 dB) at 5 V/680 Ω
Impedance:	< 1 kΩ ± 20 % at 1 kHz/R <sub>L</sub> = 680 Ω
Directivity:	Cardioid (at 1 kHz, 180° -15 dB)





# Handsfree Loudspeaker Range



## Handsfree Loudspeaker Range

### Characteristics

- Very rugged plastic housing
- Durable plastic speaker membrane
- Small design for easy installation
- Frequency range optimized for radio communication
- Flexible mount

Dimensions:	Height 72 mm, width 77 mm, depth 50 mm, Diameter 58 mm	
Weight:	235 g / 8.3 oz	
Dimensions:	Height 68.5 mm, width 74.5 mm, depth 31 mm, height with retaining bracket 74.25 mm	
Weight:	180 g / 6.4 oz	
Dimensions:	Height 66 mm, width 110mm, depth 55mm, height with retaining bracket 77mm	
Weight:	340 g / 12.0 oz	
Connection:	Cable with Molex plug, 3 m	
Storage Temperature:	- 25 °C to +70 °C / -13 °F to +158 °F	
Operating Temperature:	- 25 °C to +70 °C / -13 °F to +158 °F	
Scope of Delivery:	Loudspeaker with cable and retaining bracket	
<b>Loudspeaker</b>		
Frequency range:	300 Hz to 5 kHz at -10 dB	
Effective sound pressure:	84 dB/1 W/1 m ± 2 dB	
Impedance:	4 Ω ± 15 % at 1 kHz	
Maximum output:	norm. 10 W / max. 12 W	



Overmoulded  
2 Pin Molex  
Connection

[ Push-to- ]

3 m Cable



# PUMP BAY VOICE TERMINAL



## Pump Bay Voice Terminal

- Low loss audio wiring up to 20 metres
- Remote unit with volume control & RTS button
- Loud speaker IP67
- Fist Mic IP67
- In cab on/off control
- Push to Talk button
- Amplified Loudspeaker



# PUSH TO TALK BUTTON



## Microphones

### Characteristics

- Rugged housing with gooseneck
- Position for improved ergonomics
- Perfect for specialty vehicles
- Long life switch contact
- Mounting bracket

### Specifications

Dimensions:	Length 250 mm, head Ø 19 mm, body Ø 15 mm, gooseneck Ø 11 mm
Weight:	150 g / 5.3 oz
Connection:	Cable with open wires
Storage Temperature:	-40 °C to +80 °C / -40 °F to +176 °F
Operating Temperature:	-25 °C to +70 °C / -13 °F to +158 °F
Scope of delivery:	Gooseneck push-to-talk button with cable and BW2 mounting bracket

### Switch

Switching capacity:	max. 24 VDC/500 mA
Life cycle:	200,000
Protection class:	IP40
Operating force:	max. 5 N



# Amplified Loudspeaker



[ Push-to-talk ]

## Discreet Loud Speaker



### Characteristics

- Very rugged plastic housing
- Durable plastic speaker membrane
- Small design for easy installation
- Frequency range optimized for radio communication
- Flexible mount

### Specifications

Dimensions:	Height 72 mm, width 77 mm, depth 50 mm, Ø 58 mm
Weight:	175 g / 6.1 oz
Connection:	Cable with open wires, 2 m
Storage Temperature:	-40 °C to +85 °C / -40 °F to +185 °F
Operating Temperature:	-30 °C to +60 °C / -22 °F to +140 °F
Scope of Delivery:	Loudspeaker with cable and mount
<b>Loudspeaker</b>	
Frequency range:	300 Hz to 6 kHz at -10 dB
Effective sound pressure:	83 dB/1 W/1 m ± 3 dB
Impedance:	4 Ω ± 20 % at 1 kHz
Maximum output:	max. 10 W



# Handsfree Group



ESN Accessories 2020

# INSTALLATION



# POLICE TOUCHSCREEN

## Push To Talk Button

- Push to Talk Button
- Wired
- Positioned steering wheel console



## Handsfree Mic



## Touchscreen

- Touchscreen available in multiple sizes 5.7" & 7"
- Wired



## Telephone Handset

- Telephone handset with PTT button and mounting cradle
- Wired



## Handsfree Speakers

- Loud speaker via audio integration or discreet speaker for covert installation
- Wired



Antennas



Power Management

## Touchscreen User Interface

- ✓ Stand-alone touchscreen available in multiple sizes,
- ✓ IP67 touchscreen
- ✓ Up to 5 programmable hot keys including siren and lighting control
- ✓ Ultra-tactile, suitable for use with gloves
- ✓ Built for rugged, harsh environments
- ✓ Emergency, volume, brightness hard key controls
- ✓ AMPS mounting solution
- ✓ Touchscreen user interface, vehicle regulations compliant

## Main Features



ESN PTT



DMO Direct Mode (Device to Device)



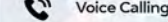
In vehicle high speed WIFI hot spot



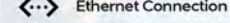
Bluetooth connected devices



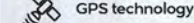
Mobile network technology LTE



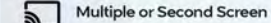
Voice Calling



Ethernet Connection



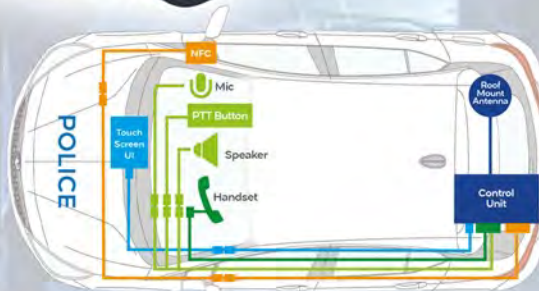
GPS technology



Multiple or Second Screen

## General Specification

Dimensions CU	180mm x 170mm 50mm	WLAN	2.4GHz and 5GHz, 802.11 a/b/g/n
Dimensions 5.7 UI	180mm x 100mm x 40mm	Bluetooth	BT2.1+EDR/3.0+4.1 LE/4.2 BLE/BT5.0
Weight CU	1.3 kg	GNSS	Multi channel, GPS/GLONASS/BeiDou
Weight 5.7 UI	400 g	Operating System	Android 10
Operating Voltage	9 to 36V	Processor	Qualcomm Octa core, SDA660
Power Consumption	Average 20W, Standby 0.15W	Memory	64Gb Flash, 4Gb RAM
Transmission Power	23dbm	SDCard	Physically secure SDCard holder, supports up to 256Gb
SIM Card	Physically secure Micro SIM Holder		
Modems	3GPP rel 12, LTE CAT6 Max DL 300Mbps, Max UL 5Mbps	Operating Temperature	-20 deg C to +60 deg C
Supported Networks	LTE FDD: B1, B2, B3, B4, B5, B7, B8, B20, B38 (A48) LTE TDD: B38, B39, B40, B41	Storage Temperature	-30 deg C to +80 deg C
		D2D functionality	Via external Tetra Radio in DMO mode



Cable junctions in footwell

## Connection Specification

Antennas	2 x SMA LTE LTE MIMO, 3 x FR4KRA WLAN & GPS	Audio Interfaces	Plugs: Molex 5057 4 wired audio interfaces 1 Bluetooth audio interface
Data transfer	Mini USB connection / USB 3	Power Supply	Power cable (permanent plus, ground, ignition)
Digital I/Os	Connection socket for I/O cable kit, max. current capacity: 150 mA per connector (electric strength: 32V vB)	Interfaces	USB 2.0 x2, USB 3.0 x1, NFC
Connector size Utilization	Custom IP67 HDMI, 46mm x 32mm x 12mm	Connector size Audio cable	RJ45, 16mm x 13mm x 25mm















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BMW  
740i  
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USB 2.0

CHESHIRE POLICE

# INTEGRATED USER INTERFACE WITH OEM

## Integrated UI with OEM

- Improves driver safety
- Optimises control of vehicle systems
- Aids compliance with vehicle use legislation
- Reduces cost by simpler equipment integration
- Increases de-fleeting resale value of the vehicle

## Push to Talk Button

- Push to Talk Button
- Wired
- Positioned steering wheel console

## Telephone Handset

- Telephone handset with PTT button and mounting cradle
- Wired

## Audio Integration

- Loud speaker via audio integration or discreet speaker for covert installation
- Wired

## General Specification

Dimensions C/U:	180mm x 170mm 50mm	WLAN:	2.4GHz and 5GHz, 802.11 a/b/g/n/ac
Dimensions 5.7 UI:	180mm x 100mm x 40mm	Bluetooth:	BT2.1+EDR/3.0/4.1 LE/4.2 BLE/BT5.0
Weight C/U:	1.3kg	GNSS:	Multi channel, GPS/GLONASS/BeiDou
Weight 5.7 UI:	400 g	Operating System:	Android 10
Operating Voltage:	9 to 36V	Processor:	Qualcomm Octa core, SDM660
Power Consumption:	Average 20W, Standby 0.15W	Memory:	64Gb Flash, 4Gb RAM
Transmission Power:	23dBm	SD Card:	Physically secure SD Card holder, supports up to 256Gb
SIM Card:	Physically secure Micro SIM Holder	Operating Temperature:	-20 deg C to +60 deg C
Modem:	3GPP rel 12, LTE CAT6 Max DL 300Mbps, Max UL 54Mbps	Storage Temperature:	-30 deg C to +80 deg C
Supported Networks:	LTE FDD: B1, B2, B3, B4, B5, B7, B8, B20, B28 (A-U) LTE TDD: B38, B39, B40, B41	D2D functionality:	Via external Tetra Radio in DMO mode.



## Main Features



**ESN PTT**

**DMO** Direct Mode (Device to Device)

In vehicle high speed WIFI hot spot

Bluetooth connected devices

4G Mobile network technology LTE

Voice Calling

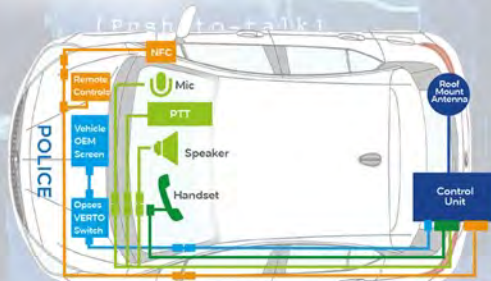
Ethernet Connection

GPS technology

Multiple or Second Screen

## Connection Specification

Antennas	2 x SMA LTE L/MIMO, 3 x FRANKA WLAN & GPS	Audio Interfaces	Plugs: Molex 5557 4 wired audio interfaces 1 Bluetooth audio interface
Data transfer	Mini USB connection / USB 3	Power Supply	Power cable (permanent plus, ground, ignition)
Digital I/Os	Connection socket for iO cable kit, max. current capacity 150 mA per connection; dielectric strength: 320V aB	Interfaces	USB 2.0 x2, USB 3.0 x1, NFC
Connector size (A cable)	Custom IP67 HDMI, 46mm x 32mm x 12mm	Connector size Audio cable	RJ45, 16mm x 13mm x 23mm



Cable junctions in footwell

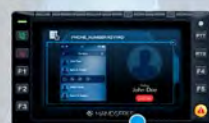
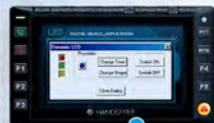
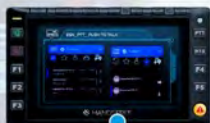


# USER INTERFACE





## USER INTERFACE



# MOTORCYCLE IP67

## Intercom system

- Slimline and sleek
- Waterproof
- Wired or bluetooth
- Suitable for a range of helmets
- Quick release PTT helmet interface
- HD quality, crystal clear sound



## Touchscreen IP67

- Touchscreen 5.7
- 1.8mm Gorilla Glass
- Wired
- Suitable for harsh conditions
- Suitable for gloves
- Durable and rugged IP67

## Push To Talk Button

- Push to Talk Button
- Wired
- PTT positioned on handle bar



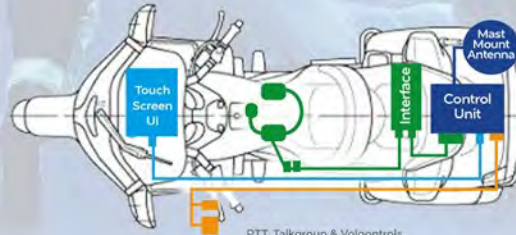
(Push-to-talk)

## Main Features

- ESN PTT
- DMO Direct Mode (Device to Device)
- In vehicle high speed WIFI hot spot
- Bluetooth connected devices
- 4G Mobile network technology LTE
- Voice Calling
- Ethernet Connection
- GPS technology
- Multiple or Second Screen

## General Specification

Dimensions CU:	180mm x 170mm x 50mm	WiLAN:	2.4GHz and 5GHz, 802.11 a/b/g/n/ac
Dimensions 5.7 UI:	188mm x 100mm x 40mm	Bluetooth:	BT2.1+EDR/3.0+4.1 LE/A2.2 BLE/BT5.0
Weight CU:	1.3 kg	GNSS:	Multi channel, GPS/GLONASS/BeiDou
Weight 5.7 UI:	400 g	Operating System:	Android 10
Operating Voltage:	9 to 36V	Processor:	Qualcomm Octa core, S86660
Power Consumption:	Average 20W, Standby 0.15W	Memory:	64Gb Flash, 4Gb RAM
Transmission Power:	23dBm	SDCard:	Physically secure SDCard holder, supports up to 256Gb
SIM Card:	Physically secure Micro SIM Holder	Operating Temperature:	-20 deg C to +60 deg C
Modem:	3G/4G/LTE, LTE CAT6 Max DL 300Mbps, Max UL 5Mbps	Storage Temperature:	-30 deg C to +80 deg C
Supported Networks:	LTE FDD: B1, B2, B3, B4, B5, B7, B8, B20, B28 (A+B) LTE TDD: B38, B39, B40, B41	D2D functionality:	Via external Tetra Radio in DMO mode.



## Connection Specification

Antennas	2 x SMA/LTE LTE MMIO, 3 x FRAMA WLAN & GPS	Audio Interfaces	Plugs: Molex 5507 4 wired audio interfaces 1 Bluetooth audio interface
Data Transfer	Mini USB connection / USB 3	Power Supply	Power cable (permanent plus, ground, signal)
Digital I/O:	Connection socket for I/O cable kit, max. current capacity 150 mA per connection, electric strength 32V aB	Interfaces	USB 2.0 v2 USB 3.0 v3, NFC
Connector size UI cable:	Custom IP67 HDMI, 46mm x 33mm x 12mm	Connector size Audio cable:	RJ45, 36mm x 13mm x 23mm



# MARINE IP67

## Marine Interface

- Touchscreen 5.7
- Wired
- Robust rubber casing
- Large tactile programmable buttons

## Antennas

## Power Management

## Fist Microphone

- Fist Microphone
- IP67
- PTT button
- 3M curly cord

## Loud Speaker

- Loud speaker
- Wired
- IP67
- Marine speaker



## Main Features

**ESN** ESN PTT

**DMO** Direct Mode (Device to Device)

**Wi-Fi** In vehicle high speed WIFI hot spot

**Bluetooth** Bluetooth connected devices

**4G** Mobile network technology LTE

**Voice Calling**

**Ethernet Connection**

**GPS technology**

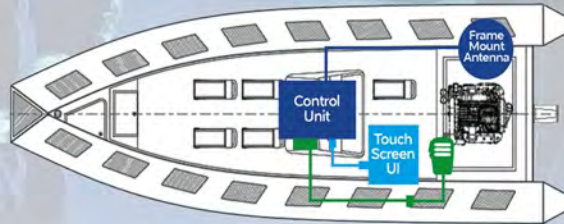
**Multiple or Second Screen**

## General Specification

Dimensions CU:	180mm x 170mm x 50mm	WLAN:	2.4GHz and 5GHz, 802.11 a/b/g/n/ac
Dimensions 5.7 UI:	188mm x 100mm x 40mm	Bluetooth:	BT2.1+EDR3.0/4.1 LE/4.2 BLE/4.15.0
Weight CU:	1.3 kg	GNSS:	Multi channel, GPS/GLONASS/BeiDou
Weight 5.7 UI:	400 g	Operating System:	Android 10
Operating Voltage:	9 to 36v	Processor:	Qualcomm Octa core, SDM660
Power Consumption:	Average 20W, Standby 0.15W	Memory:	64Gb Flash, 4Gb RAM
Transmission Power:	23dBm	SDCard:	up to 256Gb
SIM Card:	Physically secure Micro SIM holder	Operating Temperature:	-30 deg C to +60 deg C
Modem:	3GPP-e12, LTE CAT6 Max DL 300Mbps, Max UL 5Mbps	Storage Temperature:	-30 deg C to +80 deg C
Supported Networks:	LTE FDD: B1, B2, B3, B4, B5, B7, B8, B20, B28 (A-H); LTE TDD: B38, B39, B40, B41	D2D functionality:	Via external Tetra Radio in DMO mode

## Connection Specification

Antennas	2 x SMA LTE LTE MIMO, 3 x FRANKA WLAN & GPS	Audio Interfices	Plugs: Molex 5557 4 wired audio interfaces 1 Bluetooth audio interface
Data transfer	Mini USB connection / USB 3	Power Supply	Power cable permanent plus, ground, Splicing
Digital I/Os	Connection socket for I/O cable kit, max. current capacity: 150 mA per connection; dielectric strength: 320V dB	Interfaces	USB 2.0 x2, USB 3.0 x1, NFC
Connector size UI cable	Custom IP67 HDMI, 46mm x 35mm x 12mm	Connector size Audio cable	RJ45, 16mm x 13mm x 25mm





# FIRE SERVICE

## Fist Mic / Loud Speaker

- Fist Microphone
- IP67 and IP54
- PTT button
- 3M curly cord
- Loud Speaker



## 2nd Touchscreen

- Touchscreen, available in multiple sizes 5.7" & 7"
- Wired



## Touchscreen 5.7 inch

- 1.8mm Gorilla Glass
- Touchscreen available in multiple sizes 5.7" & 7"
- Wired - DIN Slot



## Fist Mic

- Fist Microphone
- PTT button
- 3M curly cord
- IP67 and IP54



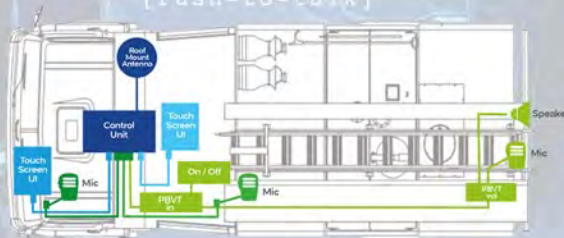
## Handsfree Speakers

- Loud speaker via audio integration or discreet speaker
- Wired



## General Specification

Dimensions CU:	180mm x 170mm x 50mm	WLAN:	2.4GHz and 5GHz, 802.11 a/b/g/n/ac
Dimensions 5.7 UI:	188mm x 100mm x 40mm	Bluetooth:	BT2.1+EDR/3.0/4.1 LE/4.2 BLE/BT5.0
Weight CU:	1.3 kg	GNSS:	Multi channel, GPS/GLONASS/BeiDou
Weight 5.7 UI:	400 g	Operating System:	Android 10
Operating Voltage:	9 to 36v	Processor:	Qualcomm Octa core, SD6660
Power Consumption:	Average 20W, Standby 0.15W	Memory:	64Gb Flash, 4Gb RAM
Transmission Power:	2.3dBm	SDCard:	Physically secure SDCard holder, supports up to 256Gb
SIM Card:	Physically secure Micro SIM Holder	Operating Temperature:	-20 deg C to +60 deg C
Modem:	3GPP rel 12, LTE CAT6 Max DL 300Mbps, Max UL 54Mbps	Storage Temperature:	-30 deg C to +80 deg C
Supported Networks:	LTE FDD B1, B2, B3, B4, B5, B7, B8, B20, B28 (A-U) LTE TDD B38, B39, B40, B41	D2D functionality:	Via external Tetra Radio in DMO mode.



## Connection Specification

Antennas	2 x SMA LTE MIMO, 3 x FR45A WLAN & GPS	Audio Interfaces	Plug: Molex 5557
Data transfer	Mini USB connection / USB 3	Power Supply	4 wired audio interfaces 1 Bluetooth audio interface
Digital I/Os	Connection socket for I/O cable kit, max. current capacity: 150 mA per connection, electronic strength: 32V all	Interfaces	Power cable (government pilot, ground, ignition) USB 2.0 x2 USB 3.0 x1, NFC

## Pump Bay Voice Terminal

- Low loss audio wiring up to 20 metres
- Remote unit with volume control & RTS button
- Loud speaker IP67
- Fist Mic IP67
- In cab on/off control
- Push to Talk button
- Amplified Loudspeaker



## Main Features

- ESN PTT
- DMO Direct Mode (Device to Device)
- In vehicle high speed WIFI hot spot
- Bluetooth connected devices
- 4G Mobile network technology LTE
- Voice Calling
- Ethernet Connection
- GPS technology
- Multiple or Second Screen



# AMBULANCE

## Push To Talk Button

- Push to Talk Button
- Wired
- Positioned steering wheel console



## Fist Mic

- Fist Microphone
- PTT button
- 3M curly cord
- IP67 and IP54



## Touchscreen 5.7 inch

- 1.8mm Gorilla Glass
- Touchscreen available in multiple sizes 5.7" & 7"
- Wired



## Handsfree Speakers

- Loudspeaker via audio integration or discreet speaker for covert installation
- Wired



## Handsfree Mic



## Telephone Handset

- Telephone handset with PTT button and mounting cradle
- Wired

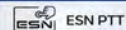


## 2nd Touchscreen

- Touchscreen, available in multiple sizes 5.7" & 7"
- Wired



## Main Features



ESN PTT

**DMO** Direct Mode (Device to Device)

In vehicle high speed WIFI hot spot

Bluetooth connected devices

Mobile network technology LTE

Voice Calling

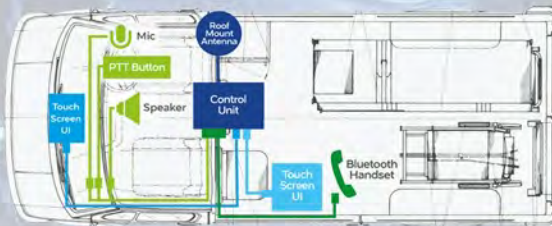
Ethernet Connection

GPS technology

Multiple or Second Screen

## General Specification

Dimensions CU	180mm x 170mm 50mm	WLAN	2.4GHz and 5GHz 802.11 a/b/g/n/ac
Dimensions 5.7 UI	188mm x 100mm x 40mm	Bluetooth	BT2.1+EDR/3.0/4.1 LE/4.2 BLE/BT5.0
Weight CU	1.3 kg	GNSS	Multi channel, GPS/GLONASS/BeiDou
Weight 5.7 UI	400 g	Operating System	Android 10
Operating Voltage	9 to 36v	Processor	Qualcomm Octa core, SDM660
Power Consumption	Average 20W, Standby 0.15W	Memory	64Gb Flash, 4Gb RAM
Transmission Power	2300m	SD Card	Physically secure SDCard holder, supports up to 256Gb
SIM Card	Physically secure Micro SIM Holder	Operating Temperature	-20 deg C to +60 deg C
Modem	3GPP n112, LTE CAT6 Max DL 300Mbps, Max UL 5Mbps	Storage Temperature	-30 deg C to +80 deg C
Supported Networks	LTE FDD B5, B2, B3, B4, B5, B7, B8, B20, B26 (A-B) LTE TDD B36, B39, B40, B41	D2D functionality	Via external Tetra Radio in DMO mode



Cable junctions in footwell, Control Unit contained in cabin above driver seat

## Connection Specification

Antennas	2 x SMA LTE MIMO, 3 x FRAMA WLAN & GPS	Audio Interfaces	Plugs, Molex 5057, 4-wired audio interfaces
Data transfer	Mini USB connection / USB 3	Power Supply	Power cable (permanent plus, ground, signal)
Digital I/Os	Connection socket for I/O cable kit, max. current capacity: 150 mA per connection (diagnostic strength: 32V Vb)	Interfaces	USB 2.0 x2, USB 3.0 x1, NFC



[ Push-to-talk ]

## ESN product range 2020



# ESN SOLUTION PACKAGES DELIVERED



EQUIPMENT	PACKAGE							
	Police Car (single user)	Police Car (2 person vehicle)	Covert	Motobike	Marine (Rib)	Fire Appliance	Ambulance	Desk Unit
Core Unit	X	X	X	X	X	X	X	X
User Interface 5.7"	X	X	X	X	X	X	X	X
User Interface 7"						X	X	
Microphone	X	X	X				X	X
Microphone						x 2	X	
Fist Microphone IP67					X			
Telephone Headset with PTT Button		X						
Push to Talk Remote Goose-neck	X	X					X	
Remote Control Vol / Channel / PTT			X					
Remote Control Vol / Channel / PTT - Bike				X				
Speaker 6W	X	X	X				X	X
Speaker 10 W						X		
Speaker 10W IP75 Saltwater					X			
Wiring Loom / Installation Kit	X	X	X	X	X	X	X	
Pump Bay Voice Terminal incl 20W Speaker / Fist Mic - IP67						X		
Desk PTT Microphone								X
240 v Power Adapter								X
Foot Pedal								X
Installation Extras - Vehicle Specific								
Audio Transfer Lead	X	X	X				X	
User Interface Bracket	X	X	X	X	X	X	X	
Antenna	X	X	X	X	X	X	X	

# DESK UNIT





# ESN DESK UNIT

Image does not reflect final product, still under development.

## Touchscreen

- Touchscreen available in multiple sizes 5.7" & 7"
- Wired



## Bluetooth Headset

- 2.4G Wireless Technology
- Headset and handheld 2 in 1
- Stable and Clear



## Desk Microphone

- Desktop microphone with electret microphone
- One button
- USB connection



## Foot Switch PTT

- Push to Talk Button
- Wired PTT switch for desk unit.



## General Specification

Dimensions DU:	TBC	WLAN:	2.4GHz and 5GHz, 802.11 a/b/g/n/ac
Dimensions 5.7 UI:	188mm x 100mm x 40mm	Bluetooth:	BT2.1+EDR3.0 & 1.1 & 4.2 BLE/BT5.0
Weight CU:	1.3 kg	GNSS:	Multi channel, GPS/GLONASS/BDS/Galileo
Weight 5.7 UI:	400 g	Operating System:	Android 10
Operating Voltage:	240 v	Processor:	Qualcomm Octa core, SDM660
Power Consumption:	Average 20W, Standby 0.15W	Memory:	64GB Flash, 4GB RAM
Transmission Power:	23dBm	SDCard:	Physically secure SDCard holder, supports up to 256Gb
SIM Card:	Physically secure Micro SIM Holder	Operating Temperature:	-20 deg C to +60 deg C
Modem:	3GPP rel 12, LTE CAT6 Max DL 300Mbps, Max UL 5Mbps	Storage Temperature:	-30 deg C to +80 deg C
Supported Networks:	LTE FDD: B1, B2, B3, B4, B5, B7, B8, B20, B28 (A-U) LTE TDD: B39, B39, B40, B41	D2D functionality:	Via external Tetra Radio in DMO mode.



(Optional) External Roof Building Mounted Antenna



Antennas



240v

Mains plug



## Connection Specification

Antennas	2 x SMA LTE LTE MIMO, 3 x FRMORA WLAN & GPS	Audio interfaces	Plugs: Malex 5557 4 wired audio interfaces 1 Bluetooth audio interface
Data transfer	Mini USB connection / USB 3	Power Supply	Power cable (permanent plus, ground, ignition)
Digital I/Os	Connection socket for I/O cable kit, max. current capacity: 150 mA per connection electric strength: 32V x8	Interfaces	USB 2.0 x2 USB 3.0 x1, NFC

# Universal Installation Guide





# Universal User Guide



Handsfree Group are a specialist single-point destination supporting first response clients including Police, Fire Services and Ambulance with adaptable vehicle technology solutions.

#### Vehicle Technology

##### COMMUNICATION

Vehicle communications, developing ESN, LTE Fixed Vehicle Devices

##### SAFETY

Technology to support safety on the roads

##### SECURITY

Solutions, highly secure technology for total vehicle security



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Datalive Tracking and Telematics

##### FLEXIBILITY

Modular Systems

##### EVOLVE

Full vehicle integration



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