

# LMSB – 15R

## Communication and Information Module



NATO supplier code: 1583G

NATO IST RTG 095 LEADER

Research project with support of the  
Ministry of Industry and Trade

### Description:

The LMSB-15R is the Unified Communication and Information Module that can connect up to 200 SIP/H.323 sessions, PC subscribers and any type of communication systems (VHF, HF, UHF, SAT, TETRA, GSM, PSTN, etc.). The LMSB-15R includes Gigabit Ethernet switching and routing functions, the LAN ports are equipped with enhanced PoE capability. The workstation architecture is built on the Cisco enterprise-class network.

The connection of LMSB-15R module to higher network level is ensured via optical and copper wires cables, radio relay systems or satellite communication devices. The standard fiber optic interface is equipped with single mode HMA-J connectors, operation at wavelength 1310 nm. The LMSB-15R also includes an encryption units for operation of classified data. The kit is designed for classification up to the SECRET level and supports the full suite of Cisco feature sets for enterprise-class security and reliability against man-in-the-middle attacks and keeps your Cisco environment secure.

The technical solution allows to use the module in mobile communication nodes. The module is equipped with built-in inverter with UPS function.

### Features:

- Flexible integration of IP communication
- System mobility and modularity
- Local or network operation with Unified Communications Manager Express
- Ruggedized and weather-proof design
- Easy and fast installation
- 2x FO HMA-J, single mode 1310 nm
- Copper cable, RRL and satellite connection Proven Expanded Beam HMA connector technology
- Based on Cisco IOS technology
- Interoperation with radio systems
- Rugged ALU 6U or plastic 6U (8U) box



Extended version Rack 8U plastic box (LLDPE)

### Specifications:

**Main and Backup server HW:** 2x Intel Xeon E5-2630Lv3; up to 512 GB ECC DDR4; up to 8x 2,5" SATA/SAS 3.0 hot-swap HDD; 3 PCI-E 3.0 x8, 1 PCI-E 3.0 x4 (in x8), 1 PCI-E 3.0 x16, 1 PCI-E 2.0 x4; 2x GbE LAN; modul KVM-over-LAN; support VMware ESXi 6; Windows Server 2012.

**Router:** VoiceBundle, 3x routed GbE, up to 50 CallManager sessions or 200 SIP sessions, 4x Interface slots and Cisco Service Module slot, max 2,5 GB RAM, Maximum voice support for analog Interface: FXS 40, FXO 28, BRI 16.

Other optional interfaces: E1/T1/ISDN PRI, ISDN BRI, G.SHDSL, VDSL2/ADSL, E&M, Async/Sync Serial.

**Advanced Managed L3 Switch:** 10 x GbE PoE+ ports, two combo SFP ports.

**VoIP Gateway:** 8 FXS ports, supports dual protocols: ITU-H.323 V4 and IETF SIP V2.

**Power supply:** Redundant Input 21-30 VDC/ 230 VAC.

**Inverter:** UPS function capacity 5-10 min, uninterrupted power 1500 W, true wave output.

**Air Conditioning:** Internal filterless.

**Dimensions (W x D x H):**

Plastic LLDPE Rack Box 6U: 680 x 915 x 495.

Plastic LLDPE Rack Box 8U: 680 x 915 x 590 (Extended version).

Aluminium Rack Box 6U: 583 x 800 x 400 mm.

Rugged Case for Notebook and other accessories: Polypropylene 470 x 357 x 176 mm.

**Weight:** Rack Box approx. 80 kg + 13 kg Case.

**Environmental:**

- Fulfils MIL-STD 810E, IP 63 protection.
- Temperature: operating -30 °C to +50 °C, storage -50 °C to 70 °C.

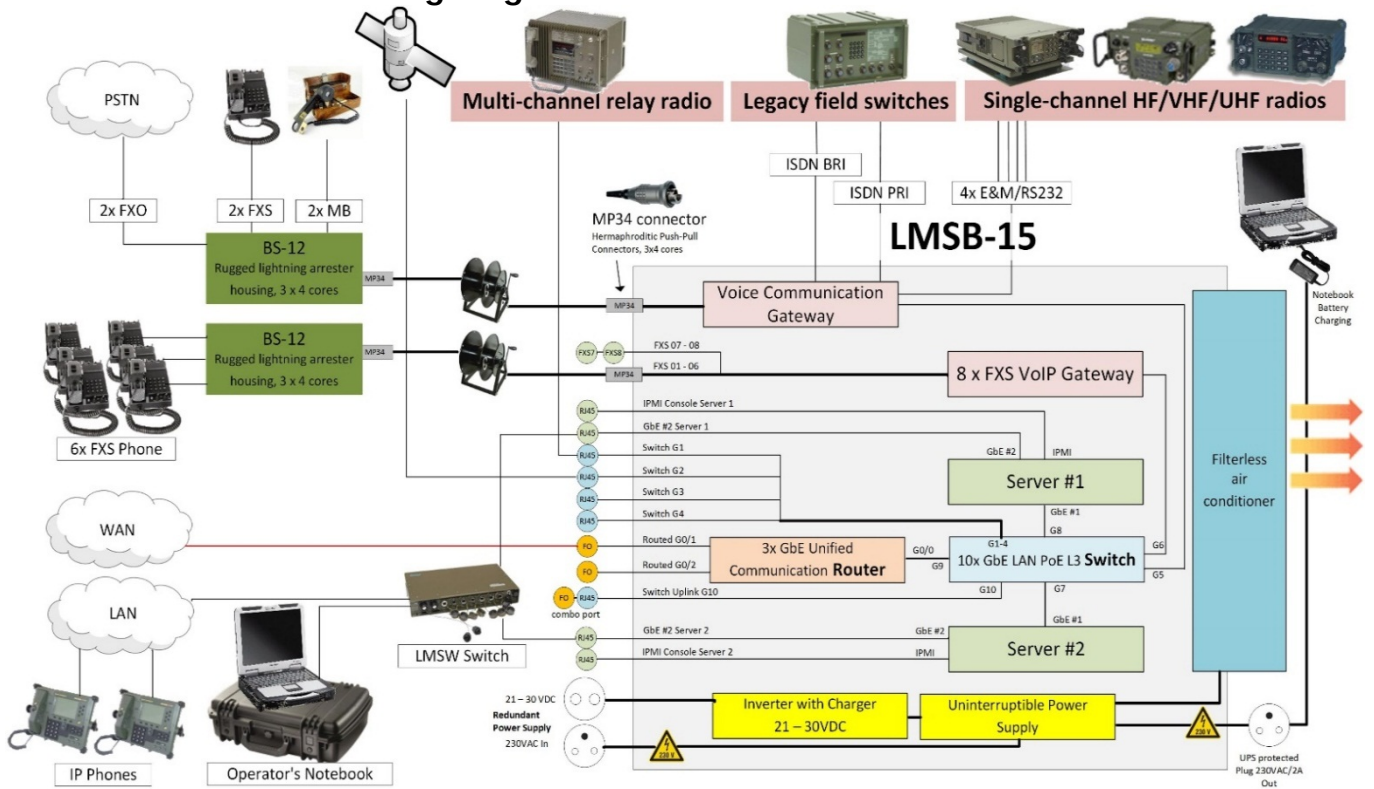


ALU Rack Case 6U



Rugged Case for Operator's  
Notebook and accessories

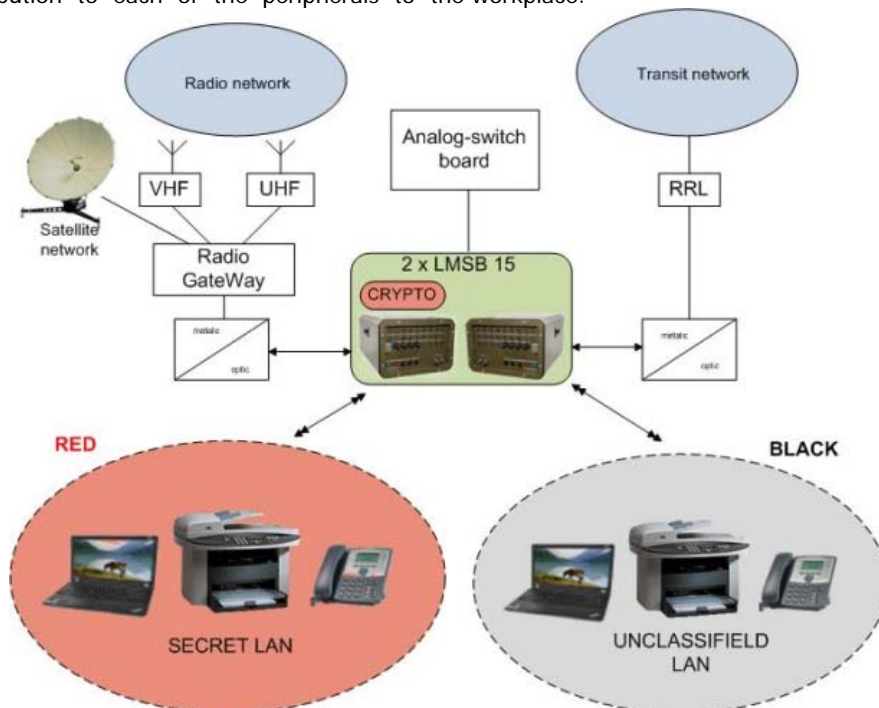
### LMSB-15R Block wiring diagram:



Example of application and connections

### Application at Tactical Operations Center TOC:

The mission workplace (TOC) is divided into a BLACK (unclassified) part and a RED (classified information is handled) part. Both sides are separated from each other by distances recommended due to the risk of compromising the processed information. The power supply of classified section is separated from unclassified information using an interference suppression filter. Data wiring is interconnected via an optical cable and metallic subsequent distribution to each of the peripherals to the workplace.



RED-classified and Black-unclassified side

### Ordering code:

		SERVER 1 and 2					Switch license		VPN and Security Module	Voice Comm. Gateway	Rack Case	Power Supply
<b>LMSB-15R</b>	-	<b>X</b>	<b>X</b>	<b>X</b>			<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	
		RAM GB	SSD HDD RAID1-Mirroring	MS Device Access License (CAL) <sup>1</sup>		<b>1</b> LAN Base - L2 <b>2</b> IP Base - L3 <b>3</b> IP Services Advanced		<b>1</b> ISM-VPN-19 <b>0</b> -	<b>1</b> VCG <b>0</b> -	<b>L</b> 6U LLDPE <b>E</b> 8U LLDPE <b>A</b> 6U Alu	<b>1</b> AC/DC <b>2</b> AC <b>3</b> DC	
		<b>1</b> 32	<b>1</b> 2 x 240 GB	<b>1</b>	10							
		<b>2</b> 64	<b>2</b> 2 x 400 GB	<b>2</b>	20							
		<b>3</b> 128	<b>3</b> 2 x 800 GB	<b>3</b>	30							
		<b>4</b> 256	<b>4</b> 2 x 1200 GB	<b>4</b>	40							
		<b>5</b> 512	<b>5</b> 2 x 2400 GB	<b>5</b>	50							

Note: 1) With a Device CAL, you get a CAL for all devices accessing the server, regardless of the number of users accessing the server via this device

Router	Expansion card 1		Expansion card 2		Expansion card 3		Expansion card 3		PVDM3 (default PVDM2-16)	
-	<b>X</b>		<b>X</b>		<b>X</b>		<b>X</b>		<b>X</b>	
T1, E1, and G.703 Multiflex Trunk	A	N/A	A	N/A	A	N/A	A	N/A	1	PVDM2-16
	B	2MFT-T1/E1	B	2MFT-T1/E1	B	2MFT-T1/E1	B	2MFT-T1/E1	2	PVDM3-16
	C	4MFT-T1/E2	C	4MFT-T1/E2	C	4MFT-T1/E2	C	4MFT-T1/E2	3	PVDM3-32
	D	2MFT-G703	D	2MFT-G703	D	2MFT-G703	D	2MFT-G703	4	PVDM3-64
Voice/Fax Network Module	E	4-port FXS	E	4-port FXS	E	4-port FXS	E	4-port FXS	5	PVDM3-128
	F	4-port FXO	F	4-port FXO	F	4-port FXO	F	4-port FXO	6	PVDM3-192
	D	2-port E&M	D	2-port E&M	D	2-port E&M	D	2-port E&M	7	PVDM3-256
	G	2-port BRI	G	2-port BRI	G	2-port BRI	G	2-port BRI		
Broadband	H	4SHDSL-E	H	4SHDSL-E	H	4SHDSL-E	H	4SHDSL-E		
	I	2SHDSL	I	2SHDSL	I	2SHDSL	I	2SHDSL		
	J	VA-DSL-A	J	VA-DSL-A	J	VA-DSL-A	J	VA-DSL-A		
	K	VA-DSL-B	K	VA-DSL-B	K	VA-DSL-B	K	VA-DSL-B		
Serial and Asynchronous Modules	L	VA-DSL-M	L	VA-DSL-M	L	VA-DSL-M	L	VA-DSL-M		
	M	HWIC-4T	M	HWIC-4T	M	HWIC-4T	M	HWIC-4T		
	N	HWIC-4A/S	N	HWIC-4A/S	N	HWIC-4A/S	N	HWIC-4A/S		
	O	HWIC-8A/S-232	O	HWIC-8A/S-232	O	HWIC-8A/S-232	O	HWIC-8A/S-232		
Channelized T1/E1 and ISDN PRI/BRI	P	HWIC-8A	P	HWIC-8A	P	HWIC-8A	P	HWIC-8A		
	Q	4B-S/T	Q	4B-S/T	Q	4B-S/T	Q	4B-S/T		
	R	1CE1T1-PRI	R	1CE1T1-PRI	R	1CE1T1-PRI	R	1CE1T1-PRI		
Ethernet Routing and Switching	S	2CE1T1-PRI	S	2CE1T1-PRI	S	2CE1T1-PRI	S	2CE1T1-PRI		
	T	4ESW	T	4ESW	T	1GE-SFP-CU	T	1GE-SFP-CU		
	U	D-9ESW	U	D-9ESW	U	HWIC-1FE	U	HWIC-1FE		
	V		V		HWIC-2FE	V	HWIC-2FE			

### Example – basic configuration: **LMSB-15R-321-101L1-AAEF1**

**128GB RAM, 2x400GB HDD, 10xCAL – LAN Base L2, VCG Gateway – Case 6U LLDPE – AC/DC**

**– Exp. Card 1: free, Exp. card 2: free, Exp. card 3: 4-port FXS, Exp. card 4: 4-port FXO, PVDM2-16**

### Optional supported Interfaces and Expansion cards for Router:

- VPN and Security Internal Service Module
  - Internal Service Module VPN **ISM-VPN-19** provides the capability to considerably increase performance for VPN encrypted traffic. The module has a multicore processor that operates independently of the host router resources, helping ensure maximum concurrent encrypted application performance while maintaining competitive performance for other types of traffic. supports the latest versions of cryptography standards, including stronger National Security Agency (NSA) regulated cryptographic algorithms such as Suite B Cryptography.
- 4- and 9- Ethernet Switched port 10/100 High-Speed WAN Interface Cards provide line-rate Layer 2 switching across Ethernet ports using Cisco Catalyst Software. Only 2 cards per router are supported.
  - 4ESW** 4-port Cisco EtherSwitch 10BASE-T/100BASE-TX autosensing
  - D-9ESW** 9-port Cisco EtherSwitch 10BASE-T/100BASE-TX autosensing

3. High-Speed WAN Ethernet Routed-Port. Only 2 cards per router are supported.
  - 3.1. **1GE-SFP-CU** Gigabit Ethernet Dual-Identity SFP and Copper WAN Interface Card. On the LAN side, the card can run multiple VLANs to segregate LAN networks. On the EWAN side, it can segregate traffic using multiple VPN types.
  - 3.2. **HWIC-1FE** and **HWIC-2FE** 1- and 2-Port Fast Ethernet High-Speed WAN interface cards provide additional Layer 3 routed ports with features equivalent to those on the motherboard of the integrated services routers. These Fast Ethernet interfaces can be used for physical LAN segregation, creation of a demilitarized zone (DMZ), or as a WAN interface.
4. T1, E1, and G.703 Multiflex Trunk Voice and WAN Interface Cards
  - 4.1. **2MFT-T1/E1** and **4MFT-T1/E1** 2 and 4-port T1/E1 Multiflex Trunk Voice/ WAN interface card. Used to connect to PBX, PSTN, or WAN using T1/E1 standard interface and provide channel drop-and-insert capability.
  - 4.2. **2MFT-G703** 2-port G703 Multiflex Trunk Voice/ WAN interface card. Used to support unstructured E1 (G.703) and all features of the other MFT cards, including drop-and-insert. Additional flexibility is provided on the two port module with the capability to configure one port for unstructured E1 (G.703) while configuring the other for standard framed E1.
5. IP Communications Voice/Fax Network Module
  - 5.1. **4-port FXS/DID** voice/fax interface card. FXS port is used to connect directly to phones, fax machines, and key systems. Generates battery polarity reversal and caller ID.
  - 5.2. **4-port FXO** voice/fax interface card. FXO port is used to connect to PBX or key system, or to provide off-premises connections to PSTN or PTT. Supports battery reversal detection and caller ID
  - 5.3. **2-port E&M** voice/fax interface card. Used to connect to PBX or key system as tie lines.
  - 5.4. **2-port BRI** voice/fax interface card (configurable for either network or terminal side). Used to connect as network side or user side to PBX or key system as off-premises connections (ISDN voice BRI). Supports flexible Layer 2 and Layer 3 configurations.
6. Packet Voice Digital Signal Processor Module **PVDM3** provide better density (30%) for medium- and high-complexity codecs than their equivalent PVDM2. For example, the number of supported medium-complexity codecs on a PVDM3-16 is 12, versus 8 on a standardly built-in PVDM2-16. Codec supported: G.728, G.729, G.729b, Internet Low Bitrate Codec (iLBC), and Modem Relay.
  - 6.1. **PVDM3-16/32/64/128/192/256**, X-channel high-density voice DSP module
7. Broadband
  - 7.1. **4SHDSL-E** One port RJ-45, 4-pair G.SHDSL EFM Card is designed to deliver high-speed Ethernet services over SHDSL access. HIWC-4SHDSL-E allows bonding to achieve higher data rates as defined by IEEE 802.3ah up to 4 x 5.696 Mbps, and it is typically used in scenarios where individual links are aggregated using the 802.3ah loop aggregation.
  - 7.2. **2SHDSL** One port RJ-11, 2-Pair G.SHDSL. Unlike the 4-pair 4SHDSL card does't offer 8-wire support, IMA and M-pair bonding with Annex F and Annex G.
  - 7.3. **VA-DSL-A** 1-port VDSL2/ADSL2/2+ Annex A Card over POTS
  - 7.4. **VA-DSL-B** 1-port VDSL2/ADSL2/2+ Annex B Card over ISDN
  - 7.5. **VA-DSL-M** 1-port VDSL2/ADSL2/2+ Annex M Card over POTS
8. Serial and Asynchronous Modules
  - 8.1. 4-Port Serial High-Speed WAN Interface Card (**HWIC-4T**)
  - 8.2. 4-Port Asynchronous/Synchronous High-Speed WAN Interface Card (**HWIC-4A/S**)
  - 8.3. 8-Port Asynchronous/Synchronous High-Speed WAN Interface Card (**HWIC-8A/S-232**): Eight low-speed synchronous/asynchronous ports, EIA-232 only
  - 8.4. 8-Port Asynchronous High-Speed WAN Interface Card (**HWIC-8A**): Eight asynchronous EIA-232 ports
9. Channelized T1/E1 and ISDN PRI/BRI
  - 9.1. **1CE1T1-PRI / 2CE1T1-PRI** 1 or 2 Port Channelized T1/E1 and ISDN PRI High Speed WAN Interface Card combine multiple T1/E1 WAN connectivity-Channelized T1/E1 and ISDN Primary Rate Interface (PRI), in the same card. Applications include fractional or full T1/E1 WAN connectivity, ISDN PRI for primary WAN link or WAN backup, and dial access aggregation.
  - 9.2. 4-Port ISDN BRI S/T High-Speed WAN Interface Card (**4B-S/T**) provides multifunction dial access server, router, and other capabilities within the router.

For more advanced configuration the LMSB-15R and more information, please contact [sales@optokon.com](mailto:sales@optokon.com)