OPTOKON Applications for Combat Vehicles

LMCP-7H (Light Mobile Computing Platform)

The OPTOKON C4ISR system has developed as the complete solution, which is dedicated to providing C2 services from squadron level up to battalion level. This system enables the full interoperability of radio stations, other communication technologies, as well as C4ISR systems with other NATO member armed forces.

The OPTOKON **C4ISR** system provides:

- A compact solution for tactical radio and data networks, interconnectivity with all types of modern tactical radio stations
- Complete interconnection of combat vehicle systems (C2 systems for commander, operator, and driver)
- Establishment of a C2 tactical site with SW support for C2 STAFF MIP 3.1 for planning and operation leadership, 2D, and 3D plastic table
- Establishment of a 1 Gbit tactical data network inside the vehicle as well as at the command and control site
- Video server for saving and distribution of vehicle camera system pictures, surveillance centers, UAV etc.

LMCP-7H (Light Mobile Computing Platform)

The core of this system is the **LMCP-7H** (Light Mobile Computing Platform), which is the OPTOKON compact, ultra-durable server equipped with 6th Gen Intel® Core™ CPU, two removable RAID SSD discs and 10x Gigabit Ethernet ports. The LMCP-7H supports up to 20 GB of DDR4 memory, resulting in a reduction in overall power consumption compared to DDR3-based servers.

The LMCP-7H offers military-grade features in a rugged housing making it the ideal platform for applications in harsh and rugged environments.

The LMCP-7H can operate in harsh environments under a temperature range from -30 to 55 °C and avoids damage from sudden voltage surges due to the 10.5 V – 36 VDC input design. As it is sealed against dust and debris, our rugged line stands up to shocks, vibrations, and extreme temperatures.

The LMCP server can host many types of applications; the LRPV GEPARD LRPV solution features virtual servers for radio-routing, cameras systems, battle management system SAMET and Cisco Unified Communication Managers.

Field IP telephony systems

The LMCP server for IP telephony applications in field environments is an efficient central system for running Cisco IP Call Manager and related services, phonebooks, recording systems, etc. OPTOKON, a.s. developed for the needs of field hardened systems, a product line of IP phones that can be used beyond the scope of operational-tactical military networks.

Ruggedized IP phone LMIPT-41 is based on Cisco 8841 series and LMIPT-21 on Cisco 7821 technology. Together with the LMCP server and other resilient elements from OPTOKON, a.s. it forms a complete and compact solution that can be connected to other telecommunication networks as a whole through various types of voice gateways.

The benefit of the LMCP server is the reliable centralization of telecommunication systems that meet the operational requirements of army field assets as well as conditions for working in extreme temperatures.

LMIPT-41, rugged IP phone set

Perimeter security system

Principles of protecting the perimeter of stationary and mobile sites with fiber optics has been described in last edition of CDIS Revue.

OPTOKON introduces the distributed optical fiber temperature and strain sensing system is a complex system based on a number of patented technologies, integrated with optical, mechanical, electronic modules and software algorithms. It features in excellent technical specifications and user-friendly interface. Owing to its fiber loop configuration, loop-sensing BOTDA can significantly enhance Brillouin signal strength, optimize SNR, improve measurement accuracy, and shorten measurement time. Using optical fiber as signal transmission and measurement media, the system has anti-jamming, anti-explosion and excellent performance of chemical resistance, is suitable for chemical, high voltage, nuclear and other dangerous environments. The real-time fault monitoring system has been widely used in important projects monitoring submarine cable, high-voltage cables, overhead lines, oil and gas pipelines, dams and bridges.
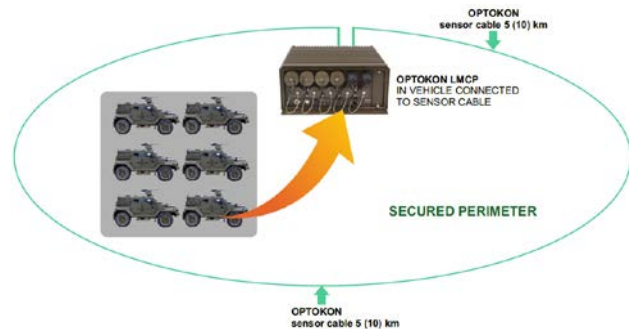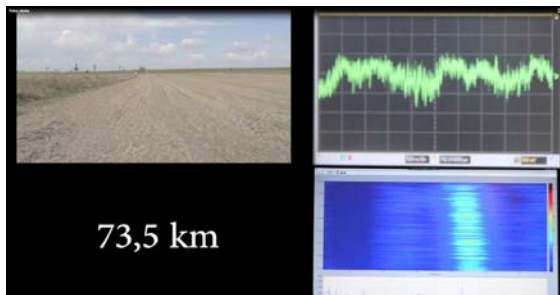
The key benefits of the LMCP server within the perimeter protection solution are the compactness and robustness of the box, connectors, and power supply (10.5 – 36 V). These features make the whole solution highly reliable, fast and simple to use, and effective not just in terms of the power supply. After installation, the solution is maintenance-free and resistant to adverse weather conditions.

PTOKON HMA harsh environment connectors

OPTOKON offers several types of optical connectors for use in harsh environment climatic conditions. These are medium-sized connectors designed to connect nodes in harsh environment conditions using fiber optic cables. Special connector designs guarantee reliable operation even in the toughest operating conditions and are available for both multimode and single mode applications.

HMA-J - Harsh environmental Expanded Beam fiber optic connector
HMA-JF - Harsh environmental ferrule connector
HMA-HX - Harsh environmental hybrid connector

The HMA-J connector benefiting from Expanded Beam technology with the precision optical alignment system provides immunity from water, mud, dust, oil and other contaminants. The HMA-J hermaphroditic coupling eliminates the need for adaptors and male and female mating halves.

HMA-J	Optical Loss MM	50/125 @ 850/1300 nm 0.7 dB typ.
	Optical Loss SM	9/125 @ 1310/1550 nm 1.0 dB typ.
	Return Loss	9/125 @ 1310/1550 nm >32 dB

The HMA-JF uses 1.25 mm ferrules, which are already industry proven in both single mode and multimode applications. The unique design of the HMA-JF allows users to ensure high-performance and very low SFF insertion loss for Small Form Factor optical connectors under field conditions. The HMA-JF connector has a similar construction to the HMA-J connector and has all the benefits such as immunity from water, mud, dust, oil and other contaminants.

HMA-JF	Optical Loss MM	50/125 @ 850/1300 nm 0.3 dB typ.
	Optical Loss SM	9/125 @ 1310/1550 nm 0.5 dB typ.
	Return Loss	9/125 @ 1310/1550 nm > 45 dB (typical 48 dB)

Harsh environmental Expanded Beam fiber optic connector

HMA-JF Harsh environmental ferrule connector

The new HMA-HX hybrid connector is the same as the HMA-JF connector with the exception that it offers two metallic pairs that can be used as electrical contacts to extend the connectivity of the connector.

HMA-HX	Optical Loss MM	50/125 @ 850/1300 nm 0.3 dB typ.
	Optical Loss SM	9/125 @ 1310/1550 nm 0.5 dB typ.
	Return Loss	9/125 @ 1310/1550 nm > 45 dB (typical 48 dB)

HMA-HX hybrid connector with two metallic pairs

These highly durable HMA connectors can be used in military applications, heavy industries, the petrochemical industry and broadcasting applications in order to establish temporary optical networks.

Tactical Cable - OPK-U-DSTTAC
Manufactured by OPTOKON Kable Co., Ltd., s.r.o. Pelhřimov.
The member of OPTOKON Group

One of the most commercially successful products from OPTOKON Kable Co., Ltd., a new Czech Optical Cable Manufacturer, is a multipurpose, durable tactical cable with polyurethane jacket. The basic structural element of this cable is that the fibers are especially mechanically and thermally resistant, easily stripped of secondary protection, which along with the kevlar yarn forms the core of
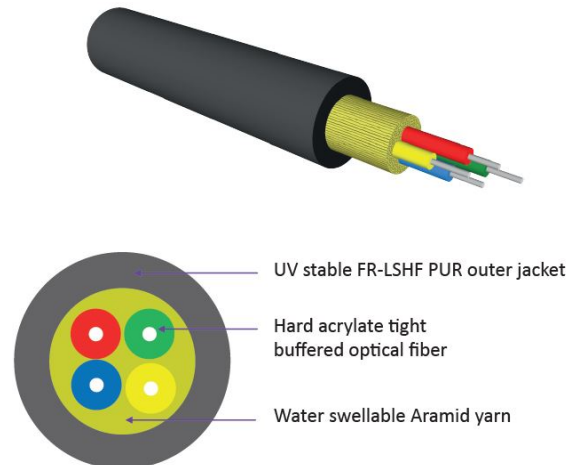
the cable. The cable sheath is made of halogen-free fire retardant polyurethane with reduced smoke. During development, the cable was subjected to demanding testing and proven to be suitable for use in the most demanding mechanical and climatic conditions. The cable is suitable for use not only in extreme military applications, but also, due to its properties, also in various civil applications, temporary installation of critical communication lines where quick retrieval and re-use is required, especially in heavy industries, mining, and various mobile applications, etc.

Main features of the OPK-U-DSTTAC:

• High mechanical resistance
• Chemical resistance
• UV resistant
• Excellent flexibility, even at temperatures well below freezing
• Meets the requirements of IEC 60794-1-2, TIA / EIA-455-41 and TIA / EIA-455-25 - military requirement
• Easy stripping of secondary acrylic coating
• High resistance to extreme temperatures (+ 85 ° C, -60 ° C)

UV stable FR-LSHF PUR outer jacket

Hard acrylate tight buffered optical fiber

Water swellable Aramid yarn

Ing. Pavel Pospíchal

Technical Director

OPTOKON, a.s.

We are pleased to announce that OPTOKON will be participating in the OFSEC exhibition Oman, Muscat (1.-3.10.2018), OPTOKON stand No. E8 and AFRICA COM 2018, Cape Town, South Africa (13.-15.11.2018), OPTOKON stand No. A51A. Please accept our invitation to visit us.

EUROPEAN UNION
European Regional Development Fund
Operational Programme Enterprise
and Innovations for Competitiveness