

Exploring the future of intercom systems for mounted and dismounted users

In the world of intercom systems, development in recent years has focused on providing users and customers with lighter, smaller and more cost-efficient systems than were previously available. Such systems facilitated group communications in environments and situations where previously they had been impossible. In this way, they heralded a new method of communication in the field.

But the new generation of intercom systems has the potential to offer even more flexibility in the future. Digitalization and adaptability means that while typical uses for such systems may have been for small numbers of users, their capability moves far beyond that, allowing use on a larger scale. This ability to offer seamless communication that can be adapted to a range of platforms opens the door for further use cases, future-proofing intercom systems for defense programs and users across the world.

Small yet scalable

The aim of the Intercom system developed by INVISIO was for small, portable technology that allows communication

within small groups, the company told Soldier Mod. But customers' needs have seen it develop the capability of communication on a larger-scale among multiple users. This uses the same cost-effective, lightweight equipment but by daisy-chaining several intercom devices together can allow communication in larger groups. The key to those developments lies in the company's philosophy of developing solutions in close relationship with the end-users, says Jacob Tranegaard, Director of Intercom Product Management at INVISIO. "From the very beginning the mindset was primarily for the intercom to connect a couple of radios and users to enable inter-group communication and transmit/receive on radios. But it has become much more powerful as a result of us adapting to different use cases that have come from ideas or requirements from users or just the question, 'would it be possible to do it like this? Previously the focus was on this small, portable intercom system but we can interconnect multiple intercom units to scale up the system for more users. Also, an important part of the idea with the intercom is to reduce the cognitive burden of the users of a system.' That means ensuring that the existing, personal comms



The INVISIO Intercom system is easy to install in e.g. light tactical vehicles due to its size and weight.



Real-time adaptation of the INVISIO Intercom system in the field

equipment worn by the soldiers can be used when mounting a vehicle and integrate seamlessly into the vehicles comms equipment. In this way, the system is not only flexible and scalable, but simple to control.

Creating a 'live' product that adapts to users' needs

The ability of INVISIO's intercom system to enable communication between larger numbers of users makes it scalable and adaptable. Digitalization allows the system to communicate over ethernet, CAN-Bus, UART and USB, making it even more flexible to operational needs. INVISIO's IntelliCable® technology allows the system to automatically detect and distinguish between connected communication devices and connected users. This means it can flex between smaller vehicle platforms like UTV or ISV and larger platforms like Stryker, UH-60 Blackhawk, CH-47 Chinook, and also from small to medium sized maritime vessels. The system is also compatible with existing or legacy intercom systems.

Its modular nature, supported by INVISIO's Configurator software, allows customers and users to customize their intercom system. That may be by limiting classified radio or device access to certain users or, performing system firmware or feature updates, or expanding the system to larger user numbers. "Digitalization allows us to develop new features into the products - it's really a live product that can keep expanding as the needs expand," explains Jan Larsen, INVISIO's Sr. Vice President R&D. "This means the future is a tailor-made system where you have one kind of mission one day, and then another kind of mission the other day." INVISIO's Configurator software is in its early stages, says Larsen, but the future lies in the ability to build profiles into the intercom systems. Those profiles would allow the system to be adapted in real-time by communication specialists on the ground.

A tailor-made solution

In the world of defense, seamless and uninterrupted communications are paramount. That includes both personal tactical comms equipment as well as vehicle-based

comms. Such seamlessness is a "key philosophy" for INVISIO, says Marcus Jaeger, Director of Mobility Systems, EMEA & APAC. "That means that the same products can actually be used for very different scenarios. So even though we are looking at serving different needs, you still can because our products can be adapted and used together." This focus on seamless comms, combined with the scalability and adaptability of the new generation of intercom systems, means it can be adapted to different missions without having to change equipment or worry about device interoperability and connectivity.

"You can be a very small group one day, or two very large groups the next day," adds Tranegaard, "Or the same people can be on a mission where they need to do something where they are based on a RHIB boat and then transition to another kind of platform. The whole idea is that you can almost tailor-make your comms solution from one day to another."

Out in the field

The idea of an adaptable solution that is both cost-effective and light, yet also scalable, is undoubtedly appealing to a range of customers, but only if it is proven to work in the field. The key is to test such systems in various situations across land, sea and air platforms. That's something INVISIO is keen to say it has done, proving the system's advantages in different platforms. The company already has an agreement with leading RHIB boat provider Zodiac. Here, its intercom enables clear communication between team members whose safe and seamless inter-group communication is accessed directly from their INVISIO personal system. On land, the INVISIO intercom system can be installed and operational within minutes on light military vehicles such as Polaris or heavier vehicles like the Lenco BearCat. This allows users clear communication with fellow crew members as well as connected radios and mobile devices. On top of this, the system's light weight, small size and relatively low cost, coupled with its facilitation of seamless, safe inter-group communications also makes it an ideal solution for air platforms. The INVISIO intercom has been approved for use within systems used by Black Hawk helicopters in the US military and it will come as a standard option on every SkyRunner light-tactical aircraft.

The original aim may have been to develop a light, cost-effective and flexible system for use by both mounted and dismounted professionals, but its adaptability and scalability makes it much more powerful, says Larsen. "We're using this on platforms and in situations where customers have never looked at this kind of capability because it's either been too expensive or too heavy, too bulky, too complex. But we've actually taken that capability or function into platforms that we normally don't use it in and never approached before. It can be applied in all sorts of platforms and in any environment, especially environments where it has not made sense, but where they have been in need. It's efficient - not only in cost, but in size, weight, power." ■

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