

C4ISR and Body Worn Connectors



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In today's rapidly transforming armed forces, the soldier continues to play a central role in operational scenarios.

Their mission spectrum is often complex, calling for capabilities enabling high-mobility operations in difficult and unfamiliar terrains.

Advanced connector technologies make a major contribution to improving the five main capabilities of modern warfare – protection, lethality, command and control as well as mobility and sustainment.

Amphenol's goal is to help in the achievement of a protected soldier, equipped with connected functionality, with a clear picture of the tactical situation and a reliable means of communication.

The aim is to improve performance in all five capability areas without overburdening the individual soldier.



In response to the evolving market requirements for Soldier Systems, Amphenol has been at the forefront of SWaP (Size, Weight and Power) connector development. This has been an ongoing design engineering process from the early 2000s and nearly 20 years later Amphenol offers some of the smallest and most lightweight connectors in the market.

Using Amphenol's range of miniature interconnect products allows designers to optimise the size and weight of body worn equipment while retaining the highest levels of system functionality and signal integrity.

Our experience and involvement with Generic Soldier Architecture (GSA) kickstarted a project to design and manufacture a new connector technology utilising magnetic mating as opposed to the traditional mechanical approach.

This resulted in the Stingray 9 series which was launched in 2018 and is already finding applications in the First Responder and other safety critical markets.

The product has attracted high levels of attention and interest from several Defence Primes working in the Soldier Systems field.

In response to feedback from the Primes a planned development of an EMI shielded 7-way series is already underway. This will utilise the same magnetic mating technology as Stingray 9 while addressing specific GSA requirements, the Nett Warrior program and other global Soldier Systems now in development.

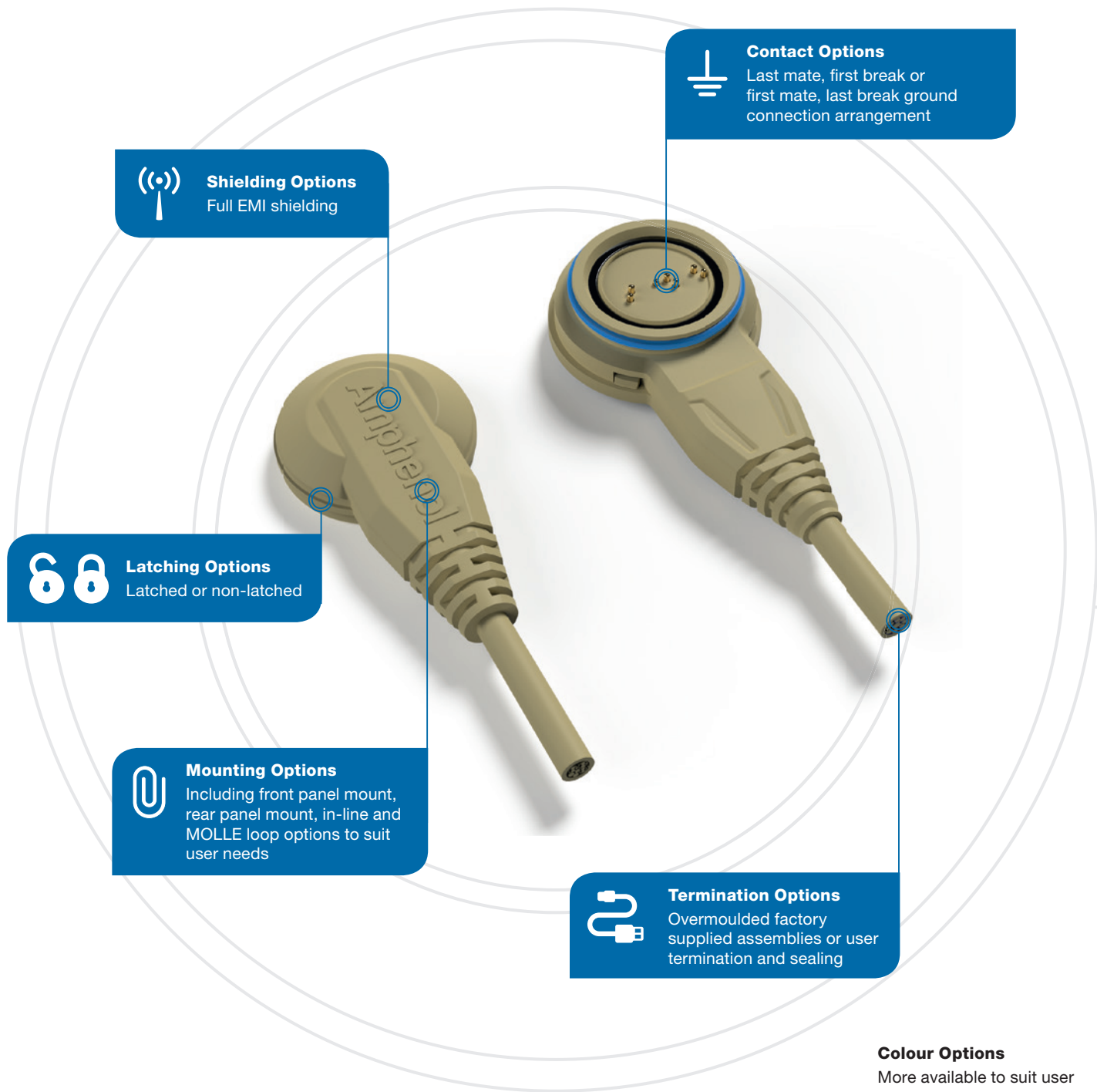
Today, through innovations in design and material science, Amphenol offers a broad range of miniature connectors to suit requirements for small physical form and high-density interconnect. They have excellent electrical characteristics designed to transmit the latest high-speed data protocols and offer the best possible performance solution even in high vibration or blind mate conditions.

A variety of different contact designs and termination methods are available dependent upon the product application and environment. Most product series are available "off the shelf" from our broad range of distribution partners. Alternatively, our experienced engineering team can support customisation through additional filtering, hermetic sealing, cable harnessing, flex assembly or design of complete integrated system solutions.

Amphenol's engineering expertise enables us to fully exploit the benefits of different shell materials, for example aluminium and composite materials are used for their strength: weight ratio, Brass for its ruggedness and marine bronze for its corrosion resistance in marine applications.

Stingray 7-Way

Stingray 7-Way is a new product concept that will build upon the proven Stingray 9-Way series of low profile, magnetic, rotatable connectors. It is fully configurable with multiple options to suit user requirements.



Shielding Options
Full EMI shielding

Contact Options
Last mate, first break or first mate, last break ground connection arrangement

Latching Options
Latched or non-latched

Mounting Options
Including front panel mount, rear panel mount, in-line and MOLLE loop options to suit user needs

Termination Options
Overmoulded factory supplied assemblies or user termination and sealing

Colour Options
More available to suit user





Stingray 9-Way



The Stingray 9 series offers low profile, compact, sealed connectors that withstand exposure to rain, dust, dirt and chemicals. Stingray 9 connectors are intended for first responders, security and military personnel.

- Magnetic mating connector optimised for body-worn applications
- Non-keyed rotatable mating
- Wipe clean interface featuring spring-loaded contacts
- 5000+ mating cycles
- Compatible with USB 2.0 and audio signal requirements
- Last mate, first break contact
- IP68 sealed (mated and unmated)

Terrapin



Terrapin connectors are designed for harsh environment applications and used extensively in soldier communications due to superior EMC performance, IP68 sealing and low lustre finish. Also available in high speed Micro-USB 2.0 version with a miniature footprint of less than 16mm diameter.

- Miniature footprint and high density
- Breakaway or latch mating styles
- Sealed to IP68 (mated and unmated)
- Lightweight RoHS compliant black zinc-nickel aluminium version available
- Integral backshell option available

Terrapin USB-C



In line with USB technology changes, the Terrapin connector range is also evolving with the development of USB-C connectors that utilise the tried and tested high performance of Terrapin with the benefits of USB-C data transmission.

- Available with a cap for IP68 sealing and EMI protection
- Ideal for ruggedising devices including mobile phones and PDAs
- Compatible with off the shelf USB-C cables
- SCE2-B-76A rear mount jam nut plug with L1K receptacle

Terrapin Micro-SD



The latest addition to the Terrapin series is a **Micro-SD card reader that combines proven sealing and ruggedised connector protection for standard Micro-SD cards.**

- Available with a cap for IP68 sealing and EMI protection
- Ideal for ruggedising devices such as laptops, PDAs and GPS systems that utilise micro-SD
- Compatible with off the shelf micro-SD cards
- 25mm diameter plug with L1K style cap receptacle

62GB 10-76



The miniature bayonet connector **62GB 10-76 offers a high density planform and outstanding protection proven over many years of use.**

- Designed for military ground and harsh industrial applications
- High density planform extensively used in UK Bowman radio system
- Recognised industry standard Mil-C-26482 product
- 6 size 22AWG and 7 size 20AWG contacts in size 10 shell

HD38999



The **HD38999 family of connectors is designed to work with existing MIL-specified 38999 shells. To users familiar with standard 38999 connectors, this family of high-density connectors will look, feel and perform just like MIL-qualified connectors.**

- Designed for high reliability defence applications
- 30-50% higher contact density than MIL-DTL-38999 of equivalent size
- Many components common to MIL-DTL-38999
- From 9 to 187 contacts

2M



The 2M connector series is was developed for the needs of the military and aviation markets, and is ideally suited to applications such as armoured vehicles, data acquisition equipment, aeroplanes, helicopters, avionic calculators, missiles and drones where electrical performance, miniaturisation and weight reduction are essential.

- Broad product family with various mating styles
- From 3 to 130 contacts
- Greater than 70% weight saving compared to Mil-DTL-38999

μCom



μCom-Series is a new range of connectors designed to address the latest market trends: miniaturisation and high speed, with the best performance in the harshest environments.

- 10Gb+: exceeds 10Gb/s ethernet following IEEE 802.3an-2006: 10GBase-T
- Cat.6A connector according to TIA568C.2 and ISO/IEC11801 standard
- Miniature: 15 mm (.59") max external diameter
- Receptacle and in-line receptacle compatible with both thread and push pull

TV μCom



The TV μCom-Series is a new range of connectors designed to address the needs of soldier connectivity: miniaturisation and high speed, with the highest resistance for use in the harshest environments.

- TV μCom combines μCom-10G+ speed with the robustness of MIL-DTL-38999 Series III size 11 shells
- 4 pairs totally insulated throughout the connector
- 10Gb+: exceeds 10Gb/s ethernet following IEEE 802.3an-2006: 10GBase-T
- Cat.6A connector according to TIA568C.2 and ISO/IEC11801 standard

USB3F TV



USB3F TV is a USB3.0 connection system for harsh environments that eliminates hazardous on-field cabling and grounding.

- Sealed against fluids and dusts (IP68)
- Shock, vibration and traction resistant
- Improved EMI protection
- No cabling operation in the field and no tools required
- Tri-start thread coupling mechanism (MIL-DTL-38999 series III type)

RJF6



RJF6 connectors are compliant with IEC 60603-7 variant, allowing Ethernet Class E/Cat. 6 connection for 10 BaseT, 100 BaseTX or 1000 BaseT up to 250 MHz networks in harsh environments.

- Bayonet coupling (audible & visual coupling)
- Robust metallic shells based on MIL-DTL-26482H - Shell size 18
- RJ45 cordset retention in the plug: 100 N
- Sealed against fluids and dust (IP68)
- Mating cycles: 500 min
- No hazardous in the field cabling and no tools required

RJFTV6



RJFTV6 allow for an Ethernet Class E/Cat. 6 connection for 10 BaseT, 100 BaseTx or 1000 BaseT up to 250 MHz networks in harsh environments.

- Sealed against fluids and dusts (IP68)
- Shock, vibration and traction resistant
- Tri-start thread coupling mechanism (MIL-DTL-38999 series III type) with anti-decoupling device - Shell size 19
- Improved EMI protection
- No hazardous in the field cabling and no tools required
- RJ45 cordset retention in the plug: 100 N in the axis
- Mating cycles: 500 min

Size 7 38999



Size 7 38999 Series III connectors are perfect for applications where space, weight & speed are critical.

- MIL-DTL-38999 series III size 7 miniature connector for coax, twinax, quadax, octonet and fibre optic contacts
- Available in olive drab cadmium, electroless nickel & black zinc nickel
- Suitable for soldier wearable equipment, ethernet switches and manpack digital radios

Nexus Ranger



Ranger's quick and easy mate and un-mate feature makes it ideal for use in soldier-worn, harsh environment applications.

- Rugged, lightweight, multipurpose connector
- Used for signal and power applications
- Push/pull locking and breakaway
- IP68 sealing, >5,000 mating cycles

Nexus Mini-TAC



Mini-TAC connectors are designed and manufactured to MIL-DTL-55116 requirements at half the size of the standard connectors.

- Designed for radios and rugged communications systems
- Miniaturised M55116-type TAC connectors
- Sprung loaded, self cleaning contacts
- From 6 to 10 contacts

Specification

Product	Contact Type	Mating Mechanism	Current Rating	No of Contacts	Connector Material	IP Rating
Stingray 7-Way	Butt	Magnetic	5A	7	Thermoplastic	IP68
Stingray 9-Way	Butt	Magnetic	3A	9	Thermoplastic	IP68
Terrapin	Pin/Socket	Push Pull, Latch	3/7.5A	7-37	Brass, Aluminium	IP68
Terrapin Micro-USB	Micro-USB 2.0 A/B	Push Pull, Latch	3/7.5A	5	Brass, Aluminium	IP68
Terrapin USB-C	USB-C	Push Pull, Latch	3/7.5A	24	Brass, Aluminium	IP68
Terrapin Micro-SD	Micro-SD	Push Pull, Latch	3/7.5A	N/A	Brass, Aluminium	IP68
62GB 10-76	Pin/Socket	Bayonet	5/7.5A	13	Aluminium	IP68
HD38999	Pin/Socket	Tri-Start ACME Thread	5A	9-187	Aluminium, Composite, Stainless Steel	IP68
2M	Pin/Socket	Thread, Bayonet, Push Pull	5/7.5/13/23A	3-130	Aluminium, Stainless Steel	IP68
µCom	Pin/Socket	Push Pull, Thread	1.5A	8	Brass	IP68
TV µCom	Pin/Socket	Thread	1.5A	8	Aluminium, Marine Bronze	IP68
RJF/RJFTV	RJ45	Bayonet, Push Pull, Thread	1.5A	1	Aluminium, Marine Bronze	IP68
USB3F TV	USB 3.0	Thread	1.5A	1	Aluminium	IP68
#7 38999	Coax, Twinax, Quadrax, Octomax	Thread	1A	4	Aluminium, Stainless Steel, Bronze	IP68
Nexus Mini-TAC	Butt	J-slot	0.5A	6-10	Stainless Steel	IP68
Nexus Ranger	Pin/Socket	Push Pull, Latch	0.5A	8	Aluminium	IP68

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