Glocom

Global Communications Co.,

Glocom's solutions connect you to your team

Anywhere, Anytime in Battlefield!!!

Helping you
<u>focus where it counts</u>
in military communication and C4ISR

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About Glocom

Global Communications Co. (Glocom) was established in 1996, and is a leading defense company which is professional for R&D, manufacturing and serving military communications and C⁴ISR systems.

The mission of Glocom is to empower the customers with the tools and technologies required to face the future network-centric warfare with confidence providing his excellent ones.

Currently, Glocom provides customers with hi-tech voice and data communication equipment, IFF interrogators/transponders, ground surveillance radar, air-traffic control equipment and various kinds of BMS software, as well as complete sets of integrated systems such as C⁴ISR system.

The military radio communication equipment is an important foundation of all the solutions supplied by Glocom. Since the establishment Glocom has focused on developing various kinds of software-defined tactical radio equipment covering HF, VHF, and UHF frequency bands for manpack, handheld, stationary and vehicular applications. So far Glocom has supplied thousands of radio communication equipment for customers at home and abroad.

The Glocom BMS software based on the advanced 3D visualization of information and the unique Geographical Information System (GIS) technologies enables commanders to precisely evaluate situations of the battlefield more clearly for better decision making, focusing on critical problems and opportunities.

The Glocom C⁴ISR systems which integrated communication, ISR systems and battle management software offer interoperability, seamless communications and distribution of situational awareness across a variety of platforms to improve operational efficiency.

Recently Glocom is concentrating his great efforts to develop the next generation of tactical radio and tactical links which support the operational requirements of the modern battlefield. Based on powerful, advanced Software Defined Radio (SDR) technology, the new-generation cognitive HF radio and the latest generation of multi-band, multi-waveform tactical IP radios deliver enhanced capabilities that enable simultaneous data and multiple voice sessions in both wideband and narrowband waveforms on a single RF infrastructure with no need for additional configuration. Glocom's patented tactical data links increase the fighting efficiency with high-level reliability and accuracy through common situational awareness providing real-time or near-real-time tactical information.

By actively promoting the transfer of technology, Glocom has exported the whole manufacturing plants to some countries, now they are turning out products with the same quality as those produced in the home country. Glocom is stepping up efforts to improve the quality of his after-sales service.

Drawing on multidisciplinary expertise, Glocom will fully satisfy his customers' needs and help them realize their vision.

Glocom solutions will always be with you anywhere, anytime in battlefield.

Glocom

24th, June 2023

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Global Communications Co.,

GR-8100HV

HF/VHF Manpack Radio

Smallest, Lightest and Fastest HF/VHF Manpack Radio in the World!

Key Benefits

- Smallest, lightest, fastest HF/VHF manpack radio
- Wideband data up to 120kbps
- IP-based LAN, USB & Bluetooth interface
- Interoperable with Glocom GR-150, GR-250 and GR-310 radios

Features

Wideband HF Data	MIL-STD-188-110C Appendix D
ALE(1)	STANAG 4538 FLSU
Frequency Hopping	Serial Tone ECCM GR-150 interoperable
Encrypted Data	HF: MIL-STD-188-110C App. D, App. C, and Main Body Serial-tone Waveforms, VHF: FSK
Vocoder	HF: MELP1200 VHF: CVSD, MELP2400

The Glocom GR-8100HV HF/VHF manpack radio system reaches the highest level in wideband data performance and interoperability with fielded GR-150 HF manpack radio, GR-250 VHF manpack radio and GR-310 V/UHF manpack radio - to deliver information superiority on today's battlefields. It provides continuous coverage from 1.6 to 60MHz, 20W HF and 10W VHF on the power of a single battery, and bandwidths from 3 to 24 kHz - with data rates of up to 120 kbps.

No matter the deployment scenario, the GR-8100HV ensures the transmission and receipt of critical communications. With its Glocom GR-150/250/310 interoperability, it easily integrates into existing networks to deliver secure voice and data. It provides extended range, operating over degraded communication channels. And with ultra-robust 3G waveforms, it provides last-ditch voice and SMS messaging in channels where legacy waveforms don't work.

Incorporating enhanced anti-jamming measures and embedded AES encryption, all GR-8100HV transmissions are completely secure and reliable. The radio also features high performance automatic link establishment and data link protocols to provide fast, reliable linking and error-free data transfer - even under the most challenging channel conditions.

In addition to its array of embedded capabilities—which also include an internal GPS receiver - the GR-8100HV features a Software Defined Radio (SDR) architecture, which allows it to host future capabilities. Combined with its incredible processing power, this ensures it will continue to be state-of-the-art well into the future.
Providing all of these features in a form factor that's more compact and 30% lighter than previous HF manpack radio, the GR-8100HV enables today's warfighter to take on tomorrow's missions.

(1) - Automatic Link Establishment

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General Specifications

Frequency Range	1.6~60MHz
Net Presets	100, fully programmable
Frequency Stability	±1ppm
Emission Modes	J3E (single sideband, upper or lower, suppressed carrier telephony) H3E (compatible AM single sideband plus full carrier) A1A, J2A (compatible CW), selectable; F3E (FM)
RF Impedance	50Ω
Power Supply	26VDC(21.5~32VDC)
Data Interfaces	RS-232C, Ethernet, Bluetooth
Dimension	230x90x230mm
Weight	≤3.5Kg (4.5Kg with battery)

Receiver

Sensitivity	SSB: -113dBm(0.5uV) @ 10dB SINAD
Audio Output	12mW@1000Ω to external handset
Squelch	Front panel adjustable, active squelch selectable
IF Rejection	≥85dB
Image	≥80dB (1st IF image)
AGC	Mode dependent, automatically selected
Intermodulation Distortion	-80dB or better for two –30dBm signals separated 30 kHz or more
Overload Protection	Receiver protected to 32 VRMS

Transmitter

RF Power	HF 1/5/20W PEP, VHF 1/5/10W FM
Audio Input	1.5mV@150Ω or 0dBm@600Ω for full rated output
Carrier Suppression	≥60dB below PEP output (J3E mode)
Undesired Sideband Suppression	≥60dB below PEP output

Environment

Test method	MIL-STD-810G
Vibration	Ground tactical
Immersion	1m
Temperature	-30°C~60°C

GR-8100HV HF/VHF Manpack Radio Set

The Glocom GR-8100HV HF/VHF manpack radio set is ideal for extended portable field operations providing the tactical user with effective, secure and comprehensive communications with remote sited command locations. It includes all necessary items like handset, antennas, battery pack, battery case etc. The standard set includes:-

- HF/VHF Manpack Radio GR-8100HV
- Military Official Handset GA-8100OH
- VHF 2.4m Whip Antenna GA-211A
- HF 15m Line Antenna GA-112A
- Handheld GPS Antenna GA-51A
- Battery Box w/o Battery A8100-BB31
- Battery Pack BB-2590/U
- Battery Charger A8100-BC1B
- Ground Stake Kit A8100-GK25
- Field Reference Guide A8100HV-UM01

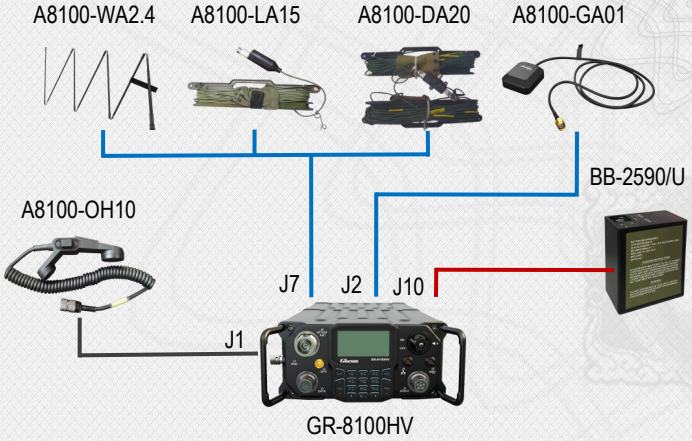
Compatible Batteries

- Non-rechargeable LiSO2 Battery BA-5590B/U
- Non-rechargeable LiMnO2 Battery BA-5390/U
- Rechargeable NiMH Battery BB-390B/U

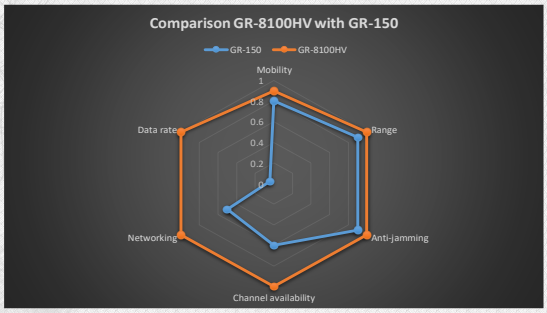
Options for Manpack & Mobile Set

- Tactical Headset A8100-TH11
- Speaker Microphone A8100-SM13
- HF 2.4m Whip Antenna GA-111A
- HF 20mx2 Dipole Antenna GA-113A
- Mobile GPS Antenna GA-50A
- Asynchronous Data Cable A8100-DC01
- Ethernet Cable A8100-EC24
- 2 Bay Battery Charger A8100-BC2B
- Communication Planning Application (Windows) GC-8100
- Tactical Chat Application (Windows) GS-910

Configuration of GR-8100HV radio set



Comparison GR-8100HV with GR-150 HF



Model	Mobility	Range	Anti-jamming	Channel	Net-work	Data rate	Result
GR-150	0.80	0.90	0.90	0.60	0.50	0.04	**0.78**
GR-8100HV	0.90	1.00	1.00	1.00	1.00	1.00	**90.00**
	1.12	**1.1**	**1.1**	**1.6**	**2**	**25**	**115.74**

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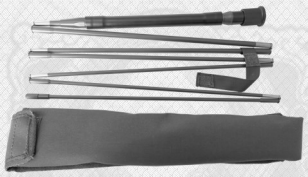
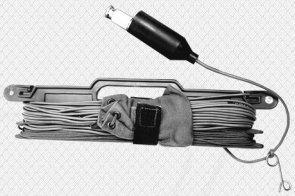
GA-8100OH Military Official Handset

The officer handset is a high-grade, light-weight MIL handset for use with the Glocom tactical radio systems. One handset is supplied with each radio.



GA-211A VHF 2.4m Whip Antenna

30~88MHz, 40W, Impedance:50Ω, Contact resistance: ≤120mΩ, Length:2400mm, Draw back length: 365mm, ≤0.7Kg, Interface: BNC fixed with threading sheath.



GA-112A HF 15m Line Antenna

This antenna can be used for communication on actual combat. This antenna is used for HF radio set or long distance emergency communication. It has the features of high radiation efficiency, easy carrying and installation.

GA-51A Handheld GPS Antenna

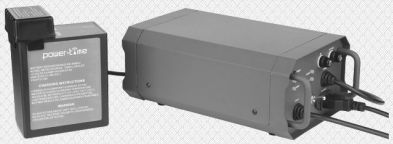
This is high gain, low loss, active, extra low current consumption, small size GPS antenna. It supports SMA plug and magnetic mounting. It's useful for mobile application with GR series radios.

A8100-BB31 Battery Box w/o Battery

Battery box for BB-2590/U series batteries for GR-8100 manpack radio system. Waterproof and moisture-proof. This battery box is fully compatible with BB-2590/U size battery system.

BB-2590/U Battery Pack

The Li-Ion battery is a very high-capacity, rechargeable, Li Ion battery for the GR-8100 manpack. Use with Glocom A8100-BC2B/4B/6B battery charger system.



A8100-BC1B Battery Charger

This is 2 bay battery charger for BB-2590/U. Up to 2 batteries may be connected for simultaneous processing, and disconnected from any channel during processing.

A8100-GK25 Ground Stake Kit

Earth braid, 1.5m.

A8100HV-UM01 Field Reference Guide

This is a field reference user manual for GR-8100HV radio system.

A8100-TH11 Tactical Headset

Tactical headset adopts structure of head ring soft strap, it is audio terminal. It has the features of small in dimension, light in weight, good water proof performance, high environment adaptability.

A8100-SM13 Speaker Microphone

This speaker microphone amplifies radio audio output for manpack, vehicular and base station applications. It can be connected to audio jack on manpack radio.

A8100-DC01 Asynchronous Data Cable

This is RS-232C data communication cable for GR 8000 series radios. It is used for data communication, radio programming and radio control by computer etc.

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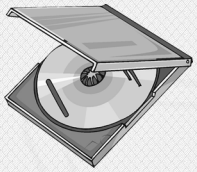
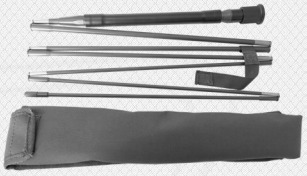


GC-8100 Communication Planning Application

This software application allows user to enter frequency, mode, encryption code, ALE network information and other parameters into a Windows-based computer program and save it to a file.

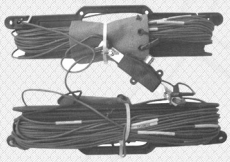
A8100-BE32-03 Battery Eliminator(AC/DC)

The battery eliminator provides a regulated output voltage to Glocom GR-8100 series manpack radio from an AC input range of 85-270VAC/47-400Hz.



GA-111A HF 2.4m Whip Antenna

1.6~30MHz, 40W, Contact resistance: ≤120mΩ, Length:2400mm, Draw back length: 365mm, ≤0.7Kg, Interface: BNC fixed with threading sheath.



GA-113A HF 20m x 2 Dipole Antenna

This antenna can be used for communication on actual combat. This antenna is used for stationary HF radio set or long distance emergency communication.

A8100-EC24 Ethernet cable(RJ-45)

This cable is the Ethernet cable to connect radio and Ethernet port or network hub.

GA-50A Mobile GPS Antenna

This is high gain, low loss, active, extra low current consumption, small size GPS antenna. It supports SMA plug and magnetic mounting or screw mounting. It's useful for mobile application with GR series radios.

A8100-RS22-01 Rucksack

This is a rucksack for GR series manpack radio system. It is very convenience for soldier to carry radio with all accessories. It can keep antenna, batteries, handset, headset etc…

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GR-8100MS

HF/VHF 100W Mobile Radio

High Performance HF/VHF Mobile Radio!

Key Benefits

- Compact, rugged, fastest HF/VHF 100W mobile radio
- Wideband data up to 120kbps
- IP-based LAN, RS-232C, Bluetooth interface
- Interoperable with GR-150, GR-250 and GR-310 radios

Features

Wideband HF Data	MIL-STD-188-110C Appendix D
ALE(1)	STANAG 4538 FLSU
Frequency Hopping	Serial Tone ECCM GR-150 interoperable
Encrypted Data	HF: MIL-STD-188-110C App. D, and Main Body Serial-tone Waveforms, VHF: FSK
Vocoder	HF: MELP1200 VHF: CVSD, MELP2400

The Glocom GR-8100MS HF/VHF 100W mobile radio system reaches the highest level in wideband data performance and interoperability with fielded GR-150 HF manpack radio, GR-250 VHF manpack radio and GR-310 V/UHF STACOM manpack radio - to deliver information superiority on today's battlefields. It provides continuous coverage from 1.6 to 60MHz, 100W HF and 50W VHF, and bandwidths from 3 to 24 kHz - with data rates of up to 120 kbps.

No matter the deployment scenario, the GR-8100MS ensures the transmission and receipt of critical communications. With its Glocom GR-150/250/310 interoperability, it easily integrates into existing networks to deliver secure voice and data. It provides extended range, operating over degraded communication channels. And with ultra-robust 3G waveforms, it provides voice and SMS messaging in channels where legacy waveforms don't work.

Incorporating enhanced anti-jamming measures and embedded AES encryption, all GR-8100MS transmissions are completely secure and reliable. The radio also features high performance automatic link establishment and data link protocols to provide fast, reliable linking and error-free data transfer - even under the most challenging channel conditions.

In addition to its array of embedded capabilities—which also include an internal GPS receiver - the GR-8100MS features a Software Defined Radio (SDR) architecture, which allows it to host future capabilities. Combined with its incredible processing power, this ensures it will continue to be state-of-the-art well into the future.

Providing all of these features in a form factor that's more compact and 30% lighter than previous HF 100W mobile radio, the GR-8100MS enables today's warfighter to take on tomorrow's missions.

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General Specifications

Frequency Range	1.6~60MHz
Fine Tuning	10kHz
Preset Channels	200 channels
System Presets	100, fully programmable
Emission Modes	J3E (single sideband, upper or lower, suppressed carrier telephony) H3E (compatible AM single sideband plus full carrier) A1A, J2A (compatible CW), selectable; F3E (FM)
Data rate	75bps~120kbps
TRANSEC(ECCM)	10hps(HF), 100hps(VHF)
COMSEC(ECCM)	AES256, customized algorithm
Vocoder	HF: MELP1200, VHF: MELP2400, CVSD
Link Establishment	STANAG 4538 FLSU
Frequency Stability	±1ppm
RF Impedance	50Ω
Power Supply	27VDC(22~33VDC)
Protection	Over-voltage, Polarity, Over-load
Data Interfaces	RS-232C, Ethernet, Bluetooth
Remote Control	PC, Android Tablet
Programming	PC, Wireless Fill-gun, Keyboard
Dimension	300x390x97mm
Weight	≤9Kg

Receiver

Sensitivity	SSB: -113dBm(0.5uV) @ 10dB SINAD
Image & IF Rejection	≥85dB
Adjacent Channel Rejection	≥45dB
Non-linear Distortion	≤5%
Squelch	Front panel adjustable

Transmitter

RF Power	HF 1W~100W, VHF 1~50W
Spurious Outputs	≤-60dBc

Environment

Test method	MIL-STD-810G
Operating Temperature	-30~60°C
Storage Temperature	-40~70°C
Humidity	95%
Vibration	Ground tactical

GR-8100MS HF/VHF 100W Mobile Radio Set

The Glocom GR-8100MS 100W mobile radio set compatible with the GR-8100HV HF/VHF manpack radio set. It provides a convenient vehicle installation kit and transmit power amplification to 100W PEP. The GR-8100MS HF/VHF 100W mobile radio set can be installed in a wide range of vehicle types with antenna options to suit. The standard set includes:-

- HF/VHF 100W Mobile Radio GR-8100MS
- Military Official Handset GA-8100OH
- Mobile GPS Antenna GA-50A
- HF 20mx2 Dipole Antenna GA-113A
- HF Mobile Antenna with Cable A8100-WA4.2
- VHF Mobile Antenna with Cable A8100-MA3
- HF 100W Automatic Tuning Unit GR-8102MS
- Amplifier-ATU RF Cable A8100MS-RC01
- Amplifier-ATU Control Cable A8100MS-CC01
- Power Cable A8100MS-PC01
- 27V/300W Power Supply Unit A8100-PS300
- Mobile Installation Kit A8100-IK10
- Field Reference Guide A8100MS-UM01

Options for Mobile Set

- Tactical Headset A8100-TH11
- Speaker Microphone A8100-SM13
- Asynchronous Data Cable A8100-DC01
- Ethernet Cable A8100-EC24
- NVIS Antenna GA-114A
- Communication Planning Application (Windows) GC-8100
- Tactical Chat Application (Windows) GS-910

HF/VHF 100W Mobile Radio

HF 100W Automatic Tuning Unit

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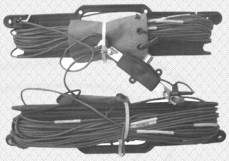
GA-8100OH Military Official Handset

The officer handset is a high-grade, light-weight MIL handset for use with the Glocom tactical radio systems. One handset is supplied with each radio.

GA-50A Mobile GPS Antenna

This is high gain, low loss, active, extra low current consumption, small size GPS mobile antenna. It supports SMA plug and magnetic mounting or screw mounting. It's useful for mobile application with GR series radios.



GA-113A HF 20m x 2 Dipole Antenna

This antenna can be used for communication on actual combat. This antenna is used for stationary HF radio set or long distance emergency communication.

A8100-WA4.2 HF Mobile Antenna

This is HF mobile communication antenna. The antenna is composed of three parts. The antenna is light weight, good flexibility, endurable for corrosion.

A8100-MA3 VHF Mobile Antenna

This is VHF mobile communication antenna. The antenna is composed of three parts. The antenna is light weight, good flexibility, endurable for corrosion.

GR-8102MS HF 100W ATU Set

This is a set of 100W automatic tuning unit system. It includes 100W automatic tuning unit, RF cable, control cable, antenna cable etc. It will be installed in pair of GR-8100MS 100W mobile radio system.

A8100-IK10 Mobile Installation Kit

This is a set of mobile installation kit. It can be used to install GR series radio system into various kind of vehicles, ships or stationary. It is very simple to install or uninstall on the vehicles.

A8100MS-UM01 Field Reference Guide

This is a field reference user manual for GR-8100MS 100W mobile radio system.

A8100-TH11 Tactical Headset

Tactical headset adopts structure of head ring soft strap, it is audio terminal. It has the features of small in dimension, light in weight, good water proof performance, high environment adaptability.

A8100-SM13 Speaker Microphone

This speaker microphone amplifies radio audio output for manpack, vehicular and base station applications. It can be connected to audio jack on GR series radios.

A8100-DC01 Asynchronous Data Cable

This is RS-232C data communication cable for GR 8000 series radios. It is used for data communication, radio programming and radio control by computer etc.

A8100-EC24 Ethernet cable(RJ-45)

This cable is the Ethernet cable to connect radio and Ethernet port or network hub.

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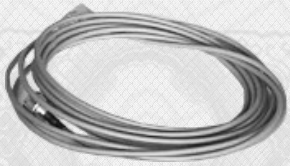
A8100MS-CC01 Amplifier-ATU Control Cable

This cable is the control cable connected between GR-8100MS and GR-8102MS. GR-8100MS controls GR-8102MS via this cable.



A8100MS-RC01 Amplifier-ATU RF Cable

This cable is the RF cable connected between GR-8100MS and GR-8102MS. RF signal is sent from GR-8100MS to GR-8102MS via this cable.

A8100MS-PC01 Power Cable

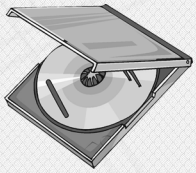
This cable is power cable for GR-8100MS. This cable is connected with 27V DC power supply.

A8100-PS300 27V/300W Power Supply Unit

This is 27V/320W AC-DC/DC-DC converter to supply power into GR-series mobile radio system. It supports very high efficiency, over-voltage protection, polarity protection.

GA-114A NVIS antenna

This is mobile antenna which radiates NVIS propagation. It is designed to realize the communication during movement and effectively solve the problem of "communication blind area" in near distance of HF band.



GC-8100 Communication Programming Application

This software application allows user to enter frequency, mode, encryption code, ALE network information and other parameters into a Windows-based computer program and save it to a file.

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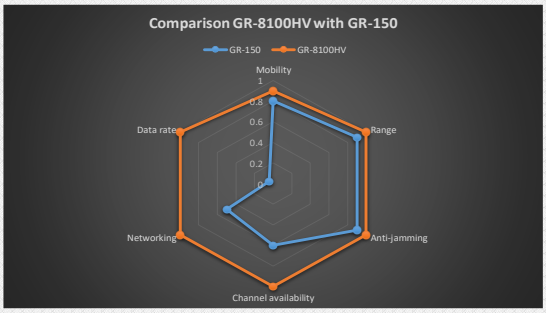
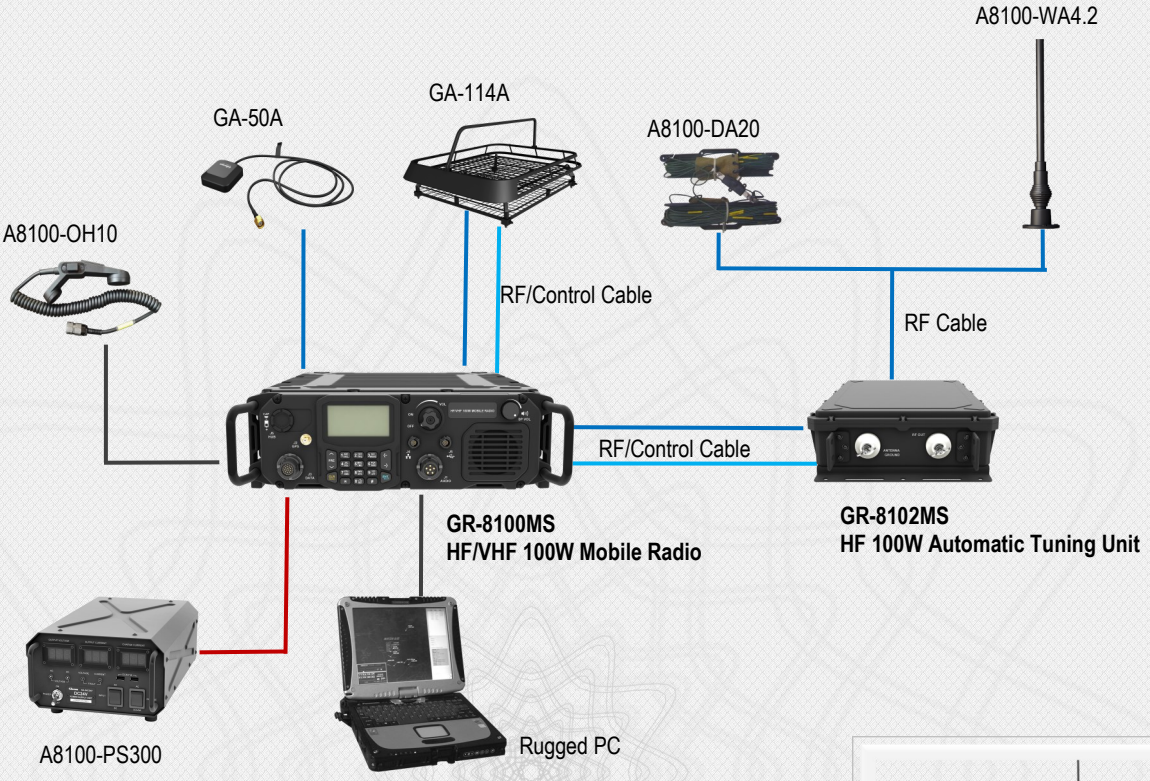
Comparison GR-8100MS with GR-150MS HF mobile radio

Model	Mobility	Range	Anti-jamming	Channel availability	Network-ing	Data rate	Result
GR-150MS	0.80	0.90	0.90	0.60	0.50	0.04	**0.78**
GR-8100MS	0.90	1.00	1.00	1.00	1.00	1.00	**90.00**
	1.12	**1.1**	**1.1**	**1.6**	**2**	**25**	**115.74**



Configuration of GR-8100MS 100W Mobile Radio System



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GR-8520VU

High Capacity Data Radio (HCDR)

Tactical Networking IP Radio Delivering Ultra-High Data Rates!

The Glocom GR-8520VU VHF/UHF High Capacity Data Radio (HCDR) provides ultra-high data rates of up to 4Mbps for the transmission of high-resolution voice, video and embedded Blue Force Tracking (BFT) over a truly decentralized mobile ad-hoc network (MANET).

With frequency coverage from 225MHz to 450MHz, the HCDR offers a modular range of configurations geared to match the specific operational requirements of any mission, including vehicle configurations, as well as both airborne and marine radio sets. Featuring an SDR design that supports various waveforms, the HCDR's wireless resources are dynamically utilized between the network members, providing end-to-end IP connectivity for voice, video and data.

Modern warfare - With its small form-factor, ultra-high bandwidth and advanced capabilities, the HCDR serves as the backbone for secure data network and Ethernet services in the modern battlefield. The solution is ideal for deployed and maneuvering tactical platforms throughout multiple echelons, from brigade level to platoon level.

Vast data distribution - As requirements for data dissemination continue to rise, the HCDR has emerged as a powerful C4I enabler, with capabilities for voice, BFT, IP data and live multicast video. The HCDR expedites military missions by ensuring agile and secured MANET without hindering tactical operations.

Network-centric communications - The HCDR employs advanced algorithms and ultra-high bandwidth to maximize performance throughout the 64-member network.

Video and voice streaming

- Supports video/data and voice simultaneously
- Supports highly effective multicast transmission of high definition live video
- Multiple simultaneous CNR-like PTT driven 4 voice groups
- Multi-hop capabilities for all services

MANET

- Up to 64 members
- Implements a fully decentralized IP MANET, delivering CNR-like voice, IP data and video to the network
- Fully automated self-forming, self-healing network
- No single point of failure
- Built-in GPS with automatic position reporting
- Automatic reply formations for effective multi-hop voice, data and video communications
- Smart data link: link establishment and maintenance is made possible by manipulating both transmission power and modulations as per data type

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General Specifications

Frequency Band	225~450MHz
Channel Bandwidth	5MHz
Net Preset	16 channel
Output Power	Up to 20W
Waveforms	OFDM, DSSS
Voice	PTT activated CNR
	VOIP support
Media Access Method	CSMA/CA
Power supply	27VDC(22V~32VDC)
Networking	Mobile Ad-Hoc (self-forming, self-healing)
	Supporting Unicast and Broadcast
Network Size	Up to 64 members
Relay Support	Automatic relay formation
	Up to 2 hops for CNR voice
	Up to 6 hops for IP data
Location Report	Built-in GPS with automatic position report
Interface	Ethernet, RS-232C
User Data Rate	Up to 4Mbps
Standard IP Protocol Support	
	DHCP, RIP
Encryption	AES 256
Jamming Immunity	DSSS
Dimension	253x212x75mm
Weight	≤2.9kg
EMI/RFI	MIL-STD-461F
Environmental	MIL-STD-810F

GR-8520VU Mobile Set

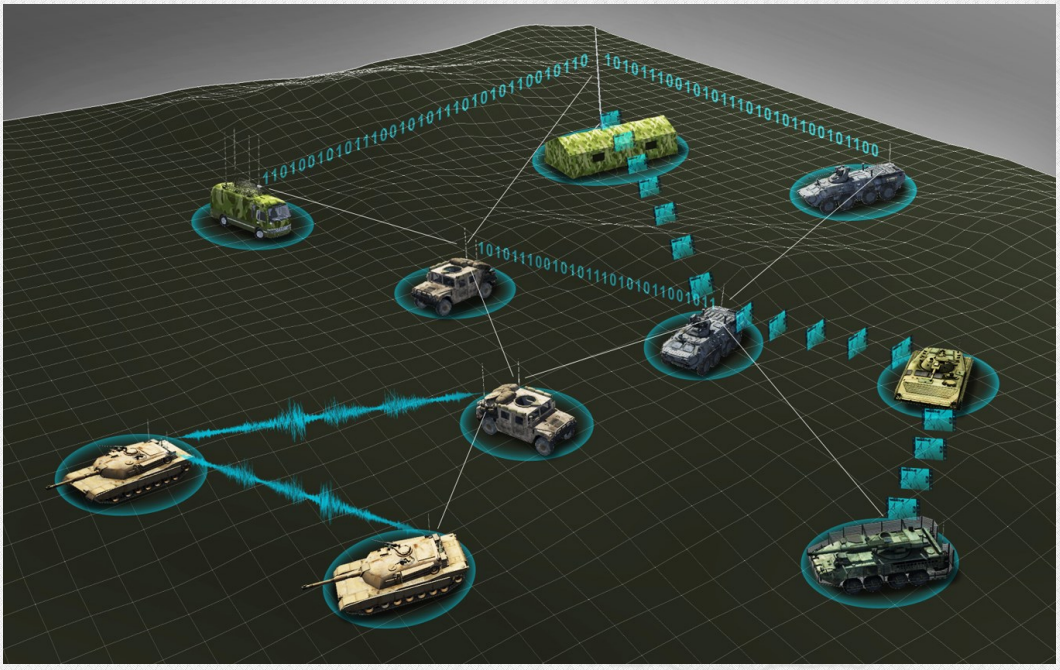
The Glocom GR-8520VU HCDR set is ideal for backbone for secure data network and Ethernet service in the modern battlefield. The solution is ideal for deployed and maneuvering tactical platforms throughout multiple echelons, from brigade level down to platoon level. It includes all necessary handset, antennas and cables. The standard set includes:-

- High Capacity Data Radio (HCDR) GR-8520VU
- Military Official Handset GA-8100OH
- Mobile Antenna GA-310-AT-03
- Antenna Cable A8520-WA10-C3M
- Ethernet Cable A8520-EC3M
- Power Cable A8520-PC2M
- User Manual A8520-UM01

Options

- Control Cable (RS-232C) A8520-CC1M
- Tactical Headset A8100-TH11
- Speaker Microphone A8100-SM13
- Installation Kit A8100-IK10
- 27V/300W Power Supply Unit A8100-PS300
- Panasonic Rugged PC CF-31
- Ethernet Switching Hub A8520-LH12/5

Intelligent, Self-managing, Mobile, Ad-Hoc networking



To learn more about the Glocom GR-8520VU VHF/UHF HCDR and its advanced features, contact Glocom at support@glocom-corp.com.

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GA-8100OH Military Official Handset

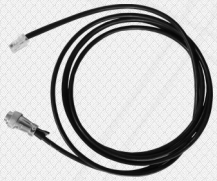
The officer handset is a high-grade, light-weight MIL handset for use with the Glocom tactical radio systems. One handset is supplied with each radio.

GA-310-AT-03 Mobile Antenna

This is UHF mobile communication antenna(225~512MHz). The antenna is composed of three parts. The antenna is light weight, good flexibility, endurable for corrosion.

A8520-CC1M Control Cable

This is RS-232C data communication cable for GR 8000 series radios. It is used for data communication, radio programming and radio control by computer etc.



A8520-EC3M Ethernet Cable

This cable is the Ethernet cable to connect radio and Ethernet port or network hub. 3m

A8520-UM01 User Manual

This is a field reference user manual for GR-8520VU radio system.

A8520-LH12/5 Ethernet Switching Hub

This software application allows user to enter frequency, mode, encryption code, ALE network information and other parameters into a Windows-based computer program and save it to a file.

A8100-TH11 Tactical Headset

Tactical headset adopts structure of head ring soft strap, it is audio terminal. It has the features of small in dimension, light in weight, good water proof performance, high environment adaptability.

A8100-SM13 Speaker Microphone

This speaker microphone amplifies radio audio output for manpack, vehicular and base station applications. It can be connected to audio jack on the radio.

A8100-PS300 27V/300W Power Supply Unit

This is 27V/320W AC-DC/DC-DC converter to supply power into GR-series mobile radio system. It supports very high efficiency, over-voltage protection, polarity protection.

A8100-IK10 Installation Kit

This is a set of mobile installation kit. It can be used to install GR series radio system into various kind of vehicles, ships or stationary. It is very simple to install or uninstall on the vehicles.

CF-31 Panasonic Rugged PC

This software application allows user to enter frequency, mode, encryption code and other parameters into a Windows-based computer program and save it to a file.

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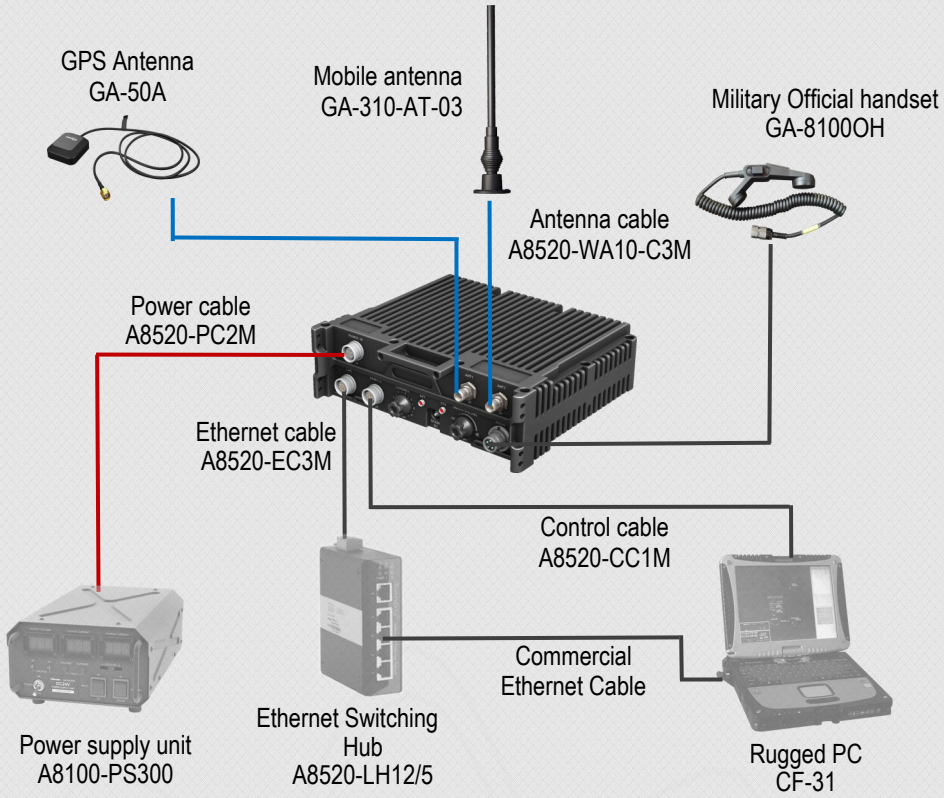
Configuration of GR-8520VU Mobile Set



Mobile Systems

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GR-8340VT VHF Mobile Radio

Providing upgrades for the full range of vehicle Platforms with C² capabilities.

The Glocom's GR-8340VT VHF mobile radio is a powerful vehicular SDR, designed specifically to support battle tanks and armored combat vehicles. The radio provides vehicle platforms with full command and control (C^2) capabilities maximizing their potential in operation.

The GR-8340VT operates in VHF band from 20MHz to 88MHz and features software defined radio architecture. This future-proof 50W vehicular SDR offers seamless communications and situational awareness, while utilizing unprecedented immunity (ECCM) and communication security (COMSEC) for a multitude of missions and applications. The radio supports narrowband tactical waveform so as to operate well in harsh spectrum conditions.

With its Glocom's GR-250/310/8600M/8200MA interoperability, it easily integrates into existing networks to deliver secure voice and data and enables joint operation with other forces. The radio can be fully integrated with GE-2100 VIC system, making a complete set of vehicular communications system.

The Glocom's GR-8340VT VHF mobile radio is a true force multiplier, providing a decisive advantage on the battlefield.

Features

- Powerful 50W SDR platform
- Covering frequency band from 20MHz to 88MHz
- EPM capability by FH and digital encryption
- Embedded GPS supporting continuous high resolution Blue Force Tracking capabilities
- Ruggedized design for harsh combat conditions
- Reliable and durable, simplified maintenance
- Supports a multitude of interfaces required in a modern combat system solution
- Fully integrated with GE-2100 VIC system
- Interoperable with GR-250/GR-310/GR-8600M/GR-8200MA
- Easy operation with simple keypad

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Technical Specifications

General

Frequency Band	20MHz~88MHz
Channel Bandwidth	25kHz
Frequency Stability	±1ppm
Net Presets	100
Modulation	FM, FSK
Frequency Hopping	100hps
Encryption	AES256 or customized
GPS	Built-in GPS receiver
Dimension	137 (H) x 240 (W) x 260 (D) mm
Weight	7kg

Transmitter

RF Power	Up to 50W
Harmonics Suppression	-40dBc or better
Spurious Suppression	-50dBc or better

Receiver

Sensitivity	-113dBm @ 12dB SINAD
Adjacent Channel Rejection	≥40dB
Image & IF Rejection	≥80dB

Power

Power Supply	20 ~ 34 VDC
Power Protection	Over-voltage, Polarity
Power Consumption	Max. 300W

Environmental

Operating Temperature	-30 ~ +60 ℃
Immersion	1m
Shock & Vibration	MIL-STD-810G

Interfaces

Data	27-pin, Ethernet/RS-232/RS-422
Audio	Standard 6-pin
Antenna Port	BNC

GR-8340VT

VHF Mobile Radio

The Glocom GR-8340VT VHF Mobile Radio set includes the following items:

- VHF Mobile Radio — GR-8340VT
- VHF Vehicle Antenna with cable — GA-212A
- Vehicle GPS Antenna — GA-52A
- Vehicle Headset — A8340VT-VH10
- Data Cable — A8340VT-DC01
- Power Cable — A8340VT-PC01
- User Manual — A8340VT-UM01

Options

- Military Official Handset — GA-8100OH
- Mobile GPS Antenna — GA-50A
- AC220V-DC28V 300W PSU — A8340VT-PS300
- Installation Kit — A8340VT-IK01
- Rugged PC 10~15” — Windows 7/8/10
- Setup & Control Application — GC-8340VT
- BMS Software for crew — GS-930VH
- BMS Software for commander — GS-930FL
- Tactical Chat — GS-910

Related Products

GE-2100 (*Recommended)
Tactical Network Intercom System

GR-8600M
Multiband Handheld Radio

GR-8200MA
Multiband Airborne Radio

GR-310
VHF/UHF SATCOM Manpack Radio

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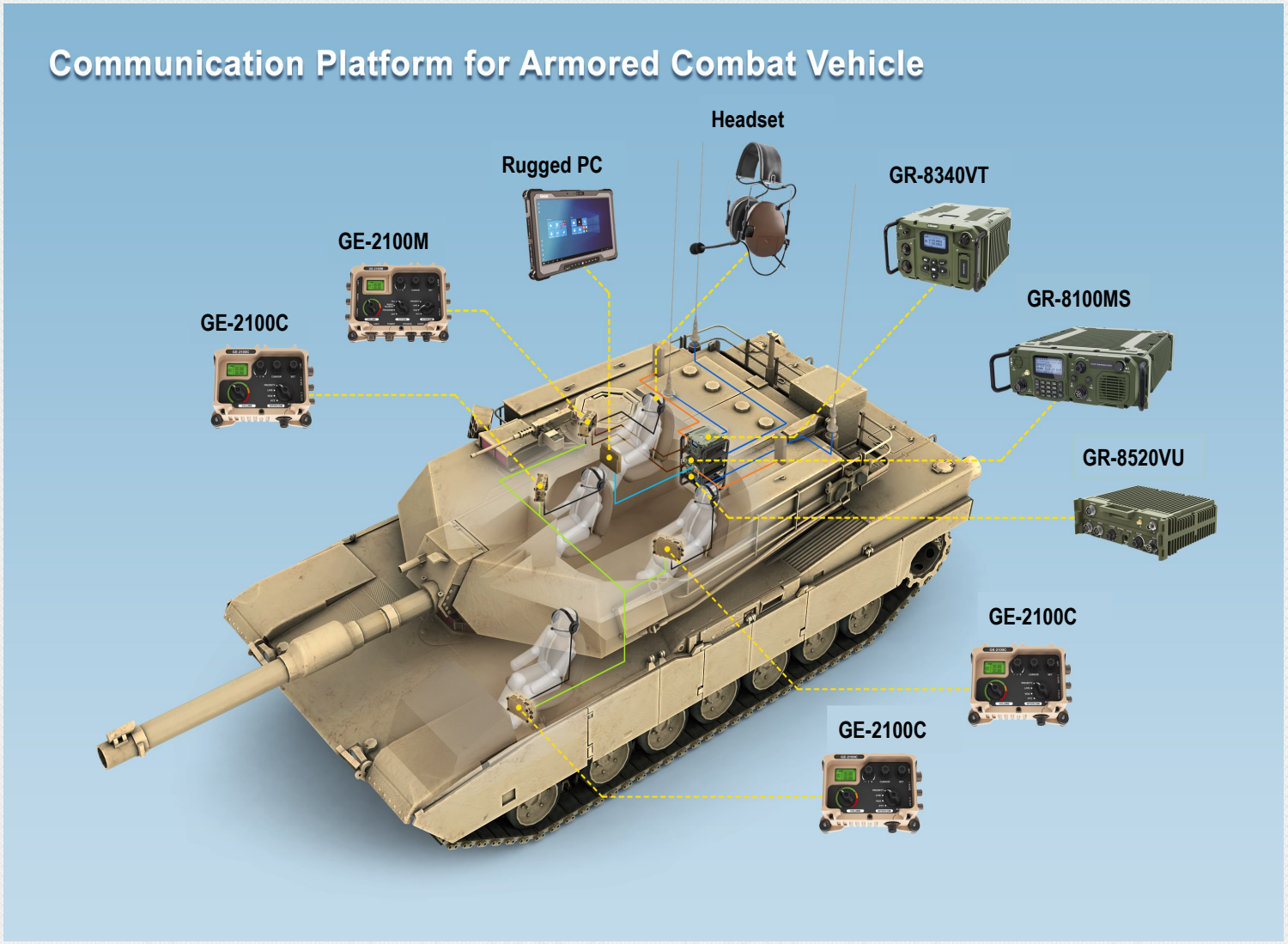
Communication Platform for Armored Combat Vehicle in the networked battlefield



Ordering Information

№	DESCRIPTION	MODEL	BRAND	UNIT	QTY
1	VHF Mobile Radio	GR-8340VT	Glocom	set	1
2	HF/VHF Mobile Radio	GR-8100MS	Glocom	set	1
3	High Capacity Data Radio (HCDR)	GR-8520VU	Glocom	set	1
4	Tactical Network Intercom System	GE-2100	Glocom	set	1
5	Rugged PC	S410	Getac	set	1

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GA-212A VHF 3.8m Mobile Antenna

This is VHF vehicle borne communication antenna. The antenna section is made of fiber-glass, thus the features of light weight, good flexibility, endurable for corrosion.

GA-52A Vehicle GPS Antenna

This is high gain, low loss, active, extra low current consumption, small size GPS antenna. It supports SMA plug and magnetic mounting or screw mounting. It's useful for vehicle application with GR series radios.

A8340VT-VH10 Vehicle Headset

The headset adopts structure of head ring soft strap, it is audio terminal. It has the features of small in dimension, light in weight, good water proof performance, high environment adaptability.

A8340VT-DC01 Data Cable

This is RS-232C data communication cable for GR series radios. It is used for data communication, radio programming and radio control by computer etc.

A8340VT-PC01 Power Cable

It is a power cable to supply DC27V to the radio with 4 way connector which is very strong in rough environments.

A8100-OH10 Officer Handset

The officer handset is a high-grade, light-weight MIL handset for use with the tactical radio systems. One handset is supplied with each radio.

GA-50A Mobile GPS Antenna

This is high gain, low loss, active, extra low current consumption, small size GPS antenna. It supports SMA plug and magnetic mounting or screw mounting. It's useful for mobile application with GR series radios.

A8340VT-PS300 AC220V-DC28V 300W PSU

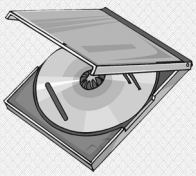
This is 300W AC-DC converter to supply DC 27V into GR-series mobile radio system. It supports very high efficiency, over-voltage protection, polarity protection.

A8340VT-IK01 Installation Kit

This is a set of installation kit. It can be used to install GR series radio system into various kind of vehicles, ships or stationary. It is very simple to install or uninstall on the vehicles.

A8340VT-UM01 User Manual

This is a field reference user manual for GR-8340VT radio system.



GC-8340VT Setup & Control Application

Windows-based setup software for GR-8340VT. This software allows user to enter frequency, mode, encryption code and other parameters into GR-8340VT radio.

Rugged PC 10~15”

The commercial rugged PC will be used for setup, control and communication.

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GR-8350MV VHF/UHF Multiband Vehicular Radio

Providing upgrades for the full range of vehicle Platforms with C² capabilities.

Glocom's GR-8350MV radio is a multiband, multi-waveform tactical vehicular SDR, designed specifically to support combat land/maritime forces over any terrain type. The radio operates in VHF and UHF bands continuously featuring GPS independent synchronization for TDMA network operating mode. This future-proof vehicular SDR offers seamless communications and situational awareness, while utilizing unprecedented immunity (ECCM) and communications security (COMSEC) for a multitude of missions and applications. Combat proven mobile ad-hoc networking (MANET) provides continuous connectivity, while automatic self-forming, self-healing, routing and relay capabilities dramatically extends the radio's reach over harsh battlefield conditions, ensuring no single point of failure. The radio supports narrow band legacy waveform compatible with GR-310 as well as high data rate wide band waveform compatible with GR-611D, providing a dynamic solution adapted to any terrain or mission. The radio can be fully integrated with GE-2100 VIC system, making a complete set of vehicular communications system. The Glocom's GR-8350MV radio is a true force multiplier, providing a decisive advantage on the battlefield.

Features

- Powerful 30W SDR platform enabling multiple waveforms covering the frequency bands from 30MHz to 512MHz
- Extended networking coverage using robust and unique Ad-hoc techniques
- Robust design for harsh combat conditions
- Simultaneous multiple voice sessions along with data and BFT
- Supports a multitude of interfaces required in a modern combat system solution
- Simple and intuitive keypad
- Embedded GPS supporting continuous high resolution Blue Force Tracking capabilities
- Supports a multitude of interfaces required in a modern combat system solution
- Fully integrated with GE-2100 VIC system

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Technical Specifications

General

Frequency Band	30MHz~512MHz
Net Presets	100
Frequency Hopping	100hps (6.4MHz)
Encryption	AES256 or customized
GPS	Built-in GPS receiver
Networking	Wideband: Multihop Mobile Ad-hoc
Data Rate	14.4kbps @ GR-310 compatible 192kbps @ GR-611D compatible

Transmitter

RF Power	Up to 50W
Frequency Stability	±1ppm
Harmonics Suppression	-40dBc or better
Spurious Suppression	-50dBc or better
Output Protection	Open and short-circuit

Receiver

Sensitivity	FM: -113dBm @ 10dB SINAD AM: -107dBm @ 10dB SINAD
Adjacent Channel Rejection	40dB or better
Image Rejection	80dB or better
IF Rejection	70dB or better

Waveforms

Bandwidth	25kHz, 400kHz
Modulation	AM, FM, FSK
Narrowband	compatible with GR-310
Wideband	compatible with GR-611D

Power

Power Supply	20 ~ 32VDC
Power Protection	Over-voltage, Polarity
Power Consumption	Max. 300W

Environmental

Operating Temperature	-30 ~ +60 ℃
Immersion	1m
Shock & Vibration	MIL-STD-810G

Interfaces

Data	27-pin, Ethernet/RS-232/RS-422
Audio	Standard 6-pin
Antenna Port	BNC

Physical

Dimension	137 (H) x 240 (W) x 283 (D) mm
Weight	7kg

GR-8350MV

VHF/UHF Multiband Vehicular Radio

The Glocom GR-8350MV VHF/UHF Multiband Vehicular Radio set includes the following items:

- VHF/UHF Multiband Vehicular Radio — GR-8350MV
- Wideband Mobile Antenna with cable — GA-310-AT-03A
- Vehicle GPS Antenna — GA-52A
- Vehicle Headset — A8350MV-VH10
- Data Cable — A8350MV-DC01
- Power Cable — A8350MV-PC01
- User Manual — A8350MV-UM01

Options

- Military Official Handset — GA-8100OH
- Mobile GPS Antenna — GA-50A
- AC220V-DC28V 300W PSU — A8350MV-PS300
- Installation Kit — A8350MV-IK01
- Rugged PC 10~15” — Windows 7/8/10
- Setup & Control Application — GC-8350MV
- BMS Software for crew — GS-930VH
- BMS Software for commander — GS-930FL
- Tactical Chat — GS-910

Related Products

GE-2100 (*Recommended)
Tactical Network Intercom System

GR-310
VHF/UHF SATCOM Manpack Radio

GR-611D
Battalion Artillerist Radio

GR-8340VT
VHF Mobile Radio

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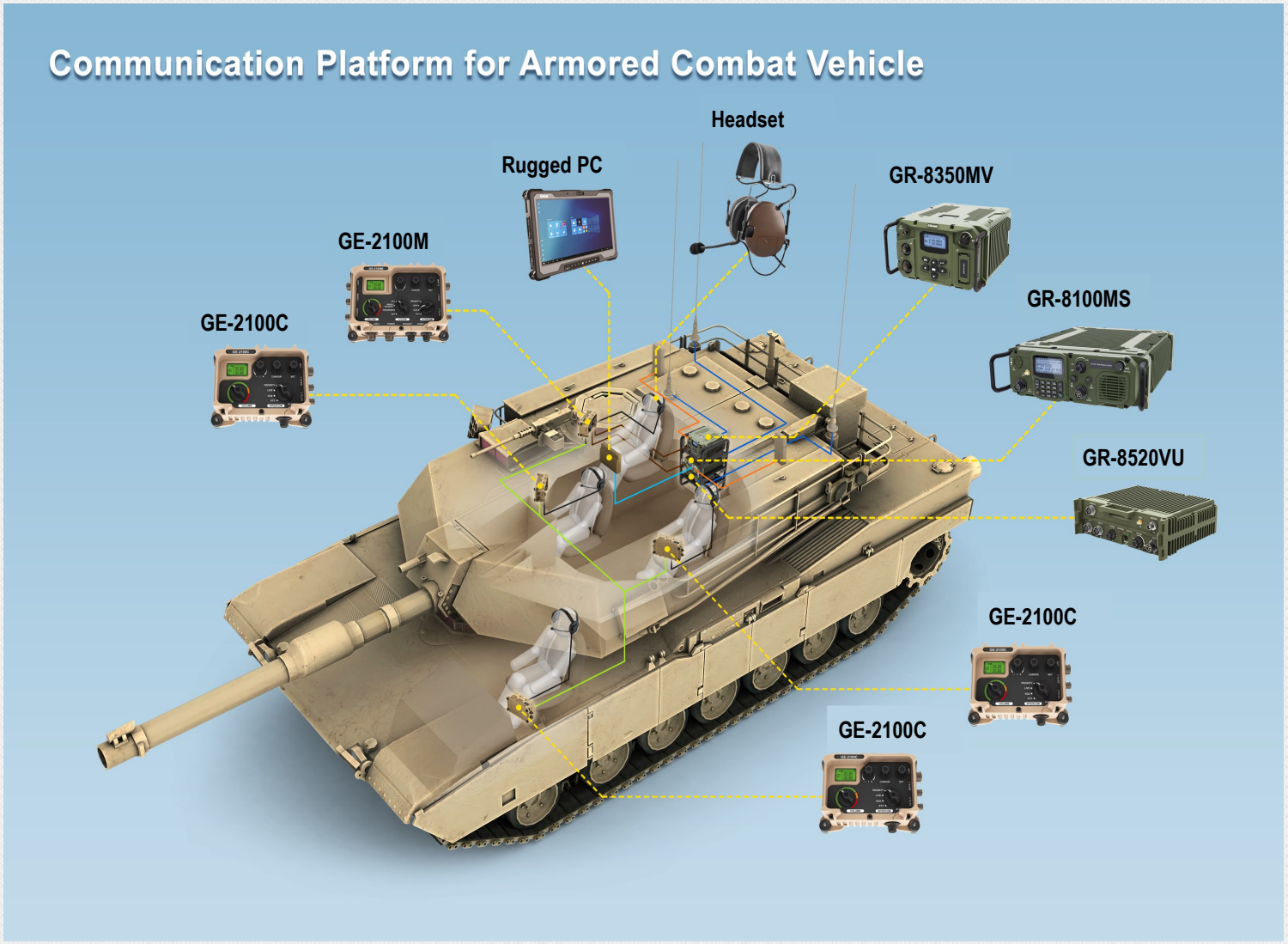
Communication Platform for Armored Combat Vehicle in the networked battlefield



Ordering Information

№	DESCRIPTION	MODEL	BRAND	UNIT	QTY
1	VHF Mobile Radio	GR-8350MV	Glocom	set	1
2	HF/VHF Mobile Radio	GR-8100MS	Glocom	set	1
3	High Capacity Data Radio (HCDR)	GR-8520VU	Glocom	set	1
4	Tactical Network Intercom System	GE-2100	Glocom	set	1
5	Rugged PC	S410	Getac	set	1

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GA-310-AT-03A Mobile Antenna

This is 30MHz~512MHz whip antenna. The antenna is composed of three parts: antenna base, vibration absorbing device, antenna sections.

GA-52A Vehicle GPS Antenna

This is high gain, low loss, active, extra low current consumption, small size GPS antenna. It supports SMA plug and magnetic mounting or screw mounting. It's useful for vehicle application with GR series radios.

A8350MV-VH10 Vehicle Headset

The headset adopts structure of head ring soft strap, it is audio terminal. It has the features of small in dimension, light in weight, good water proof performance, high environment adaptability.

A8350MV-DC01 Data Cable

This is RS-232C/RS-422C/Ethernet data communication cable for GR series radios. It is used for data communication, radio programming and radio control by computer etc.

A8350MV-PC01 Power Cable

It is a power cable to supply DC27V to the radio with 4 way connector which is very strong in rough environments.

A8100-OH10 Officer Handset

The officer handset is a high-grade, lightweight MIL handset for use with the tactical radio systems. One handset is supplied with each radio.

GA-50A Mobile GPS Antenna

This is high gain, low loss, active, extra low current consumption, small size GPS antenna. It supports SMA plug and magnetic mounting or screw mounting. It's useful for mobile application with GR series radios.

A8350MV-PS300 AC220V-DC28V 300W PSU

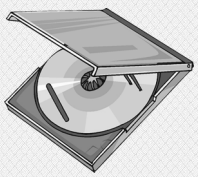
This is 300W AC-DC converter to supply DC 27V into GR-series mobile radio system. It supports very high efficiency, over-voltage protection, polarity protection.

A8350MV-IK01 Installation Kit

This is a set of installation kit. It can be used to install GR series radio system into various kind of vehicles, ships or stationary. It is very simple to install or uninstall on the vehicles.

A8350MV-UM01 User Manual

This is a field reference user manual for GR-8350MV radio system.



GC-8350MV Setup & Control Application

Windows-based setup software for GR-8340VT. This software allows user to enter frequency, mode, encryption code and other parameters into GR-8340VT radio.

Rugged PC 10~15”

The commercial rugged PC will be used for setup, control and communication.

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GR-8600M

Multiband Handheld Radio

Multiband, Multifunction, Multi-mission and Multi-role Handheld Radio!

Key benefits

- Multiband, multifunction, multi-mission and multi-role tactical radio
- ECCM with AES and frequency hopping
- Backward interoperability to communicate over legacy networks like with Glocom GR-250/310 radio
- Light weight, small form factor and high power
- Easy upgradable with future-proof architecture

The Glocom GR-8600M multiband handheld radio provides secure voice and high speed networked data in a highly portable form factor. Using new generation wideband waveforms deliver ad-hoc, self-healing and adaptive networking capabilities for reliable connectivity anywhere, anytime. The narrow band LOS, frequency hopping and the optional SATCOM capabilities ensure highly reliable communications for the severe conditions of tactical operations.

Providing situational awareness and data on demand, the GR-8600M seamlessly links dismounted and upper-echelon networks. Even in challenging urban and tactical environments, is can easily transmit mission-critical voice, data, imagery and video—and provide dismounted operators with access to real-time intelligence for increased situation awareness and faster decision-making.

Covering 30 to 512MHz frequency range—with 10W transmit power—support next-generation networking waveforms as well as UHF SATCOM and frequency hopping waveform with protected narrowband voice and data from hostile interference.

Built-in AES provides high-grade security for all transmission using a 256-bit key. The encryption algorithm can be customized by customer's requirement.

With compact handheld form factor, the GR-8600M continues to support currently fielded accessories, and also supports interoperability with Glocom GR-310 VHF/UHF manpack radio—enabling seamless, enhanced connectivity in the hands for modern warfighters.

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General specifications

Frequency Range	30~512MHz SATCOM: Rx 243~270MHz, Tx 291~318MHz
Channel Spacing/BW	NB:8.33, 12.5, 25kHz-AM, 25kHz-FM FM deviation: 5KHz, 6.5KHz, 8kHz SATCOM: 5kHz WB:500kHz, 1.2MHz
Net Presets	100, fully programmable system presets
GPS	Built-in
Management Tool	Windows/Android Setup/control Application
Frequency Tuning	Front panel:100kHz
Encryption	AES 256 or customized algorithm
Vocoder	MELP2400, CVSD
Emission Mode	FM/AM analog voice, FSK MELP/CSVD voice, FSK/PSK data, ECCM

Transmitter

RF Power	0.25, 1, 5 Watts
Harmonic Suppression	≥40dBc typical
Frequency Stability	±1ppm

Receiver

Sensitivity	LOS FM: 30-512MHz; -116dBm@12dB SINAD LOS AM: 90-512MHz; -103dBm@10dB SINAD with 30% modulation SATCOM: 243-270MHz; -120dBm@10dB SINAD
Adjacent Channel Rejection	≥ –40dB
Squelch	Selectable tone, noise

Power

Power Input	9.6 to 14VDC
Power Consumption	≤4A@10.8VDC(≤43W@10.8VDC)

Interfaces

External Data	Bluetooth, Ethernet, RS-232C
Audio	Standard 6-pin ADF
Data	32-pin pogo pin side connector
Antenna Port	50Ω TNC (Female)
Programming	Ethernet
Function Knob	Off/Volume, 1-16 Presets
Remote Control	Bluetooth, RS-232C

Physical & Environment

Shock & Vibration	MIL-STD-810G
Immersion	2m of water for 30 minutes
Operating Temperature	-30~60ºC
Storage Temperature	-30~70ºC
San/Dust/Salt/Fog/Rain	MIL-STD-810F
Dimension	265x76x64mm
Weight	≤1Kg with battery
Color	Black

GR-8600M Multiband handheld radio

The Glocom GR-8600M multiband handheld radio is ideal for extended handheld field operations providing the tactical user with effective, secure and comprehensive communications with remote sited command locations. It includes all necessary accessories like antennas, battery and battery charger. The standard set includes the following items:

• Multiband Handheld Radio	GR-8600M
• Whip Antenna	A8600-WA01
• Handheld GPS Antenna	GA-51A
• Battery Pack	A8600-BP01
• 1 Bay Battery Charger	A8600-BC1B
• User Manual	A8600-UM01

Options for GR-8600M

• Military Official Handset	GA-8100OH
• Tactical Headset	A8100-TH11
• Mobile Antenna	GA-310-AT-03A
• Mobile GPS Antenna	GA-50A
• SATCOM Antenna	GA-310-AT-04B
• X-Wing SATCOM Antenna	GA-310-AT-06
• Battery Pack	A8600-BP01
• 2 Bay Battery Charger	A8600-BC2B
• Data Cable	A8600-DC01
• Configuration/Fill DB9 Cable	A8600-DC02
• Ethernet Cable	A8600-EC01
• Radio Holster	A8600-RH01
• Setup/Control Application (Windows/Android)	GC-8600M
• Tactical Chat Application (Windows/Android)	GS-910
• Tablet 5~10”	Android
• Panasonic Rugged PC	CF-31

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A8600-WA01 Whip Antenna

200~400MHz Whip handheld antenna, 10W, TNC, 50Ohm, VSWR <4, Gain:-5~-25dBi, 450mm, 0.15Kg

GA-51A Handheld GPS Antenna

This is high gain, low loss, active, extra low current consumption, small size GPS antenna. It supports SMA plug and magnetic mounting. It's useful for mobile application with GR series radios.

A8600-BP01 Battery Pack

The battery pack is a very high-capacity, rechargeable, Li-Ion battery for the GR-8600VH radio. Use with A8600-BC1B/4B/6B battery charger system.

A8600-BC1B 1 Bay Battery Charger

Compatible with A8600-BP01 Li-Ion battery, Charging time:6 hours, Input:100~240VAC/ 0.45A

GA-8100OH Military Official Handset

The officer handset is a high-grade, lightweight MIL handset for use with the Glocom tactical radios.

A8100-TH11 Tactical Headset

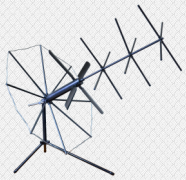
Tactical headset adopts structure of head ring soft strap, it is audio terminal. It has the features of small in dimension, light in weight, good water proof performance, high environment adaptability.

GA-310-AT-03A Mobile Antenna

This is 30~512MHz whip antenna. The antenna is composed of three parts: antenna base, vibration absorbing device, antenna sections.

GA-50A Mobile GPS Antenna

This is high gain, low loss, active, extra low current consumption, small size GPS antenna. It supports SMA plug and magnetic mounting. It's useful for mobile application with GR series radios.

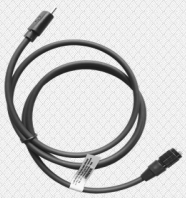


GA-310-AT-04B SATCOM Antenna

The antenna(240MHz~400MHz) is a rapid deploy, high gain, crossed Yagi antenna for SATCOM communications. Deployment time is less than one minute.

GA-310-AT-06 X-WING SATCOM Antenna

The X-WING SATCOM antenna(240MHz~400MHz) allows bolt on for permanent installation onto vehicles, shelters and other metal objects.



A8600-EC01 Ethernet Cable

This cable is the Ethernet cable to connect radio and Ethernet port or network hub.

A8600-DC01 Data Cable

This is RS-232 data communication cable for GR-8600M radio. It is used for data communication, radio programming and radio control by computer etc.

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A8600-DC02 Config/Fill DB9 Cable

This is a cable to connect radio with USB port in computer/tablet for programming the radio.

A8600-RH01 Radio Holster

This is a rucksack for GR series manpack radio system. It is very convenience for soldier to carry radio with all accessories. It can keep antenna, batteries, handset, headset etc…

A8600-UM01 User Manual

This is a field reference user manual for GR-8600M radio system.

A8600-BC2B 2 Bay Battery Charger

Compatible with the A8600-BP01 Li-Ion battery, charging time:6 hours, Input:100~240VAC/0.45A

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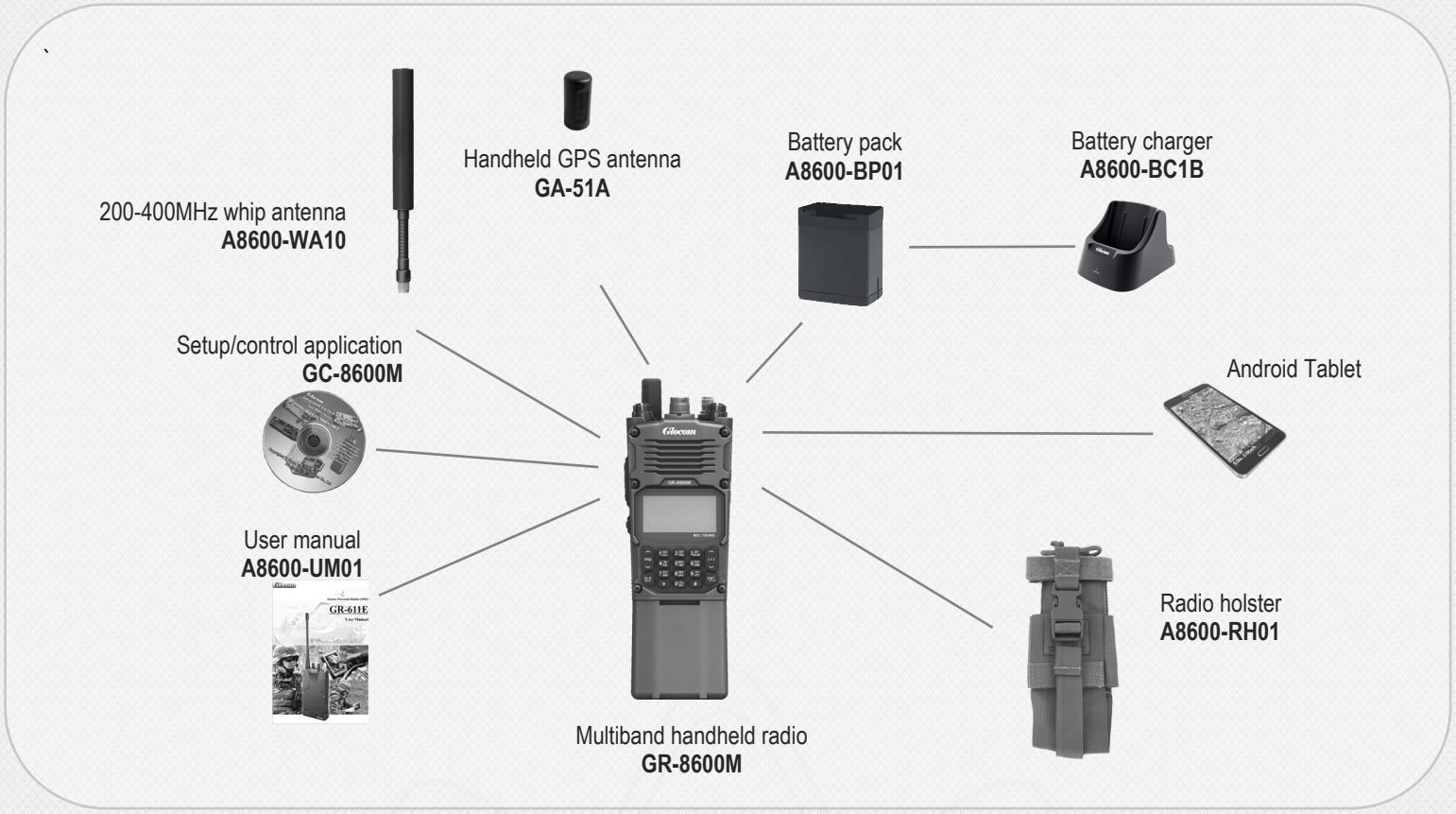

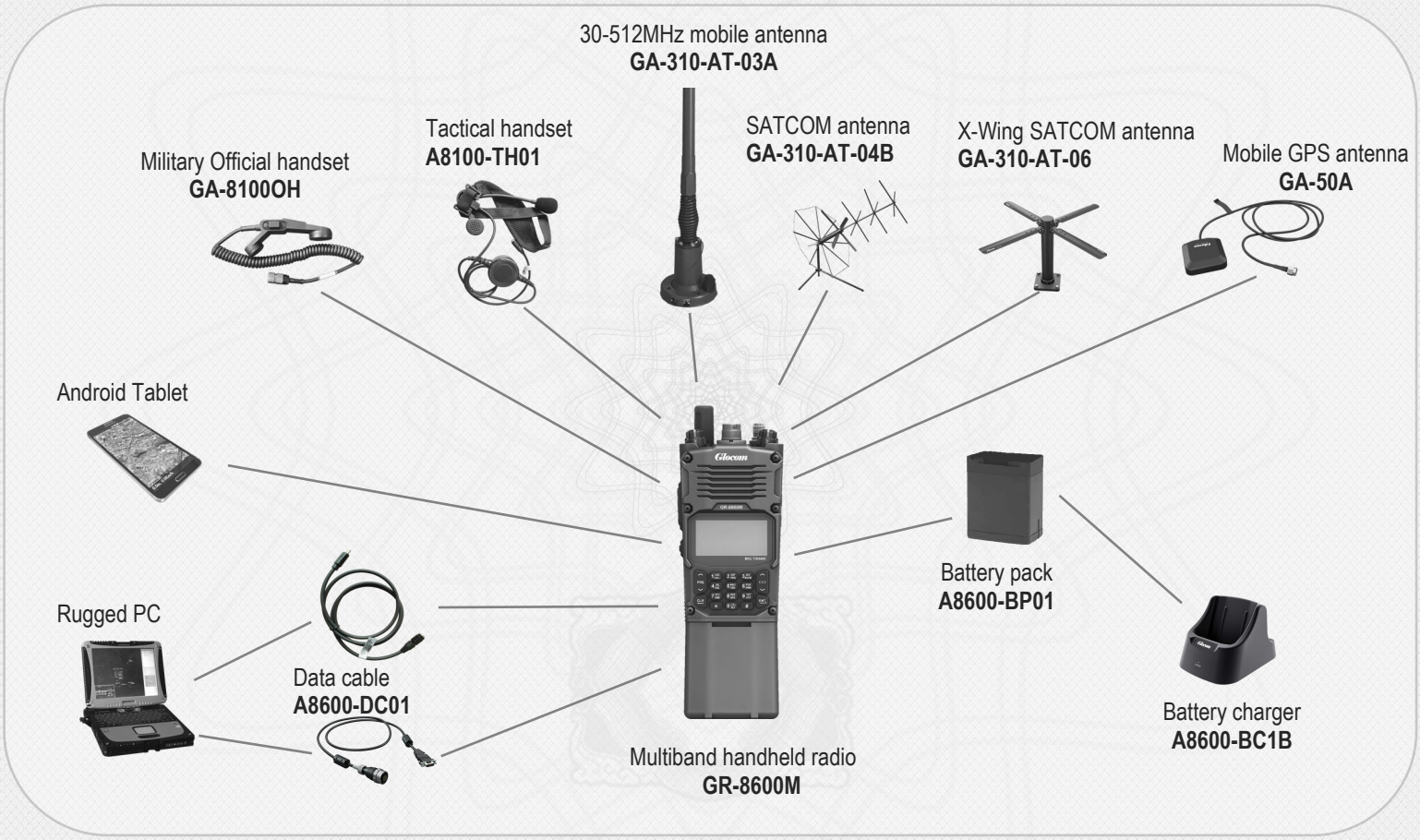

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GR-611B Secure Personal Radio

Reliable and Secure Connectivity for Every Soldier - Team Radio

[Key features]

■ Frequency range 350~450MHz ■ Completely automatic & hands-free operation (VOX) ■ Full-duplex up to 6 users, unlimited listeners ■ 256 channels - every team gets its own channel ■ Embedded GPS - C4I compatible, search & rescue, navigation ■ 256-bits AES digital secure - secure voice & data ■ RF Power 2W - short & mid range communication ■ Bluetooth data interface - Android terminal compatible ■ Built-in wireless fill-gun (OTAR) - secure key distribution ■ Compact & light weight

The GR-611B Secure Personal Radio (SPR) is designed specially to meet the unique demands of providing secure and reliable voice, data and situation awareness communication at soldier level. Optimized for maximum performance across the highly variable environments soldiers operate in, and enabling range extending networks, the GR-611B provides continuous coverage in the 350 to 450MHz frequency range and ensures reliable connectivity between squad members and with command level intelligence. The GR-611B has already been adopted as the standardized personal radio platform for multiple soldier modernization programs in local and some countries. The GR-611B provides secure, digitized voice and data communications to soldiers without distracting their attention from the task at hand. The radio's small and light weight, and it powered by lithium-ion battery. A unique team-based waveform and digital wireless network allows reliable communications in situation where traditional backbone is not available or is out of range. The radio provides full-duplex, multi-group voice conferencing service, so it allows several simultaneous talkers on the net with an unlimited number of listeners - resulting in a more natural, dynamic operation environment, free from the constraints of traditional radio systems. The radio is data-enabled and incorporates a built-in GPS receiver, allowing easy-to-use situation awareness, position tracking and messaging services. A Bluetooth data interface allows connection of Android—mobile devices for enhanced data applications. All transmissions are secured by built-in 256-bit AES encryption algorithm. The SPR - reliable and secure connectivity for every soldier, assured by *Glocom*.

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[Applications]

■Front line soldiers ■Special forces ■Warships/Airborne landing control ■VIP protection ■Guards ■Police

General Specifications

Frequency Range	350~450MHz
Band Width	25KHz, 400KHz
Preset Channel	16 programmable presets with flexible groups
Modulation	FSK
Position Reporting	Automatic reporting by built-in GPS
Operation Mode	Full-duplex up to 6 simultaneous talkers Unlimited listeners Up to 2 hops Voice Relay Selectable VOX or PTT activation Simultaneous data & voice
Range	Open terrain: 2~3Km (10Km @ LOS) Urban: Up to 1000m Jungle: 800m
Voice Encoding	MELP2400, CVSD
Frequency Stability	±2ppm
RF Power	2W, adjustable to 0.5W, 2W
Antenna	Whip antenna
RF Interface	SMA, 50Ω nominal unbalanced
Encryption	256-bit AES
Data Rate	4.8kbps, 9.6kbps, 19.2kbps, 38.4kbps, 57.6kbps, 115.2kbps
Data Interface	Bluetooth, RS-232C
Programming	Wireless fill-gun (OTAR)
Battery	Rechargeable Li-Ion 3.7VDC
Current	2.5A@Tx, 500mA@Rx
Battery Duration	12hours @ Tx(1):Rx(1):Stby(10)
Color	Black/Khaki
Dimension	175x74x42mm with battery
Weight	≤530g
Alerts	Audible status, language programmable
Software (Firmware)	Software-defined, Upgradable via RS-232C port
Shock/Vibration	MIL-STD-810E
Operating Temp.	-30~60°C
Storage Temp.	-45~70°C
Humidity	95%
Immersion	30 minutes @ 2m
MTBF	5000 hours

GR-611B Secure Personal Radio Set

The GR-611B Secure Personal Radio (SPR) provides dismounted soldiers with the tactical information exchange and situation awareness sharing with command & control unit, and among each other in real-time on battlefield. The standard set includes:-

- Secure Personal Radio GR-611B
- Whip Antenna A611B-WA01
- Handheld GPS Antenna GA-51A
- Battery Pack A611B-BP01
- Battery Charger A611B-BC1B
- Carry Pouch A611B-CP01
- User Manual A611B-UM01

Options

- Tactical Headset A611B-TH01
- Light Headset A611B-LH01
- Speaker Microphone A611B-SM01
- Data Cable A611B-DC01
- Setup/Control Application (Android) GC-611B
- Tactical Chat Application (Android) GS-910B
- Rugged Tablet (Android) Ulefone

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A611B-WA01 Whip Antenna

Frequency range:350~450MHz, Gain:≥-1dBi, VSWR:≤1.5:1 Typical, Impedance:50Ω, Female SMA, 3W, Length: ≤21cm

GA-51A Handheld GPS Antenna

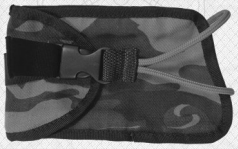
This is high gain, low loss, active, extra low current consumption, small size GPS antenna. It supports SMA plug and magnetic mounting. It's useful for mobile application with GR series radios.

A611B-BP01 Battery Pack

Li-Ion, Voltage:3.3V~4.2V(3.7V Nominal), Capacity:12000mAh, Max. load current:1A, Charging time:Max. 360 minutes, Protection by enclosure Waterproof

A611B-BC1B Battery Charger

Charging time:6 hours. Input:100~240VAC/0.45A, Socket:USB



A611B-CP01 Carry Pouch

The lightweight carry pouch is made of durable Cordura fabric and incorporates Molle straps for attachment to a variety of load-bearing vests and other gear. The radio is held securely in the holster to prevent accidental loss.

A611B-UM01 User Manual

This is field reference user manual for GR-611B SPR.

A611B-TH01 Tactical Headset

It is the head-mount, single left earphone, designed for extended wear in active environments. Its ultra lightweight frame offers superior comfort and fit.

A611B-LH01 Light Headset

Light headset with single PTT is the head-mount, single left earphone. Its ultra lightweight frame offers superior comfort and fit.

A611B-SM01 Speaker Microphone

Speaker:8Ω/85dB/mW@1kHz, Microphone:2200Ohm, -45dB, 200~4kHz, Color: Black, Cable length:57cm, Built-in Clip

A611B-DC01 Data Cable

This is RS-232 data communication cable for GR-611B radio. It is used for data communication, radio programming and radio control by computer etc.

Rugged Tablet (Android)

Ulefone

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GR-611D Personal Networking Radio

Reliable and Secure Connectivity for Artillerist

[Key features]

■Frequency range 360~440MHz ■Voice/Data simultanaous mode ■TDMA ■100 preset channels ■Built-in GPS ■FH 100hps ■256-bits AES digital secure ■RF Power 2.5W ■RS-232C/RS-422/Bluetooth ■Ad-Hoc relay ■Built-in wireless fill-gun (OTAR) ■Compact & light weight

The GR-611D Personal Networking Radio (PNR) is designed specially to meet the unique demands of providing secure and reliable voice, data and situation awareness communication in modern warfare.

Optimized for maximum performance across the highly variable environments soldiers operate in, and enabling range extending networks, the GR-611D provides continuous coverage in the 360MHz~440MHz frequency range and ensures reliable connectivity of soldier-to-soldier and soldier-to-commander. The GR-611D has already been adopted as the standardized personal radio platform for soldier modernization programs in local and some countries. The GR-611D provides secure, digitized voice and data communications to soldiers without distracting their attention from the task at hand. The radio's small and light weight, and it powered by lithium-ion battery. A unique team-based waveform and digital wireless network allows reliable communications in situation where traditional backbone is not available or is out of range. The radio provides data/voice simultaneous transmission, TDMA mode, Ad-Hoc service and ECCM, so it allows several simultaneous talkers on the net with an confirmed time cycle - resulting in a more real-time, dynamic operation environment, free from the constraints of traditional radio systems. The radio is data-enabled and incorporates a built-in GPS receiver, allowing easy-to-use situation awareness, position tracking and messaging services. A RS232C/RS422/Bluetooth interface allows connection of Android—mobile devices for enhanced data applications. All transmissions are secured by built-in 256-bit AES encryption algorithm.

The BAR - reliable and secure connectivity for every soldier, assured by *Glocom*.

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General Specifications

Frequency Range	360~440MHz
Band Width	25kHz, 400KHz
Preset Channel	100 programmable
Mode	Voice/Data, Position reporting
Modulation	FSK
Waveform	NB : Legacy digital secure comm. With WB : IP based TDMA Ad-Hoc
RF Power	Up to 2.5W
Frequency Stability	±1ppm
ECCM	TRANSEC (10MHz, 100hps), COMSEC (AES256)
Media Access	TDMA
Networking	Multi-hop Mobile Ad-Hoc IP Networking (MANET)
Network Size	Up to 30 members
Relay	NB : Automatic Relay Up to 2-hop WB : Automatic Relay Up to 3-hop
Voice	1.2 & 2.4kbps digital vocoders Multiple concurrent voice-sessions in WB waveform (Up to 4 voice group)
Data Rate	NB : 1200bps, 2400bps WB : 96Kbps
Position Reporting	Built-in GPS
Data Interface	RS232C/RS422/Bluetooth
RF Interface	TNC (Antenna), SMA(GPS Antenna)
Programming	OTAR (Wireless fill-gun), RS232C
Power Supply	DC11.1V/6Ah Li-Ion Battery
Battery Duration	8hours @ Tx(1):Rx(1):Stby(10)
Dimension	240x81x46mm with battery
Weight	≤1kg with Battery
Shock/Vibration	MIL-STD-810E
Operating Temp.	-30°C~60°C
Storage Temp.	-45°C~70°C
Humidity	95%
Immersion	30 minutes @ 2m

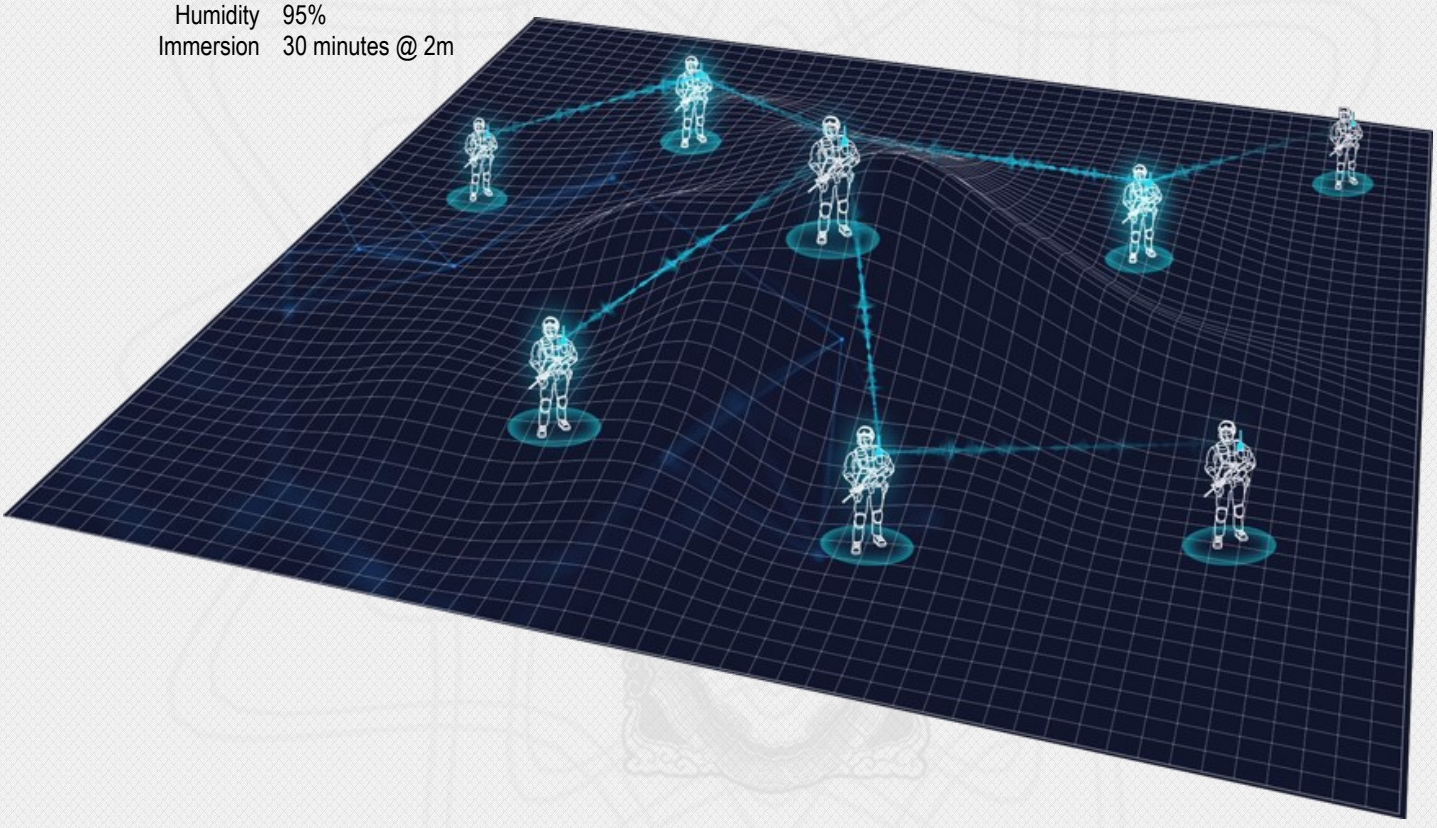
GR-611D NSPR Set

The Glocom GR-611D Personal Networking Radio (PNR) set provides dismounted soldiers with the tactical information exchange and situation awareness sharing with command & control unit, and among each other in real-time on battlefield. The standard set includes:-

- PNR Body GR-611D
- Whip Antenna A611D-WA01
- Handheld GPS Antenna GA-51A
- Battery Pack A8600-BP01
- 1 Bay Battery Charger A8600-BC1B
- Carrying Pouch A611D-CP01
- User Manual A611D-UM01

Options

- Military Official Handset GA-8100OH
- Tactical Headset A8100-TH01
- 2 Bay Battery Charger A8600-BC2B
- 16-Way RS-232C Data Cable A611D-DC01
- 16-Way RS-422 Data Cable A611D-DC02
- Setup/Control Application GC-611D



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A611D-WA01 Whip Antenna

Frequency range:350MHz~450MHz, Gain:≥-1dBi, VSWR:≤1.5:1 Typical, Impedance:50Ω, Female TNC, 3W, Length:≤21cm

GA-51A Handheld GPS Antenna

This is high gain, low loss, active, extra low current consumption, small size GPS antenna. It supports SMA plug and magnetic mounting. It's useful for mobile application with GR series radios.

A8600-BP01 Battery Pack

High-capacity Li-Ion battery, Voltage:11.1V, Capacity:6000mAh, Max. load current:1A, Charging time:360 minutes, Protection by enclosure Waterproof

A8600-BC1B 1 Bay Battery Charger

Compatible with A8600-BP01 Li-Ion battery, Charging time:6 hours, Input:100~240VAC/0.45A

A611D-UM01 User Manual

Field reference user manual for GR-611D Radio

GA-8100OH Military Official Handset

The officer handset is a high-grade, lightweight MIL handset for use with the Glocom tactical radios.

A8100-TH01 Tactical Headset

Head-mount, single left earphone, designed for extended wear in active environments, ultra lightweight frame, superior comfort and fit

A8600-BC2B 2 Bay Battery Charger

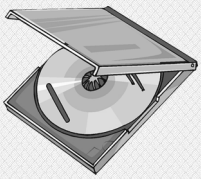
Compatible with the A8600-BP01 Li-Ion battery, charging time:6 hours, Input:100~240VAC/0.45A

A611D-DC01 16-Way RS-232C Data Cable

This cable is used to connect the GR-611D radio's data socket and communicate with radio by RS-232C

A611D-CP01 Carry Pouch

Durable Corduroy fabric and incorporates straps for attachment to a variety of load-bearing vests and other gear. Securely holding in the holster to prevent accidental loss



GC-611D Setup/Control Application

This application allows user to set the GR-611D radio's parameters such as frequencies, encryption keys, radio address, etc.

A611D-DC02 16-Way RS-422 Data Cable

This cable is used to connect the GR-611D radio's data socket and communicate with radio by RS-422

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GR-8610W

Wideband Team Radio

Key benefits

- Wideband waveforms provide simultaneous voice, video and Situation Awareness
- Unsurpassed battery life for a team radio with minimal weight
- Software-programmable security architecture, Standard encryption AES256
- Easy upgradable with future-proof architecture

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With the compact Glocom GR-8610W Wideband Team Radio, tactical team members can share and access secured and operational information. Designed to exceed dismount warfighter operational requirements for range, battery life and mission weight, the GR-8610W also delivers simultaneous voice, high-speed data and up-to-date position location information-enhancing situational awareness and ensuring continuous connection for individual warfighters.

Incorporating battery and charging systems as the rest of the widely fielded Glocom handheld radios like GR-8600M, the GR-8610W eases the logistical burden of fielding and training for a new radio system. Plus, its innovative design optimizes power consumption for unparalleled battery life. The radio is capable of running in excess of 24 hours with only one spare battery-helping to minimize total warfighter carry weight.

The GR-8610W also features a Software Communications Architecture operating environment. This enables software upgradeability and hosting of additional software-defined waveforms beyond the standard SRW waveform.

With its compact size and advanced capabilities, the GR-8610W offers seamless voice and data capabilities for every team member-providing greater mission cohesiveness, and effectiveness.

General specifications

Frequency Range	UHF 225-450MHz L-Band 1250-1390MHz and 1710-1850MHz
Channel Spacing/BW	1.2MHz(Standard); supports 5MHz+
Net Presets	14 system presets
Built-in GPS	Yes
Data Interface	Bluetooth, Ethernet, RS-232C
Encryption	AES 256
Management Tool	Windows/Android Setup/control Application

Modes & Waveforms

Wideband Waveforms	SRW (additional waveforms available)
SRW Range	>3Km, (935.5kbps)
Voice & Data Mode	Mixed Excitation Prediction (MELPe) Digital Voice Supported Data Rate (1.2MHz bandwidth:2000kbps, 936.5kbps, 112.5kbps, 56.25kbps)

Transmitter

RF Power	3.2W(35dBm)
Harmonic Suppression	-50dBc 2nd and 3rd, -80dBc 4th and higher
Spurious	-80dBc
Frequency Stability	1ppm

Receiver

Noise Figure	6-8dB, depending on band

Power Supply

Power Input	9.6 to 14VDC
Battery Type	72Whr Li-Ion, rechargeable

Physical & Environment

Shock & Vibration	MIL-STD-810G
Immersion	30min @ 2m
Operating Temperature	-30~55°C
Storage Temperature	-40~70°C
San/Dust/Salt/Fog/Rain	MIL-STD-810F
Dimension	209Hx78.7Wx44.5D mm
Weight	≤0.8Kg

GR-8610W Wideband Team Radio

The Glocom GR-8610W wideband team radio is ideal for tactical operations providing the warfighters with effective, secure and comprehensive team communications with remote sited command locations. It includes the following items:

• Wideband Team Radio	GR-8610W
• Tactical Headset	A8100-TH11
• Whip Antenna	A8610-WA01
• Handheld GPS Antenna	GA-51A
• Battery Pack (2pcs/set)	A8600-BP01
• 1 Bay Battery Charger	A8600-BC1B
• User Manual	A8610-UM01

Options for GR-8610W

• Military Official Handset	GA-8100OH
• Speaker Microphone	A8610-SM01
• Mobile Antenna	GA-310-AT-03A
• Mobile GPS Antenna	GA-50A
• 2 Bay Battery Charger	A8600-BC2B
• 16-Way RS-232C Data Cable	A8610-DC01
• 16-Way Ethernet Cable	A8610-EC01
• Radio Holster	A8610-RH01
• Setup/Control Application (Windows)	GC-8610
• Tablet 5-7”	Android
• Rugged PC	Windows

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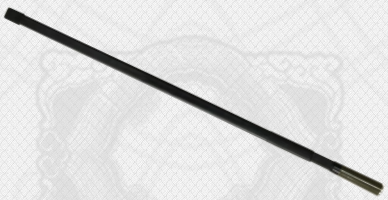
A8100-TH11 Tactical Headset

Tactical headset adopts structure of head ring soft strap, it is audio terminal. It has the features of small in dimension, light in weight, good water proof performance, high environment adaptability.



A8600-WA02 Whip Antenna

350~450MHz Whip handheld antenna, 10W, TNC, 50Ohm, VSWR <4, Gain:-5~-25dBi, 450mm, 0.15Kg

GA-51A Handheld GPS Antenna

This is high gain, low loss, active, extra low current consumption, small size GPS antenna. It supports SMA plug and magnetic mounting. It's useful for mobile application with GR series radios.

A8600-BP01 Battery Pack

The battery pack is a very high-capacity, rechargeable, Li-Ion battery. Use with A8600-BC1B/4B/6B battery charger system.

A8600-BC1B 1 Bay Battery Charger

This is 1 bay battery charger for A8600-BP01.

A8610-UM01 User Manual

This is field reference user manual for GR-8610W Wideband Team Radio (WTR).

GA-8100OH Military Official Handset

The officer handset is a high-grade, lightweight MIL handset for use with the tactical radios.

A8610-DC01 16-Way RS-232C Data Cable

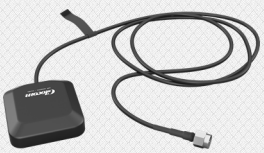
This cable is used to connect the GR-8610W radio's data socket and communicate with radio by RS-232C

GA-611-06C Speaker Microphone

Speaker: 8Ohm/85dB/mW@1kHz, Microphone: 2200Ohm, -45dB, 200~4kHz, Color: Black, Cable length: 57cm, Built-in Clip

GA-310-AT-03A Mobile Antenna

This is 30~512MHz whip antenna. The antenna is composed of three parts: antenna base, vibration absorbing device, antenna sections.



GA-50A Mobile GPS Antenna

This is high gain, low loss, active, extra low current consumption, small size GPS antenna. It supports SMA plug and magnetic mounting. It's useful for mobile application with GR series radios.

A8600-BC2B 2 Bay Battery Charger

This is 2 bay battery charger for A8600-BP01.

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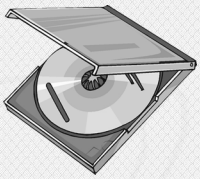
A8610-EC01 Ethernet Cable

This is Ethernet cable for GR-8610W radio. It is used for data communication, radio programming and radio control by computer etc.

A8610-RH01 Radio Holster

This is a rucksack for GR-8610W radio system. It is very convenience for soldier to carry radio with all accessories.



GC-8610 Setup/Control Application

This kit contains the items necessary to program the GR-8610W radio. Included in the kit is the radio programming software and the WTR Utility software for Windows. Also included, instruction manual.

Rugged Android Tablet (Android)

3rd party rugged mobile android pad like Panasonic. It would be compatible with MIL-STD-810G

Rugged PC (Windows)

3rd party rugged mobile PC like Panasonic. It would be compatible with MIL-STD-810G.

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GR-8200MA

Multiband Airborne Radio

Key benefits

- Powerful hardware SDR platform
- Mobile Ad-Hoc Networking (MANET)
- Multi-channel and Multiband radio supporting simultaneous and independent multiple frequency bands
- Multi-waveform platform supporting advanced narrowband and wideband waveforms
- Compatible with Glocom multiband radios
- Automatic consolidation of information for a common operation picture (COP) between various members such as airborne, ground
- Efficient bandwidth for optimal transfer of simultaneous voice, RT video and high data rate
- Equipped with a powerful mission computer system for mission airborne radio computer capabilities:-

  A/B intuitive, accessible, effective, mission-focused applications such as situational awareness, collision warning, weapon target allocation and target sharing

Glocom Multiband Airborne Radio is a powerful multichannel SDR specifically designed for operation and installation aboard airborne platforms, including helicopters, transport aircraft and fighter jets. Part of Glocom Tactical Radio solutions, the latest generation of multi-band, multi-waveform tactical IP radios, the networked communication airborne radio provides the highly advanced and robust platform capabilities. Glocom Airborne Radio allows simultaneous transmission of wideband and narrowband waveforms with full MANET capabilities and provides support for legacy waveforms.

Enabling proven, fully secure communication across the entire battle space, GR-8200MA delivers the optimal transfer of simultaneous voice, video and high data rate capabilities required for mission success. Together with the on-board mission computer (all-in-one), the unique combination of high-end airborne radio and a set of mission-focused applications creates an advanced, Gen-5 airborne network.

These network capabilities empower new and existing tools and applications, maximizing their potential, offering significant operational benefits and a huge operational leap forward.

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Technical specifications

Radio Architecture	SDR - with red/black separation
Frequency Band	VHF/UHF 30MHz~512MHz L-Band 960MHz~1850MHz
Channel Bandwidth	25kHz, 1.2MHz and 5MHz
RF Channels	2 independent Rx/Tx channels simultaneously (V/U, L-band channel)
Power Output	Up to 50W for V/U, Up to 25W for L-Band
GPS	Built-in Internal GPS
Waveforms	Legacy WF: NB Clear (CLR) mode for analog voice (FM or AM) NB WF: Narrowband voice and MANET IP data simultaneously MANET WB-WF: Wideband waveform (voice, data and video)
Data	IP Layer 2/Layer 3 support
Control I/F	SNMP control
Modulation	25kHz: FM, AM, FSK, BPSK 1.2MHz and 5MHz: BPSK, QPSK, 8PSK, GMSK, 16QAM
Networking	IP data network (MANET) No single point of failure Decentralized net management with relay
Number of network members	WB: Up to 64 members in a WB net (voice and data) NB: Up to 32 members, optional configuration for a greater number of users
Adaptive Mode	Adaptive rate, modulation and power
Antenna diversity	Automatic
Security	SEC mode and anti-jamming immunity built-in encryption - Legacy and AES 256
Voice	Support for voice groups both analog and digital voice
Video	Support for video transfer (multi-hop), built-in Video codec
Size	1/2 ATR short (ARINC 600 4 MCU)
Interface	MIL-STD-1553B / ARINC 429 (Optional)/Ethernet 10/100Mbps/RS232, RS422, USB/Analog video/Analog audio/GPS

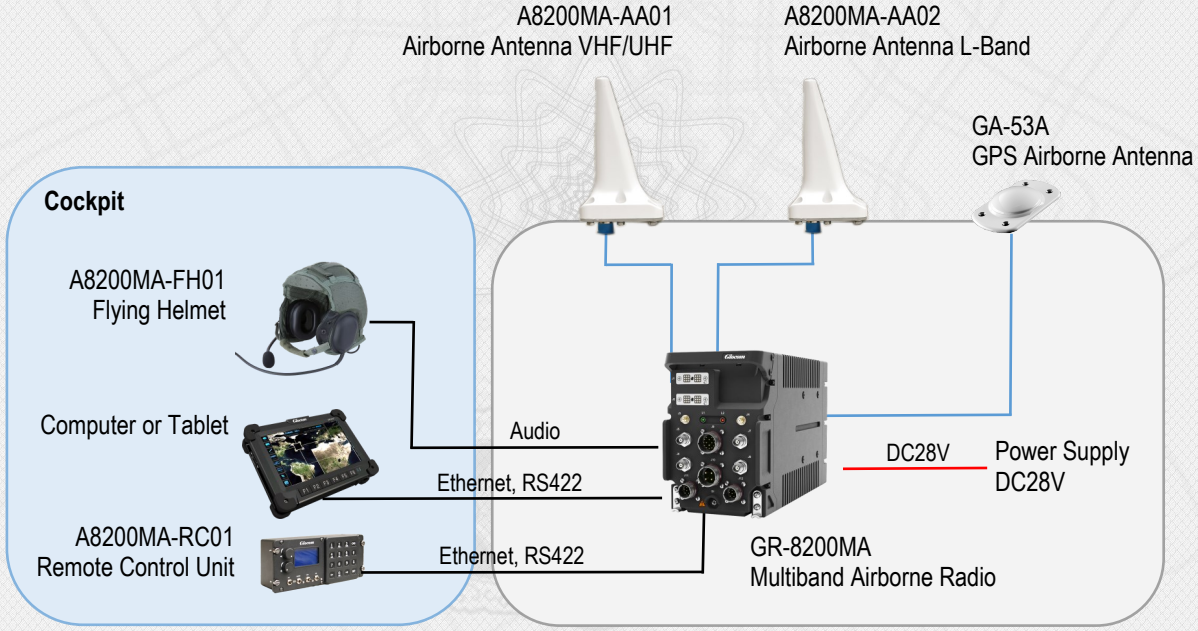
GR-8200MA
Multiband Airborne Radio

The Glocom GR-8200MA multiband airborne radio set includes the following items:

- Multiband Airborne Radio GR-8200MA
- Remote Control Unit A8200MA-RC01
- Keypad Display Unit A8200MA-KD01
- Airborne Antenna (30-512MHz) A8200MA-AA01
- L-Band Antenna(960-1240MHz) A8200MA-AA02
- Airborne GPS Antenna GA-53A
- Flying Helmet A8200MA-FH01
- Data Cable A8200MA-DC01
- Power Cable A8200MPC01
- User Manual A8200MA-UM01

Options

- Officer Handset A8200-OH10
- Mobile Antenna (VHF/UHF) A8200MA-MA01
- Mobile Antenna (L-Band) A8200MA-MA02
- Mobile GPS Antenna GA-50A
- AC220V-DC28V PSU A8200MA-DC28
- Installation Kit A8200MA-IK01
- Rugged PC 10~15” Windows
- Rugged Tablet 5.5” Android



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Datalink Transceiver

GR-8400L

Datalink Transceiver with FH, Digital Secure EPM, TDMA Functions

Tactical Data Links (TDL) are elements of C4ISR system, which provide a continuous data exchange in (nearly) real time about space, ground, air, surface and subsurface platforms including allied, neutral and foe units data.

Key features

- Compact and high performance
- Small and lightweight
- Data rate
- 1:1, 1:N full duplex
- Fully compatible with ECCM
- Transmit power up to 10W
- Interface: RS-232C, RS-485, RS-422, Ethernet

The GR-8400L Datalink Transceiver system reaches the highest capability in data communication system like Telemetry/Tracking & Command (TTC), Air-Defense Datalink System (ADDS) - to deliver real-time information superiority on today's battlefields.

The GR-8400L Datalink Transceiver also features 1:1, 1:N protocols and TDMA protocol to provide any reliable linking and error-free data transfer - even under the most challenging applications on real-time data.

As GR-8400L Datalink Transceiver features Software Communications Architecture (SCA), so easy to update the extended functions in field by firmware upgrading which enables loading of feature waveforms, communication modes and protocols.

Incorporating enhanced anti-jamming measures and embedded AES encryption, all GR-8400L transmissions are completely secure and reliable. Built-in AES provides high-grade security for all transmission using a 256-bit key. The encryption algorithm can be customized by customer's requirement.

Providing all of these features in a light weight, small size and easy installation kit than legacy models, the GR-8400L Datalink Transceiver enables today's system integrator for telemetry/tracking & command, air defense system to take on tomorrow's missions.

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General Specifications

Preset Channels	25 channels
Communication Mode	1:1, 1:N Full Duplex
Modulation	FSK
MAC Protocol	TDMA
Frequency Stability	±1ppm
Transmission Delay	50ms
Data Rate	64~256kbps
TRANSEC	FH @ 400hps with bandwidth 50MHz
COMSEC	AES 256 Algorithm
Power Supply	22-36VDC, polarity protection
Current Consumption	<3A(Tx), <0.8A(Rx)
RF Impedance	50Ω
Data Interfaces	RS-422,485, Ethernet
Protocol	SNMP, TCP/IP, etc...
Dimension	180x172x51mm
Weight	≤1.3Kg

Receiver

Sensitivity	-107dBm
Image & IF Rejection	≥80dB
Adjacent Channel Rejection	≥60dB

Transmitter

RF Power	0.5-10W
Spurious Outputs	>50dBc

Environment

Operating Temperature	-40°C~70°C
Storage Temperature	-45°C~85°C
Humidity	95%
EMC/EMI	MIL-STD-461D

Maintenance

MTBF	>20000hours
MTTR	<15min

GR-8400L Datalink Transceiver Set

The GR-8400L Datalink transceiver is ideal for air-defense datalink system and telemetry/tracking and command (TTC) system which require high reliability real-time ECCM/TDMA datalink. The standard set includes:-

• Datalink Transceiver	GR-8400L
• Control Cable (2m)	A8400L-CC01
• Data Cable (2m)	A8400L-DC01
• Ethernet Cable (2m)	A8400L-EC01
• Helical Antenna	A8400L-HA01
• Helical Antenna Cable (Max 3m)	A8400L-HA01-C1
• Mobile Antenna	A8400L-MA01
• Mobile Antenna Cable (Max 3m)	A8400L-MA01-C1
• User Manual	A8400L-UM01
• Setup/Control Application	GC-8400L

OPTION

• Power Supply Unit (PSU)	A8400L-PS01
• System Network Controller (SNC)	GE-8400
• Ethernet Switching Hub	A8520-LH12/5

Mobile System

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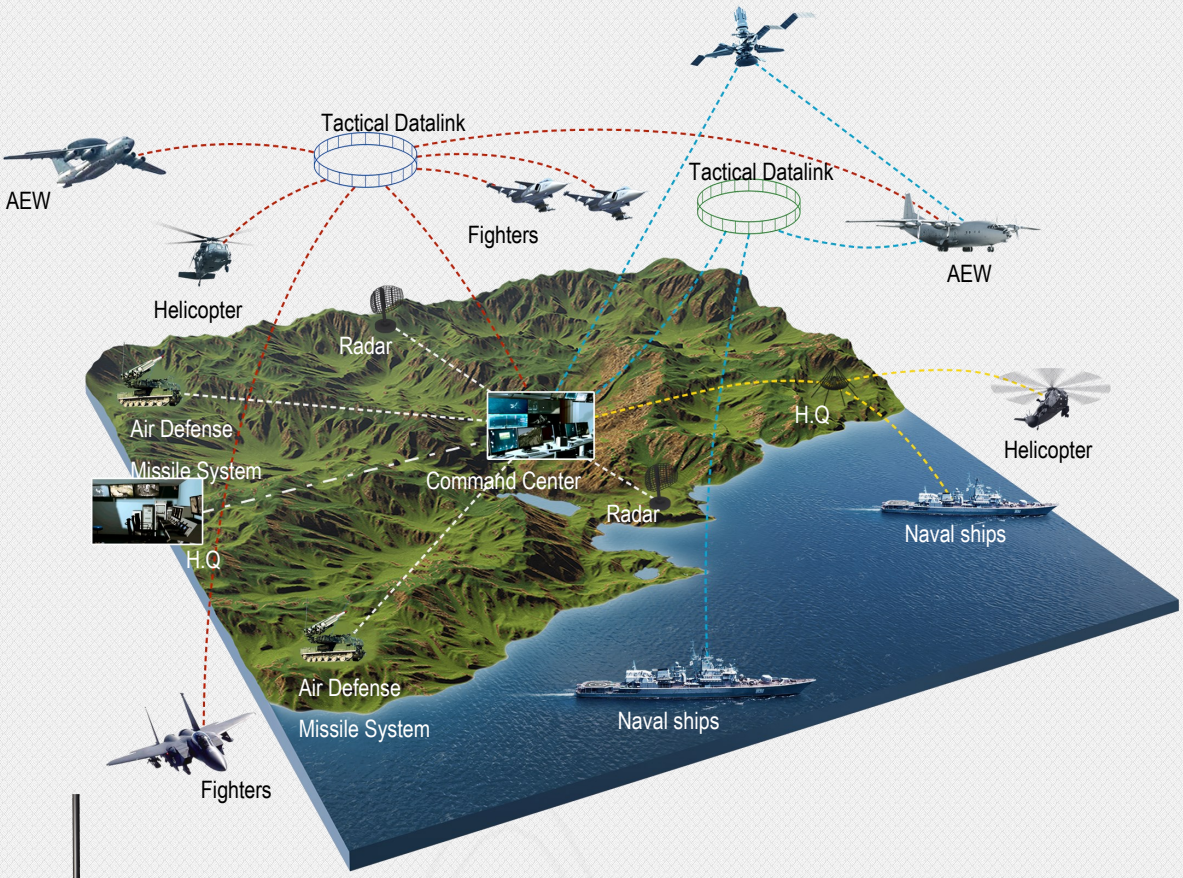

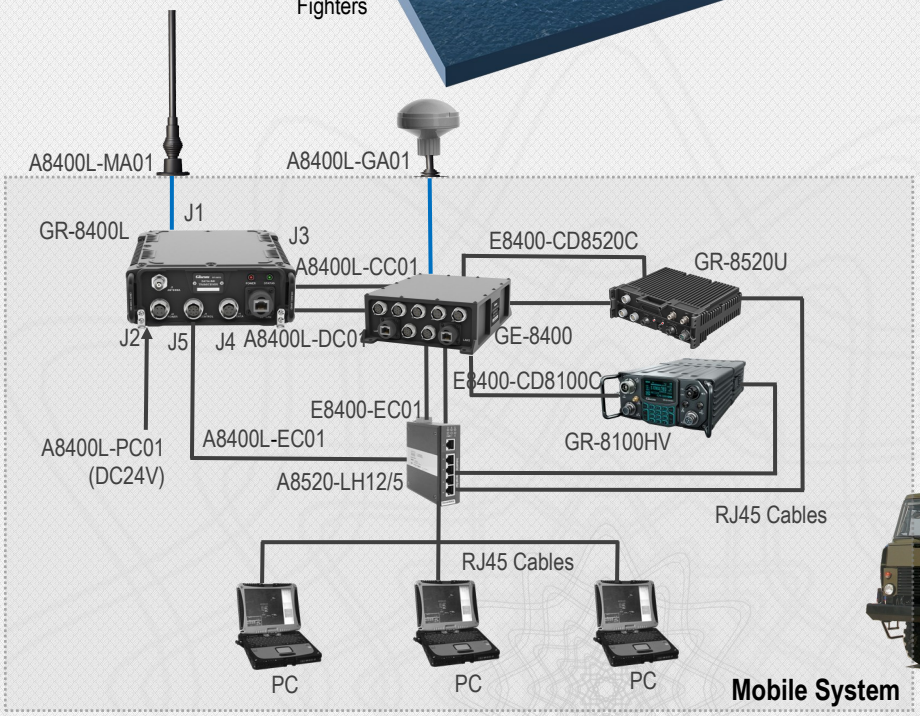

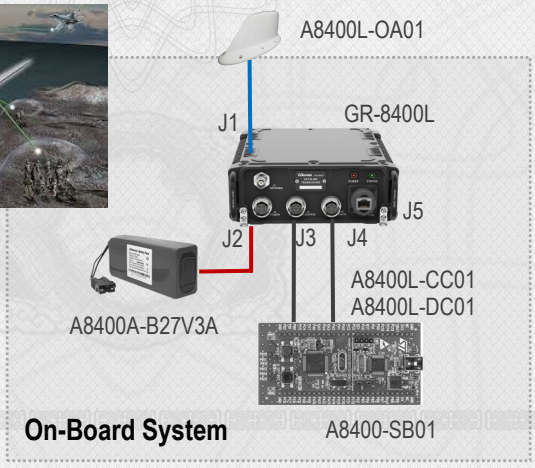

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A8400L-PC01 Power Cable

Is an rugged flexible cable with 9 way MIL cicular connector/2m length used to control the transceiver by controller. It is connected between GR-8400L's J3 connector and controllers like computers.

A8400L-CC01 Control Cable

Is an rugged flexible cable with 9 way MIL cicular connector/2m length used to control the transceiver by controller. It is connected between GR-8400L's J3 connector and controllers like computers.

A8400L-DC01 Data Cable

Is an rugged flexible cable with 5-Way connector/2m length used to transmit the data. It is connected between GR-8400L's J4 connector and data sources like radars.

A8400L-EC01 Ethernet Cable

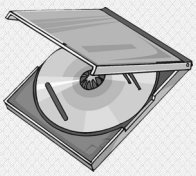
This cable is the Ethernet cable to connect transceiver and System Network Controller. It used to control the transceiver and to transmit data for any applications.

A8400L-MA01 Mobile Antenna

Is mobile antenna to install on mobile station. The antenna is composed of three parts. The antenna is light weight, good flexibility, endurable for corrosion.

A8400L-UM01 User Manual

Is a field reference user manual for GR-8400L datalink transceiver system.



GC-8400L Setup/Control Application

The software application allows user to enter frequency, mode, encryption code and other parameters into a Windows-based computer program and save it to a file.

A8400L-PS01 Power Supply Unit

It is 320W AC-DC/DC-DC converter to supply power into GR-series mobile radio system. It supports very high efficiency, over-voltage protection, polarity protection.

A8400L-OA01 On-Board Antenna

Is mobile antenna to install on mobile station. The antenna is composed of three parts. The antenna is light weight, good flexibility, endurable for corrosion.

27V/3A Li-Ion Battery(A8400A-B27V3A)

It is 27V/3A Li-Ion rechargeable battery pack to supply power on On-Board Transceiver.

Li-Ion Battery Charger(A8400A-CH01)

It is 27V/3A Li-Ion rechargeable battery pack to supply power on On-Board Transceiver.

System Network Controller(GE-8400)

Is a control system wherein the control loops are closed through a communication network. The defining feature of an SNC is that control and feedback signals are exchanged among the system's components in the form of information packages through a network.

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E8400-PC01 Power Cable

Is an rugged flexible cable with 9 way MIL circular connector/2m length used to control the transceiver by controller. It is connected between GE-8400's J3 connector and controllers like computers.

E8400-CD8520C Control and Data Cable

Is an rugged flexible cable with 9 way MIL circular connector/2m length used to control the transceiver by controller. It is connected between GE-8400's J3 connector and controllers like computers.

E8400-CD8100C Control and Data Cable

Is an rugged flexible cable with 9 way MIL circular connector/2m length used to control the transceiver by controller. It is connected between GE-8400's J3 connector and controllers like computers.

E8400-EC01 Ethernet Cable

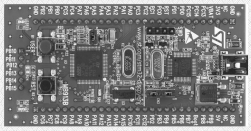
This cable is the Ethernet cable to connect transceiver and System Network Controller. It used to control the transceiver and to transmit data for any applications.

E8400-TS01 Time Sync Cable

This cable is the Ethernet cable to connect transceiver and System Network Controller. It used to control the transceiver and to transmit data for any applications.

E8400-UM01 User Manual

Is a field reference user manual for GE-8400 System Network Controller.



A8400-SB01 Signal Condition Board

It is signal condition board to connect the data sources with data transceiver GR-8400L in on-board system. There would be several data sources on on-board system.

A8400L-HA01 Helical Antenna

Is an antenna consisting of one or more conducting wires (monofilar, bifilar, or quadrifilar with 1, 2, or 4 wires respectively) wound in the form of a helix.

A8520-LH12/5 Ethernet Switching Hub

Provides a central connection in an Ethernet network in which each connected device has its own dedicated link with full bandwidth.

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GR-8422 Data Transceiver

Broadband•Hypersonic Mobility•High RF Power

Platforms

- Fighter, Military Aircrafts
- MALE UAV, Large Drones
- Rotary & Fixed-Wing Platforms
- Control Stations, Ground Vehicles
- Vessels, Maritime Radios
- Launchers, Balloons
- Stratospheric Platforms
- High-Altitude Stations (HAPS)

Features

- Tactical ISR Data Links
- Command & Control (C2)
- Intra-Flight Data Links
- Swarm and Mesh Networks

GR-8422 Data Transceiver is military grade IP data links operating in the broadband that provide a compact, robust, and affordable solution for tactical communications in electronic warfare (EW) environments.

Combined with COFDM or DSSS waveforms, the transmission Security option enables Frequency Hopping Spread Spectrum (FHSS), adding low probability of interception (LPI) and detection (LPD) capabilities. GR-8422 radios implement unique frequency offset compensation algorithms that keep communication performance at hypersonic speeds. TDMA multiplexing allows point-to-point, point-to-multipoint, and mesh networks (MANET) with configurable time slots and dynamic routing. Any network topology can be deployed without the need for external infrastructure. Multiple devices can be connected simultaneously to the Ethernet and serial interfaces, centralizing data links for C2, telemetry, audio, and video in a single device.

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General Specifications

Signal		COFDM	DSSS
Frequency Band	Rx	145~2000MHz	
	Tx	U0, U1, U2, UL, L1, L2(Option)	
Waveform		COFDM	DSSS
Spreading Factor			1,15,31,63,127
Modulations		DBPSK, DQPSK, 16QAM	DBPSK, DQPSK
Channel Bandwidth		10KHz,1,2,5,10,15MHz	30MHz
Data Rate		2.4kbps to 60Mbps	128kbps to 60Mbps
Multiple Access		TDMA, FDMA	
Networking		Scalable Mesh, MANET	
ECCM			
Frequency Hopping		Up to 50 hops/s	Up to 100 hops/s
Data Encryption		AES-256	
Transmitter RF Performance			
Max. RF Output		COFDM-5W	DSSS-15W
Harmonic Suppression		>50dBc	
Receiver Performance			
Sensitivity		−98dBm@1Mbps, SINAD 10dB	
Adjacent/Alternative Channel Selectivity		<-60dBc	
Interfaces			
RF Signal Antenna Port		1xSMA(TX/RX), 50Ohm or 2XSMA(TX, RX), 50Ohm	
Ethernet		10/100/1000BASEE-T	
J1 Power Supply Connector		+22V to +34VDC MIL-STL D38999	
J2 Auxiliary Connector		RS232/485/422 Data, +5VDC Out	
GPS Antenna Port @ Option		1xSMA 50Ohm	
Audio Connector		A8100-OH10	
WIFI @ Option		1xSMA 50Ohm	
Power Indicator		Stainless Steel Green LED	
Status Indicator		Stainless Steel Red LED	
Power Consumption			
Supply Voltage (Receiver Only)		22~34VDC(10-34VDC)	
Current Consumption@28VDC (typ.)		2.0A@5W RF Out 2.5A@15W RF Out	
Environmental & Operational Conditions			
Operating Temperature		−40℃~+75℃	
Storage Temperature		−55℃~+85℃	
Waterproof		IP67	
Temperature, Humidity, Vibration, Shock, ESD		MIL-STD-810	
EMC		MIL-STD-461	
MTBCF		17,000Hours	
Environmental Protection		RoHS, REACH	
Export Classification		Standard Security	

Superior Performance

- Up to 100Mbps of network capacity
- Up to 15W of RF output power
- Configurable RF within the 145-2000MHz broadband
- Hypersonic mobility up to Mach 5 (>6000Km/h)

Waveforms

- COFDM with selectable channel bandwidth for optimum multipath and fading robustness
- Direct Sequence Spread Spectrum (DSSS) with configurable spreading codes for LPI/LPD capabilities
- FHSS with up to 512 frequencies for both COFDM and DSSS waveforms

Mesh Networking

- Robust MANET with configurable nodes
- Mesh, Star, and Mixed network topologies
- Internally synchronized , GPS not needed
- Dynamic Packet Routing between nodes beyond LOS
- IP filtering, Wireless Bridge, IP Multicast

Transmission Security

- Frequency Hopping Spread Spectrum (FHSS)
- AES-256 Encryption
- Zeroization of TRANSEC parameters

Avionics-grade Qualification

- Qualified for airborne environmental conditions
- Extremely rugged IP67-rated design
- Nickel-plated aluminum enclosure
- Any point on the surface is valid for Electrical Bonding
- Built-in self-tests (BIST)
- Over-temperature monitoring and protection
- Robust power supply with EMI filtering, overcurrent, and reverse voltage protections
- Military-grade components for enhanced MTBF

Data Interfaces

- A single unit for Command & Control (C2), telemetry, audio, and video streaming
- Simultaneous connection of multiple devices via Ethernet and serial data interfaces
- +5VDC output to supply external devices

Configuration and Diagnostics

- Link Commander: cutting-edge application for data link and mission control
- Open protocol for local and remote configuration
- Network and signal status monitoring
- Real-time constellation
- Multiple video players and Geo-positioning map
- Spectrum Analyzer, Scanning Mode

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Part Numbering

GR-8422 - [15] - [CO] - [U1] - [R2] - [ST]

RF Power	
0.3	Up to 0.3W
03	Up to 3W
15	Up to 15W

Waveform	
CO	COFDM
DS	DSSS

RF Band(MHz)	
U0	225~400
U1	300~500
U2	500~875
UL	875~1250
L1	1250~1550
L2	1550~2000

Serial Interfaces	
R2	2xRS232
R4	1xRS422/485
R6	1xRS422/RS232

Security	
ST	AES-256
FH	FHSS

GR-8422 Data Transceiver Standard Set

GR-8422 Data Transceiver System

• SAT Transceiver	GR-8422-XX-CO-XX	1pc
• Antenna	A8422-AT40	1pc
• Antenna Cable(1.5m)	A8422-AT40C1.5M	1pc
• Control and Data Cable	A8422-DC10	1pc
• Power Cable	A8422-PC10	1pc
• Field Battery Pack	BB-2590/U	1pc
• Charger for BB-2590/U	A8100-BC1B	1pc
• Setup, Transmission Software	A8422-SW10	1pc
• User Manual	A8422-UM10	1pc

GR-8422 Satellite Data Transceiver System

• Satellite Data Transceiver	GR-8422-15-CO-U0	1pc
• Satellite Antenna	A8422-AT80	1pc
• Antenna Cable(1.5m)	A8422-AT80C1.5M	1pc
• Control and Data Cable	A8422-DC10	1pc
• Power Cable	A8422-PC10	1pc
• Field Battery Pack	BB-2590/U	1pc
• Charger for BB-2590/U	A8100-BC1B	1pc
• Setup, Transmission Software	A8422-SW10	1pc
• User Manual	A8422-UM10	1pc

Option

• Control & Data Network Cable	A8422-EC10	1pc
• Officer Handset	A8100-OH10	1pc
• Military Computer	Panasonic	1pc
• Military HUB (5-10 Ports)	3OneData	1pc
• Field Battery Pack	BB-2590/U	1pc
• Charger for BB-2590/U	A8100-BC1B	1pc
• Transceiver Library	A8422-TL10	1pc

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Data Transceiver(GR-8422-XX-CO-XX)

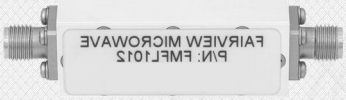
Frequency range(145~2000MHz, 15W RF Power, Small Weight and Power, High data rate, ECCM compatible, Suitable for Remote Control of many platforms

Onboard Antenna(A8422-AT10)

Frequency range(875~1250MHz, Gain:3dBi, VSWR:≤2, Impedance:50Ω

Duplexer(A8422-DP10)

Frequency range(Tx:1900~2000MHz, Rx:875~1250MHz), Impedance:50Ω



Bandpass Filter(A8422-BF40)

Frequency range Passband:875~1250MHz, Insertion loss: <1.5dB, Impedance:50Ω

Antenna(A8422-AT40)

Frequency range(875~1250MHz, Gain:12dBi, VSWR:≤2, Impedance:50Ω

Control and Data Cable(A8422-DC10)

Data cable to connect Data Transceiver with computer

Power Cable(A8422-PC10)

Power cable to connect Data Transceiver with BB-2590/U battery or power supply unit

Ethernet Cable(A8422-EC10)

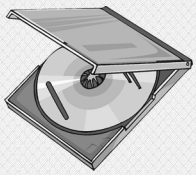
Ethernet twist pair cable with RJ45 connector to connect Data Transceiver with Ethernet Hub.

Battery Pack(BB-2590/U)

High performance rechargeable Lithium Ion battery with instantaneous start up. (L)127mmX(W)61mmX(H)112mm , 1.3Kg, 14.4 or 28.8VDC

Battery Charger(A8100-BC1B)

This is 1 charger for BB-2590/U. Protection from over-voltage, over-current, over-charge, over-discharge, and reverse charge, 227g, Charge 16.8VDC



Setup, Operation Software(A8422-SW10)

This software allows user to enter frequency, mode, encryption code, network parameter and other parameters into a Windows-based computer program and save it to a file. It supports also data transmission through data transceivers.

Field Reference Guide(A8422-UM10)

This is a field reference user manual for GR-8422 data transceiver system.

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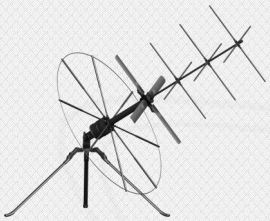


Satellite Antenna(A8422-AT80)

The antenna(225MHz~400MHz) is a rapid deploy, high gain, crossed yagi antenna for SATCOM communications. Deployment time is less than one minute.

A8100-OH10 Officer Handset

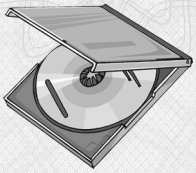
Rugged structure tactical handset, easy to operate, Water-proof and moisture-proof.

Military Grade Notebook PC(Getac)

Tactical Notebook PC from Panasonic or Getac. Operating System Microsoft Windows 10 or Higher.

Military Grade HUB(3OneData)

Tactical military HUB 5 ports from 3OneDate



System Library DLL(A8422-TL10)

System library software to develop C4I application.

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Global Communications Co.,

GR-150 HF Manpack Radio

Frequency Hopping, Digital Secure EPM, Software Defined Radio

[Key features]

■1.6~30MHz ■CW/voice/data/SMS ■Digital frequency hopping ■MELP1000 ■AES256 digital encryption ■20W RF power ■3G ALE ■NVIS antenna compatible ■VHF-HF relay function ■Remote control function (2Km) ■Wireless fill-gun (OTAR) ■Built-in GPS ■Advanced calling modes

The GR-150 is a rugged fully featured tactical transceiver solution delivering reliable field deployable communications with unparalleled value. ■**[Lightweight and Compact Design]**-Using the latest lightweight alloys the GR-150 weight 4kg(4.9kg with 11Ah/12V, Li-Ion battery pack). Its small physical size makes it comfortable to wear and operate when deployed as a tactical manpack. Designed for the harshest field environments, the GR-150 complies with MIL-STD-810G and is fully immersible to a depth of 1 meter ■**[Advanced calling feature]**-The GR-150 radio supports advanced selective calling, banish calling, automatic mode exchange, 5 digit SMS, Beacon, GPS tracking which are included as standard ■**[Remote control]**-The GR-150 radio has full operation access to the radio with remote control unit up to 2Km. ■**[Enhanced DSP noise reduction]**-MELP1000 vocoder system provides outstanding voice quality by reducing radio frequency interference (RFI), and the effects of electrical interference by enhancing audio signals to provide easier listing. The level of noise reduction can be easily selected to suit prevailing conditions. ■**[Automatic antenna tuner]**-Whips and untuned wire antennas are simply deployed using the inbuilt, fully automatic antenna tuner. For temporary fixed station and tunable tactical antennas are available. ■**[Intuitive operation]**-Glocom's well known intuitive operator interface ensures that operating the GR-150 very simple. Principal key functions are performed using a keyboard array mounted on the front panel. The operator is guided by 128x32 LCD graphics display. The display has adjustable backlighting, allowing maintenance of night vision or high levels of luminescence in poor visibility. Network station addresses and radio numbers are stored in easily accessible address books and as little as two key strokes will initiate a call. ■**[Extended operation time]**-The low current consumption of the GR-150 radio enables it to operate for over 20 hours on one battery pack. Spare quick change battery packs are small and lightweight. The battery packs contains the charger management system and can be charged when connected to the radio or separately with charger including grid charger, solar charger. ■**[Automatice Link Establishment(ALE)]**-The GR-150 is available with full MIL-STD-188B ALE. When selected, the radio searches and selects the best channels. ■**[Digital Encryption and scrambling]**-The GR-150 can be fitted with a variety of scrambling and digital encryption functions for voice and data security. The GR-150 includes secure calling(an innovative narrow band voice scrambler providing secure point to point or point to multipoint communication), AES 256 bit digital encryption assuring secure voice and data operation ■**[Frequency Hopping]**-The unique, easy to use frequency hopping function requires no central synchronization station, has short entry or late entry time delay and requires no hopping handshakes. Hopping rate of 10 hops per second, using 25 digit hopping encryption key, and user selectable hopping bandwidth to suit the antenna type in use, the system provides excellent protection against Electronic Warfare (EW) attacks. ■**[Modem]**-The GR-150 fitted with STANAG 5066 internal data modems supporting high speed data and email transmission, with effective data rates up to 4800bps. Data modems are supplied with PC software which provides email, file transfer and short text message functions.

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[Operation mode]

■[Clear mode]-CW, voice, SMS ■[Secure mode]-CW, encrypted digital voice/data, SMS ■[FH mode]-CW, encrypted digital voice/dada, SMS

General specifications

Frequency range	1.6~30MHz
Fine tuning	10Hz
Preset channels	100 channels
Modulation	SSB, AME, BPSK, QPSK
Data rate	110bps~4800bps
TRANSEC(FH)	10hps (Digital Frequency Hopping)
COMSEC (Encryption)	AES256, customized algorithm
Vocoder	MELP 1000
Link Establishment	MIL-STD-188-141B 3G ALE
Frequency stability	±1ppm
RF impedance	50Ω
Power supply	10~15VDC, Over-voltage, polarity protection
Data interface	RS-232C, Bluetooth
Remote control	PC, Tablet (Android), RCU
Programming	PC, wireless fill-gun (OTAR), KB
Dimension	230mm x 90mm x 230mm
Weight	≤4Kg (4.9Kg with battery)

Receiver

Sensitivity	-113dBm@10dB SINAD
Image & IF rejection	≥85dB
Adjacent channel rejection	≥45dB
Non-linear distortion	≤5%

Transmitter

RF power	100mW~20W
Harmonic suppression	≥50dBc
Spurious outputs	≤-60dBc typical

Environment

Operating temperature	-30°C~+60°C
Storage temperature	-50°C~+70°C
Humidity	95%

GR-150/GR-150VH Available options

- Tactical headset GA-11A
- HF 20m x 2 dipole antenna GA-113A
- Clone cable GA-21A
- CW key GA-121A
- Li-Ion battery pack(2pcs) GA-31D
- Battery charger GA-32D
- Rucksack GA-122A
- Remote control unit GA-153A
- External speaker with cable GA-40A
- 100W power supply unit GA-33A
- 320W power supply unit GA-34A
- NVIS roof rack antenna GA-114A
- Mobile installation kit GR-101C-ITK
- ITCCS software GS-930
- Setup/Control Application (Windows) GC-150
- Tactical Chat Application (Windows) GS-910

GR-150MP HF Manpack Radio Set

The Glocom GR-150 HF manpack radio set is ideal for extended portable field operations providing the tactical user with effective, secure and comprehensive communications with remote sited command locations. It includes all necessary handset, headset, antennas, batteries and others. The standard set comprises:-

- HF manpack radio GR-150E
- Officer handset GA-10A
- HF 2.4m whip antenna GA-111A
- HF 15m line antenna GA-112A
- Handheld GPS antenna GA-51A
- Ground stake kit A8100-GK25
- Li-Ion battery pack(2pcs) GA-31D
- Battery charger with cable GA-32D
- User manual A150-UM01

GR-150VH HF Mobile Set

The Glocom GR-150 HF mobile set upgrades the GR-150 by providing a convenient vehicle installation kit and transmitter power amplification to 100W PEP. With options for power supply system and the flexibility of dismounted use of GR-150 radio when not in the vehicle (additional accessories may be required), the GR-150VH HF mobile set can be installed in a wide range of vehicle types with antenna options to suit. The standard set comprises:-

- HF manpack radio GR-150E
- Officer handset GA-10A
- HF 2.4m whip antenna GA-111A
- HF 15m line antenna GA-112A
- HF 20m x 2 dipole antenna GA-113A
- HF 4.2m mobile antenna GA-115A
- Mobile GPS antenna GA-50A
- User manual GA-131A
- HF 100W amplifier with cables GR-151C
- HF 100W ATU with cables GR-152C
- 12V/320W Power Supply Unit GA-34A

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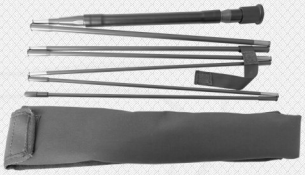
GA-10A Officer Handset

Officer handset can be used as the audio terminal for Glocom radio sets. The product has the rugged structure, and it is easy to operate, it also has the better performance of waterproof and moisture-proof.

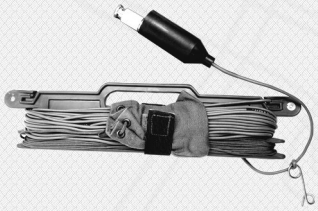
GA-11A Tactical Headset

Tactical Headset adopts structure of head ring soft strap, it is audio terminal. It has the features of small in dimension, light in weight, good water proof performance, high environment adaptability.



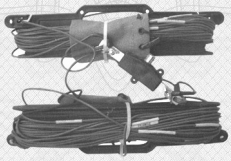
GA-111A HF 2.4m Whip Antenna

1.6~30MHz, 40W, Impedance:50Ω, Contact resistance: ≤120mΩ, Length:2400mm, Draw back length: 365mm, ≤0.7Kg, Interface: BNC fixed with threading sheath.



GA-112A HF 15m Line Antenna

This antenna can be used for communication on actual combat. This antenna is used for HF radio set or long distance emergency communication. It has the features of high radiation efficiency, easy carrying and installation.



GA-113A HF 20m x 2 Dipole Antenna

This antenna can be used for communication on actual combat. This antenna is used for stationary HF radio set or long distance emergency communication.

GA-51A Handheld GPS Antenna

This is high gain, low loss, active, extra low current consumption, small size GPS antenna. It supports SMA plug and magnetic mounting. It's useful for mobile application with GR series radios.

GA-50A Mobile GPS Antenna

This is high gain, low loss, active, extra low current consumption, small size GPS antenna. It supports SMA plug and magnetic mounting or screw mounting. It's useful for mobile application with GR series radios.

GA-21A Clone Cable

This is RS-232C data communication cable for GR series radios. It is used for data communication, radio programming and radio control by computer etc.

GA-31D Li-Ion Battery Pack

Capacity: 11.1VDC/10A, Weight: 0.9Kg, Size: 235mmx90mmx60mm, Working current: 6A, Peak current: 9A, Operating temperature: 0~45'C

GA-32D Battery Charger

This is a Li-Ion battery charger. It is controlled by microcontroller and supports the fast charge function, regular charge function, overvoltage protection, automatic charge off function etc.

GA-121A CW Key

This is a Morse code key for GR series HF radios. It's designed to use in rigid environment, so very strong mechanically. It is very small and light for easy carrying.

GA-122A Rucksack

This is a rucksack for GR series man-pack radio system. It is very compatible for soldier to carry radio with all accessories. It can keep antenna, batteries, handset, headset etc…

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GA-115A HF Mobile Antenna

This is HF vehicle communication antenna. The antenna is composed of three parts. The antenna is light weight, good flexibility, endurable for corrosion.

GA-114A NVIS Antenna

This is mobile antenna which radiates NVIS propagation. It is designed to realize the communication during movement and effectively solve the problem of "communication blind area" in near distance of HF band.

GA-153A Remote Control Unit

This is Remote Control Unit for GR-150. It can control GR-150 up to 2Km remotely. Radio and RCU is connected with twist-pair cable. It is easy to install in tunnel, mobile and ship.

GA-33A 12V/100W Power Supply Unit

This is 12V/100W AC/DC converter to supply power into GR series mobile radio system. It is very useful in stationary, mobile or ship environment.

GA-34A 12V/320W Power Supply Unit

This is 12V/320W AC-DC/DC-DC converter to supply power into GR series mobile radio system. It supports very high efficiency, overvoltage protection, polarity protection.

GR-101C-ITK Mobile Installation Kit

This is a set of installation kit. It can be used to install GR series radio system into various kind of vehicles, ships or stationary. It is very simple to install or uninstall on the vehicles.

GA-40A External Speaker

This external speaker is suitable for special types of vehicles and other equipment for amplifying the sound and broadcasting.

A8100-GK25 Ground Stake Kit

Earth braid, 1.5m.

A150-UM01 Field Reference Guide

This is a field reference user manual for GR-150 radio system.

GR-151C HF 100W Amplifier Set

This is a set of 100W mobile amplifier system. It includes power amplifier, control cable, RF cable, power cable etc. It will be installed in pair of GR-152C automatic tuning unit.

GR-152C HF 100W ATU Set

This is a set of 100W automatic tuning unit system. It includes 100W automatic tuning unit, RF cable, control cable, antenna cable etc. It will be installed in pair of GR-151C 100W amplifier system.

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GR-310 VHF/UHF SATCOM Manpack Radio

Frequency Hopping, Digital Secure EPM Software Defined Radio

[Key Features]

■30MHz ~ 512MHz ■Fully software defined radio, Extended use of DSP, DDS technology for maximum flexibility ■Breakthrough wide-band data performance ■Several options for channel spacing ■Cockpit control via dedicated control panel or remote control via RS-485 interface ■Preset channel operation ■AES256 or Customer oriented EPM capability by FH and digital encryption ■Built-in GPS for position reporting in situation awareness ■Wireless fill-gun (OTAR)

[Operation mode]

■Clear mode(voice, SMS) ■Secure mode(encrypted digital voice, SMS, data) ■FH mode(encrypted digital voice, SMS, data) ■SATCOM (encrypted digital voice, SMS, data)

The GR-310 is a rugged fully featured tactical Satcom radio solution delivering reliable field deployable communications with unparalleled value. ■**[Wideband frequency band operation]**-The GR-310 supports in wideband frequency band from 30MHz to 512MHz, so it is possible to use in land force, navy and air force in manpack/mobile conditions. ■**[Lightweight and Compact Design]**-Using the latest lightweight alloys the GR-310 weight 4kg(4.9kg with 11Ah/12V, Lithium Ion battery pack). Its small physical size makes it comfortable to wear and operate when deployed as a tactical manpack. Designed for the harshest field environments, the GR-310 complies with MIL-STD-810G and is fully immersible to a depth of one meter ■**[Advanced calling feature]**-The GR-310 radio supports advanced selective calling, banish calling, Automatic mode exchange, 5 digit SMS, Beacon, GPS tracking which are included as standard ■**[Remote control]**-The GR-310 radio has full operation access to the radio with remote control. ■**[Enhanced DSP noise reduction]**-MELP1000 vocoder system provides outstanding voice quality by reducing radio frequency interference (RFI), and the effects of electrical interference by enhancing audio signals to provide easier listing. The level of noise reduction can be easily selected to suit prevailing conditions. ■**[Automatic antenna tuner]**-Whips and untuned wire antennas are simply deployed using the inbuilt, fully automatic antenna tuner. For temporary fixed station and tunable tactical antennas are available. ■**[Intuitive operation]**-Glocom's well known intuitive operator interface ensures that operating the GR-310 very simple. Principal key functions are performed using a keyboard array mounted on the front panel. The operator is guided by 128x32 LCD graphics display. The display has adjustable backlighting, allowing maintenance of night vision or high levels of luminescence in poor visibility. Network station addresses and radio numbers are stored in easily accessible address books and as little as two key strokes will initiate a call. ■**[Extended operation time]**-The low current consumption of the GR-310 radio enables it to operate for over 20 hours on one battery pack. Spare quick change battery packs are small and lightweight. The battery packs contains the charger management system and can be charged when connected to the radio or separately with charger including grid charger, solar charger. ■**[SATCOM function]**-The GR-310 supports military tactical Satcom functionality, so it makes possible to communicate in beyond horizon condition. It is possible to communicate in worldwide in anytime, anywhere. ■**[Digital Encryption and scrambling]**-The GR-310 can be fitted with a variety of scrambling and digital encryption functions for voice and data security. The GR-310 includes secure calling(an innovative narrow band voice scrambler providing secure point to point or point to multipoint communication), AES 256 bit digital encryption assuring secure voice and data operation ■**[Frequency Hopping]**-The unique, easy to use frequency hopping function requires no central synchronization station, has short entry or late entry time delay and requires no hopping handshakes. Hopping rate of 10 hops per second, using 25 digit hopping encryption key, and user selectable hopping bandwidth to suit the antenna type in use, the system provides excellent protection against Electronic Warfare (EW) attacks.

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General specifications

Frequency bands & modulations

VHF-FM	30MHz~88MHz
VHF-AM	108MHz~116MHz (Rx only)
VHF-FM/AM	116MHz~156MHz
UHF-FM	156MHz~174MHz
UHF-FM/AM	225MHz~512MHz
SATCOM	243~270MHz & 292~318MHz
Preset channels	100 channels
Channel spacing	8.33kHz, 12.5kHz, 25kHz
SATCOM (spacing)	5kHz, 25kHz
TRANSEC(FH)	100hps (Digital Frequency Hopping)
COMSEC (Encryption)	AES256, customized algorithm
Frequency stability	±1ppm
Channel changing time	1ms
Duty cycle	1 min x Tx, 5 min x Rx without forced air cooling

Receiver

Sensitivity	-113dBmFM), -105dBm(AM)
SATCOM	–120 dBm for 10 dB SINAD
AM modulation index	80% to 100%
Audio output distortion	5%
Spurious rejection	70dB
Squelch	Operates both on output signal-to-noise ratio and input carrier level, thresholds adjustable
IF interface characteristics	Frequency: 70MHz, impedance: 50Ohm unbalanced

Transmitter

Output power	10W(Peak) in AM, 10W in FM
SATCOM	10W
Spurious emissions	50dB below carrier level
IF interface frequency	70MHz
Impedance	50Ohm unbalance

Power supply

Power input configuration	DC12V
Power consumption	< 180W (in Tx), <40W (in Rx)

Environmental

Operating temperature	-30~+ 70°C
Storage temperature	-40~+ 75°C
Shock	MIL-STD-810E
Humidity	90% relative
EMC	MIL-STD-461D

Physical

Dimension	230mm x 90mm x 230mm
Weight	≤4Kg (4.9Kg with battery)

GR-310 VHF/UHF SATCOM Manpack Set

The Glocom GR-310 VHF/UHF SATCOM manpack radio set is ideal for extended portable field operations providing the tactical user with effective, secure and comprehensive communications with remote sited command locations. It includes all necessary handset, headset, antennas, batteries and others. The standard set comprises:-

- VHF/UHF SATCOM manpack radio GR-310
- Officer handset GA-10A
- Whip Antenna(100-400MHz) GA-310-AT-02
- Handheld/Manpack GPS Antenna GA-51A
- Li-Ion battery pack(2pcs) GA-31D
- Battery charger GA-32D
- User manual A310-UM01

GR-310VH VHF/UHF SATCOM Mobile Set

The Glocom GR-310VH VHF/UHF SATCOM mobile set upgrades the GR-310 by providing a convenient vehicle installation kit. With options for power supply system and the flexibility of dismounted use of GR-310 radio when not in the vehicle (additional accessories may be required), the GR-310VH VHF/UHF SATCOM mobile set can be installed in a wide range of vehicle types with antenna options to suit. The standard set comprises:-

- VHF/UHF SATCOM manpack radio GR-310
- Officer handset GA-10A
- Mobile antenna (100-400MHz) GA-310-AT-03
- Mobile GPS antenna GA-50A
- 100W Power Supply Unit GA-33A
- User manual A310-UM01

GR-310/GR-310VH Available options

- Tactical headset GA-11A
- External speaker with cable GA-40A
- VHF 2.4m whip antenna(30-88MHz) GA-211A
- Whip antenna(100-400MHz) GA-310-AT-02
- SATCOM antenna(240-400MHz) GA-310-AT-04B
- VHF 3.8m mobile antenna GA-212A
- Clone cable GA-21A
- Li-Ion battery pack GA-31D
- Battery charger GA-32D
- X-wing SATCOM antenna GA-310-AT-06
- Aircraft antenna(108-137MHz) GA-310-AT-07
- Aircraft antenna(220-400MHz) GA-310-AT-08
- 100W power supply unit GA-33A
- 320W power supply unit GA-34A
- Rucksack GA-122A
- Mobile installation kit GR-101C-ITK
- Setup/Control Application (Windows) GC-310
- Tactical Chat Application (Windows) GS-910

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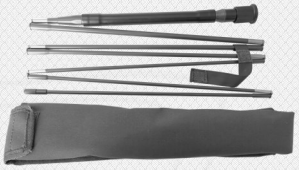
GA-10A Officer Handset

Officer handset can be used as the audio terminal for Glocom radio sets. The product has the rugged structure, and it is easy to operate, it also has the better performance of waterproof and moisture-proof.

GA-11A Tactical Headset

Tactical Headset adopts structure of head ring soft strap, it is audio terminal. It has the features of small in dimension, light in weight, good water proof performance, high environment adaptability.



GA-211A VHF 2.4m Manpack Antenna

This antenna is vertically polarized omnidirectional antenna. The antenna is composed of three parts as plug, direction changing parts, and antenna sections.

GA-212A VHF 3.8m Mobile Antenna

This is VHF vehicle borne communication antenna. The antenna section is made of fiberglass, thus the features of light weight, good flexibility, endurable for corrosion.

GA-310-AT-02 Whip Antenna

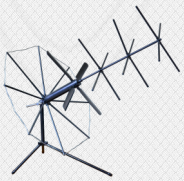
This is 100MHz ~400MHz whip antenna. This is a 13-inch antenna with a swivel base for VHF/UHF Band.

GA-310-AT-03 Mobile Antenna

This is UHF mobile communication antenna(225~512MHz). The antenna is composed of three parts. The antenna is light weight, good flexibility, endurable for corrosion.

GA-310-AT-03A Mobile Antenna

This is 30MHz~512MHz whip antenna. The antenna is composed of three parts: antenna base, vibration absorbing device, antenna sections.



GA-310-AT-04B SATCOM Antenna

The antenna(240MHz~400MHz) is a rapid deploy, high gain, crossed yagi antenna for SATCOM communications. Deployment time is less than one minute.

GA-310-AT-06 X-WING SATCOM Antenna

The X-WING SATCOM antenna (240MHz~400MHz) allows bolt on for permanent installation onto vehicles, shelters and other metal objects.

GA-310-AT-07 Aircraft Antenna

This airborne antnenna(108MHz-137MHz) allows to use in civil aircrafts for ATC. The rugged design allows the antenna to be used for any type of civil aircrafts.

GA-310-AT-08 Aircraft Antenna

This airborne antnenna(220MHz-400MHz) allows to use in military aircrafts for ATC. The rugged design allows the antenna to be used for any type of rotary or fixed wing military aircrafts.

GA-411B Airborne Antenna

This is airborne antenna which supports the frequency range from 430MHz to 480MHz. It's very rugged, so suitable to install on airplane. It supports very high gain and VSWR.

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GA-51A Handheld GPS Antenna

This is high gain, low loss, active, extra low current consumption, small size GPS antenna. It supports SMA plug and magnetic mounting. It's useful for mobile application with GR series radios.

GA-50A Mobile GPS Antenna

This is high gain, low loss, active, extra low current consumption, small size GPS antenna. It supports SMA plug and magnetic mounting or screw mounting. It's useful for mobile application with GR series radios.

GA-21A Clone Cable

This is RS-232C data communication cable for GR series radios. It is used for data communication, radio programming and radio control by computer etc.

GA-31D Li-Ion Battery Pack

Capacity: 11.1VDC/10A, Weight: 0.9Kg, Size: 235mmx90mmx60mm, Working current: 6A, Peak current: 9A, Operating temperature: 0~45'C

GA-32D Battery Charger

This is a Li-Ion battery charger. It is controlled by microcontroller and supports the fast charge function, regular charge function, overvoltage protection, automatic charge off function etc.

GA-33A 12V/100W Power Supply Unit

This is 12V/100W AC/DC converter to supply power into GR series mobile radio system. It is very useful in stationary, mobile or ship environment.

GA-34A 12V/320W Power Supply Unit

This is 12V/320W AC-DC/DC-DC converter to supply power into GR series mobile radio system. It supports very high efficiency, overvoltage protection, polarity protection.

GA-40A External Speaker

This external speaker is suitable for special types of vehicles and other equipment for amplifying the sound and broadcasting.

GR-101C-ITK Mobile Installation Kit

This is a set of installation kit. It can be used to install GR series radio system into various kind of vehicles, ships or stationary. It is very simple to install or uninstall on the vehicles.

GA-122A Rucksack

This is a rucksack for GR series man-pack radio system. It is very compatible for soldier to carry radio with all accessories. It can keep antenna, batteries, handset, headset etc…

A310-UM01 Field Reference Guide

This is a field reference user manual for GR-310 radio system.

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Global Communications Co.,

GE-2100

Tactical Network Intercom System

SMALLEST, LIGHTEST, MOST POWER-EFFICIENT INTERCOM SYSTEM AVAILABLE TODAY

Tough terrain and noisy environments are no match for the Glocom GE-2100 Tactical Networking Intercom System. This Victory/GVA(1)-capable solution delivers clear voice and data between crew members operating within the limited confines of military vehicles. The GE-2100 supports HF, VHF, UHF, SPR and LMR communications technology, reliably connecting dismounted personnel, Tactical Operations Centers (TOC), maritime and vehicular units.

The GE-2100 is interoperable with the Glocom family of tactical radios, as well as other military, government and commercial devices. The modular, customizable design makes the system easy to install and configure based on the specific needs of the mission.

(1) Victory/GVA - Vehicle Integration for C4ISR/EW interoperability, Generic Vehicle Architecture

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Glocom GE-2100 is a 3rd generation vehicular intercommunication system, based on Glocom's proven Software Defined Radio (SDR) platform. The decentralized, IP-based architecture enables seamless connectivity with legacy and IP-based radios, as well as with routing and voice services. Lightweight, compact and easy-to-use, Glocom GE-2100 features innovative dismounted mission capabilities, easy installation (in compliance with NGVA protocols) and configuration for a wide range of operational scenarios. As a modular expansion of Glocom family of products, the GE-2100 is a true force multiplier, providing a decisive advantage on the modern battlefield.

- Advanced and modular IP intercom
- Decentralized system architecture
- Compact design for combat platforms
- Support for IP Routing and VoIP services
- Seamless integration with IP and legacy radios
- Digital audio processing including VAD and ANR(2)
- Voice groups – for use with SDR-Radios
- 10 easily customizable operation modes
- Simple and intuitive multilingual user interface

MASTER CONTROL STATION (MCS)

The heart of the system

The Glocom GE-2100-MCS Master Control Station is the foundation of the networking intercom system. Advanced technology eliminates background noise, delivering clear voice communications and data-sharing capabilities for up to eight crew stations and two combat net radios. The vehicle's system status, crew station controls and indicators are also monitored by the unit for greater control of the system.

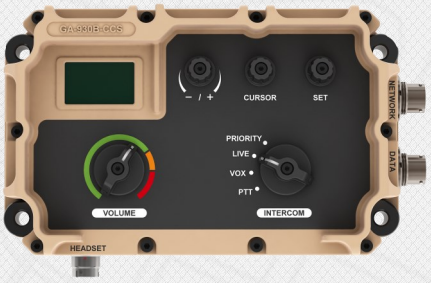
- Simple, easy-to-install 4 wire highway cable connects the central station and crew stations, reducing unnecessary cabin clutter
- Power-efficient, modular system for mission flexibility
- Software-configurable and upgradeable through a simple, PC-based user interface
- More efficient, simultaneous data and voice through a single connection for up to 2 radios
- Provides power, programming, and configuration capabilities to crew stations and active noise reduction headsets
- Integrates battle management system and situational awareness applications
- Provides duplex streams of 64kbps digitized PCM voice channels, and duplex streams of digital synchronous communication with data and control signals of the serial asynchronous ports

Input Voltage Range:	9~36VDC
Current Efficiency:	1.5A@24VDC
Size:	50mmx126mmx172mm
Weight:	2.2Kg

CREW CONTROL STATION (CCS)

Easy access to continuous voice and data for crew

The Glocom GE-2100-CCS Crew Control Station provides preprogrammed operation modes through a hands-free plug-and-play interface. The crew can control the selection of internal communication setting modes, the selection of selective calling mode, the selection of radio, the volume control. The vehicle's system status, Crew Station controls and indicators are also monitored by the unit for greater control of the system.



- Remote radio control of Glocom radios from crew station at distances of 2Km
- Delivers continuous voice and data communications
- Communicate urgent messages quickly and reliably
- Ideal for executing time-sensitive, critical operations

Input Voltage Range:	9~36VDC
Current Efficiency:	<40mA
Size:	50mmx126mmx172mm
Weight:	<1Kg

(2) VAD/ANR - Voice Active Detection/Active Noise Reduction

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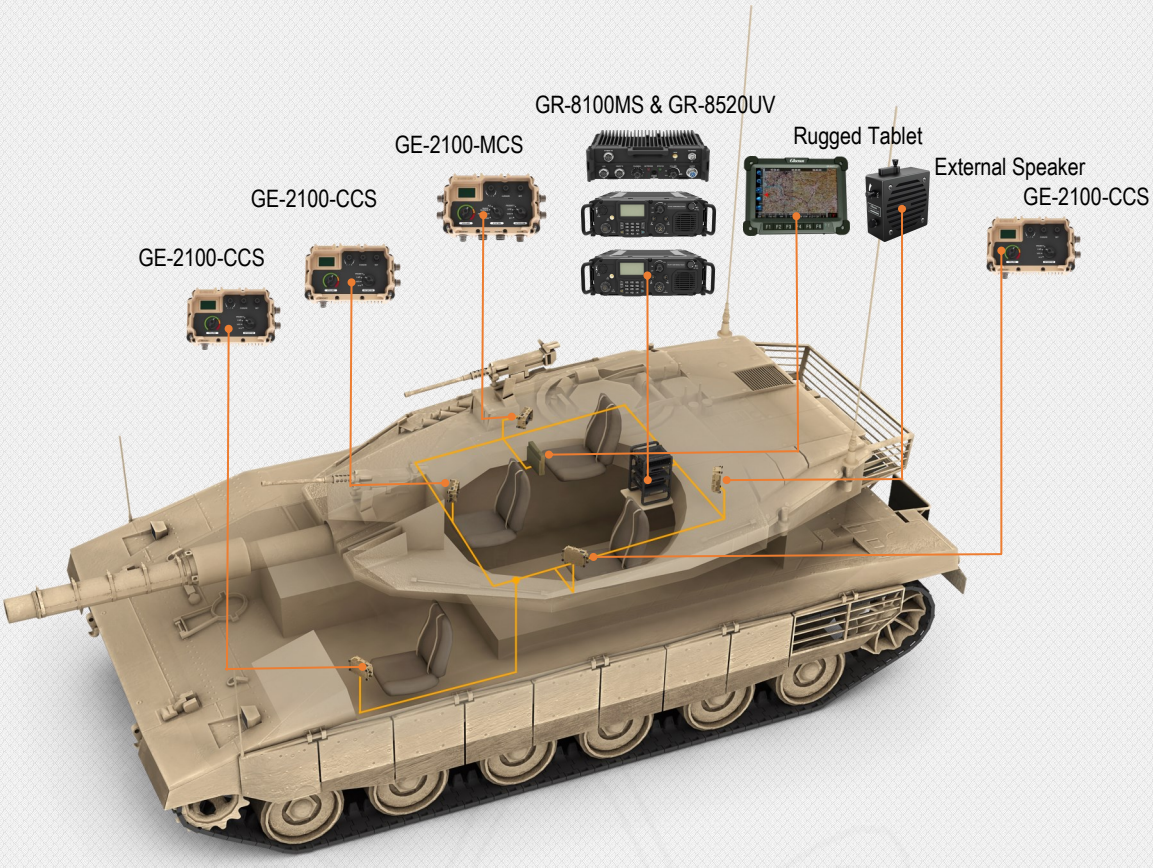
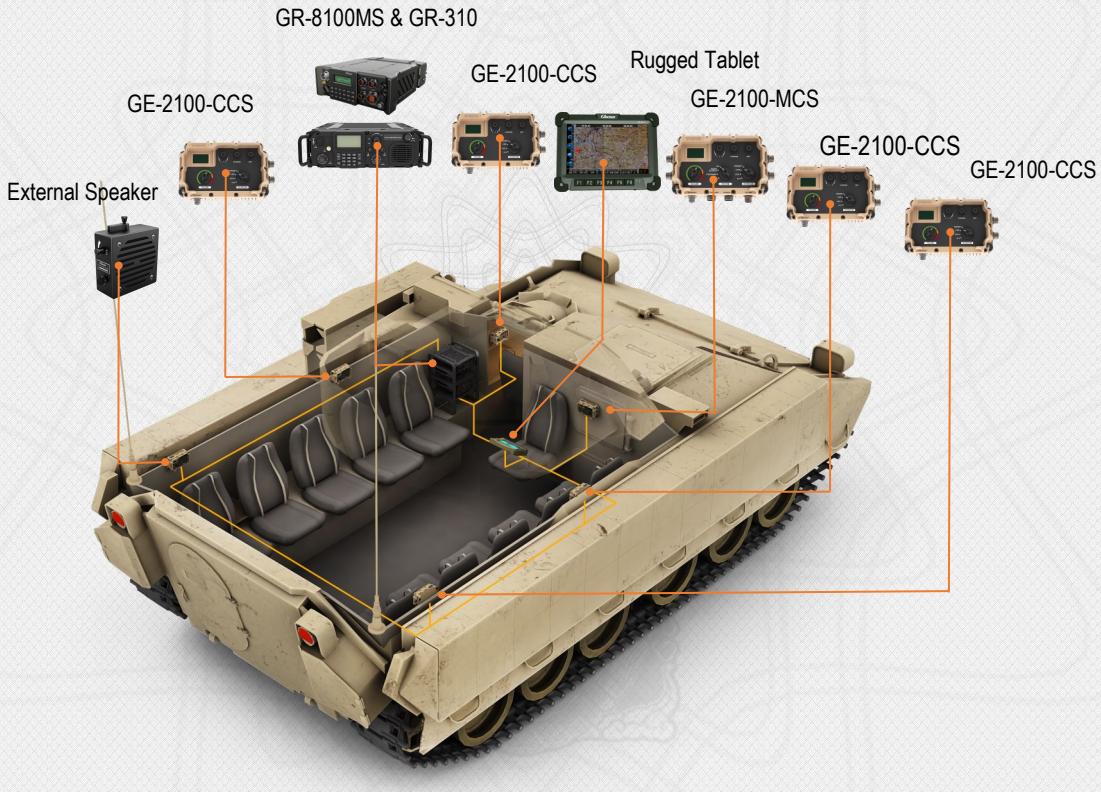
GE-2100-MBT Main Battle Tank



GE-2100-APC Armored Personal Carrier



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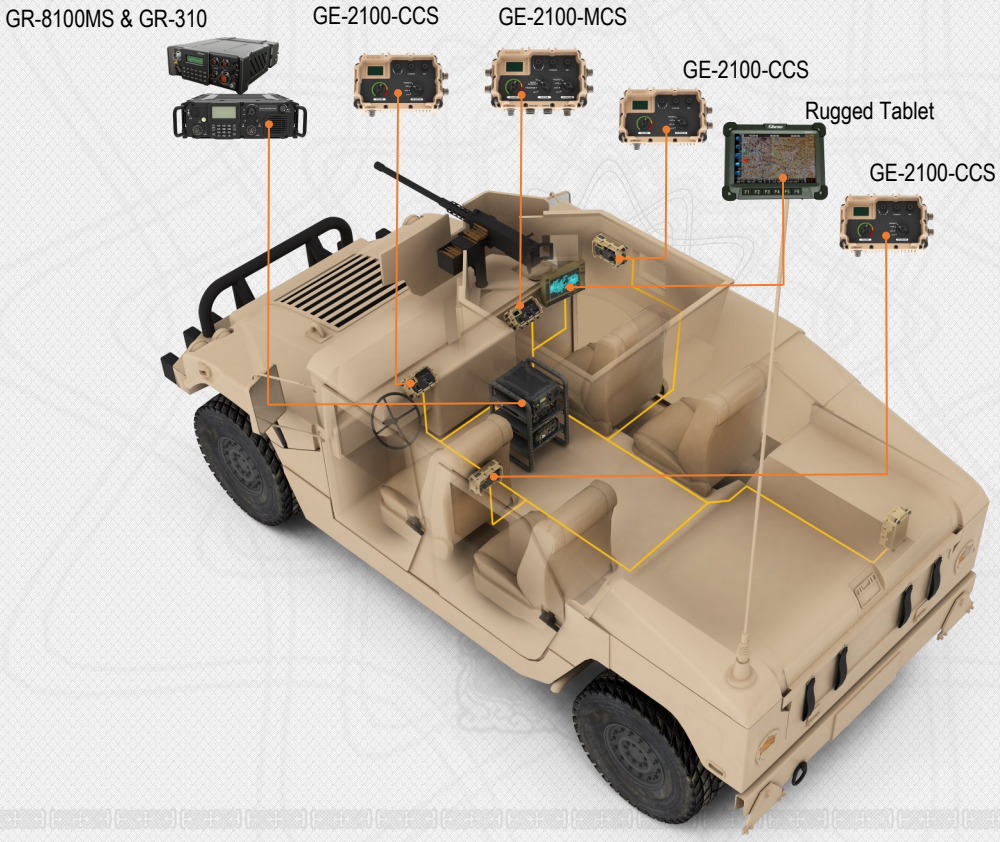
GE-2100-IFV Infantry Fighting Vehicle

GE-2100-LAV Light Armored Vehicle



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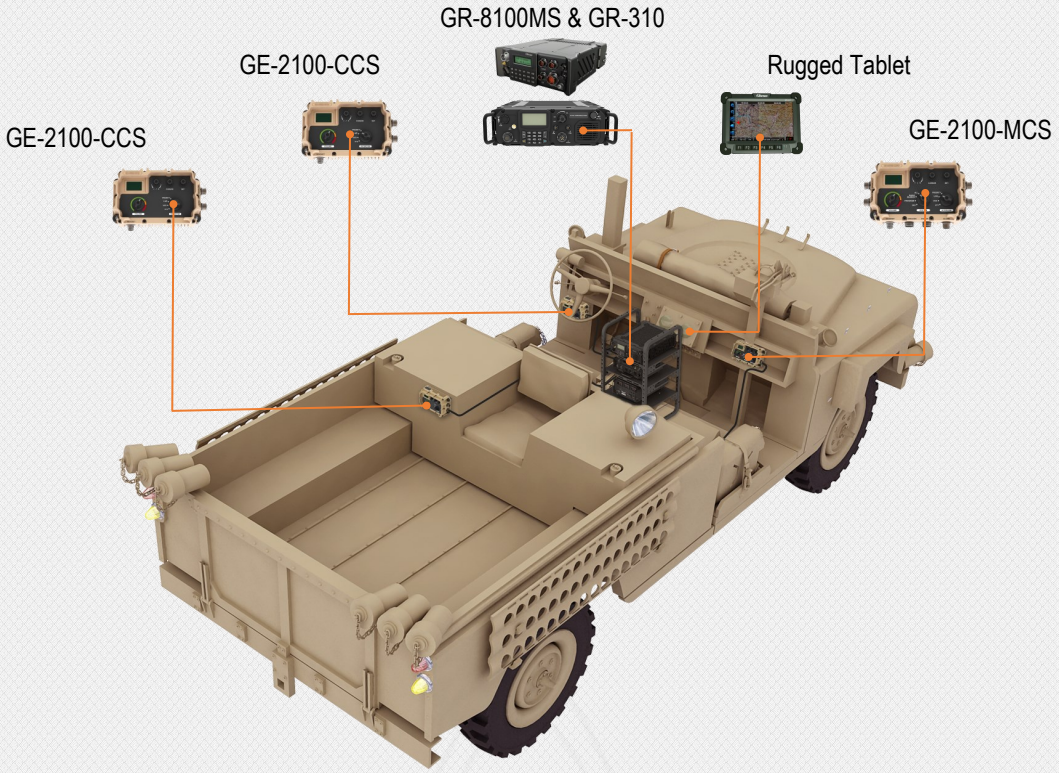
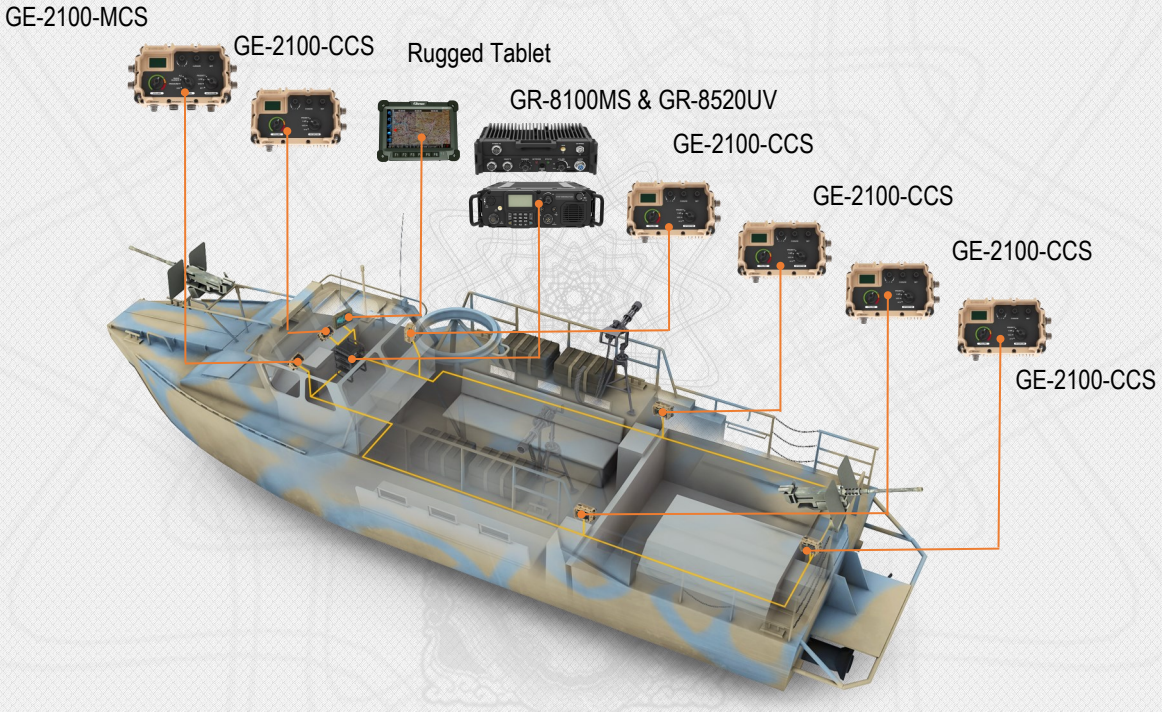
GE-2100-IAV Infantry Armored Vehicle



GE-2100-SHIP Patrol Boat/Submarine/Ship



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GE-2100-xxx List

№	DESCRIPTION	MODEL		UNIT	MBT C(G)	APC	IFV	LAV	IAV	SHIP
1	Master Control Station	GE-2100-MSC		Pc	1	1	1	1	1	1
2	Crew Control Station	GE-2100-CCS		Pc	3	5	3	3	2	8
3	External speaker with cable	GA-40A		Pc	1	1	1	1	1	1
4	HF/VHF Mobile Radio Set	GR-8100MS		Set	2(1)	1	1	1	1	1
5	High Capacity Data Radio Set (HCDR)	GR-8520VU		Set	1					1
6	VHF/UHF Mobile Radio	GR-310		Set		1	1	1	1	
7	Rugged Tablet with Windows OS	-		Set	1	1	1	1	1	1
8	Tankman Helmet with U-329/U Plug	A8100-TH20		Set	4					
9	Tactical Headset with U-329/U Plug	A8100-TH11		Pc		6	4	4	3	9
10	Power Cable (MCS)	MCS-PC-C01		Pc	1	1	1	1	1	1
11	Data Cable for MSC-CCS	MCS-CCS-C01		Pc	4	6	4	4	3	9
12	Data Cable for MCS-8100	MCS-8100-C01		Pc	2(1)	1	1	1	1	1
13	Data Cable for MCS-8520	MCS-8520-C01		Pc	1					1
14	Data Cable for MCS-310	MCS-310-C01		Pc		1	1	1	1	
15	Speaker Cable for MCS-Speaker	MCS-SPK-C01		Pc	1	1	1	1	1	1
16	Data Cable for MCS-PC(RJ45)	MCS-EC-C01		Pc	1	1	1	1	1	1
17	Alarm Cable for MCS	MCS-ALM-C01		Pc	1	1	1	1	1	1
18	Intercom Software Bundle	GE-2100-SW		Copy	1	1	1	1	1	1

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Global Communications Co.,

GE-2200 Radio Remote Control System

Key Features

■ Remote communications ■ Full range of remote line ■ Enhanced data interfaces ■ Supporting Glocom radios

The GE-2200 Radio Remote Control System provides full remote control capability for the Glocom radios using field wire, fiber (external media converter required) and Ethernet capabilities for extended ranges.

All of the radio functions controlled by the radio itself can also be controlled by the GE-2200, including Automatic Link Establishment, frequency hopping and modem selections. The system supports a full range of data interfaces and maintains Engineering Order Wire intercom capabilities between remote and local operators.

Included in the system are two control units, Local Control Unit (LCU) and Remote Control Unit (RCU).

To meet your specific mission requirements, the GE-2200 can be fully interoperable with all the tactical radios which Glocom has brought out.

Glocom assures that the GE-2200 will be integrated to the Next-Gen radios to satisfy his users' unique demands.

Voice Communication

The GE-2200 is capable of maintaining voice communication features of the Radio at remote location. RCU and the Radio have same audio interfaces so that audio devices and systems like headphone, handset, external speaker, etc. are used in same way once the connection is established between them.

Data Communication

The GE-2200 is capable of maintaining data communication of the radio at remote location. RCU and Radio have the enhanced data interfaces so that ethernet and Bluetooth enabled devices as well as legacy RS-232 devices are used once the connection is established between them.

Remote Radio Control

The GE-2200 is capable of controlling connected radio for remote operation. RCU and radio has same display and keypad. Once the connection is established between them, it is possible to display radio screen on RCU without any change. Furthermore, all keypad actions occurred in RCU are transmitted to the radio and display is updated in response. So, operator is supposed to use RCU just like using the radio itself.

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Applications

YOUR ULTIMATE DEFENSE IN ADVERSARIAL ENVIRONMENTS

The GE-2200 is ideal for covert and border operations when troops are under threat of attack. The Remote Control System allows warfighters to receive and transmit data and voice at up to 5 km—preventing adversaries from pinpointing locations of edge-warrior transmissions.

IN-VEHICLE REMOTE CONTROL SYSTEM

The GE-2200 provides flexibility to locate the vehicular radio anywhere inside vehicle which might be unreachable by operators. It supports remote control of the radio, remote voice & data communications by using two-wire cable connection between radio and remote unit.

Technical Specifications

REMOTE CONTROL UNIT GE-2200-RC

The Remote Control Unit delivers the remote user interface.

Distance To LCU	field wire: ≤2km fiber: tens of kilometers
Distance to Radio (Direct Control)	RS-232: ≤15m RS-422: ≤500m Ethernet: ≤100m
Remote line	Direct Control: RS-232, RS-422, fiber, Ethernet Linking with LCU: field wire, fiber
Data Interface	RS-232C, RS-422, Ethernet, Bluetooth
Power Supply	10 ~ 33 VDC
Power Protection	Over-voltage, Polarity
Current Consumption	≤0.4A@24V
Weight	2.6kg (4kg with Battery)
Dimension	W195mm x H92mm x D370mm
Operating Temperature	-30 ~ +50 ℃
Storage Temperature	-40 ~ +80 ℃
Immersion	1m
Shock & Vibration	MIL-STD-810G

LOCAL CONTROL UNIT GE-2200-LC

The Local Control Unit is the foundation of the GE-2200.

Radio interface	RS-232C, RS-422
Distance to Radio	≤5m
Distance To RCU	field wire: ≤2km fiber: tens of kilometers
Remote line	field wire, fiber, Ethernet
Power Supply	10 ~ 33 VDC
Power Protection	Over-voltage, Polarity
Current Consumption	≤0.4A@24V
Weight	2.4kg (3.8kg with Battery)
Dimension	W195mm x H92mm x D370mm
Operating Temperature	-30 ~ +50 ℃
Storage Temperature	-40 ~ +80 ℃
Immersion	1m
Shock & Vibration	MIL-STD-810G

Standard Parts

№	Description	Model	Unit	Qty
1	Remote Control Unit	GE-2200-RC	pc	1
2	Local Control Unit	GE-2200-LC	pc	1
3	Battery Box	A8100-BB31	pc	2
4	Battery Pack	BB-2590/U	pc	4
5	Officer Handset	A8100-OH10	pc	2
6	Cable Assy, LCU to Radio (radio specific)	A2200-CA-LRC01	pc	2
7	Cable Assy, LCU to RJ45 for remote line	A2200-CA-LRR01	pc	1
8	Cable Assy, RCU to RJ45 for data	A2200-CA-RPD01	pc	1
9	Cable Assy, RCU to RJ45 for remote line	A2200-CA-RLR01	pc	1
10	Cable Assy, RCU to RS-232C for data	A2200-CA-RPD02	pc	1
11	Cable Assy, RCU to RS-422 for data (opt)	A2200-CA-RPD03	pc	1
12	Cable Assy, RCU to Radio (opt, radio specific)	A2200-CA-RRC01	pc	1
13	Ground Stake kit (opt)	A8100-GK25	pc	2
14	Keypad Display Unit (opt)	A2200-KDU	pc	1
15	User Manual	A2200-UM01	cp	1

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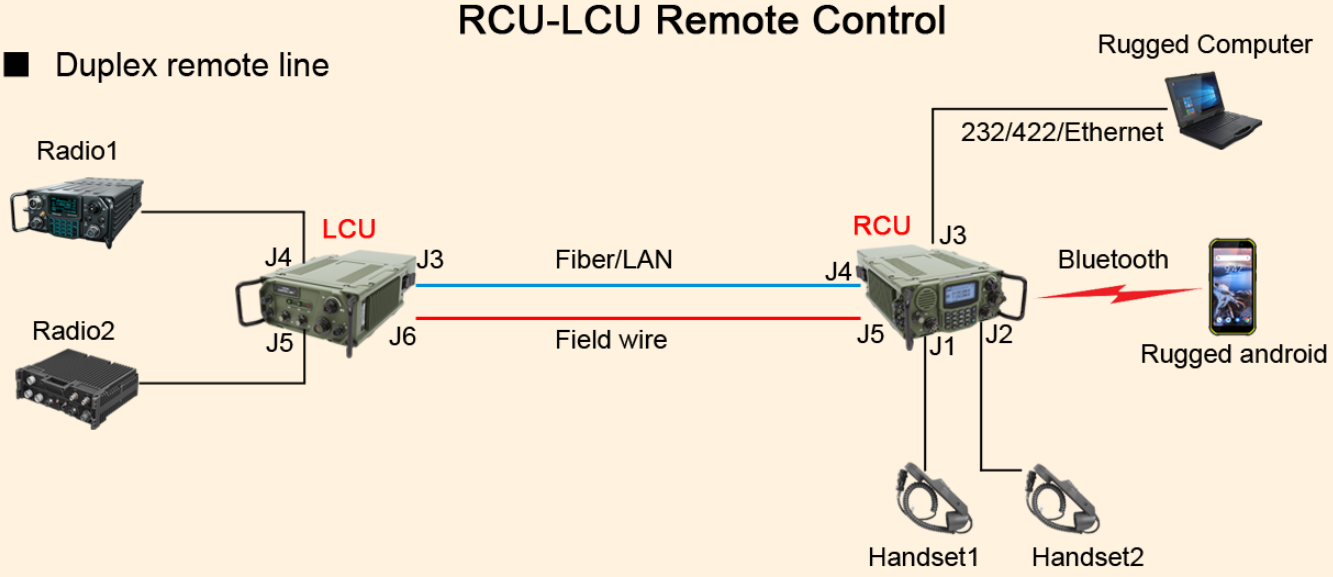
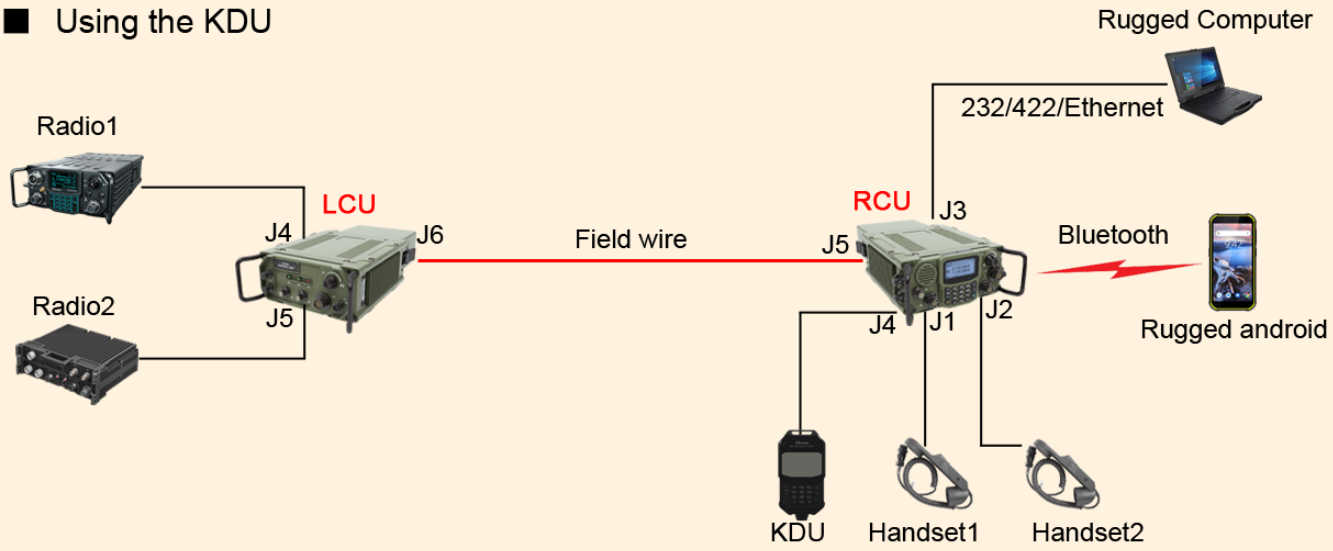
Configuration of the GE-2200

RCU-LCU Remote Control

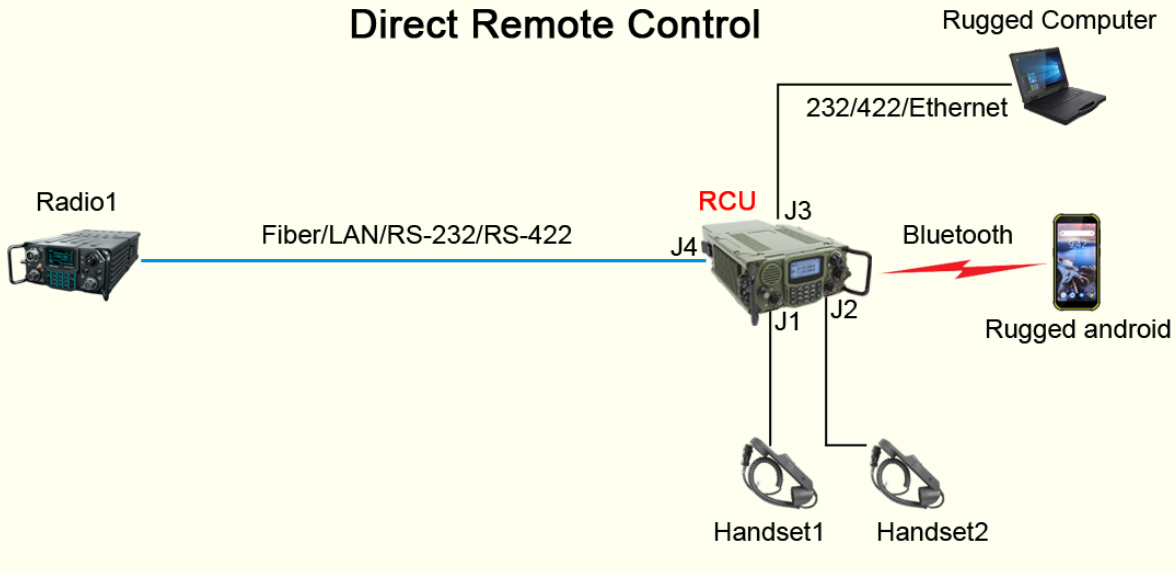
■ Duplex remote line



■ Using the KDU



Direct Remote Control



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GR-452 ADS-B Receiver System

Automatic Dependence Surveillance-Broadcast

[GR-452A ADS-B Receiver Key Features]

■Frequency 1090MHz ■Complete ADS-B Data Processing – No Central Equipment needed ■Covers up to 250n.miles Range ■Compact, Easy to Install, Maintenance-Free, Robust Architecture ■Automatic Self Testing (BITE) ■Full Remote Control and Monitoring ■Secure Communication and Password Protection

[GR-452B ADS-B Transmitter Key Features]

■ADS-B compatible signal (position, velocity, address) ■Parameter seting by keyboard & RS-232 interface ■Built-in LCD for status information display ■Built-in test equipment

ADS-B - Our comprehensive range of integrated products is a preferred solution for enhanced wide area surveillance of aircraft.

Why ADS-B?

Airlines and air navigation service providers benefit from improved low cost surveillance leading to safety enhancement, reduced workload for both pilots and controllers and more efficient operations.

Enablers for ADS-B

ADS-B used in air-to-ground applications provides support in all phases of flight and ground operations:

- En-route e.g. for radar-like separation in non-radar or low coverage airspace
- In TerMinal Areas (TMA) e.g. for precision approach monitoring
- At airport, e.g. within Advanced Surface Movement Guidance and Control Systems (A-SMGCS) including multilateration for surveillance and identification, and vehicle fleet management.

DESCRIPTION

The ADS-B ground station system provides the means of identification of other civilian aircrafts which are equipped with a Mode S compatible transponder. The system confirms to the relevant requirements of ICAO Annex 10, Vol. IV and STANAG 4193, Part 1, Edition 2. Thus it is compatible with all other IFF and SSR systems meeting those requirements. The major equipment items are in service with our army, navy, air force and civil aviation and qualified to meet ground station and warship environment, while all other component units are designed to meet these requirements. All that is necessary is the insertion of the appropriate computers into the secure housing supplied. All cabling and necessary controls form part of the offered system. The system is also supplied with Mode S facilities. However, to make full use of these facilities will require Data Handling capabilities external to the offered IFF/SSR system in order to initiate/ receive the necessary digital communication messages.

GR-452A General Specifications

Range	>250n.miles
Sensitivity	- 91dBm
Dynamic Range	> 80dB
Mean Update Rate	1/s (max. 2/s)
Capacity	> 300 targets/s
Output Formats	Asterix, Raw Data
Time of Arrival Resolution	128MHz (7ns/2.4m)
Time Reference	12 Channel GPS, RAIM/HPL Processing
Power Supply	110V/220VAC, 47~63Hz, 18~36VDC
Power Consumption	<50W
Dimensions	482.6 x 177.0 x 350.6 (mm) w/ Handle
Weight	≤19.5Kg

Site Monitor

Frequency	1090MHz
RF Power	-30dBm
Input	Direct Antenna
Dimension	482.6 x 43.9 x 302.7 (mm)
Weight	6.5Kg

Environment

Operating Temperature	0°C ~ +60°C
Storage Temperature	-30°C ~ +70°C
Humidity	95%

Handling

- Local Integrity Monitoring by means of Site Monitor
- Automatic Self Testing (BITE)
- Periodic “Long Loop” Test using Site Monitor
- Full Remote Control and Monitoring
- Secure Communication and Protecting
- Safe reboot and uploading of firmware

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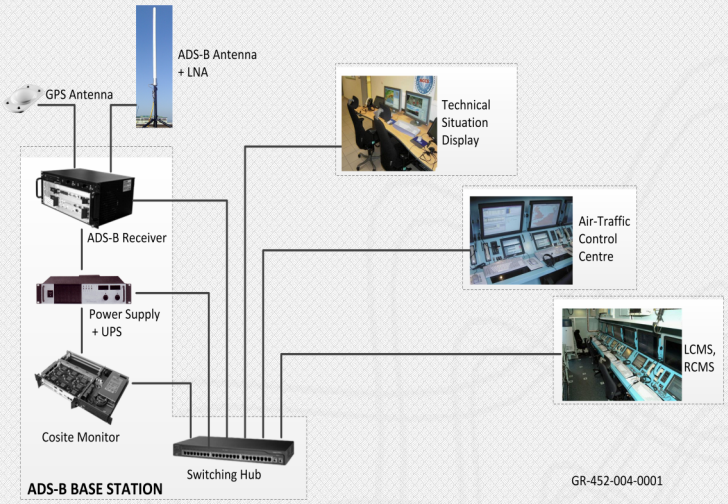
GR-452B General specifications

Transmitter frequency	1090 ± 0.01MHz
Bandwidth (3dB)	3MHz@-3dB
RF power	Minimum peak 50W
Transmit cycle	2 times per second
Power supply	DC10 ~ DC14V
Power consumption	Lower than 15W
Dimensions	90mm x 230mm x 210mm
Weight	4.5Kg
EMC	MIL-STD-461
Operating temperature	-30°C ~ +60°C
Storage temperature	-40°C ~ +70°C
Reliability	4,175 hours MTBF



ADS-B Ground Station

Provides the ground segment of ADS-B air traffic control surveillance system for en-route, terminal area and surface movement control. Using 1090 Mode S Extended Squitter data link, the system outputs decoded data as Asterix category 21 to an attached network.

Air Traffic Control

It displays ADS-B data fully integrated on the same screen as flight plan data, radar data & ADS-C data.

A-SMGCS

Fuses data from multiple sensors, including ADS-B receiver and Mode S Airport Ground Sensor (MAGS) signal. Includes automatic provision of alerts and warnings, as well as traffic routing capabilities.

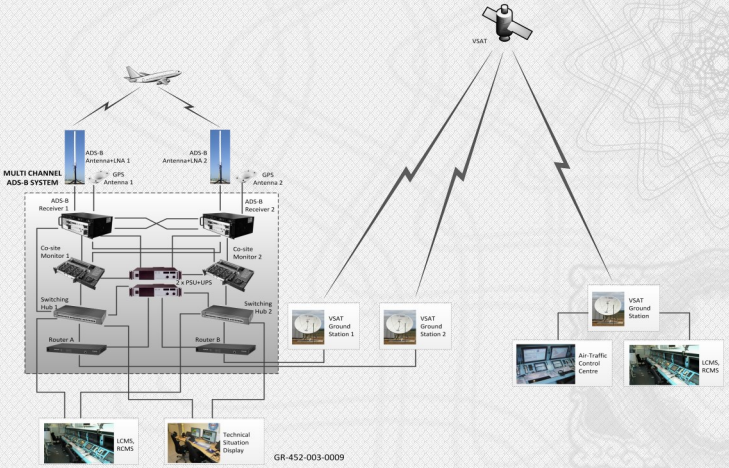
Multilateration - A passive co-operative sensor system, with full ADS-B capability, for surveillance and identification of suitably equipped aircraft and vehicles.

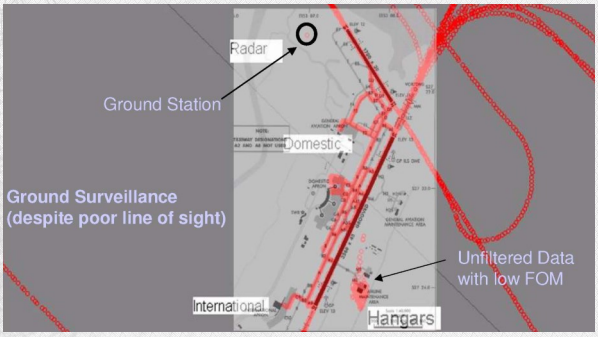
Vehicle management - A multi-link transmitter for vehicle management providing position and identification information to the airport's A-SMGCS through multiple signal outputs including Mode S.

GR-452A ADS-B Receiver (In) Set

The GR-452A ADS-B ground station system provides the means of identification of other civilian aircrafts which are equipped with a Mode S compatible transponder. The system confirms to the relevant requirements of ICAO Annex 10, Vol. IV and STANAG 4193, Part 1, Edition 2.

- ADS-B Base System GR-452A
- ADS-B Fully Redundant System GR-452A-FR
- ADS-B Local Redundant System GR-452A-LR
- ADS-B Multi Channel System GR-452A-MC





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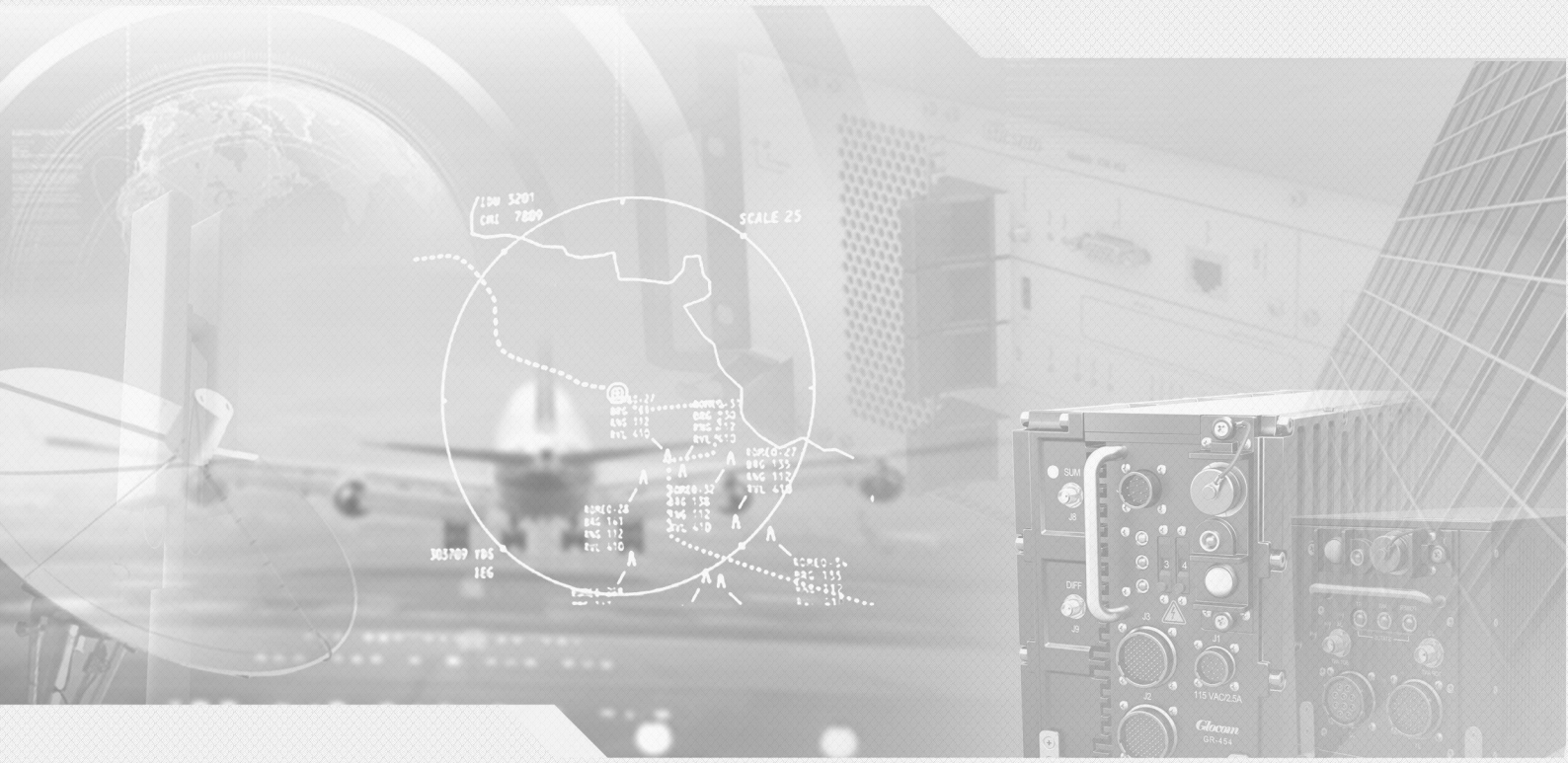

IFF SYSTEM
GR-8450
Integration of IFF (Identification Friend or Foe) System

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GR-8451

IFF Interrogator System

The GR-8451 IFF Interrogator is an advanced long-range IFF interrogator system for the new generation air-defense early warning system. It provides ATCRBS, Mode 4 and Mode S Level 2 aircraft data to the ATC center or weapon system operator.

GR-8451 IFF Integrator operates in conjunction with the primary radar. The system is suitable for all AEW (Airborne Early Warning), ASW (Anti-Submarine Warfare), and SAR (Synthetic Aperture Radar) applications and can be integrated with a variety of radar systems.

GR-8451 IFF Interrogator represents the most technically advanced, digital commercial off-the-shelf equipment available for long-range stationary/mobile IFF. Designed as a replacement for the old version of legacy interrogators or new installations.

It provides the advanced processing capability to rapidly identify friendly targets. The system is designed with a DSP and FPGA technology that enables maximum system flexibility and supports practical upgrades.

Extensive use of these technologies allow configuration of system interfaces to a variety of platform applications.

Critical Function

- Target capacity 1,200 per scan
- Probability of detection >89%
- False targets <0.1%
- Validated code accuracy >99.9%
- MTBF 9,400 hours
- Azimuth accuracy 0.087 degrees
- Transmit power 2,000 watts peak

Long-Range System Performance

- Amplitude Mono-pulse reply processing
- Mode 1, 2, 3/A, C, 4, growth to 5
- Mode S level 2, growth to Mode S level 4
- Software programmable COTS architecture
- Mode 4 target evaluator
- Adjustable transmit power
- Beacon performance monitoring and measurement reporting
- Reflection target suppression
- ASTERIX data category 34/48 interface

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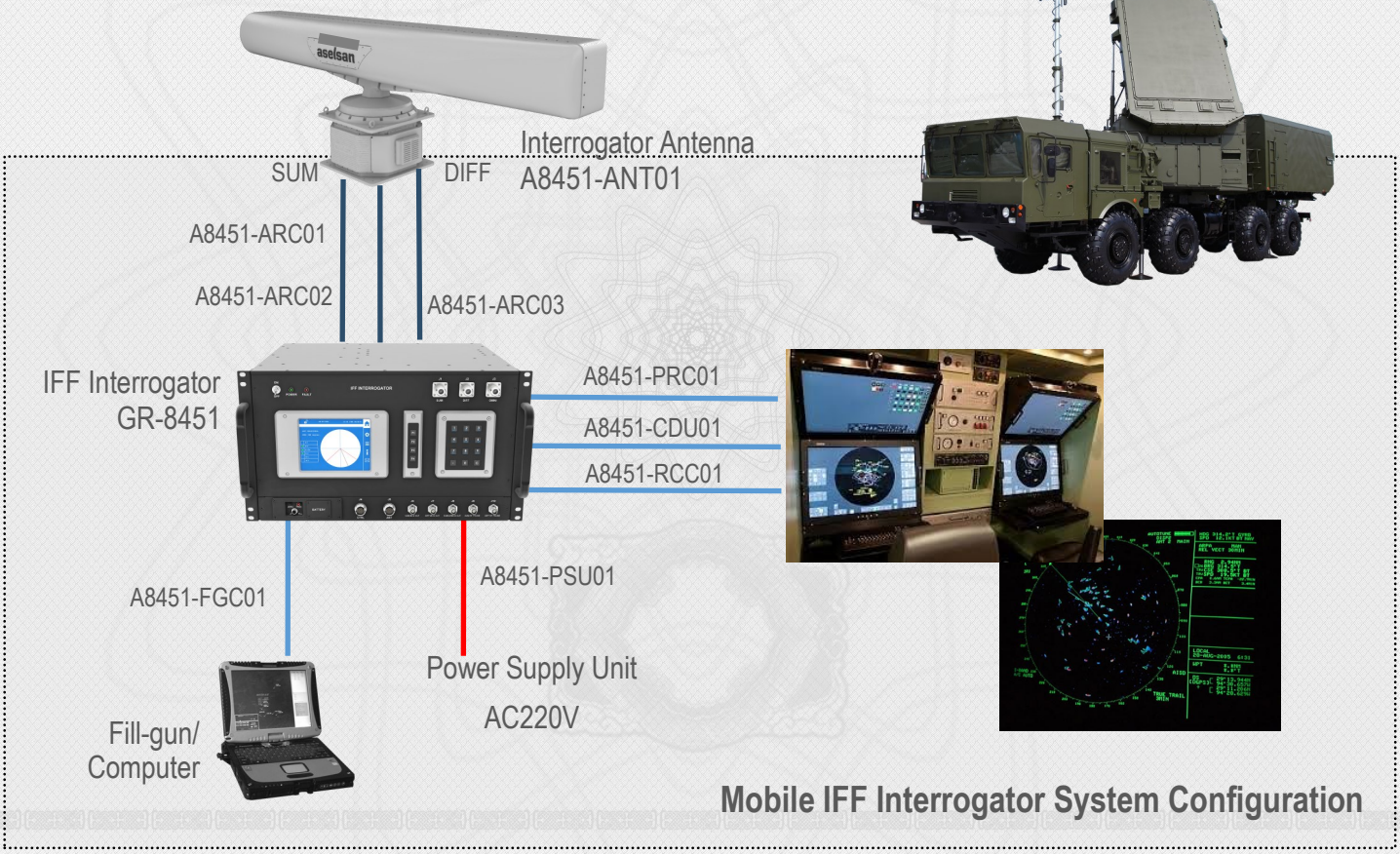
GR-8451 IFF Interrogator

GR-8451 IFF Interrogator provides civil and military air traffic controllers with the latest in Identification and ATC system performance including:

- Mode 1, 2, 3/A, B, C, D, 4
- User selectable four-mode interface and super mode sequence
- Mode S level 2 including ground initiated comm B
- Transmit power electronically adjustable from 23 to 33dBW
- Built-in MSSR target extractor and tracker
- Digital target reports containing selectable plot or tract data
- LDMOS linear transmitter amplifiers
- Three channel digital software radio receiver
- All-digital, software-programmable system
- Remote monitoring and control
- Measured and reported system performance parameters including transmitted power, pulse width and pulse spacing, antenna VSWR, receiver sensitivity, target extractor/tracker, GTC and RSLS performance
- ASTERIX, CD2 and Ethernet interfaces
- Four PPI video output ports
- Automatic detection and location of reflecting objects

GR-8451 IFF Interrogator Set

IFF interrogator main body	GR-8451	1pc
Interrogator antenna	A8451-ANT01	1pc
Fill-gun/computer	S420	1pc
Fill-gun/computer cable	A8451-FGC01	1pc
Antenna RF cable 01	A8451-ARC01	1pc
Antenna RF cable 02	A8451-ARC02	1pc
Antenna RF cable 03	A8451-ARC03	1pc
Primary radar cable	A8451-PRC01	1pc
Control display unit cable	A8451-CDU01	1pc
Reverse computer cable	A8451-RCC01	1pc
Power cable (220VAC)	A8451-PSC01	1pc



Mobile IFF Interrogator System Configuration

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GR-8454

IFF Transponder

The GR-8454 IFF Transponder is the military standard transponder for all retrofit and new product applications. It is designed for any type of airplanes like fixed-wing and rotary-wing fighters.

Key features

- Integrated IFF/Mode 1, 2, 3/A, C, 4, 5
- Cost effective
- Ensures Flight Safety
- Secure ID
- Compact System
- Remote Control Panel (Cockpit)

Advantages

- Operates simultaneously in Modes 1, 2, 3/A, C, 4, 5; provides IDENT and emergency reply codes
- National Secure Mode (NSM) operation via integrated crypto module
- Mode S compatible
- Single-box solution for Tx/Rx and reply evaluator
- MTBF 4,000 hours.

GR-8454 IFF Transponder operates in conjunction with the all kinds of aircraft. In addition to single antenna configuration system, the system uses two antenna system operation. One antenna will be installed on top of aircraft and another one is under the aircraft, so all signals can be received in any direction. The system is suitable for all new and legacy aircrafts and can be integrated with a variety of aircraft systems.

GR-8454 IFF Transponder represents the most technically advanced, compact and lightweight transponder available for airborne, long-range and shipboard IFF. Designed as a replacement for the old version of airborne transponder, the GR-8454 has been selected by many international Air Forces as part of their platforms.

It provides the advanced processing capability to rapidly identify friendly targets. The system is designed with a DSP and FPGA technology that enables maximum system flexibility and supports practical upgrades.

Extensive use of these technologies allow configuration of system interfaces to a variety of platform applications.

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General Specifications

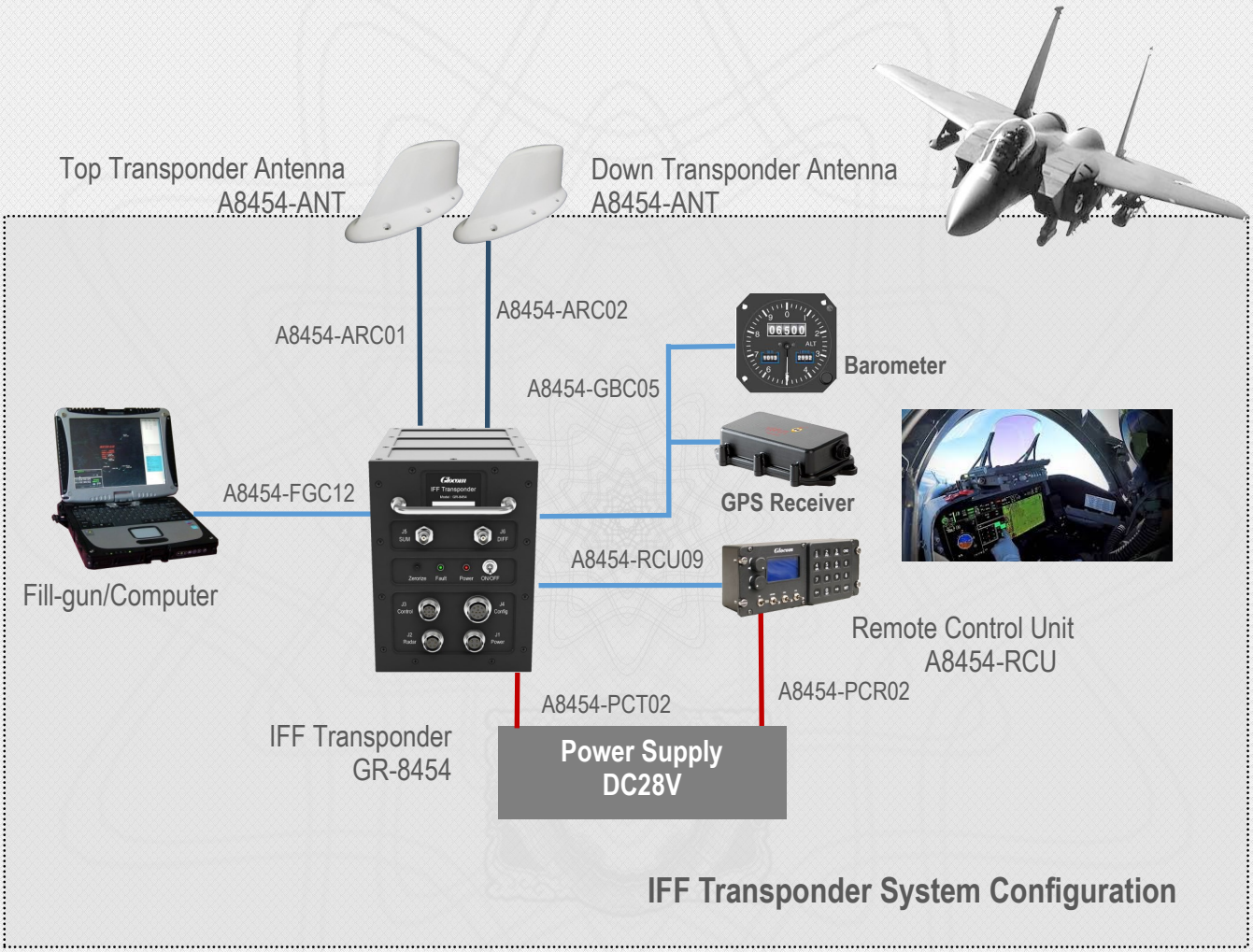
Operation mode Mode	1, 2, 3/A, C, 4, 5
Transmitter frequency	1090±0.1MHz
Transmit duty cycle	Max. 1%
RF Power	Peak power 500W±2dB
Receiver frequency	1030±0.5MHz
Receiver sensitivity	< -74dBm (measured at front panel)
Dynamic range	> 60dB
Dimensions	236 x 152 x 207mm
Weight	< 8Kg
Current consumption	DV27V/40W
Remote control	RS-232/422/485, Ethernet

GR-8454 IFF Transponder Set

• IFF transponder	GR-8454	1pc
• Transponder antenna (top, down)	A8454-ANT	2pcs
• Antenna RF cable (top)	A8454-ARC01	1pc
• Antenna RF cable (bottom)	A8454-ARC02	1pc
• Remote control unit	A8454-RCU	1pc
• RCU 9 way control cable	A8454-RCU09	1pc
• Transponder 2 way power cable	A8454-PCT02	1pc
• RCU 2 way power cable	A8454-PCR02	1pc
• 5 way data cable (GPS, Altitude)	A8454-GBC05	1pc
• 12 way data cable (Fillgun/PC)	A8454-FGC12	1pc

OPTION

• Fill-gun/Computer	Getac	1pc
• Barometer		1pc
• GPS receiver		1pc
• 320W power supply unit	GA-34A	1pc
• Installation kit	A8453-ITK01	1pc



IFF Transponder System Configuration

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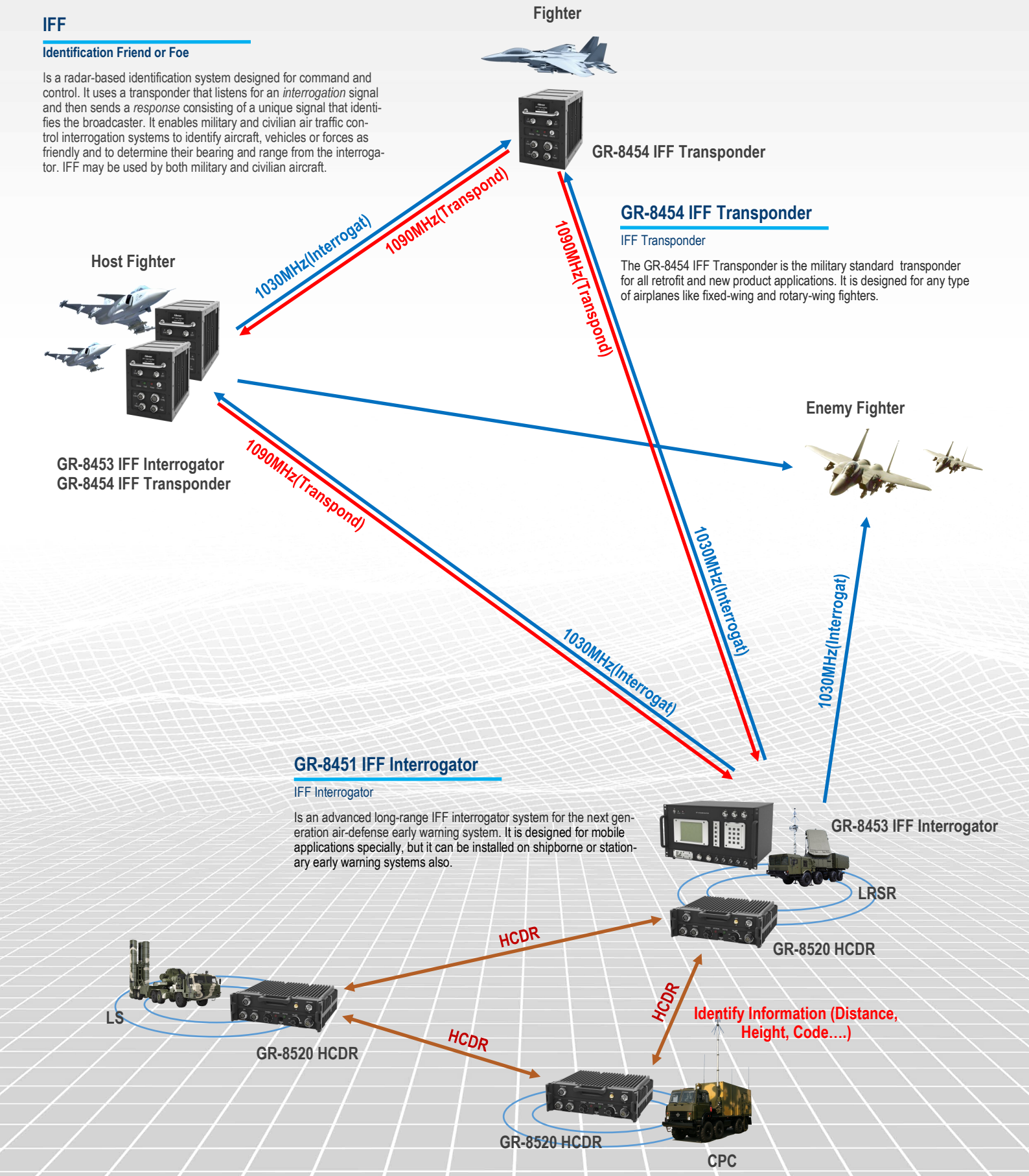
IFF System Concept

IFF

Identification Friend or Foe

Is a radar-based identification system designed for command and control. It uses a transponder that listens for an *interrogation* signal and then sends a *response* consisting of a unique signal that identifies the broadcaster. It enables military and civilian air traffic control interrogation systems to identify aircraft, vehicles or forces as friendly and to determine their bearing and range from the interrogator. IFF may be used by both military and civilian aircraft.



GR-8454 IFF Transponder

IFF Transponder

The GR-8454 IFF Transponder is the military standard transponder for all retrofit and new product applications. It is designed for any type of airplanes like fixed-wing and rotary-wing fighters.

GR-8451 IFF Interrogator

IFF Interrogator

Is an advanced long-range IFF interrogator system for the next generation air-defense early warning system. It is designed for mobile applications specially, but it can be installed on shipborne or stationary early warning systems also.

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GD-200X Ground Surveillance Radar (GSR)

100° Elevation Coverage	15W Power Consumption	20° Azimuth Coverage
Up to 1000m Detection Range	<20m Range Resolution	<3Kg Weight

[Key features]

■ Easy to carry and deploy in battlefield or any others ■ Easy to built the surveillance network by standard interface ■ Up to 1000m in day and night at all weather conditions ■ Small size, low weight and low power consumption ■ Wide usable area in army barracks, police check points for surveillance, border control and VIP protection etc...

■ **[Mission]**-The GD-200X Manpack Ground Surveillance Radar detects ground targets (including tank, armored fighting vehicles, personnel) and measures coordinates (range, azimuth) in any season, including poor visibility conditions. Manpack Surveillance and Target Acquisition Radar is a highly versatile low-power, high-performance ground surveillance radar. The Manpack radar provides wide-area surveillance to a maximum range of 1000m, day or night and in all weather conditions. This system can be carried by only one persons, and put into action in less than three minutes. This radar can be installed at army barracks, police checkpoints for surveillance and operation, border control as well as schools for security and protection ■ **[Concept of Operation]**-Targets are classified automatically using target classification in terms of Doppler effectiveness, with output Doppler return being channeled to the operator. ■ **[Operating Principle]**-The radar detects and tracks several kinds of ground targets including a crawling person as well as vehicles in a high probability with a sophisticated device and signal processing technology such as LFM impulse compress, range side removing, frequency-agile, FFT filter group process, solid transmit technology. The target reflection signal into the antenna is input to RF front–end with SAW filter through the circulator. The target signal of intermediate frequency mixed with the local oscillation signal that comes from the local oscillation unit through the SAW filter and the limited amplifier. The digital target signal converted in the signal processing unit is processed, so the final target information (range, azimuth) is obtained. On the display, an operator simultaneously tracks the locus of several targets. And it identifies the kind of selected targets.

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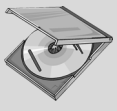
General Specifications

Frequency	X-band (8-12GHz, 3.75-2.5cm)
Detection Range	Pedestrian <500m, Vehicle <1km
Minimum Range	15m
Moving Target Speed	0.5~30m/s(2~100Km/h)
Resolution	Range <20m, Azimuth <2.5deg
Antenna Search Angle	100°
Power Consumption	DC10V~DC14V, <15W
Set-up/Tear-Down Time	3 minute
Weight	3kg
Size	320x245x50mm (WxHxD)
Operating Temperature	-30°C~+60°C
Storage Temperature	-50°C~+70°C
Humidity	98%
Vibration	MIL-STD-810E
Shock	MIL-STD-810E

№	DESCRIPTION	MODEL	PICTURE	UNIT	QTY
1	**Ground Surveillance Radar Body** Radar Body with Antenna. Size 458x408x230mm, 3kg	GD-200X		Pc	1
2	**Tripod** Standard Tripod for GSR, Max. load 10Kg. Foldable for small size , light weight and strong	A200X-TP01		Pc	1
3	**Remote Control & Display Unit (Rugged PC)** OS: Windows 10, Rugged PC, 8GB+512GB, 10” Display, Keyboard	Panasonic/Getac		Pc	1
4	**Ethernet Cable** Ethernet cable to connect GSR and PC Ethernet port or Ethernet Hub	A200X-EC03		Pc	1
5	**Battery Pack** High-capacity, rechargeable, Li-Ion battery for the GD200X GSR	BB-2290/U		Pc	1
6	**Battery Charger** 1 Bay battery charger for BB-2590/U	A8100-BC1B		Pc	1
7	**Setup and Application Bundle** Software bundles to setup and operate the GD-200X GSR developed by Glocom	A200X-SA01		Copy	1

X band - 8~12GHz(3.75~2.5cm)

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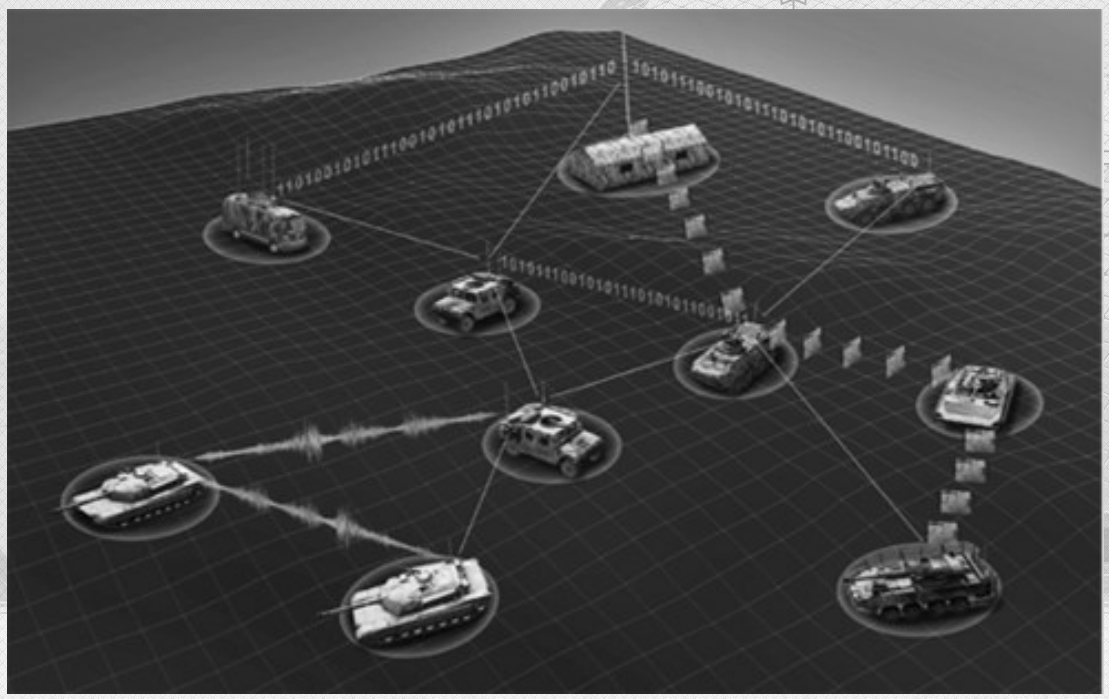
GS-910 Tactical Chat for messaging over radio network



Key features

■Exchange of text message, files, pictures ■User interface designed after commercial instant messaging ■Reliable message/file transfer over tactical radio networks even when voice links cannot be established ■Improved image compression based on H.264/H.265 video encoding ■Support all the types of the Glocom tactical radio

The GS-910 Tactical Chat application provides reliable exchange of text messages, files and pictures through networked data terminals.
The GS-910 application supports both point-to-point (ARQ) and broadcast (non-ARQ) data transfer among the members of Glocom radio network.
The application uses the data capability of Glocom radios, which enables data to be easily exchanged between wireless network users. The application runs on PCs and Android mobile devices, which are connected to the radio via an asynchronous RS-232 or Bluetooth interface.
The underlying communication protocol has been carefully engineered to provide the best performance possible over radio links. Protocol parameters ae dynamically adjusted as messages are exchanged among application users, yielding a progressively optimized network.
The GS-910 Tactical Chat application user interface has been designed after commercial instant messaging applications and allows the users to be quickly familiar with this application. The user can type a message or select from a list of predefined messages. File transfer-including imagery files-is also supported, with the ability for partial file transfers to be resumed at the point of failure.
A log of message exchanges, which can be viewed and saved, is recorded.
A significant feature of the GS-910 is the image compression, which is based on H.264/H.265 video encoding. The compression ratio of this technique is higher 4~8 times than JPEG 2000 standard.
Unique to the GS-910 for android, GS-910AN, is the ability to seamlessly take a picture using the Ruggedized Tablet's camera, attach it to a message, and distribute to other users.

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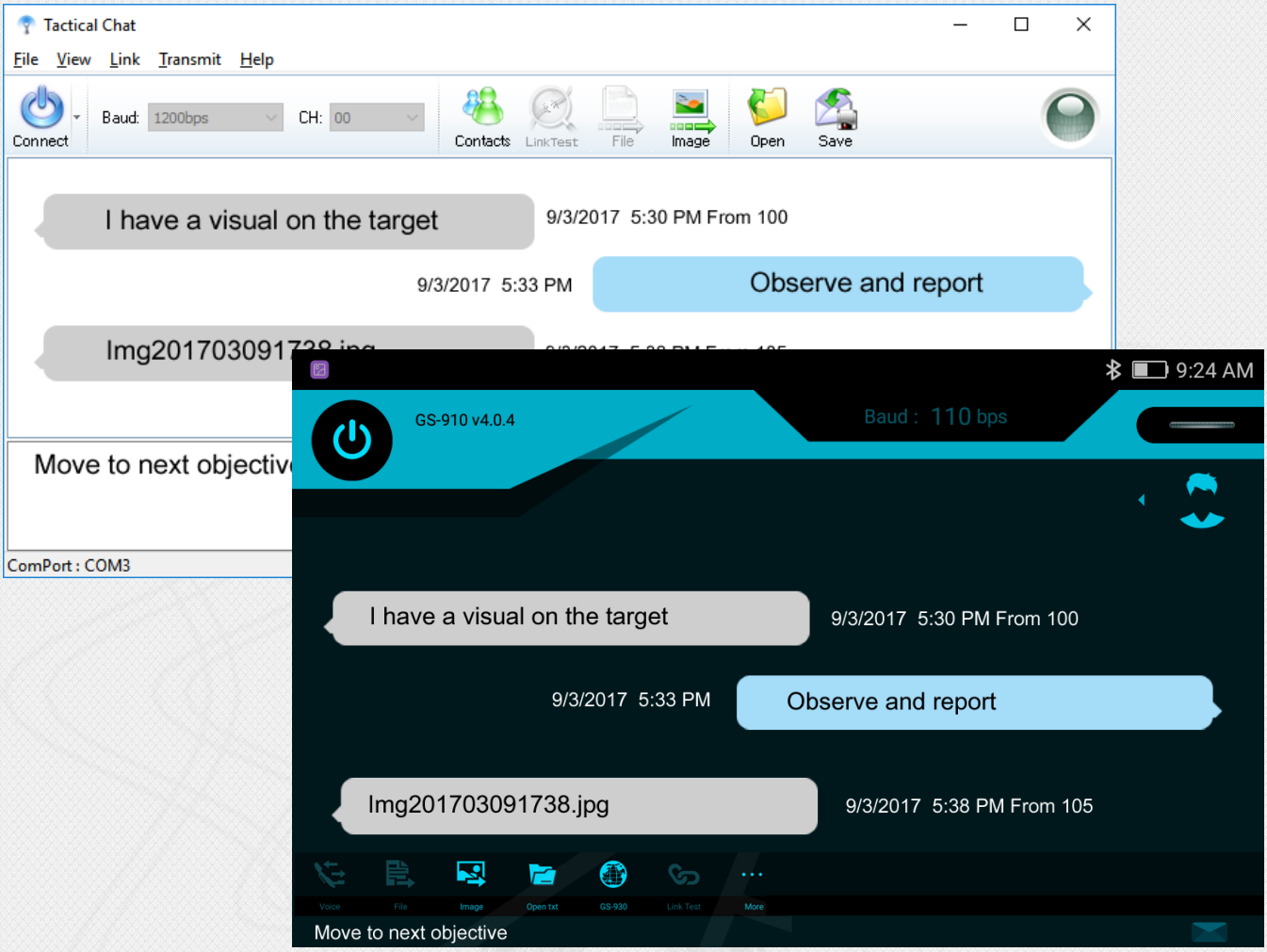
Supported Radios

GS-910 application supports all the types of the Glocom tactical radio in one user interface

No	RADIO NAME	MODEL
1	HF/VHF Manpack Radio	GR-8100HV
2	Multiband Handheld Radio	GR-8600M
3	HF Manpack Radio	GR-150
4	VHF/UHF Manpack Radio	GR-310
5	Secure Personal Radio	GR-611



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Minimum Recommended Requirements

GS-910

No	COMPONENT	SPECIFICATION
1	CPU	Intel Pentium 500 MHz or minimum required for OS
2	Memory (RAM)	512MB or minimum required for OS
3	Hard Disk	minimum required for OS
4	I/O	Standard RS-232C serial port (1)
5	Operating System	Windows 7

GS-910AN

No	COMPONENT	SPECIFICATION
1	CPU	1.5GHz
2	Memory (RAM)	1GB
3	I/O	Bluetooth, USB (2)
4	Operating System	Android 4.0

Accessories

(1) If the PC has not RS-232C serial port, then USB-RS232C converter or Ethernet-RS232C converter is needed.

- RS-232/422/485 to USB Converter 3rd Party
- RS-232 to Ethernet Converter 3rd Party

(2) If the radio has not built-in Bluetooth, then Bluetooth-232C converter and its cable are needed.

- Bluetooth to RS-232 Converter 3rd Party

Ordering Information

No	SOFTWARE	MODEL	BRAND
1	Tactical Chat for Windows	GS-910-WIN	Glocom
2	Tactical Chat for Android	GS-910-AND	Glocom

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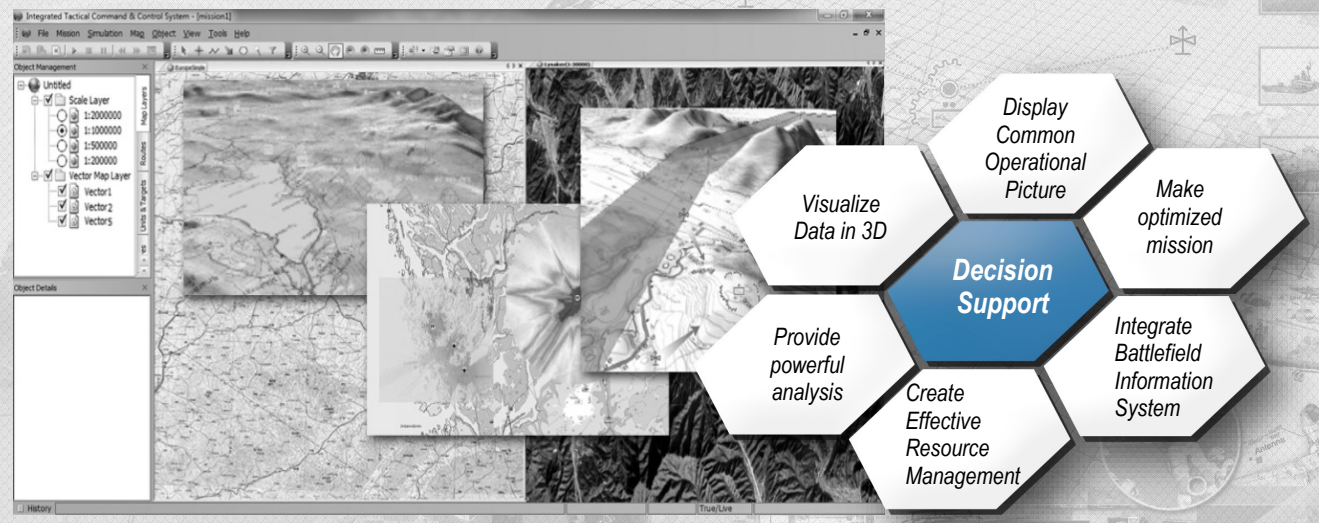
GS-920 Tactical Geographic Information System



High Performance Tactical Mapping System in a dynamic environment !

Features

■Fast map system designed to act in a real-time environment ■Display a Common Operational Picture ■Powerful analysis tools ■ Support various geospatial database ■ Support for surveillance data exchange standards

The final aim of C2 system is to make better decisions faster

Geographic Information System (GIS) have become more than just a specialist's tool. It is being used by defense organizations around the world to create powerful spatial information infrastructures. Commanders are discovering that digital maps and spatial analyses help users make better decisions faster.

[Glocom Solution]

The GS-920 is used by military users to create tactical spatial information infrastructure, integrated into geographical database.

The GS-920 is a high performance tactical mapping system. The functionality includes track management, layered drawing tools and several analysis tools such as radar/radio coverage, elevation profile analysis and time/speed calculations.

The motivation for designing GS-920 is to develop a fast map system, which did not necessitate a high level of user interaction or systems knowledge. The GS-920 is designed and able to act in a real-time environment. The map system can be used to display tactical data, such as radar tracks, drawn objects and database information. The toolbox also enables the user to analyze both geographical and tactical data.

The purpose of the design is to also provide a simple method of interfacing with a vast number of communication methods and protocols to cover Command, Control, Communication and Intelligence (C3I) functions, relating to geographical information in a dynamic environment.

The GS-920 uses spatial databases to store information such as reference positions, place names, track data and drawn objects to store, analyze, share and review the tactical data relating to geographical information. It supports various spatial database, such as PostGIS and SpatialLite.

Although initially designed to satisfy military response requirements, the GS-920's versatility, user friendliness and high performance have all become key factors which now also make it ideally suited for many unclassified civilian roles where high speed interaction and flexibility are of importance.

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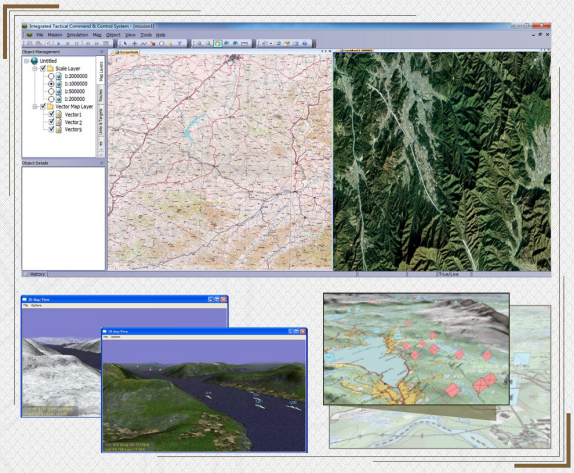
Although initially designed to satisfy military response requirements, the GS-920's versatility, user friendliness and high performance have all become key factors which now also make it ideally suited for many unclassified civilian roles where high speed interaction and flexibility are of importance.

Map System

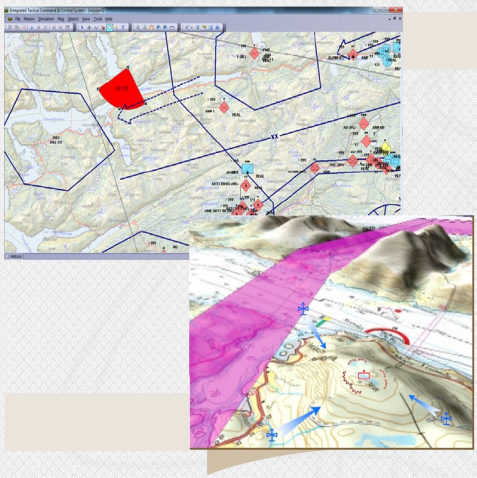
Your specific needs are realized within any geographical area worldwide and at any scale.

- Display map data from a wide range of vector and raster formats
- Several map projections available
- WGS1984 datum by default
- 3D visualization by DEM



Drawing Tools

The GS-920 has a wide ranging Draw Objects function with a simple user interface to illustrate military scenarios and display COP.



- Various geometric figures
- Military symbols according to MIL-STD2525B
- Exporting of drawing objects to ESRI Shape, GML and KML format

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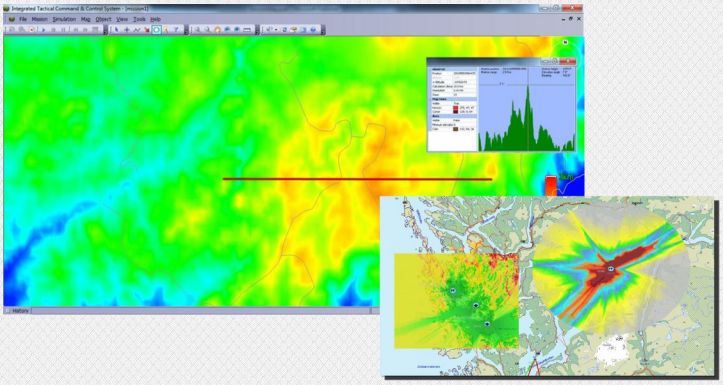
Analysis Tools

Your better decisions are based on the powerful analysis tools.

- Various measuring such as distances, area
- Height profiles using the DEM or DTED
- Horizon diagram
- Radio analysis tool



Spatial Database

The tactical spatial information infrastructure is integrated into geographical database.

- PostGIS, network database
- SpatiaLite, local database

Surveillance data exchange standards

Support for contemporary military and civilian data exchange standards.

- ASTERIX CAT021 standards for ADS-B
- NMEA0183 standards for AIS

Minimum Recommended Requirements

No	COMPONENT	SPECIFICATION
1	CPU	Intel Pentium 1.5GHz or minimum required for OS
2	Memory (RAM)	1GB or minimum required for OS [1)]
3	Hard Disk	10GB (depending on amount of map data)
4	Operating System	Windows 7

1) Video card is needed for accelerate rendering. 1GB NVIDIA GEFORCE is recommended.

Ordering Information

No	SOFTWARE	MODEL	BRAND
1	Tactical GIS	GS-920	Glocom

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GS-930

Integrated Command & Control System

Glocom software provides forces with information where and when they need it most !

Role of C2 System

The information play always important and key role in military operation for ages. Recently, distribution, mobility and three dimension of war aspect further complicate the situation of battlefield, therefore, make difficulty in command and control. In such warfare the superiority of information is keenly needed for successful fulfillment of command and control task. Command and control system is an ability for commanders to precisely evaluate the situation of the warfare, make the corresponding plan and control the subordinate units.

Command and control is continuous sequence of commander's making-decision.

Quality of command and control system determines quality of information, quality of information determines quality of making-decision, and finally quality of making-decision determines quality of command and control. Consequently, the system of command and control is an important element of command and control.

Glocom Solution

Glocom software products provide military commanders at all echelon levels with high-performing command and control (C2) solution that offers clarity, simplicity, and high performance that addresses real world C2 challenges.

GS-930 is an integrated command and control (C2) software suit with features such as digital map display, situational awareness, Blue Force Tracking, instant messaging and collaborative planning. GS-930 suite connects the headquarters to the tactical edge with its four products: GS-930HQ-WEB, GS-930HQ-CS, GS -930FL, GS-930EG. They are fully integrated through tactical communications, which is the communication core of the GS-930 suite. GS-930 tactical communications provide networked command and control and shared situational awareness, from the higher headquarters to the commander at the tactical edge. It supports IP and non-IP Glocom radios and can handle different types of radios, even within the same vehicle. GS-930 is designed to provide a joint Common Operational Picture (COP) within all the operation domains.

GS-930 supports contemporary military and civilian data standards: ADS-B, AIS and so on.

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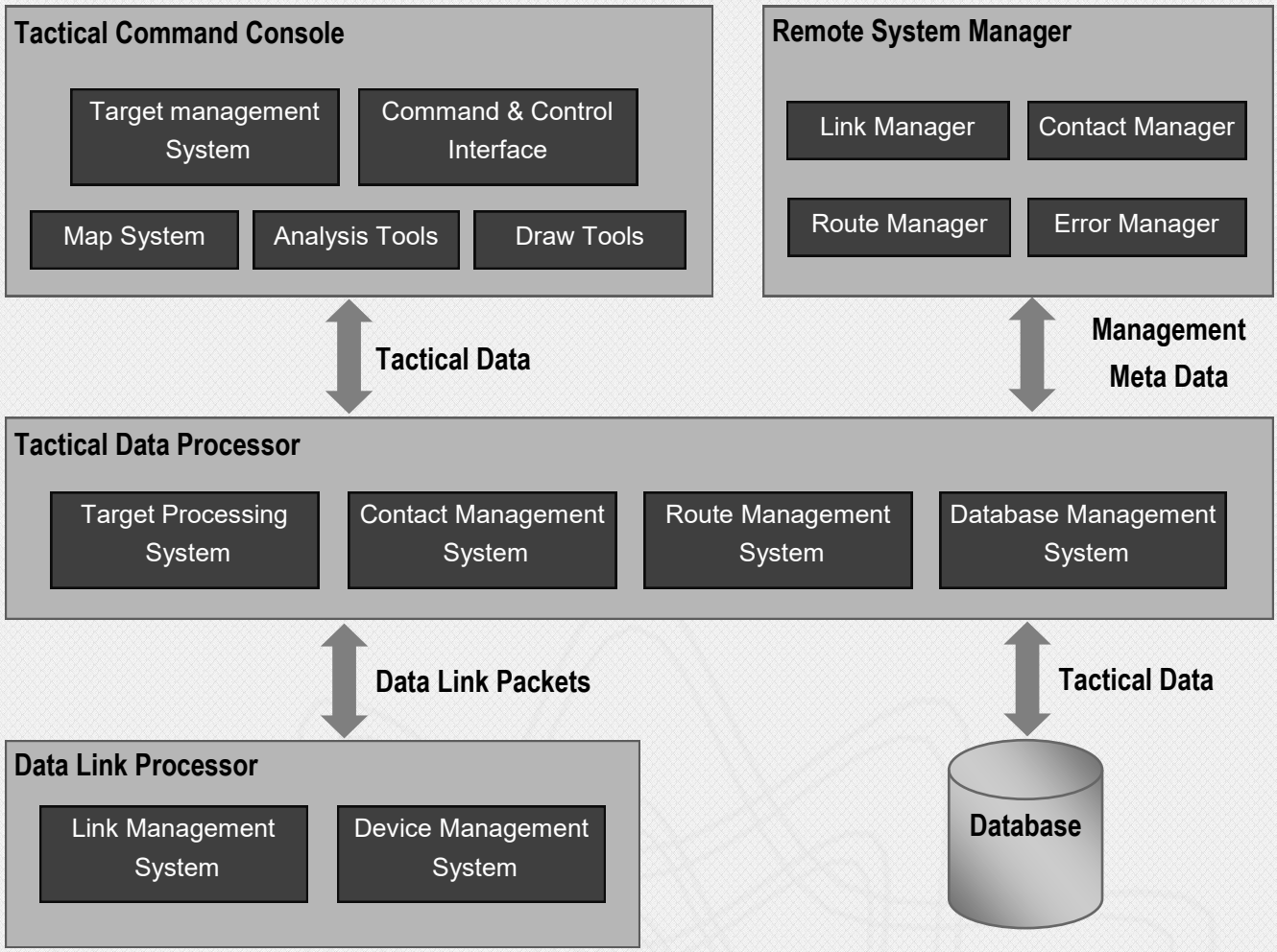
ITCCS Framework



General Features

- Digital Map: Geographical Information System (GIS) supports the widest range of map formats, terrain data and terrain tools, in both 2D and 3D including GeoTiff, ESRI Shape, Digital Elevation Model (DEM)
- Situational Awareness: Handling the live feed tracks from various sensors and tactical edge, Blue Force Tracking and supporting of contemporary military and civilian data feed standards: AIS, ADS-B messages
- Mission Planning: Constructing textual and graphical plans & orders in a collaborative manner
- Interoperability and Sharing: The highest degree of interoperability and sharing is achieved through Glocom Tactical Communications composed of Glocom radios and software
- Record & Playback: Allowing debriefing or after action review of specific parts or periods of an operation
- Tactical Data Link: Supports a wide variety of IP and non-IP Glocom radios

Performance

Target Process	
♦ Track	2000pcs
♦ Military Symbol	3000pcs
♦ Route	2000pcs
Map	
♦ WGS1984 Datum by default	
♦ Several Map Projection available	
♦ 3D Visualization by DEM	
Navigation	NMEA-0183 Format
Target Display/Update	0.5s
System Delay	0.1~0.5s

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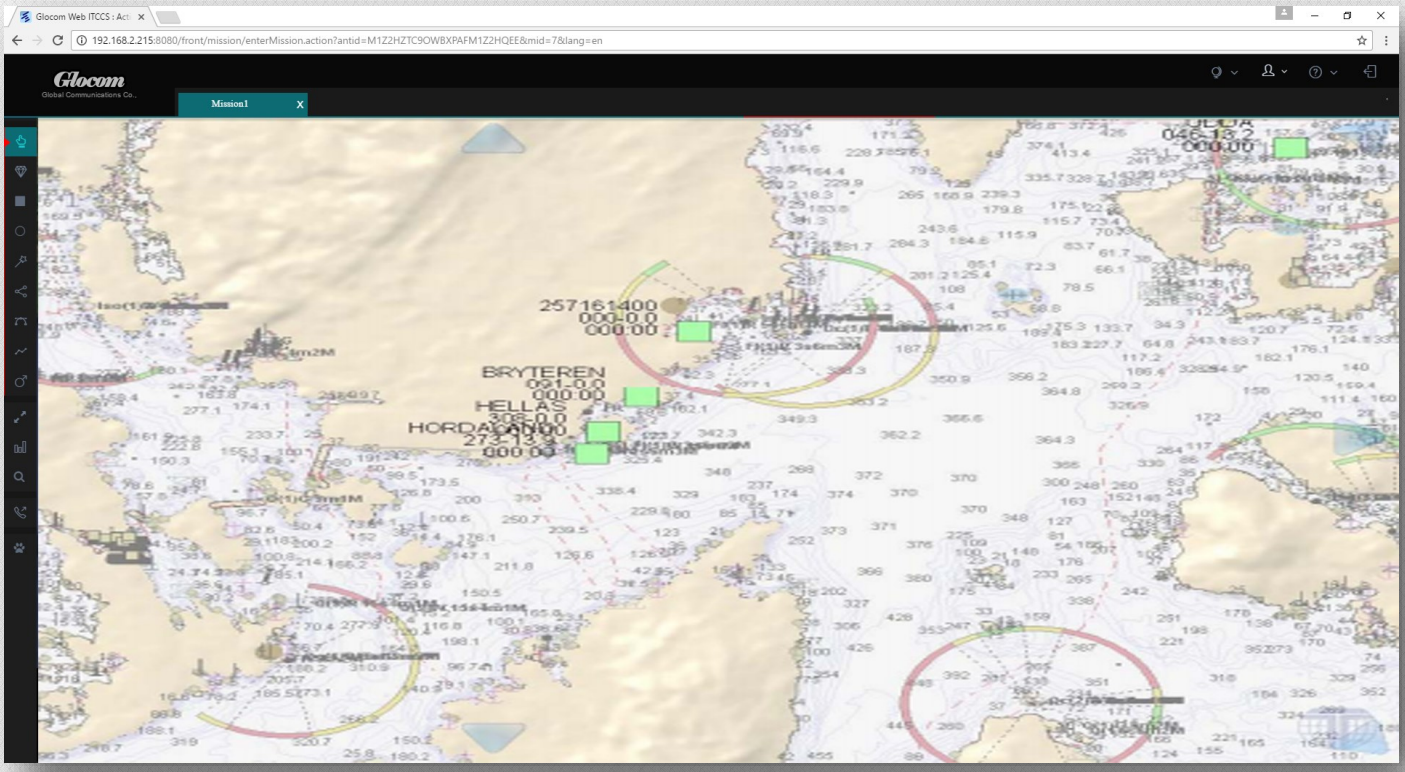
GS-930HQ-WEB



GS-930HQ-WEB is a web-based C2 software designed for higher level headquarters.

It provides joint staffs and task force commanders with an up-to-date detailed picture of large-scale operations using high performance web technologies.

It quickly and effectively aggregates large quantities of information from military and civilian data live feed tracks from external sensors and servers such as AIS (maritime)and ADS-B (air) to generate a common operational picture for land, maritime, air and joint operations.

GS-930HQ-WEB is remarkably easy to use with an intuitive user interface that gets users up and running quickly. It does not require the installation or sustainment of any software on client computers. It also maximizes accessibility to the situational picture to any authorized user, as well as all authorized users on the wide area network.

GS-930HQ-WEB is quickly to deploy, requires minimal training, and can be integrated with all other Glocom C2 products and is also ideal for collaborative decision-making joint and multinational forces.

Features

- Web-based client: no installation required, minimal deployment time and costs, and maximized accessibility
- Uses Web Map Service (WMS) standard, and also supports custom map service
- Role-based access control to data
- Allows user to highlighting important tracks and hide unimportant tracks

Software Requirement

Server

- Microsoft Windows Server 2008 R2 or above
- Microsoft Windows 7 or above
- Ret Hat Enterprise Linux 7.3 or above
- Ubunt
- Apache Web Server 5.5 or above
- PostGIS 2.4.1 or above

Client

- Windows Internet Explorer 11 or above
- Google chrome 56.0 or above
- Mozilla FireFox 57.0b14 or above

Recommended web browser with HTML

Hardware Requirement

Server

- RAM: Minimum 1GB, Recommended 2GB
- HDD: Minimum 100GB, depends heavily on the map data deployed on the server
- CPU: 2GHz or above

Client

- RAM: Minimum 1GB, Recommended 2GB
- HDD: 1GB or above
- CPU: 2GHz or above
- Display: Minimum 1024 × 768

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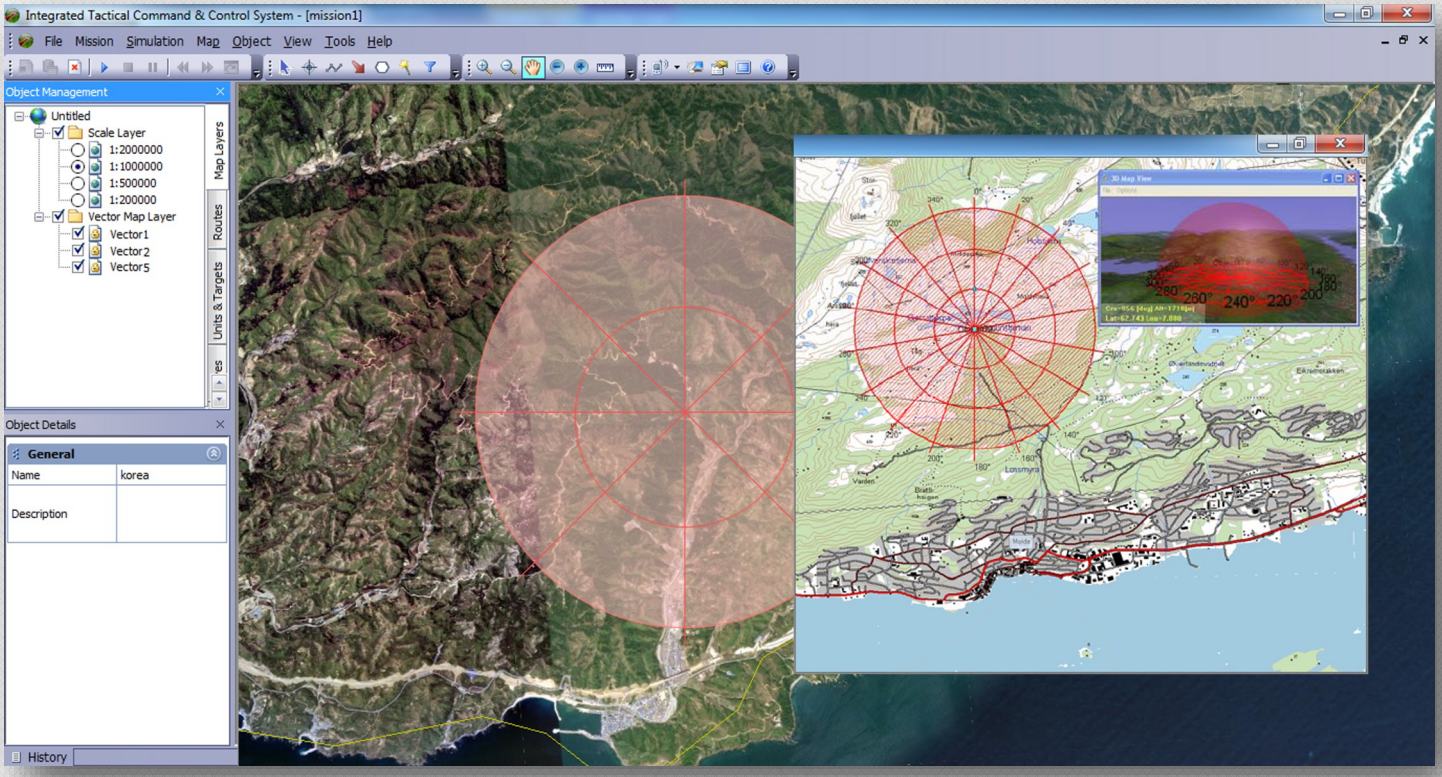
GS-930HQ-CS



The GS-930HQ-CS is a C2 Information System designed to support operational staff in planning and executing missions. It supports key operational activities such as situational awareness, Mission Planning, Mission Execution, and Mission Reporting. It is intended for installation as required from the highest to the lowest command levels, primarily for use in environments where computers have full monitor display, keyboard, mouse, and LAN/WAN network connections.

GS-930HQ-CS is a reliable, scalable command and control solution that is easy to learn and use, provides extensive interoperability capabilities and fulfils all core requirements. It supports all headquarters' tasks and is ready to deploy.

GS-930HQ-CS works in conjunction with GS-930VH and GS-930EG through Glocom Tactical Communications to provide a unified C2 system across echelons of the command chain from the battlefield frontline vehicles to the command headquarters.

It is a client/server application thereby enabling comprehensive scalability for large headquarters.

Features

- Supports maps as raster, vector, or a combination of these formats
- Powerful GIS: Analysis tools, Drawing tools
- High performance
- Role-based access control to data

Software Requirement

Server

- Microsoft Windows Server 2008 R2 or above
- Microsoft Windows 7 or above
- Ret Hat Enterprise Linux 7.3 or above
- Ubunt
- PostGIS 2.4.1 or above

Client

- Microsoft Windows 7 or above
- Fedora 18 or above
- Ubunt

Hardware Requirement

Server

- RAM: Minimum 1GB, Recommended 2GB
- HDD: Minimum 100GB, depends heavily on the map data deployed on the server
- CPU: 2GHz or above

Client

- RAM: Minimum 1GB, Recommended 2GB
- HDD: 1GB or above
- CPU: 2GHz or above
- Display: Minimum 1024 × 768

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GS-930FL

The GS-930FL is a battle and crisis management software for the mounted and dismounted frontline commander. Designed with operational simplicity, it fits into any organization by providing precisely the tools needed by battlefield commanders. Its design and features address both military and civilian commanders at lower organizational levels.

This solution facilitates mobility that enables the operator to mount and dismount vehicles in the application, while ensuring that his location is always accurately known by other participants.

GS-930FL is fully integrated with other components of GS-930 suite through Glocom Tactical Communications to provide networked command and control and shared situational awareness, from the higher headquarters right down to the commander at the tactical edge.

Features

- High update rate for BFT over tactical radios
- The software has a small footprint with a lean GIS that offers high performance visualization with no need for a database server
- It is designed for installation on devices with small to medium displays, and the user interface
- Easy to install, and operate

Software Requirement

- Microsoft Windows 7 or above
- Fedora 18 or above

Hardware Requirement

- RAM: Minimum 1GB, Recommended 2GB
- HDD: Minimum 100GB, depends heavily on the map data deployed on the server
- CPU: 2GHz or above
- Display: Minimum 1366 × 768

GS-930EG

The GS-930EG is an Android-based battle management system for the commanders and soldiers at the tactical edge. Designed for simplicity it provides the commander with fast and clear friendly force tracking (FFT) picture.

Users can exchange their own location and spot reports between subordinates, superiors, and peers through the tactical radio.

GS-930EG is fully integrated with other products of GS-930 suite through Glocom Tactical Communications to provide networked command and control and situational awareness.

Features

- Superior situational awareness on Android devices: own position, FFT, tactical reports, intelligence pictures and plans
- High update rates for FFT over tactical radios
- Quickly report and share spotted targets
- Exceptional performance over intermittent, low bandwidth tactical radio networks

The GS-930EG is designed to run on devices with the following minimum configuration:

- Android 5.0
- Display 7”
- 3GB RAM
- CPU 4-core 2GHz
- Hardware buttons and touch input supported

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GS-940 Integrated Communication Management Tool

Features

■Integrate all the tools under a single user interface ■Simplified training and operation of applications ■Shared data model between applications ■ Modular, service oriented architecture for extensibility and adaptability

Communication management is the systematic planning, monitoring, and revision of all the channels of communication within an tactical unit, and between units; it also includes the organization and dissemination of new communication directives connected with an unit, network, or communications technology. Aspects of communications management include developing corporate communication strategies, designing internal and external communications directives, and managing the flow of information, including online communication.

The GS-940 Software Suite provides all the tools necessary to plan, configure, provision, deploy and maintain a Tactical Area Communications System.

As communication networks grow more complex, communications professionals depend on a variety of tools, applications and areas of expertise to configure, deploy and manage Combat Net Radio (CNR), telephony and data networks.

The GS-940 Software Suite unites those functions under a single user interface and shared data model called the GS-940 Core. This creates a more efficient, easier to train, and easier to use experience for today's signals professionals.

The GS-940 Core provides a set of shared services and interface elements that are used by all applications in the GS-940 Software Suite. The GS-940 Core facilitates communication and information sharing between applications for a unified experience.

The rest of the GS-940 Software Suite consists of three applications, GS-940-Plan, GS-940-Spectrum and GS-940-Monitor, each with distinct roles and responsibilities.

The shared data model of the GS-940 Software Suite allows seamless sharing of information between applications, eliminating the opportunity to introduce errors by a cumbersome import and export, or copy and paste operations. After provisioning, this information often must be re-entered into a network monitoring and management application to deploy and manage the network, or a complex network discovery task must execute. The GS-940 Core ensures that information need only be entered once, minimizing the opportunity for error.

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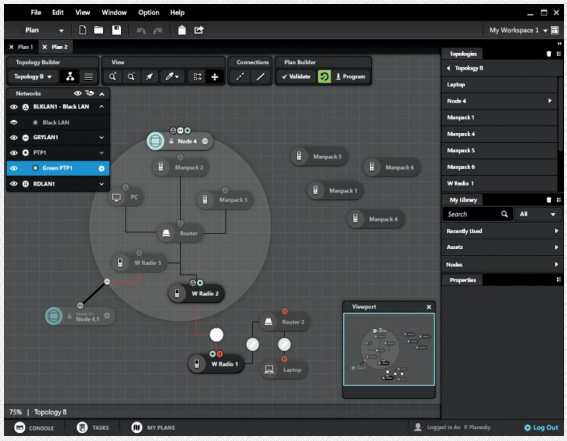
GS-940-Plan

Planning, configuration and provisioning of wireless networking assets

Features

- Configuration and provisioning of commercial networking devices and Glocom radios
- Logical, node-based grouping of assets according to organizational architecture
- Network move and redeployment planning support
- Persistent asset and node inventory to easily create multiple plans with the same equipment
- Integration with other applications in the GS-940 Software Suite



GS-940-Plan enables network planners and administrators to create and deploy flexible networks of diverse communications equipment within dynamic environments and applications. Plan features an intuitive interface for connecting, configuring, validating and provisioning commercial networking equipment and Glocom radios.

GS-940-Plan reduces overall training costs and operational delays by supporting both wired and wireless network planning for a wide variety of equipment. Operators and administrators learn a single interface and set of tools that assist not only in network planning, but in the other applications of the GS-940 Software Suite.

GS-940-Plan works in conjunction with the other applications in the GS-940 Software Suite, sharing asset inventory, topologies and configuration details. Communication planners can directly use information from Plan in GS-940-Spectrum to validate the performance of planned radio networks and make any necessary changes before provisioning and deploying equipment.

Once the network has been planned and validated, the asset inventory can be imported into GS-940-Monitor for performance monitoring and management. This eliminates lag time between overall network planning, RF analysis and validation, and network monitoring and maintenance.

GS-940-Spectrum

RF analysis and frequency management

Features

- Integrated GIS view for operational visualization and planning
- Multiple models for path and area coverage analysis for Glocom and other radio products
- Custom software models of Glocom tactical radio products
- Customizable templates for other generic radio products
- Integration with other applications in the GS-940 Software Suite

The GS-940-Spectrum provides tools necessary to successfully plan deployments of radio networks in a variety of frequency bands and environmental conditions. Spectrum delivers software models of Glocom tactical radios and can be extended to include other radio equipment.

The GS-940-Spectrum enables users to perform line-of-sight (LOS) and area coverage predictions, visualizing them in an interactive, map-based GIS interface. These predictions are translated into potential performance to give communication planners a reasonable expectation of field performance considering a variety of inputs.

The GS-940-Spectrum integrates with the other applications in the GS-940 suite for a smooth and fully integrated experience. By sharing information directly with the GS-940-Plan, network planners can move smoothly from network planning into RF analysis and validation.

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GS-940-Monitor

Monitoring and management of deployed, operational networks

Features

- Support for distributed peer-to-peer or hierarchical network management model
- Fault monitoring and reporting
- Event correlation and analysis
- Integration with other applications in the GS-940 Software Suite

The GS-940-Monitor provides a powerful, enterprise-class network monitoring and management solution tailored for dynamic, highly flexible environments. Designed from the ground up to be flexible and scalable, the GS-940-Monitor provides a global view of the network while operating with federated installations located throughout the network. This translates to situational awareness at the local level, reduced over-the-air management bandwidth and increased change management capability. Monitor incorporates a powerful rules engine, enabling network administrators to focus on key performance measures to make automated decisions to resolve common problems.

Monitor integrates with other applications in the GS-940 suite to reduce setup and change time, and provide users an improved overall experience. Monitor can directly import asset inventories and configuration information from GS-940-Plan and display all important performance information to communication planners working on deployments, or redeployments of units and assets.

Ordering Information

No	DESCRIPTION	MODEL	FUNCTION		
			P	S	M
1	Integrated Communication Management Tool with full function for Windows	GS-940W-PSM	√	√	√
2	Integrated Communication Management Tool with full function for Android	GS-940A-PSM	√	√	√
3	Integrated Communication Management Tool with plan and spectrum for Windows	GS-940W-PS	√	√	
4	Integrated Communication Management Tool with plan and spectrum for Android	GS-940A-PS	√	√	
5	Integrated Communication Management Tool with plan and monitor for Windows	GS-940W-PM	√		√
6	Integrated Communication Management Tool with plan and monitor for Android	GS-940A-PM	√		√
7	Integrated Communication Management Tool with spectrum and monitor for Windows	GS-940W-SM		√	√
8	Integrated Communication Management Tool with spectrum and monitor for Android	GS-940A-SM		√	√
9	Integrated Communication Management Tool with plan for Windows	GS-940W-Plan	√		
10	Integrated Communication Management Tool with plan for Android	GS-940A-Plan	√		
11	Integrated Communication Management Tool with spectrum for Windows	GS-940W-Spectrum		√	
12	Integrated Communication Management Tool with spectrum for Android	GS-940A-Spectrum		√	
13	Integrated Communication Management Tool with monitor for Windows	GS-940W-Monitor			√
14	Integrated Communication Management Tool with monitor for Android	GS-940A-Monitor			√

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Gloom
Global Communications Co.,

GS-2100 Border Security System

Comprehensive Border Protection and Command & Control Solution

HQ System

Regional HQ/Border Post

[Key features]

- Turnkey solution is customized and tailored to your mission
- Provides full situational awareness for commanders and forces
- Modular and scalable
- IP-based open architecture allows easy expansion and upgrades
- Seamless integration of sensors, responders, platforms and communication systems
- Cost-saving COTS hardware compliant

Mobile Force

Dismounted Soldier Force

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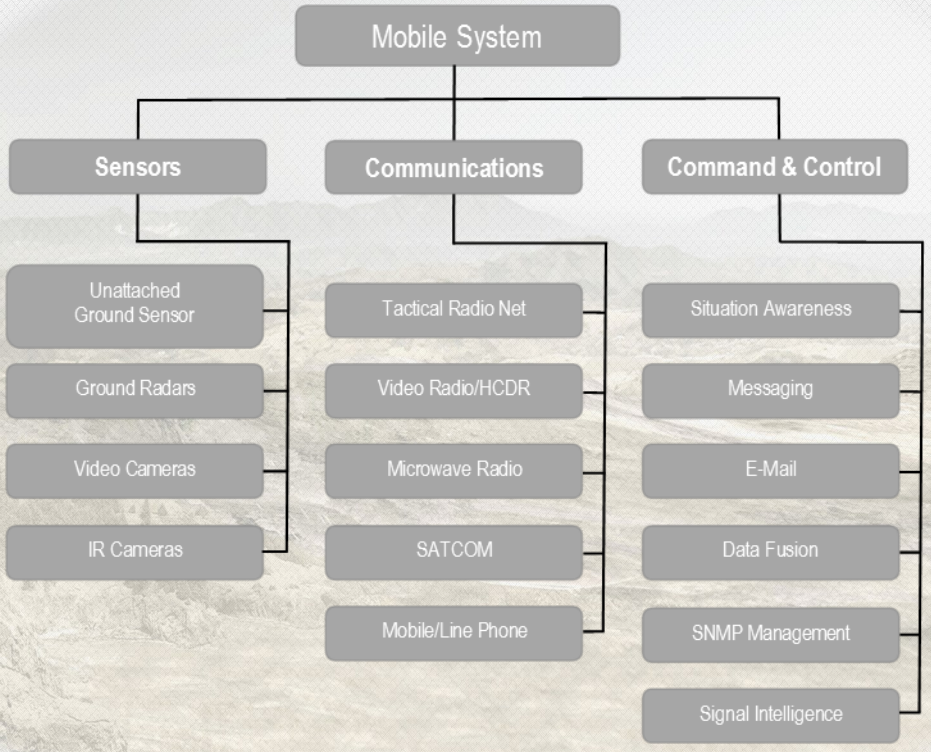
System Overview

The system is Glocom integrated solutions for persistent surveillance, regional control and perimeter protection support law enforcement, counter-terrorism and homeland security activities.

Border Security System (BSS) provides real-time regional surveillance, early warning, targeting and border-patrol mission management. The BSS also improves terrestrial and maritime security, regional control and border protection, enabling complete real-time connectivity across the entire border-security array. These solutions enable optimum coordination of ISR efforts throughout all operational zones and along the country's borders, supporting stationary control centers, deployed command posts and tactical patrol agents.

The solution is based on an open architecture C^4ISR application with sophisticated technologies that incorporates industry-standard mature components, including various sensors and tactical elements integrated into fixed, deployed and mobile platforms. The solution enables highly effective cross force coordination, quick and precise planning and execution with effective sensor-to-interceptor capabilities. The solution assists the decision-making process by recommending tasks to the decision makers based on all available data and in accordance with the rules of engagement. Imagery and data from all available sensors are fused and enriched, reducing operator cognitive load.



Equipment and options

GS-2200 Ground Vehicle System

- Sized to fit application

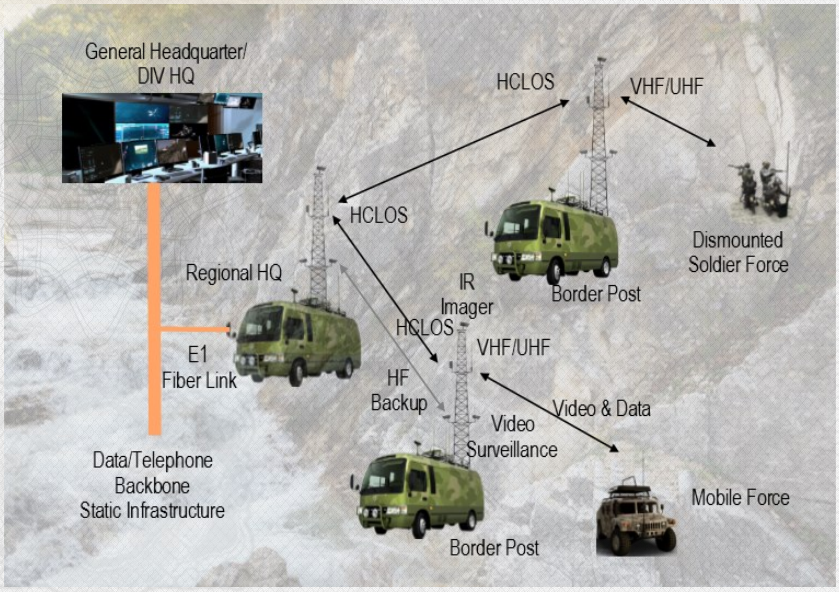
Configurable Options

- GR-150 HF radio
- GR-310 VHF/UHF radio
- GR-8100HV HF/VHF Manpack Radio
- GR-8100MS HF/VHF 100W Mobile Radio
- GR-8520VU High Capacity Data Radio
- GR-8600M Multiband Handheld Radio
- GR-611B/GR-611D SPR
- GD-200X Ground Surveillance Radar
- Cameras - IR, video
- PBX, telecom
- Video conference

Software

- GS-930
- GS-910

Border Security Systems Network



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Communication Subsystems

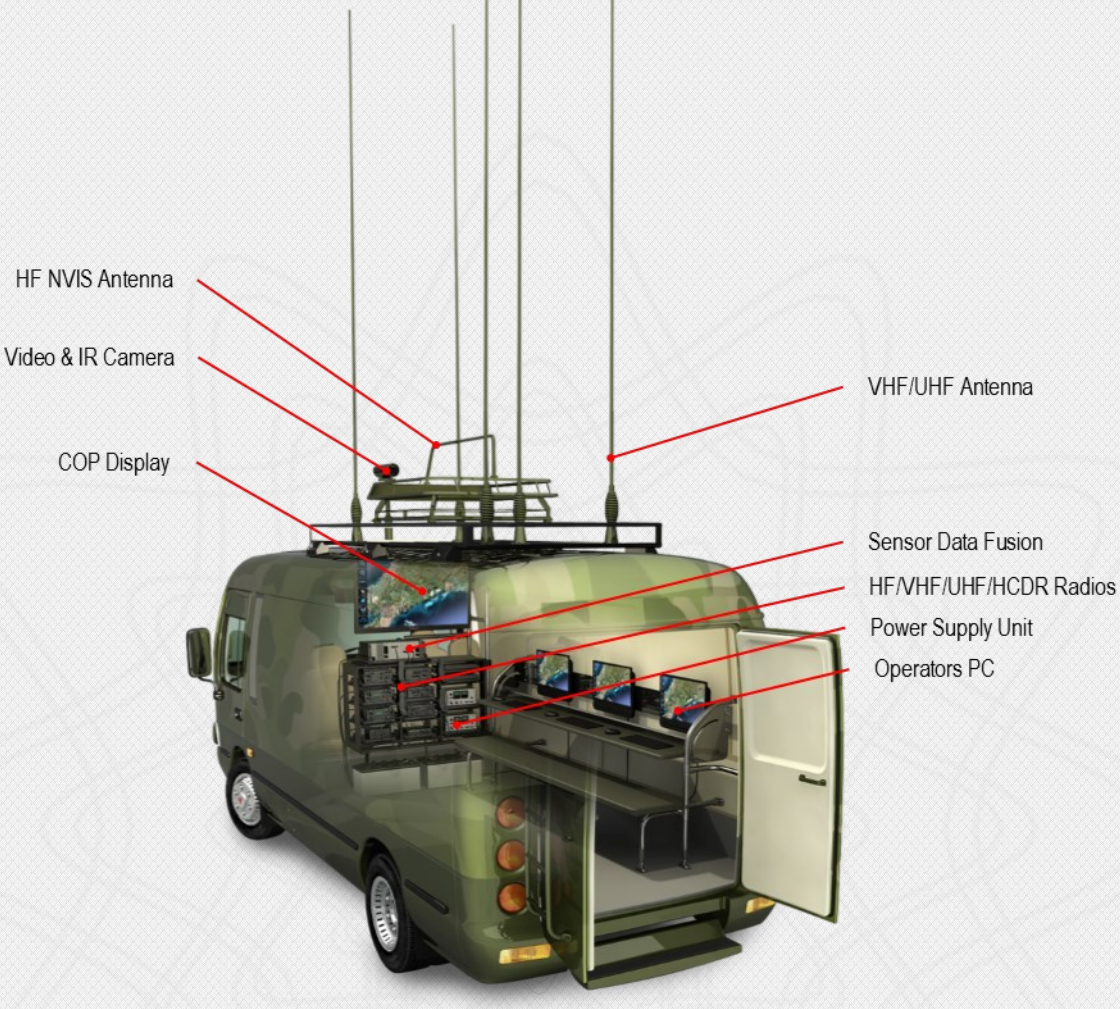
The communications system integrates the Glocom tactical radio network with standard communications interfaces to provide reliable communications that seamlessly integrate with commercial systems. Glocom radios provide secure communications between the shelter and individual users and command cen ters, as well as receiving alerts from the sensor field.
The Glocom tactical radio network handles both IP data and voice traffic. Both data and voice can be routed over the HF communications system for BLOS links or the high capacity data radio for LOS communications. The network can also be connected to any IP transport, such as a headquarters network or a commercial satellite service. Voice traffic is routed by the network into an available telephone connection allowing calls to be made to and from the field for integration with a dispatch system.

Command & Control

Situational awareness software (BMS Applications) in the shelter tracks the location of every radio user as well as the location of sensor alerts. This Common Operational Picture (COP) is displayed in the shelter and on any display remotely connected to the shelter. Imagery and ground surveillance radar data is also fused and displayed on the COP. The data from a number of shelter systems can be fused on a headquarters display to give an accurate view of the border security situation.

Sensors Subsystems

The system is designed to easily connect to sensors with a standard interface, allowing for custom sensors to be chosen for specific operations. In its standard configuration, the shelter
provides day and night imagery (video and still), ground radar, and remote intrusion detectors. The remote intrusion detectors can be deployed as a combination of seismic vibration), passive infrared and acoustic (movement),
and magnet (metal) sensors. This combination significantly lowers the risk of false detection. The sensors wirelessly transmit alerts to the shelter and individuals who need to be informed.



HQ

Ground System

Video/IR Camera

GSR

Glocom Radios

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Glocom
Global Communications Co.,

GS-2200
Ground Vehicle System

Key Features

■ Adaptable to any vehicle applications ■ Scalable design for all kind of ground vehicles ■ Seamless connectivity in the rugged terrain and noisy environment ■ Inexpensive solution for vehicle platform upgrade ■ Simultaneous secure voice & data

Highly Adaptive, Inexpensive Solution for Vehicle Platform Upgrade

Today's growing worldwide defense, security and safety concerns have created the need for net-centric approaches to counter emerging, non-traditional threats. Forces, systems and platforms must be woven into an interoperable and joint network in order to succeed on the modern battlefield. Glocom's state of the art C4I solutions connect all forces on land, air, and sea – from high-echelon HQ to the individual platform, sensor and soldier – with excellent communication technology creating a force multiplier by maximizing combat resource coordination.

The GS-2200 ground vehicle system provides complete communications upgrades to vehicle platform, thus offering customers the cost-effective capabilities to deploy vehicles and the other forces on a networked basis, resulting in maximization of combat force.

The GS-2200 ground vehicle system is designed for all kinds of ground vehicle applications in army, ranging from tactical command & patrol to main battle tank, armored personnel carrier, Logistics, defense mission, peacekeeping, ambulance, reconnaissance and more.

Benefits

Incorporated full C4I capabilities into existing infrastructure. The upgrades enable rapid and accurate execution of the mission together with full C4I capabilities.

- Real-time position reporting & BFT
- Real-time sharing of situational awareness information
- Transmitting of command & control information
- Full interoperability with other forces
- Ad-hoc networking between vehicles
- Speedy & accurate data communication

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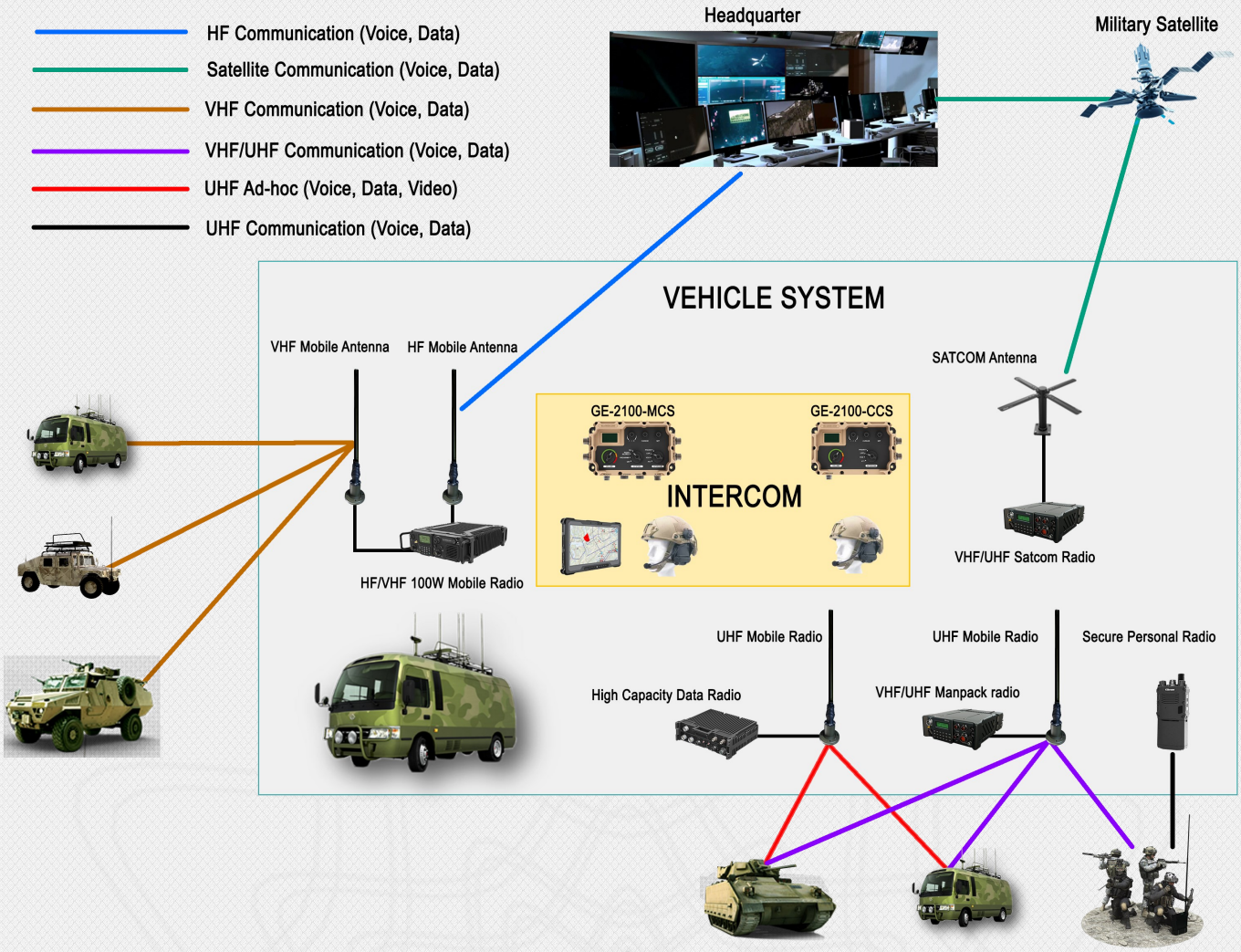
Integrated system of various communication solutions

Glocom's battle-proven communications solutions ensure a reliable flow of information throughout all echelons and in all combat scenario.



Provide shared situational awareness and assist operator in its mission execution.

Legacy vehicles and most new-generation land platforms are seldom ready to plug into the digitized battle space. This calls for a coherent vehicles electronics architecture to allow best integration, networking and exploitation of legacy and new sensor, vehicle, and weapon data on board.

On this vehicle electronics system (or systronics) core, an overall vehicle and communications supervision enables network-centric operations of the whole battle group as an integrated system.

To measure the force multiplication factor and augmented situational awareness provided by vehicle digitization and multi-vehicle networking, NATO has defined new metrics beyond the traditional mobility, protection and firepower.

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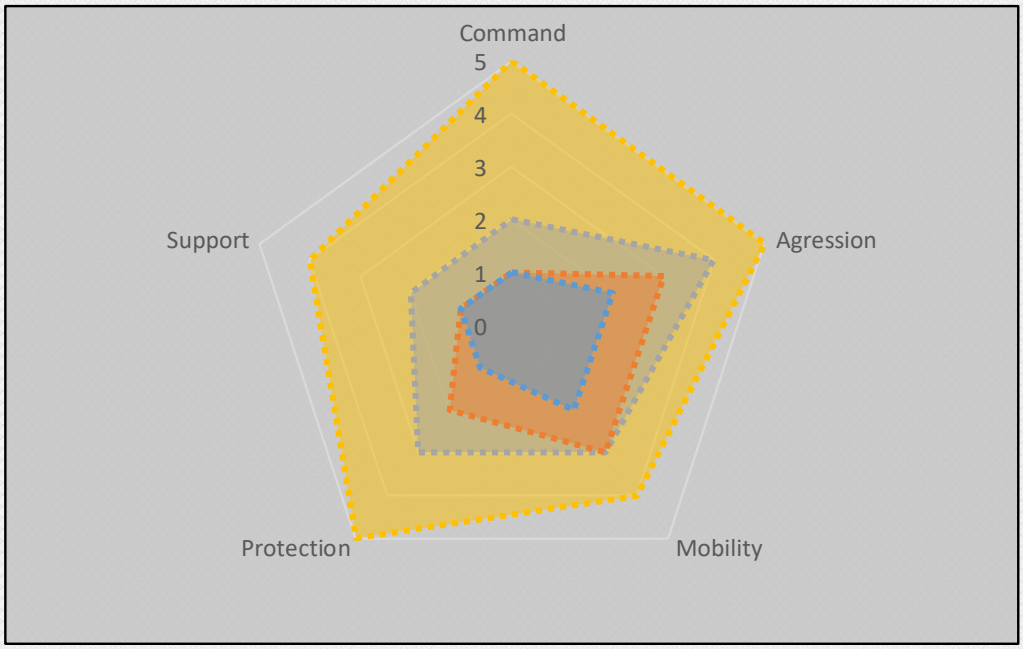
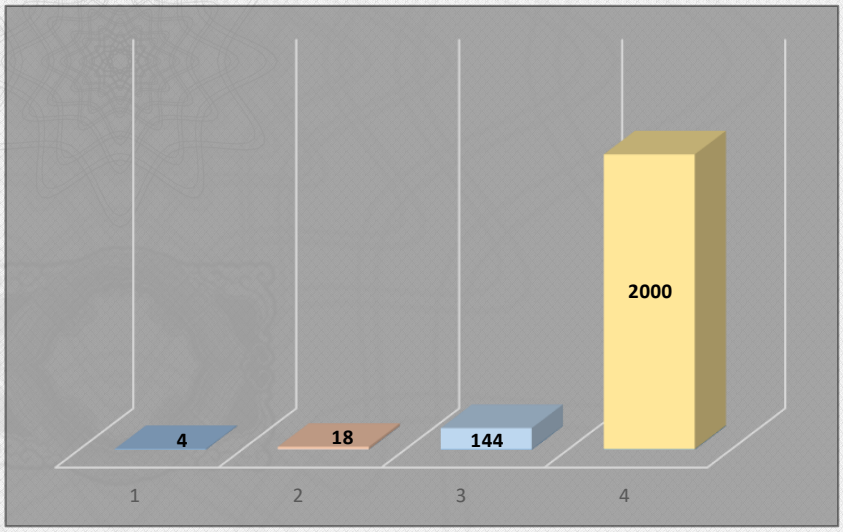


No	DESCRIPTION	Command	Aggres-sion	Mobility	Protection	Support	Total
1	**Normal vehicle**	1	2	2	1	1	4
2	**Legacy or new vehicle (platform and main weapon)** The best protected, most mobile and powerful vehicles re-main vulnerable when they fight alone or using only voice orders.	1	3	3	2	1	18
3	**Single vehicle digitisation mission systems (enabling equipment integration)** Digitized platform with vehicle electronics system can best exploit equipment integration and deliver enhanced local awareness.	2	4	3	3	2	144
4	**Multi-vehicle networking (multi-mission integration and link to command & control chain)** Sharing vehicle and tactical information allows synchronized manoeuver, accurate logistics, collaborative fighting and decision superiority.	5	5	4	5	4	2000



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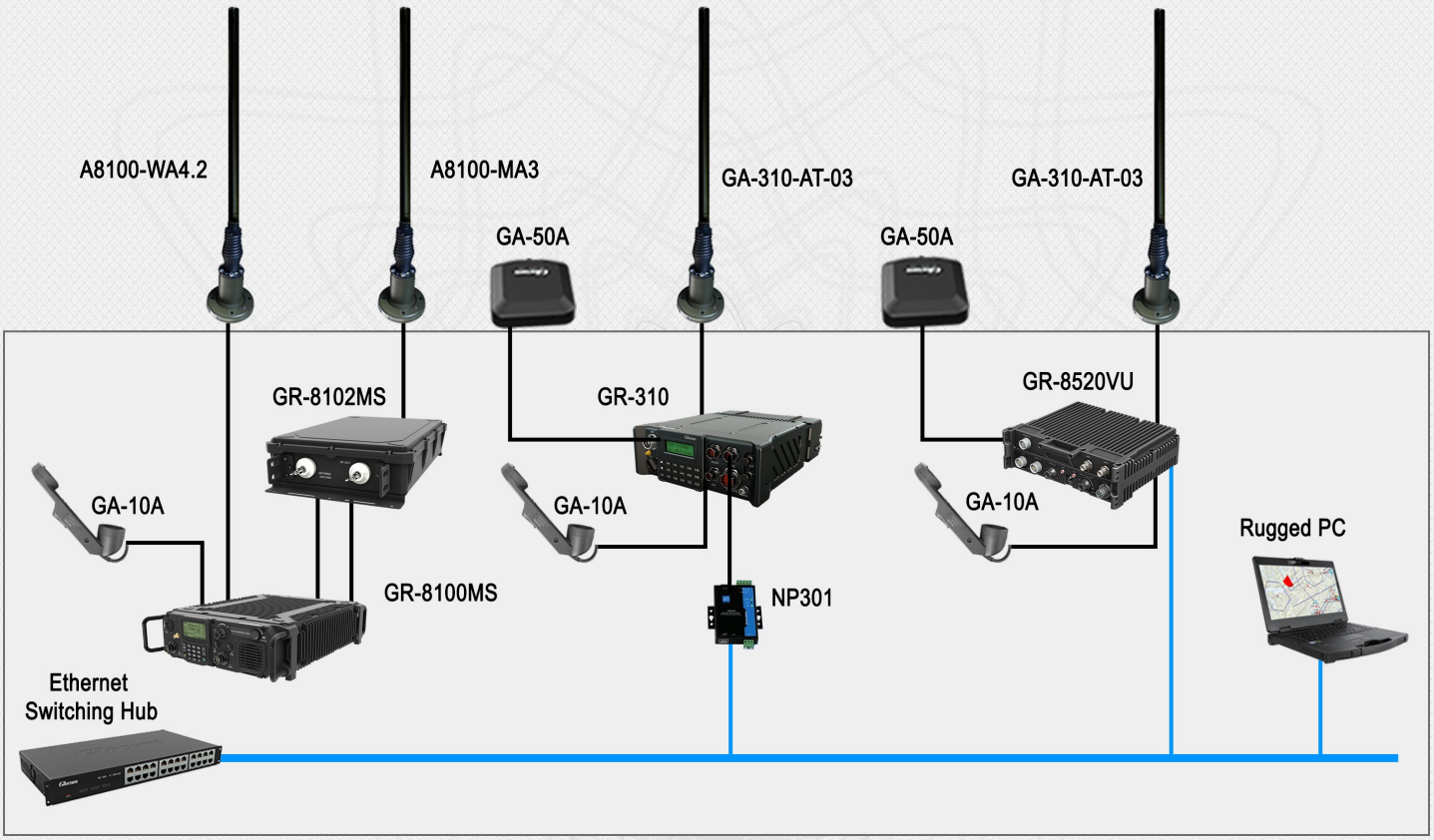
GS-2200-01 “Dove” Ground Vehicle System (Small)



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Ordering Information

№	DESCRIPTION	MODEL	BRAND	UNIT	QTY
1	**HF/VHF 100W Mobile Radio Set**	**GR-8100MS**	**Glocom**	**Set**	**1**
1-1	HF/VHF 100W Mobile Radio	GR-8100MS	Glocom	Pc	1
1-2	Military Official Handset	GA-8100OH	Glocom	Pc	1
1-3	HF Mobile Antenna with Cable	A8100-WA4.2	Glocom	Pc	1
1-4	VHF Mobile Antenna with Cable (30~88 MHz, 3.7m)	A8100-MA3	Glocom	Pc	1
1-5	Mobile GPS Antenna	GA-50A	Glocom	Pc	1
1-6	HF 100W Automatic Tuning Unit	GR-8102MS	Glocom	Pc	1
1-7	Amplifier-ATU RF Cable	A8100MS-RC01	Glocom	Pc	1
1-8	Amplifier-ATU Control Cable	A8100MS-CC01	Glocom	Pc	1
1-9	Power Cable	A8100MS-PC01	Glocom	Pc	1
1-10	Asynchronous Data Cable	A8100-DC01	Glocom	Pc	1
1-11	Ethernet Cable	A8100-EC24	Glocom	Pc	1
1-12	Field Reference Guide	A8100MS-UM01	Glocom	Copy	1
2	**VHF/UHF EPM Mobile Radio Set**	**GR-310VH**	**Glocom**	**Set**	**1**
21	VHF/UHF Manpack radio	GR-310	Glocom	Pc	1
2-2	Officer handset	GA-10A	Glocom	Pc	1
2-3	Mobile antenna with cable (225-512MHz, 1m)	GA-310-AT-03	Glocom	Pc	1
2-4	Mobile GPS Antenna	GA-50A	Glocom	Pc	1
2-5	Clone Cable	GA-21A	Glocom	Pc	1
2-6	Li-Ion battery pack	GA-31D	Glocom	Pc	2
2-7	Battery charger	GA-32D	Glocom	Pc	1
2-8	User manual	A310-UM01	Glocom	Copy	1
3	**High Capacity Data Radio Set**	**GR-8520VU**	**Glocom**	**Set**	**1**
3-1	High Capacity Data Radio (HCDR)	GR-8520VU	Glocom	Pc	1
3-2	Military Official Handset	GA-8100OH	Glocom	Pc	1
3-3	Mobile antenna with cable (225-512MHz, 1m)	GA-310-AT-03	Glocom	Pc	1
3-4	Mobile GPS Antenna	GA-50A	Glocom	Pc	1
3-5	Ethernet Cable	A8520-EC3M	Glocom	Pc	1
3-6	Power Cable	A8520-PC2M	Glocom	Pc	1
3-7	User Manual	A8520-UM01	Glocom	Copy	1

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№	DESCRIPTION	MODEL	BRAND	UNIT	QTY
4	**UHF Secure Personal Radio Set**	**GR-611B**	**Glocom**	**Set**	**5**
4-1	Secure Personal Radio	GR-611B	Glocom	Pc	1
4-2	Whip Antenna	A611B-WA01	Glocom	Pc	1
4-3	Handheld GPS Antenna	GA-51A	Glocom	Pc	1
4-4	Battery Pack	A611B-BP01	Glocom	Pc	2
4-5	Battery Charger	A611B-BC1B	Glocom	Pc	1
4-6	Carry Pouch	A611B-CP01	Glocom	Pc	1
4-7	User Manual	A611B-UM01	Glocom	Copy	1
5	**Computer & Peripheral**		**Brand**		
5-1	Rugged PC	3rd Party	Getac	Set	1
5-2	Rugged Tablet	Android	Ulefone	Set	5
5-3	Ethernet Switching Hub	8 ports	Brand	Set	1
5-4	Ethernet-RS232 Converter	NP301	3onedata	Set	1
5-5	Ethernet Cable	3m	Brand	Pc	3
6	**Software**		**Glocom**		
6-1	Integrated Command & Control (C2) Software for Front Line	GS-930FL	Glocom	Copy	1
6-2	Integrated Command & Control (C2) Software for Edge Soldier	GS-930EG	Glocom	Copy	1
6-3	Tactical Chat	GS-910 (Windows/ Android)	Glocom	Copy	1
6-4	GR-8100 Communication Planning Application	GC-8100 (Windows)	Glocom	Copy	1
6-5	GR-310 Setup & Control Software	GC-310 (Windows)	Glocom	Copy	1
6-6	GR-611B Setup & Control Software	GC-611B (Android)	Glocom	Copy	1
7	**Vehicle Installation Kit**	**A8100-IK10**	**Glocom**	**Set**	**1**

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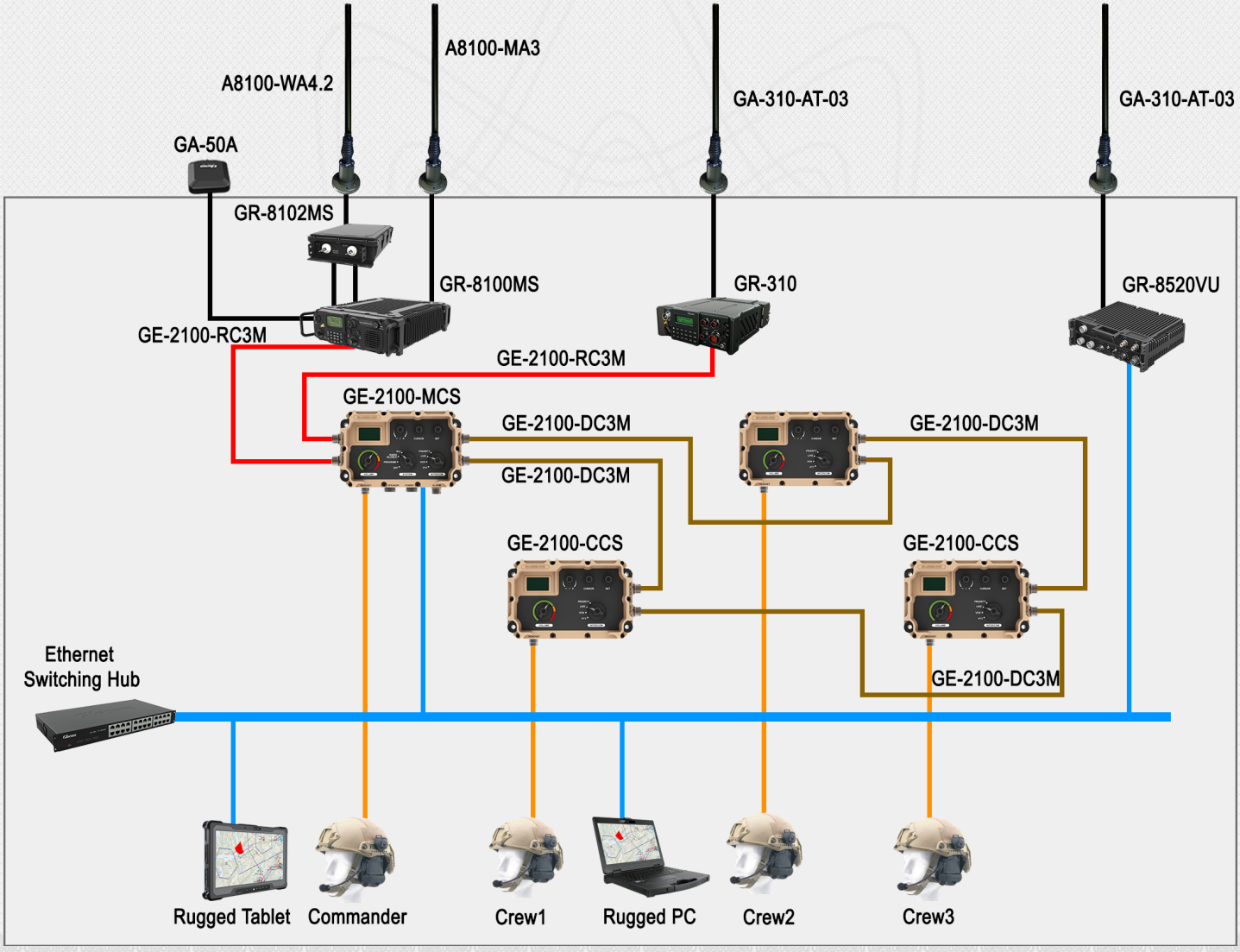
GS-2200-02 “Owl” Ground Vehicle System (Medium)



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Ordering Information

№	DESCRIPTION	MODEL	BRAND	UNIT	QTY
1	**HF/VHF 100W Mobile Radio Set**	**GR-8100MS**	**Glocom**	**Set**	**1**
1-1	HF/VHF 100W Mobile Radio	GR-8100MS	Glocom	Pc	1
1-2	Military Official Handset	GA-8100OH	Glocom	Pc	1
1-3	HF Mobile Antenna with Cable	A8100-WA4.2	Glocom	Pc	1
1-4	VHF Mobile Antenna with Cable (30~88 MHz, 3.7m)	A8100-MA3	Glocom	Pc	1
1-5	Mobile GPS Antenna	GA-50A	Glocom	Pc	1
1-6	HF 100W Automatic Tuning Unit	GR-8102MS	Glocom	Pc	1
1-7	Amplifier-ATU RF Cable	A8100MS-RC01	Glocom	Pc	1
1-8	Amplifier-ATU Control Cable	A8100MS-CC01	Glocom	Pc	1
1-9	Power Cable	A8100MS-PC01	Glocom	Pc	1
1-10	Asynchronous Data Cable	A8100-DC01	Glocom	Pc	1
1-11	Ethernet Cable	A8100-EC24	Glocom	Pc	1
1-12	Field Reference Guide	A8100MS-UM01	Glocom	Copy	1
2	**VHF/UHF EPM Mobile Radio Set**	**GR-310VH**	**Glocom**	**Set**	**1**
2-1	VHF/UHF Manpack radio	GR-310	Glocom	Pc	1
2-2	Officer handset	GA-10A	Glocom	Pc	1
2-3	Mobile antenna with cable (225-512MHz, 1m)	GA-310-AT-03	Glocom	Pc	1
2-4	Mobile GPS Antenna	GA-50A	Glocom	Pc	1
2-5	Clone Cable	GA-21A	Glocom	Pc	1
2-6	Li-Ion battery pack	GA-31D	Glocom	Pc	2
2-7	Battery charger	GA-32D	Glocom	Pc	1
2-8	User manual	A310-UM01	Glocom	Copy	1
3	**High Capacity Data Radio Set**	**GR-8520VU**	**Glocom**	**Set**	**1**
3-1	High Capacity Data Radio (HCDR)	GR-8520VU	Glocom	Pc	1
3-2	Military Official Handset	GA-8100OH	Glocom	Pc	1
3-3	Mobile antenna with cable (225-512MHz, 1m)	GA-310-AT-03	Glocom	Pc	1
3-4	Mobile GPS Antenna	GA-50A	Glocom	Pc	1
3-5	Ethernet Cable	A8520-EC3M	Glocom	Pc	1
3-6	Power Cable	A8520-PC2M	Glocom	Pc	1
3-7	User Manual	A8520-UM01	Glocom	Copy	1

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№	DESCRIPTION	MODEL	BRAND	UNIT	QTY
4	**Tactical Network Intercom System**	**GE-2100**	**Glocom**	**Set**	**1**
4-1	Master Control Station	GE-2100-MCS	Glocom	Pc	1
4-2	Crew Control Station	GE-2100-CCS	Glocom	Pc	3
4-3	Data & Power Cable	GE-2100-DC3M	Glocom	Pc	4
4-4	Radio Voice & Data Cable	GE-2100-RC3M	Glocom	Pc	2
4-5	Power Cable	GE-2100-PC3M	Glocom	Pc	1
4-6	Ethernet Cable	GE-2100-EC3M	Glocom	Pc	1
4-7	Tactical Headset	A8100-TH10	Glocom	Pc	4
5	**UHF Secure Personal Radio Set**	**GR-611B**	**Glocom**	**Set**	**5**
5-1	Secure Personal Radio	GR-611B	Glocom	Pc	1
5-2	Whip Antenna	A611B-WA01	Glocom	Pc	1
5-3	Handheld GPS Antenna	GA-51A	Glocom	Pc	1
5-4	Battery Pack	A611B-BP01	Glocom	Pc	2
5-5	Battery Charger	A611B-BC1B	Glocom	Pc	1
5-6	Carry Pouch	A611B-CP01	Glocom	Pc	1
5-7	User Manual	A611B-UM01	Glocom	Copy	1
6	**Computer & Peripheral**		**Brand**		
6-1	Rugged PC	3rd Party	Getac	Set	1
6-2	Rugged Tablet	Windows, 5”	Getac	Set	1
6-3	Rugged Tablet	Android	Ulefone	Set	5
6-4	Ethernet Switching Hub	8 ports	Brand	Set	1
6-5	Ethernet Cable	3m	Brand	Pc	2
7	**Software**		**Glocom**		
7-1	Integrated Command & Control (C2) Software for Front Line	GS-930FL	Glocom	Copy	1
7-2	Integrated Command & Control (C2) Software for Edge Soldier	GS-930EG	Glocom	Copy	1
7-3	Tactical Chat	GS-910 (Windows/ Android)	Glocom	Copy	1
7-4	GR-8100 Communication Planning Application	GC-8100 (Windows)	Glocom	Copy	1
7-5	GR-310 Setup & Control Software	GC-310 (Windows)	Glocom	Copy	1
7-6	GR-611B Setup & Control Software	GC-611B (Android)	Glocom	Copy	1
8	**Vehicle Installation Kit**	**A8100-IK10**	**Glocom**	**Set**	**1**

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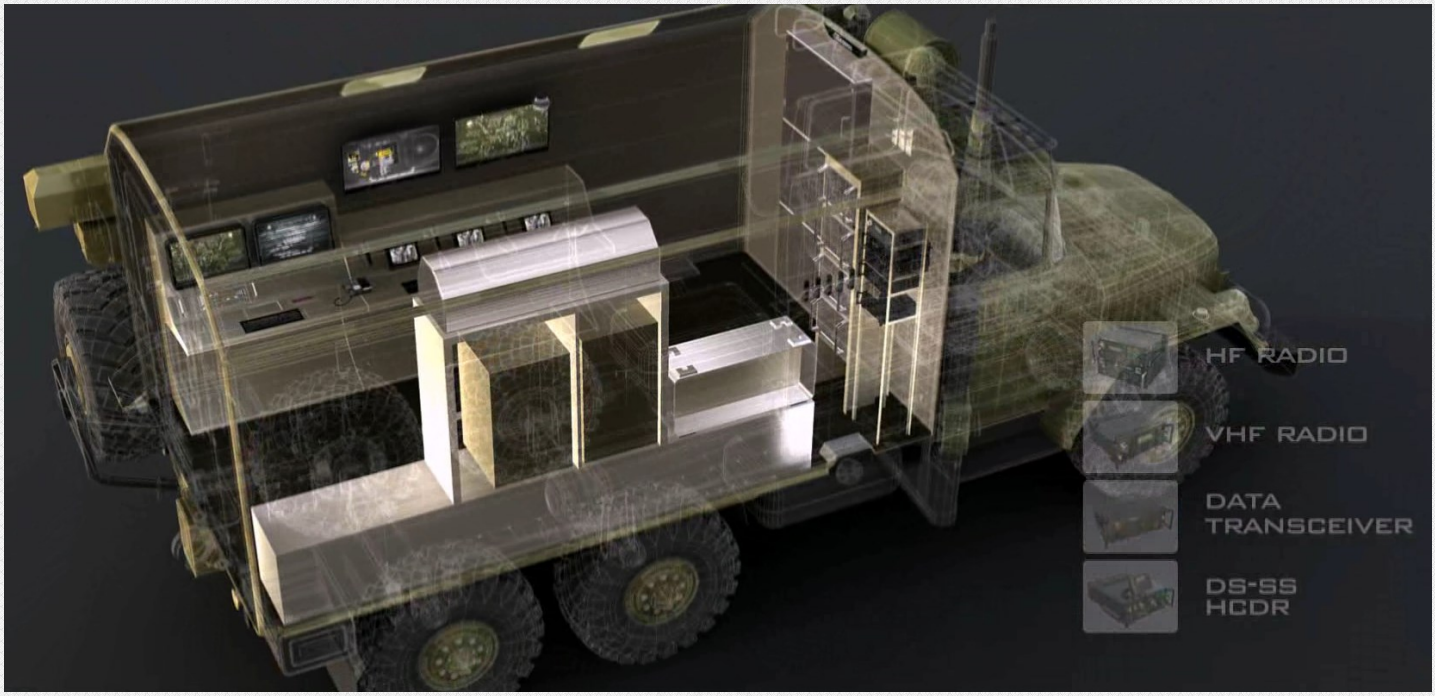
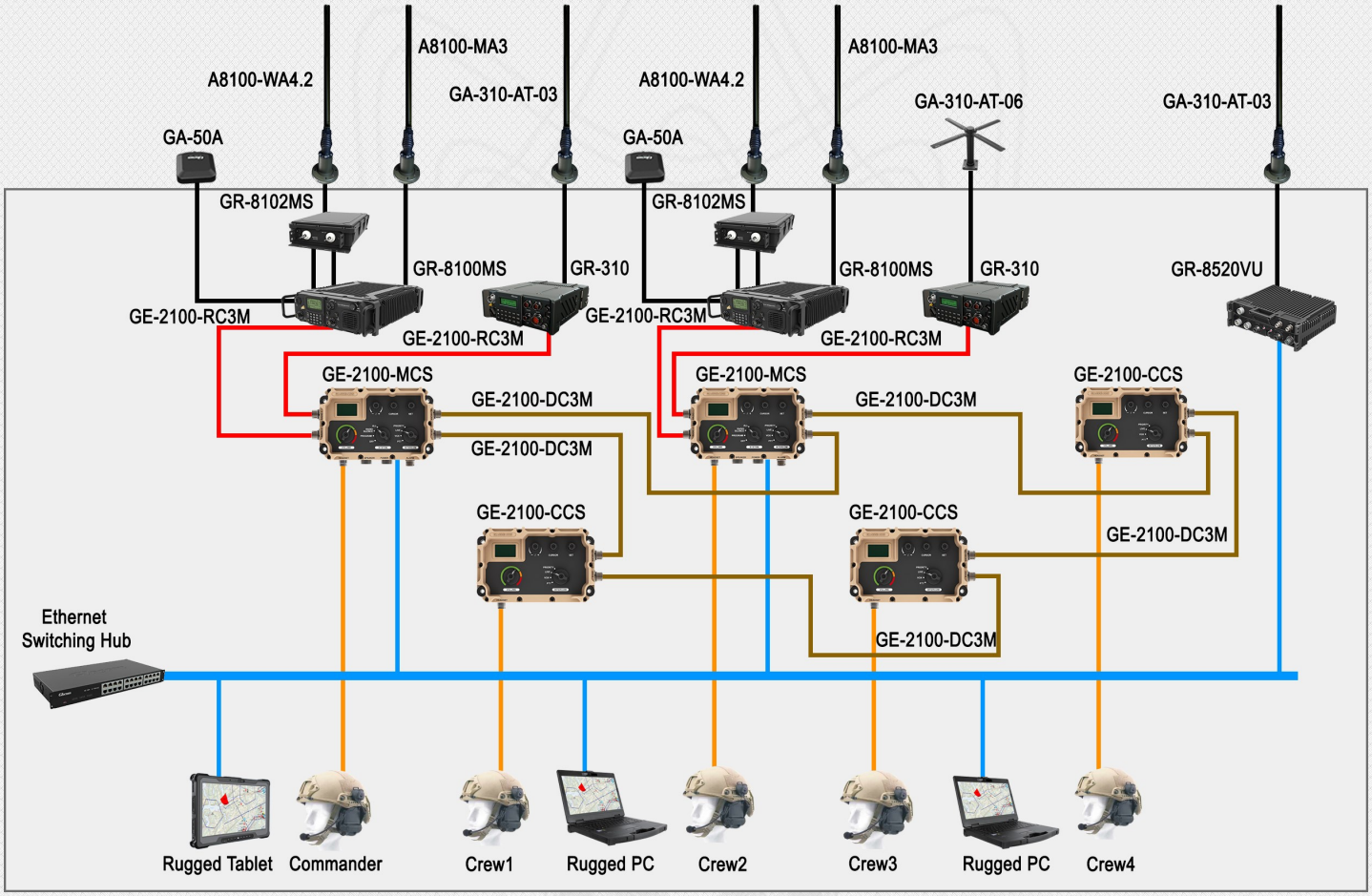
GS-2200-03 “Eagle” Ground Vehicle System (Large)





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Ordering Information

№	DESCRIPTION	MODEL	BRAND	UNIT	QTY
1	**HF/VHF 100W Mobile Radio Set**	**GR-8100MS**	**Glocom**	**Set**	**2**
1-1	HF/VHF 100W Mobile Radio	GR-8100MS	Glocom	Pc	2
1-2	Military Official Handset	GA-8100OH	Glocom	Pc	2
1-3	HF Mobile Antenna with Cable	A8100-WA4.2	Glocom	Pc	1
1-4	HF NVIS Mobile Antenna with Cable	A8100-WA4.2B	Glocom	Pc	1
1-5	VHF Mobile Antenna with Cable (30~88 MHz, 3.7m)	A8100-MA3	Glocom	Pc	2
1-6	Mobile GPS Antenna	GA-50A	Glocom	Pc	2
1-7	HF 100W Automatic Tuning Unit	GR-8102MS	Glocom	Pc	2
1-8	Amplifier-ATU RF Cable	A8100MS-RC01	Glocom	Pc	2
1-9	Amplifier-ATU Control Cable	A8100MS-CC01	Glocom	Pc	2
1-10	Power Cable	A8100MS-PC01	Glocom	Pc	2
1-11	Asynchronous Data Cable	A8100-DC01	Glocom	Pc	2
1-12	Ethernet Cable	A8100-EC24	Glocom	Pc	2
1-13	Field Reference Guide	A8100MS-UM01	Glocom	Copy	1
2	**VHF/UHF EPM Mobile Radio Set**	**GR-310VH**	**Glocom**	**Set**	**2**
2-1	VHF/UHF Manpack radio	GR-310	Glocom	Pc	2
2-2	Officer handset	GA-10A	Glocom	Pc	2
2-3	Mobile antenna with cable (225-512MHz, 1m)	GA-310-AT-03	Glocom	Pc	1
2-4	X-wing SATCOM antenna (240-400MHz) with cable	GA-310-AT-06	Glocom	Pc	1
2-5	Mobile GPS Antenna	GA-50A	Glocom	Pc	2
2-6	Clone Cable	GA-21A	Glocom	Pc	2
2-7	Li-Ion battery pack	GA-31D	Glocom	Pc	4
2-8	Battery charger	GA-32D	Glocom	Pc	1
2-9	User manual	A310-UM01	Glocom	Copy	1
3	**High Capacity Data Radio Set**	**GR-8520VU**	**Glocom**	**Set**	**1**
3-1	High Capacity Data Radio (HCDR)	GR-8520VU	Glocom	Pc	1
3-2	Military Official Handset	A8100-OH10	Glocom	Pc	1
3-3	Mobile Antenna with cable (225~512MHz, 1m)	GA-310-AT-03	Glocom	Pc	1
3-4	Mobile GPS Antenna	GA-50A	Glocom	Pc	1
3-5	Ethernet Cable	A8520-EC3M	Glocom	Pc	1
3-6	Power Cable	A8520-PC2M	Glocom	Pc	1
3-7	User Manual	A8520-UM01	Glocom	Copy	1

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№	DESCRIPTION	MODEL	BRAND	UNIT	QTY
4	**Tactical Network Intercom System**	**GE-2100**	**Glocom**	**Set**	**1**
4-1	Master Control Station	GE-2100-MCS	Glocom	Pc	2
4-2	Crew Control Station	GE-2100-CCS	Glocom	Pc	3
4-3	Data & Power Cable	GE-2100-DC3M	Glocom	Pc	5
4-4	Radio Voice & Data Cable	GE-2100-RC3M	Glocom	Pc	4
4-5	Power Cable	GE-2100-PC3M	Glocom	Pc	2
4-6	Ethernet Cable	GE-2100-EC3M	Glocom	Pc	2
4-7	Tactical Headset	A8100-TH10	Glocom	Pc	5
5	**UHF Secure Personal Radio Set**	**GR-611B**	**Glocom**	**Set**	**10**
5-1	Secure Personal Radio	GR-611B	Glocom	Pc	1
5-2	Whip Antenna	A611B-WA01	Glocom	Pc	1
5-3	Handheld GPS Antenna	GA-51A	Glocom	Pc	1
5-4	Battery Pack	A611B-BP01	Glocom	Pc	2
5-5	Battery Charger	A611B-BC1B	Glocom	Pc	1
5-6	Carry Pouch	A611B-CP01	Glocom	Pc	1
5-7	User Manual	A611B-UM01	Glocom	Copy	1
6	**Computer & Peripheral**		**Brand**		
6-1	Rugged PC	3rd Party	Getac	Set	2
6-2	Rugged Tablet	Windows, 5”	Getac	Set	1
6-3	Rugged Tablet	Android	Ulefone	Set	10
6-4	Ethernet Switching Hub	8 ports	Brand	Set	1
6-5	Ethernet Cable	3m	Brand	Pc	3
7	**Software**		**Glocom**		
7-1	Integrated Command & Control (C2) Software for Front Line	GS-930FL	Glocom	Copy	1
7-2	Integrated Command & Control (C2) Software for Edge Soldier	GS-930EG	Glocom	Copy	1
7-3	Tactical Chat	GS-910 (Windows/ Android)	Glocom	Copy	1
7-4	GR-8100 Communication Planning Application	GC-8100 (Windows)	Glocom	Copy	1
7-5	GR-310 Setup & Control Software	GC-310 (Windows)	Glocom	Copy	1
7-6	GR-611B Setup & Control Software	GC-611B (Android)	Glocom	Copy	1
8	**Vehicle Installation Kit**	**A8100-IK10**	**Glocom**	**Set**	**1**

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GS-2210 Artillery Fire Control System

Highly Adaptive, Inexpensive Solution For Artillery Fire Ability Upgrade

[Key features]

■Adaptable to a wide range from field gun to self-propelled ■Swiftly close sensor-to-shooter loop ■Seamless connectivity in the rugged terrain and noisy environment ■Inexpensive solution for artillery ability upgrade ■Simultaneous secure voice & data ■Full interoperability with other forces

Glocom has developed the Artillery Fire Command & Control System to provide an inexpensive, highly adaptive solution for the update of Self-Propelled and field guns, so as to enhance their fire accuracy and speed, responsiveness and survivability in the future battlefield environments. GS-2210A enables rapid and accurate execution of fire mission together with full command and control capabilities using existing infrastructure.

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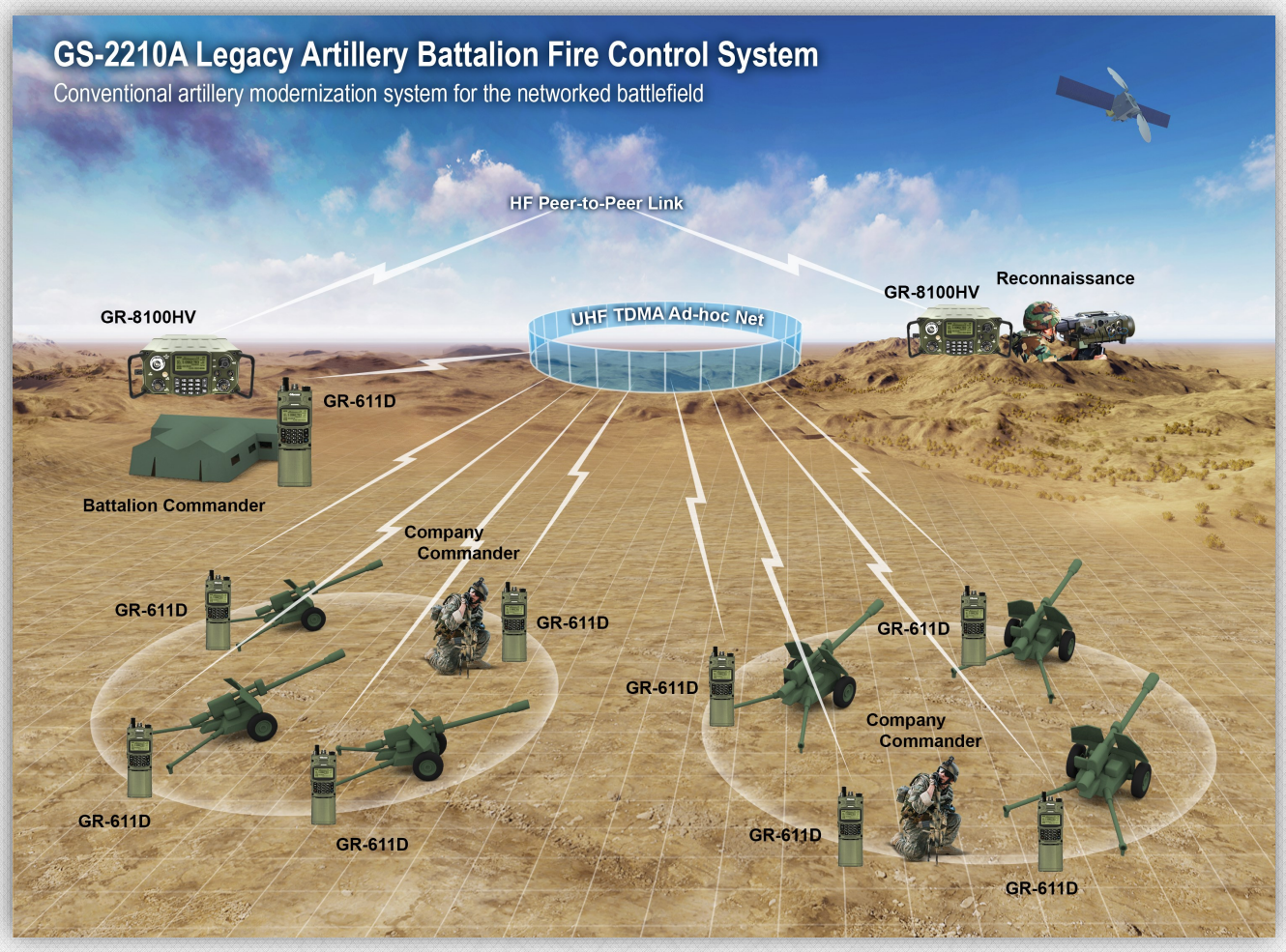

№	DESCRIPTION	MODEL	BRAND	UNIT	QTY
A	Battalion Commander	-	-	Set	1
1	Personal Networking Radio (PNR)	GR-611D	Glocom	Set	1
2	HF/VHF Manpack Radio	GR-8100HV	Glocom	Set	1
3	VHF/UHF Handheld Radio	GR-8600M	Glocom	Set	1
4	Rugged PC	S410	Getac	Set	1
5	Battle Management Software Bundle	GS-930FL	Glocom	Copy	1
B	Company	-	-	Set	3
1	Personal Networking Radio (PNR)	GR-611D	Glocom	Set	7
2	Rugged Tablet (Android)	-	3rd party	Set	7
C	Reconnaissance Team	-	-	Set	1
1	HF/VHF Manpack Radio	GR-8100HV	Glocom	Set	1
2	VHF/UHF Handheld Radio	GR-8600M	Glocom	Set	1
3	Rugged Tablet (Android)	-	3rd party	Set	1

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No	DESCRIPTION	MODEL	BRAND	UNIT	QTY
A	Battalion/Company Command Vehicle	-	-	Set	1
1	HF/VHF 100W Mobile Radio	GR-8100MS	Glocom	Set	2
2	High Capacity Data Radio	GR-8520VU	Glocom	Set	1
3	Tactical Network Intercom System	GE-2100	Glocom	Set	1
4	Rugged PC	S410	Getac	Set	1
5	Battle Management Software	GS-930FL	Glocom	Copy	1
B	Self-Propelled Gun	-	-	Set	18
1	HF/VHF 100W Mobile Radio	GR-8100MS	Glocom	Set	1
2	High Capacity Data Radio	GR-8520VU	Glocom	Set	1
3	Tactical Network Intercom System	GE-2100	Glocom	Set	1
4	Rugged PC	S410	Getac	Set	1
C	Reconnaissance Team	-	-	Set	1
1	HF/VHF Manpack Radio	GR-8100HV	Glocom	Set	1
2	VHF/UHF Handheld Radio	GR-8600M	Glocom	Set	1
3	Secure Personal Radio	GR-611B	Glocom	Set	5

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Glocom
Global Communications Co.,

GS-2300 Airborne Command & Control Data Link

Reliable Data Link for Tactical Air Coordination in Shared Airspace

Advanced Airborne Solutions Enhance Your Mission's Reach

Key applications

■Aircraft control ■Air traffic control ■Command & Control ■Airspace Surveillance

Joint and combined military operations and multinational missions are driving the change from platform-centric operations to network enabled operations. Glocom supports ITCCS for stationary, land mobile, shipborne, airborne and soldier with high-tech information technology with excellent communication technology. Hereby, the airborne system is designed for all kinds of airborne applications in air-force.

ITCCS (Integrated Tactical Command & Control System) GS -2000 is an integral whole of various tools used for accurate understanding of battlefield situations, decision-making, speedy and correct implementation of tasks, and conduct of operational simulations and emulations.

C4ISR system is largely composed of sensors dedicated to tactical intelligence gathering, surveillance, and reconnaissance; a command and control system for accurate understanding of battle field situations on the basis of real-time information sharing and analysis, as well as rational decision-making and speedy transmission of orders; and a field management system comprising weapons management system, operation management system, etc., which encompass various kinds of combat equipment, personnel, and all other elements that take part in battles and wars either directly or indirectly.

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System Overview

The Glocom GS-2300 is designed to provide mission-critical, air-to-ground, air-to-air fully networked data communications. The data link can provide a range of combat information in near-real time to friendly's combat aircraft and C2 centers. The displayed information includes an integrated air common picture with both friendly and hostile aircraft locations, general situational awareness data, and amplifying data on air and ground targets, including air defense threats.

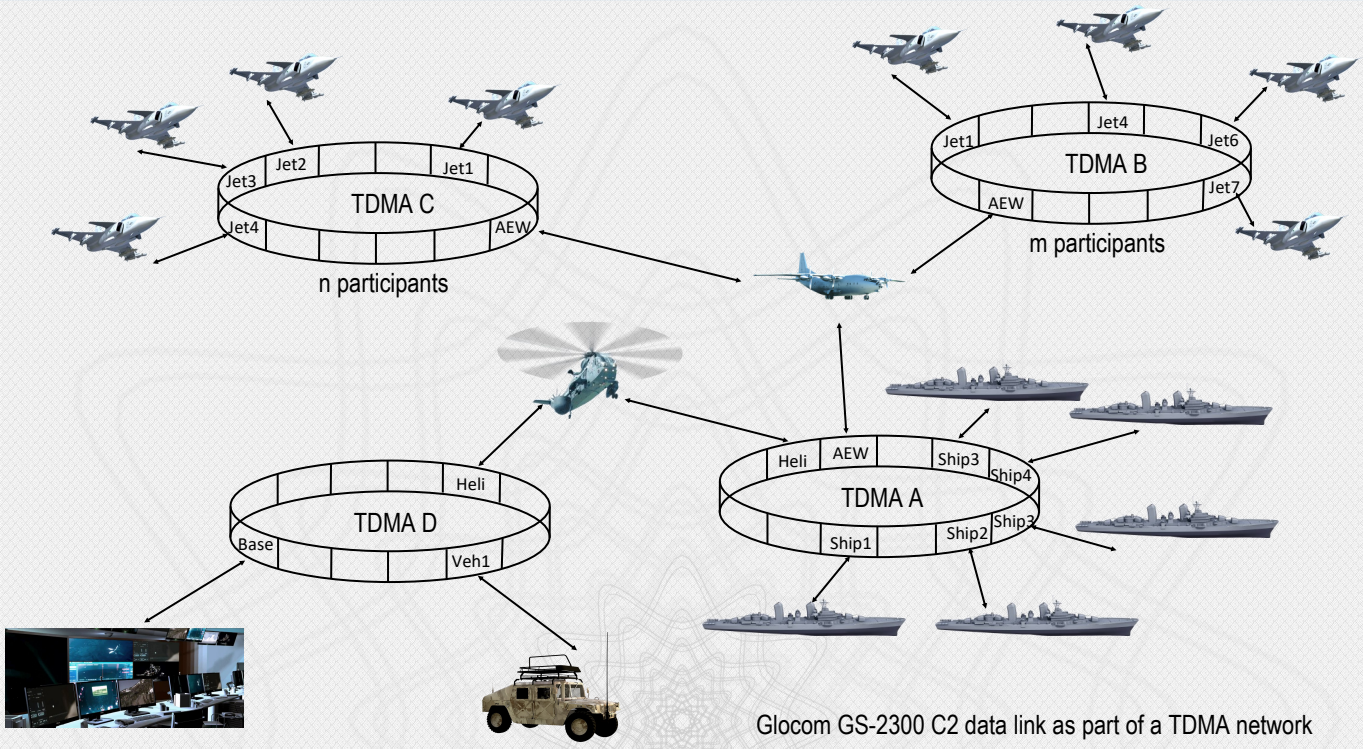
This will contribute to the integrated control of fighters by either ground-based or airborne controllers and will greatly increase the fighters' situational awareness and ability either to engage targets designated by controllers or to avoid threats, thereby increasing mission effectiveness and reducing fratricide and attrition.

Key benefits

Unified situation picture: Integration with multiple sensors , provides a unified situation picture to support decision making as well as real-time operation.

Synchronization of integrated joint forces: Enables managing aerial assets in the tactical airspace and integrating airpower into maneuvering with joint and coalition forces.

Significant cost savings: SWaP-optimized for deployment in fixed-wing, rotary, unmanned and vehicular systems, the Glocom radios provide an inexpensive, highly adaptive solution for the update of aircrafts, so as to enhance their abilities in the future network centric operation environments.



Glocom GS-2300 C2 data link as part of a TDMA network

Operational capabilities

- full duplex network based on TDMA infrastructure
- Aerial Common Picture compilation and dissemination
- Tactical airspace monitoring and coordination
- Aerial mission execution control
- Aerial mission planning
- Post mission analysis, after-action review and debrief

System functions

- Position reporting on digital map
- Sharing of radar information
- Sharing of command & control information
- Real-time sharing of situation awareness information
- Remote control access via local area network
- Military operation planning, simulation & emulation
- Sharing of mission control data
- Evaluation/review of military operation

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GR-432C Datalink Transceiver

The GR-432C Datalink Transceiver is especially designed for data communication system like Telemetry/Tracking & Command (TTC), Air-Defense Datalink System (ADDS) and Tactical Datalink System - to deliver real-time information superiority on today's battlefields.

Benefits to end user

- Provides safe and secure communications in the aviation safety spectrum
- Supports both point-to-point and networked communication modes
- Optimized SWaP for reliable communications from disadvantaged platforms
- Proven ease of integration with the various TDL hosts
- Advanced anti-jam performance

Easy installation in cockpit or avionic bay

The radio is designed to use in vehicle, shipborne and airborne. It can be installed in any 4-wheel vehicle, tanks, ships and airborne. Almost of radios are designed '"jerk-and-run" concept, so it is very easy to configure airborne system from standard version. If any vehicles or airborne is defective, it can take out just, and can be use in portable purpose.

Specifications

Frequency Range	430~470MHz
Channel Spacing	100kHz, 150kHz, 200kHz
Modulation	FSK
Data Rate	1200bps~115.2kbps
Frequency Stability	±1ppm
RF Impedance	50Ω
Communication Mode	1:N TDMA (max. 64)
TDMA Period	2s @ N=10
TRANSEC	FH@100hps
COMSEC	AES 256
Power Supply	11~14VDC, Over-voltage, polarity protection
Data Interface	RS-232C
Programming	PC
Dimension	147.5x110x25mm
Weight	≤800g

Receiver

Sensitivity	-116dBm @ FSK, 1kbps, BER 10^{-3}
AFC	±50kHz
Current Consumption	≤200mA

Transmitter

RF Power	50mW~10W
Harmonic Suppression	≥50dBC
Current Consumption	≤4.5A

Environment

Operating Temperature	-40~60°C
Storage Temperature	-50~70°C
Humidity	95%

GR-432C Datalink Transceiver

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GS-2300-01 Command & Control Center System

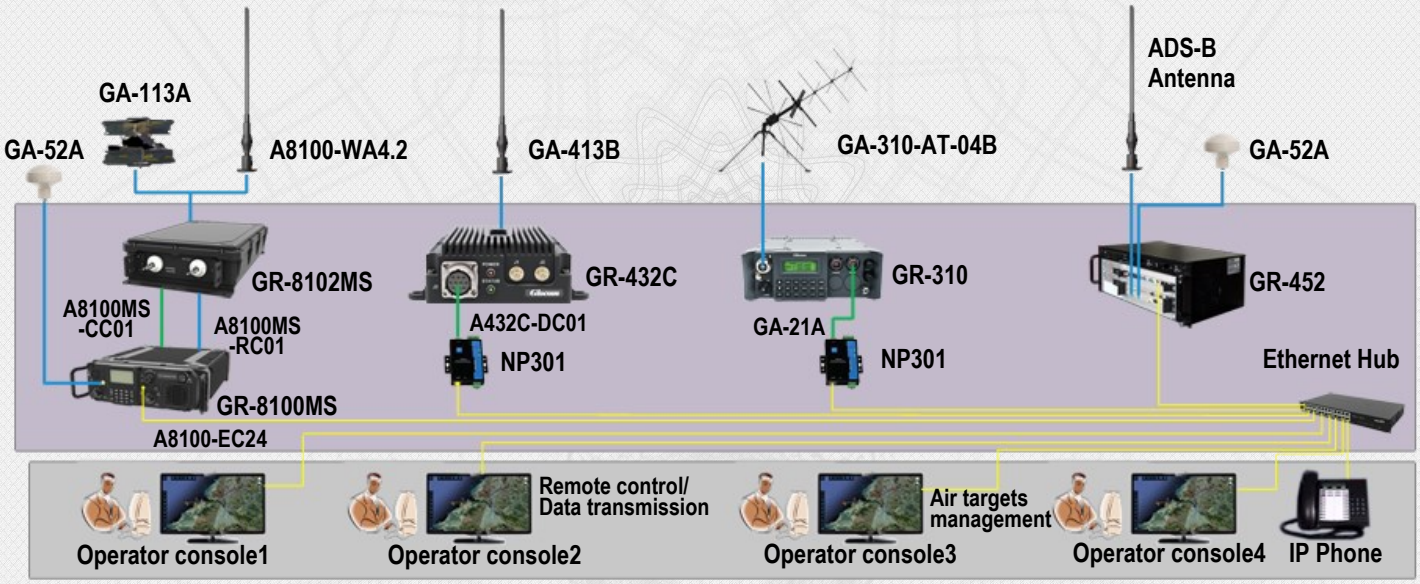
GS-2300-01 Stationary System

GS-2300-01 Command & Control Center System supports ATC solutions for military and civil ATC applications. It can be a ground command and control center for air-force. All real-time target information, radio information can be concentrated into GS-2300-01, so the commander can make a decision in real-time. It supports battlefield management functions like situation awareness, military operation planning, simulating, distributing, review etc...

The Ground vehicle system version of GS-2300-01 provides complete communications upgrades to vehicle platform, thus offering customers the cost-effective mobile command and control capabilities. The vehicle system is designed for all kinds of ground vehicle.

GS-2300-01 Ground Vehicle System

GS-2300-01 Configuration



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GS-2300-01 Ordering Information

№	DESCRIPTION	MODEL	BRAND	UNIT	QTY
1	**UHF Data Radio Set**	**GR-432G-TC**	**Glocom**	**Set**	**1**
1-1	UHF Data Radio	GR-432C	Glocom	pc	1
1-2	Data Cable	A432C-DC01	Glocom	pc	1
1-3	Fuselage Antenna with cable (5m)	GA-413B	Glocom	pc	1
1-4	Battery Pack	BB-2590/U	Glocom	pc	2
1-5	Power Cable (2m)	A432C-PC01	Glocom	pc	1
1-6	Battery Charger	A8100-BC2B	Glocom	pc	1
1-7	User Manual	A432C-UM01	Glocom	copy	1
1-8	Setup/Control Application (Windows)	GC-432C	Glocom	copy	1
1-9	PSU, 12VDC/100W (option)	GA-33A	Glocom	pc	1
2	**HF/VHF Manpack Radio Set**	**GR-8100HV**	**Glocom**	**Set**	**1**
2-1	HF/VHF Manpack Radio	GR-8100VH	Glocom	pc	1
2-2	Military Official Handset	GA-8100OH	Glocom	pc	1
2-3	VHF 2.4m Whip Antenna	A8100-WA2.4V	Glocom	pc	1
2-4	HF 20m x 2 Dipole Antenna	A8100-DA20	Glocom	pc	1
2-5	Mobile GPS Antenna	GA-50A	Glocom	pc	1
2-6	Battery Box without Battery	A8100-BB31	Glocom	pc	1
2-7	Battery Pack	BB-2590/U	Glocom	pc	2
2-8	Battery Charger	A8100-BC2B	Glocom	pc	1
2-9	Ground Stake Kit	A8100-GK25	Glocom	pc	1
2-10	Field Reference Guide	A8100HV-UM01	Glocom	pc	1
2-11	Setup/Control Application (Windows)	A8100-APPV10	Glocom	copy	1
2-12	HF 2.4m Whip Antenna (option)	A8100-WA2.4	Glocom	pc	1
2-13	Asynchronous Data Cable (option)	A8100-DC01	Glocom	pc	1
2-14	Ethernet Cable (option)	A8100-EC24	Glocom	pc	1
3	**Computer & Peripherals**				
3-1	Rugged PC (Windows)	2 COM Ports	3rd party	pc	1
3-2	Ethernet-RS232C Converter (option)	NP301	3onedata	pc	2
3-3	Ethernet Cable (option)	5m	3rd party	pc	3
3-4	Ethernet Switching Hub (option)	8 ports	3rd party	pc	1
4	**Software Package**				
4-1	Command & Control Software for C2 center	GS-930FL	Glocom	copy	1

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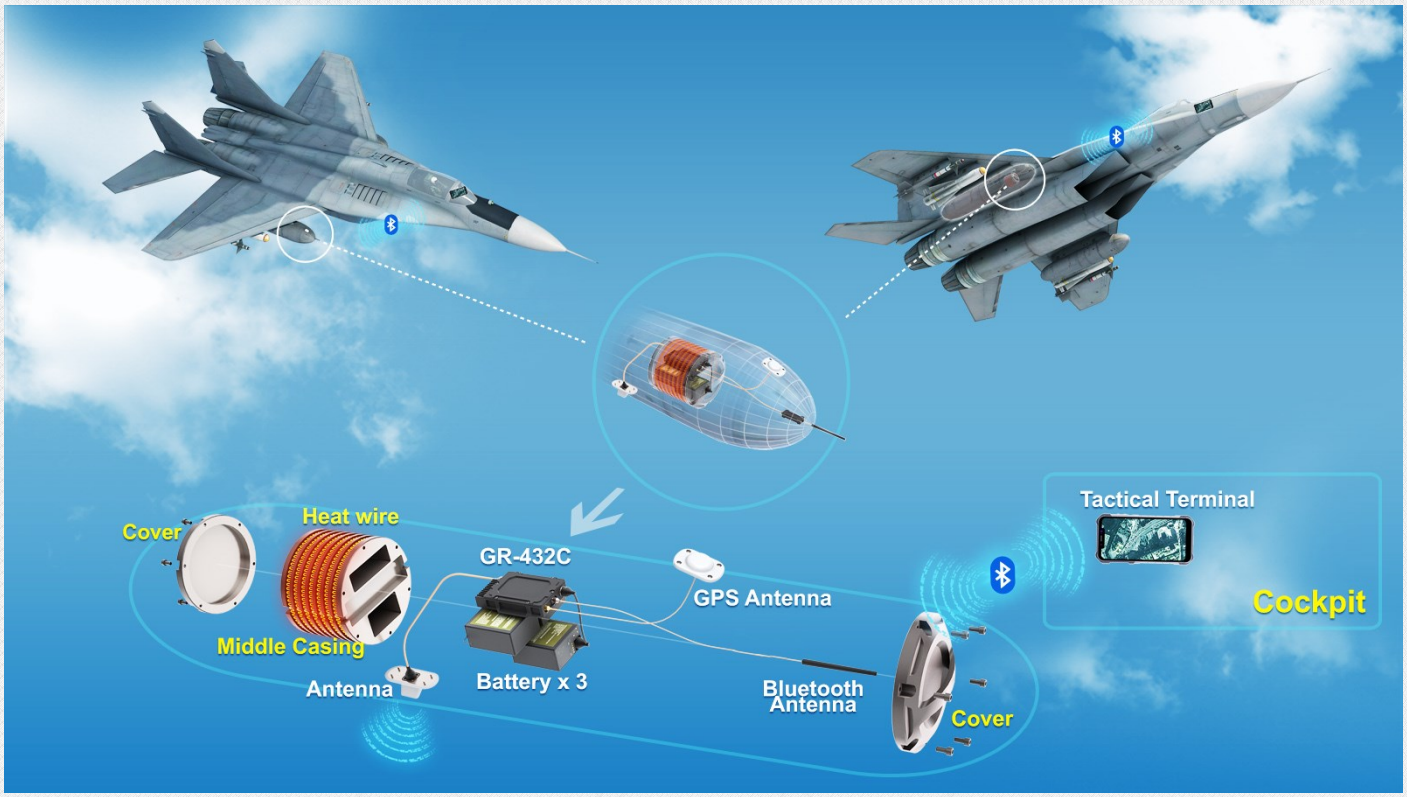
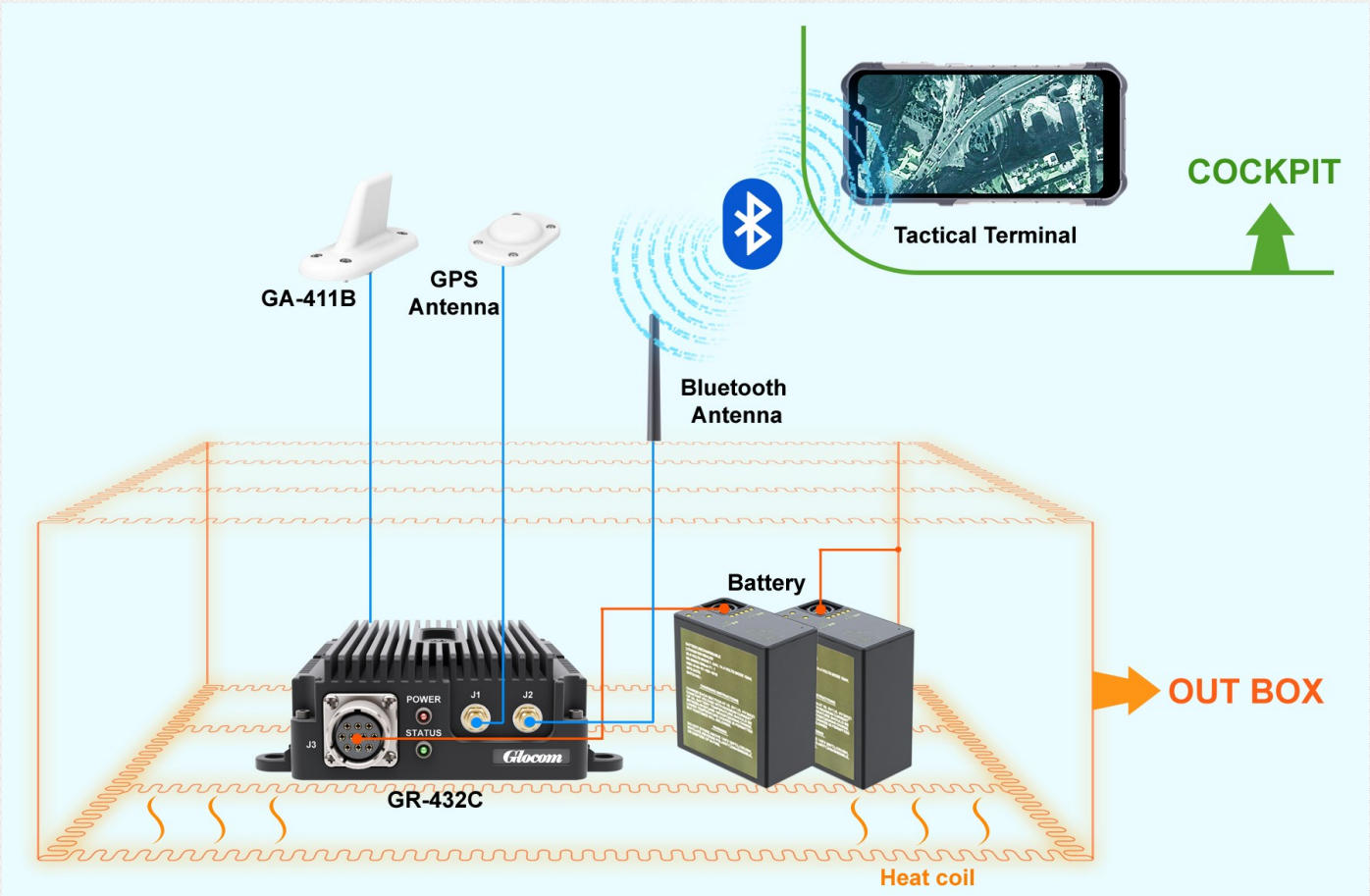
GS-2300-02 Airborne System



GS-2300-02 Configuration



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GS-2300-02 Ordering Information

№	DESCRIPTION	MODEL	BRAND	UNIT	QTY
1	**UHF Data Radio Set**	**GR-432M-TC**	**Glocom**	**Set**	**1**
1-1	UHF Data Radio	GR-432C	Glocom	pc	1
1-2	Data Cable	A432C-DC01	Glocom	pc	1
1-3	Airborne antenna with cable (1m)	GA-411B	Glocom	pc	1
1-4	Mobile GPS Antenna	GA-50A	Glocom	pc	1
1-5	Bluetooth Antenna	Brand	3rd party	pc	1
1-6	Power Cable (2m)	A432C-PC01	Glocom	pc	1
1-7	User Manual	A432C-UM01	Glocom	copy	1
1-8	Setup/Control Application (Windows)	GC-432C	Glocom	copy	1
2	**Computer & Peripherals**				
2-1	Rugged Pad (Android, 5.5~6 inch)	Armor	Ulefone	pc	1
2-2	Outer Box	A2300-BOX10	Glocom	copy	1
2-3	Battery Pack	BB-2590/U	Glocom	pc	5
2-4	Battery Charger	A8100-BC2B	Glocom	pc	1
3	**Software Package**				
3-1	Command & Control Software for airborne	GS-930EG	Glocom	copy	1

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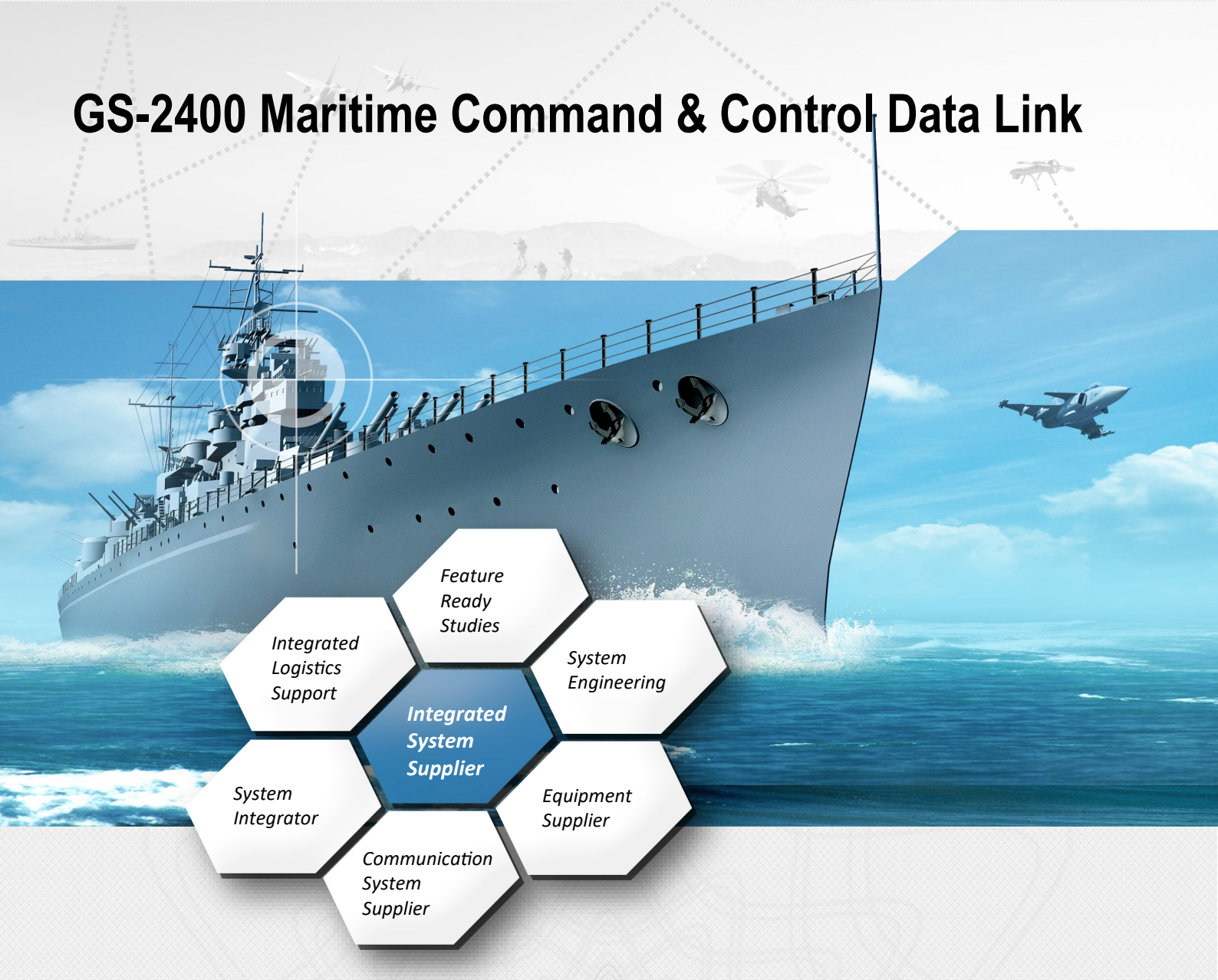
GS-2400 Maritime Command & Control Data Link



Delivering critical communications that keep vessels connected at sea

The future wars are focusing on NCW (Network Centric Warfare) instead of Platform Centric Warfare. Main factors with great impact on today's battlefield are better SA (Situational Awareness) capabilities (getting and keeping the SA) beyond the enemy, real time Command and Control capabilities and precise attack on the target. NCW performs wars with these capabilities.

In the network centric warfare, sensor systems, command & control and attack systems maximize the fighting capabilities by sharing the SA through network. The core element is Tactical Datalink that enables NCW.

The Tactical Datalink performs the network centric warfare while the exchange of real time tactical information increases the synergy effects of weapon system and achieves the information superior.

In today's naval battle, the growth of relative threat factors including the increased threat velocity, radar avoidance of threat target makes the action time shorter and that enhances the importance of Tactical Datalink in Warship Systems.

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[Key features]

- Unified tactical network over different radio systems, HF and UHF
- Providing functionalities comparable to NATO Link11 and Link22
- Selectable between Dynamic TDMA mode and Polling mode for HF radio communication
- Mobile ad hoc network with high data rate for UHF radio communication
- Easy integration with any Command & Control system
- Simple, adaptable and robust to meet the unique challenges of maritime environments
- Scalable solutions for different types of naval platforms
- Applicable for sea and land platforms

System Overview

HF and VHF networks form a GS-2400 system. HF network is used for BLOS (beyond-line-of-sight) communication between vessels and ground headquarters. UHF network is used for high speed LOS (line-of-sight) communication between vessels.

GS-2400 operates in Roll Call mode compared to Link11 and DTDMA mode compared to Link22. Here, the Roll Call mode is standard and the users can switch the modes depending on their demand.

In Roll call mode, data is disseminated throughout the net by the automatic reporting of pickets (in general, participating units) in response to the interrogations by the Network Control Picket (in general, ground Command & Control picket).

NCS shall be able to interrogate all picket in any sequence and inserting its own data transmission at any point of the sequence.

Although Roll Call mode of GS-2400 is similar to Link11, the optimized frequency and data rate are selectable for PTP connection between NCS and picket in the current radio environment by 3G ALE function of 4th generation HF radio. This increases the anti-jamming capabilities and throughput.

Roll Call mode provides the most robust data exchange between all the pickets in data link.

In Roll Call mode, the NCS assesses the link quality to each picket in the network after data exchange with them one by one (a network round cycle). Then, it decides if the network can be run in fixed frequency mode.

Once any channel is decided as a proper one to run the network, the NCS administrator switches the link system to Dynamic TDMA mode manually.

DTDMA mode of GS-2400 operates in very similar way to Link22 such as dynamic slot assignment, late network entry, congestion management and so on.

DTDMA provides data transmission with minimum latency.

UHF network of GS-2400 form Ad-hoc network.

Today's data applications must be able to transmit radar tracks, situation reports (SITREP) and general text messages and they increasingly require integration of digital media (images, audio, video) and Microsoft Office documents. The significance of video transmission and video conferencing is growing, too. Despite the use of state-of-the-art data compression methods, video transmission requires high data transmission rates. The UHF data link permits operation of a self-organizing IP-based mobile radio network in the UHF frequency band with data transmission rates in the Mbit/s range and communication range is highly scalable by the automatic relay.

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General specifications

Frequency range	HF/UHF
Network Size	32 units (Subnet), 125 units (4 Subnets)
Medium Access Control	HF: TDMA/Polling UHF: CSMA
Routing	HF: Table-driven (Proactive) UHF: On-demand (Reactive)
Relay	HF: up to 2hops UHF: up to 6hops
Data rate	HF: 300bps~12.8kbps UHF: 192kbps@DSSS, 1Mbps@OFDM
Jamming Immunity	HF: Automatic channel selecting by using HF 3G ALE UHF: DSSS
Range	HF: < 1000km (BLOS) UHF: <20km (deep sea), <50km (coast)
Target Updating Cycle	< 3min
Delay	< 3min
Data Format	Glocom standard
Voice call	HF: disabled UHF: enabled
Communication Mode	Data, automatic reporting of position

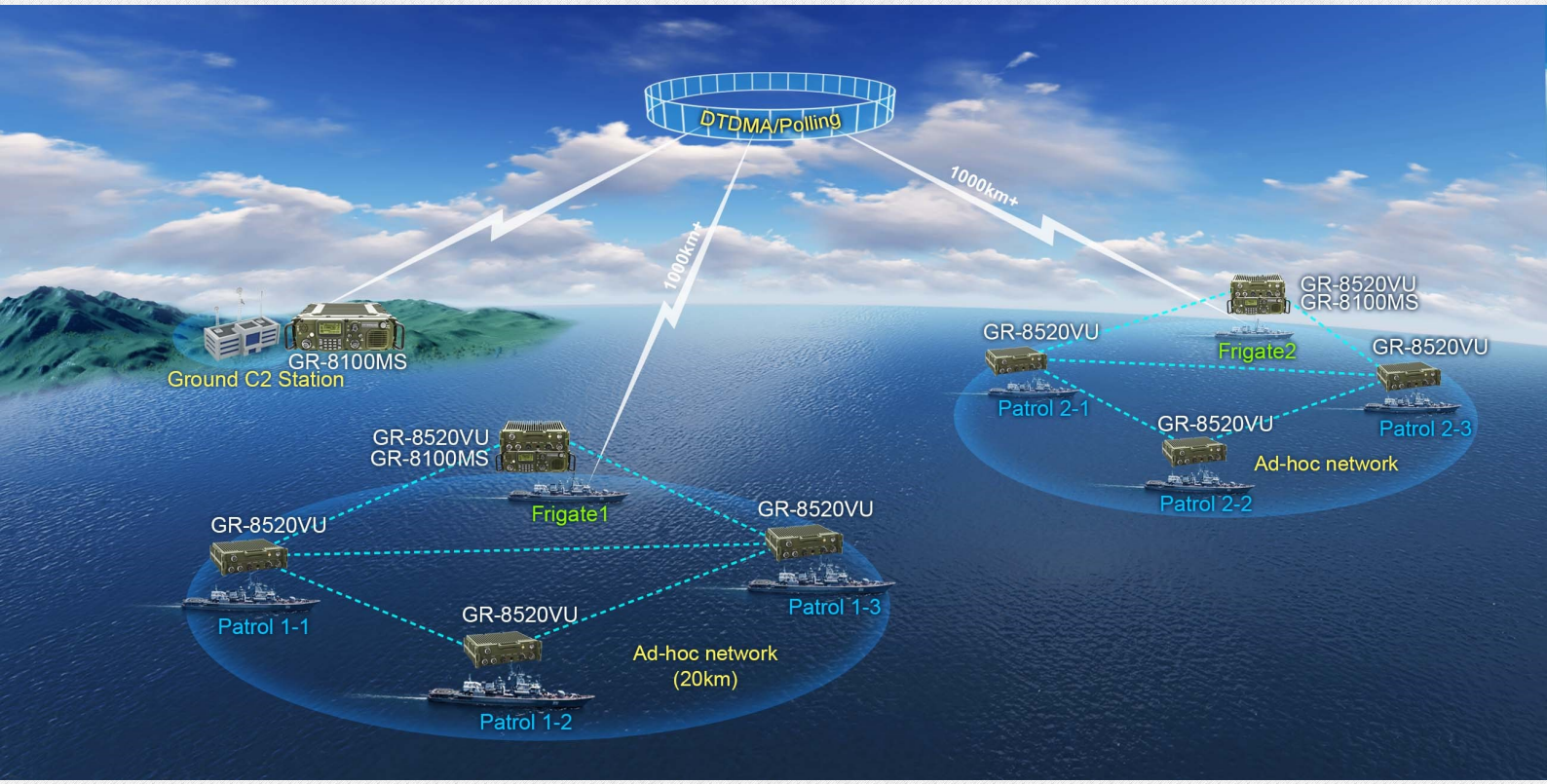
All the capabilities of GS-2400 are ensured by the HF radios such as GR-8100HV, GR-8100MS, high capacity data radio, GR-8520VU, and system network controller GE-8400.

GR-8100HV

GR-8100MS

GR-8520VU

GE-8400



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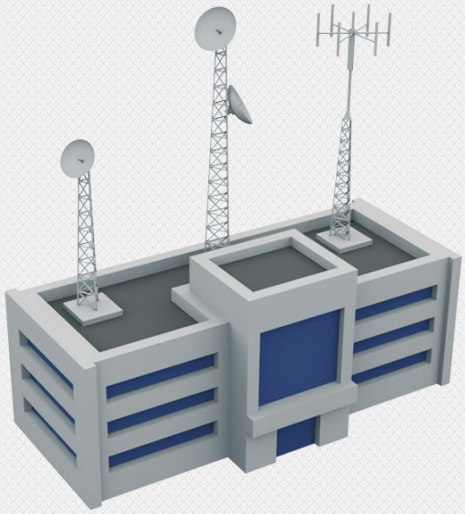
GS-2400-01 Ground Station System



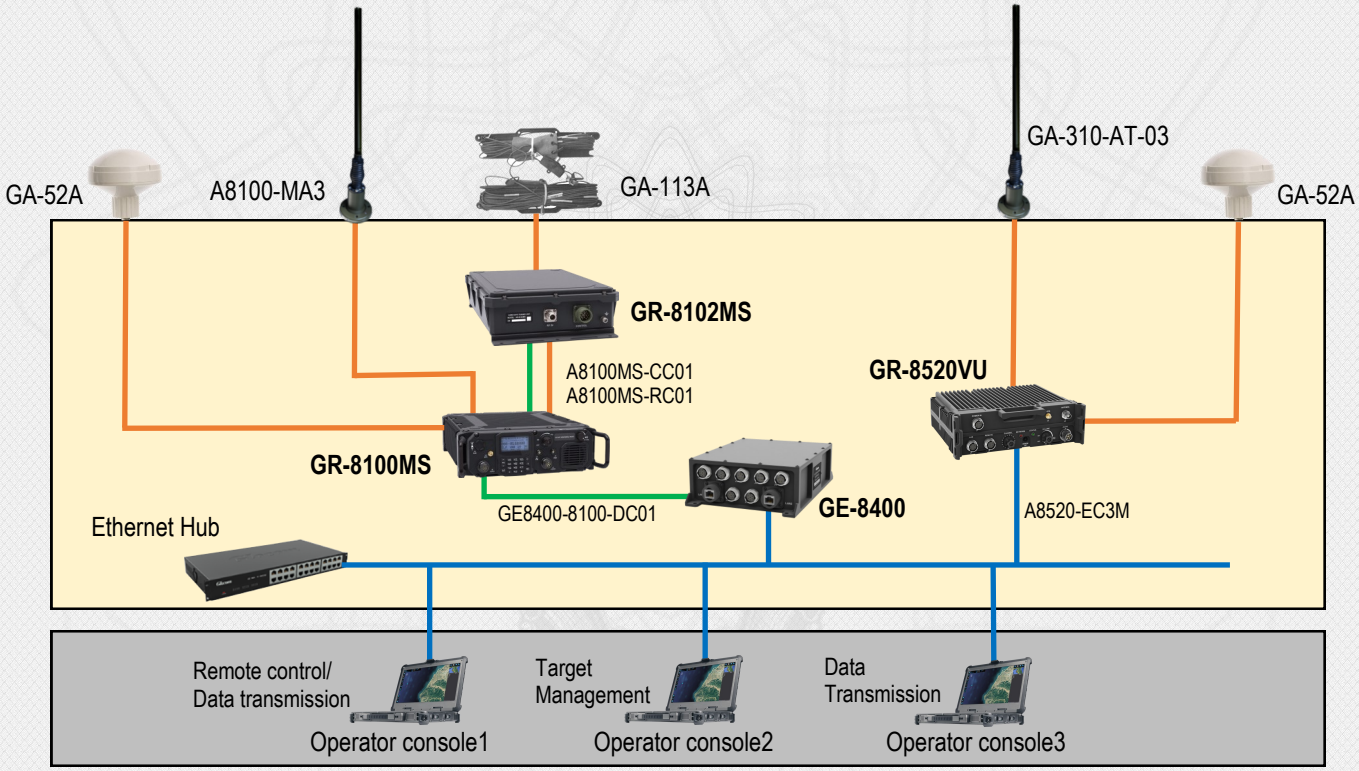
GS-2400-01 Stationary System

GS-2400-01 Command & Control Center System can be a ground command and control center for maritime forces. All real-time target information, radio information can be concentrated into GS-2400-01, so the commander can make a decision in real-time. It supports battlefield management functions like situation awareness, military operation planning, simulating, distributing, review etc...

The Ground vehicle system version of GS-2400-01 provides complete communications upgrades to vehicle platform, thus offering customers the cost-effective mobile command and control capabilities. The vehicle system is designed for all kinds of ground vehicle.

GS-2400-01 Ground Vehicle System

GS-2400-01 Configuration



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GS-2400-01 Ordering Information

№	DESCRIPTION	MODEL	BRAND	UNIT	QTY
1	**HF/VHF 100W Mobile Radio Set**	**GR-8100MS**	**Glocom**	**Set**	**1**
1-1	HF/VHF 100W Mobile Radio	GR-8100MS	Glocom	Pc	1
1-2	Military Official Handset	GA-8100OH	Glocom	Pc	1
1-3	HF 20m×2 Dipole Antenna	GA-113A	Glocom	Pc	1
1-4	VHF Mobile Antenna with Cable (30~88 MHz, 3.7m)	A8100-MA3	Glocom	Pc	1
1-5	Vehicle GPS Antenna	GA-52A	Glocom	Pc	1
1-6	HF 100W Automatic Tuning Unit	GR-8102MS	Glocom	Pc	1
1-7	Amplifier-ATU RF Cable	A8100MS-RC01	Glocom	Pc	1
1-8	Amplifier-ATU Control Cable	A8100MS-CC01	Glocom	Pc	1
1-9	Power Cable	A8100MS-PC01	Glocom	Pc	1
1-10	Asynchronous Data Cable	A8100-DC01	Glocom	Pc	1
1-11	Ethernet Cable	A8100-EC24	Glocom	Pc	1
1-12	27V/300W Power Supply Unit	A8100-PS300	Glocom	Pc	1
1-13	Field Reference Guide	A8100MS-UM01	Glocom	Copy	1
2	**High Capacity Data Radio Set**	**GR-8520VU**	**Glocom**	**Set**	**1**
2-1	High Capacity Data Radio (HCDR)	GR-8520VU	Glocom	Pc	1
2-2	Military Official Handset	GA-8100OH	Glocom	Pc	1
2-7	Mobile antenna with cable (225-512MHz, 1m)	GA-310-AT-03	Glocom	Pc	1
2-3	Vehicle GPS Antenna	GA-52A	Glocom	Pc	1
2-4	Ethernet Cable	A8520-EC3M	Glocom	Pc	1
2-5	Power Cable	A8520-PC2M	Glocom	Pc	1
2-6	User Manual	A8520-UM01	Glocom	Copy	1
3	**System Network Controller Set**	**GE-8400**	**Glocom**	**Set**	**1**
3-1	System Network Controller (SNC)	GE-8400	Glocom	Pc	1
3-2	Data Cable for GR-8100	GE8400-8100-DC01	Glocom	Pc	1
3-3	Power Cable	GE8400-PC01	Glocom	Pc	1
3-4	Commercial Ethernet Cable	5m	3rd Party	Pc	1
3-5	Vehicle GPS Antenna (Option)	GA-52A	Glocom	Pc	1

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№	DESCRIPTION	MODEL	BRAND	UNIT	QTY
4	**Computer & Peripherals**				
4-1	Rugged PC	Windows OS	Getac	pc	3
4-2	Ethernet-RS232C Converter (option)	NP301	3onedata	pc	2
4-3	Ethernet Cable (option)	5m	3rd party	pc	3
4-4	Ethernet Switching Hub (option)	8 ports	3rd party	pc	1
5	**Software Package**				
5-1	Data Link Processor Library and Demo Project	DLP library, Link-G Demo Project	Glocom	copy	1
5-2	GR-8100 Communication Planning Application	GC-8100 (Windows)	Glocom	copy	1

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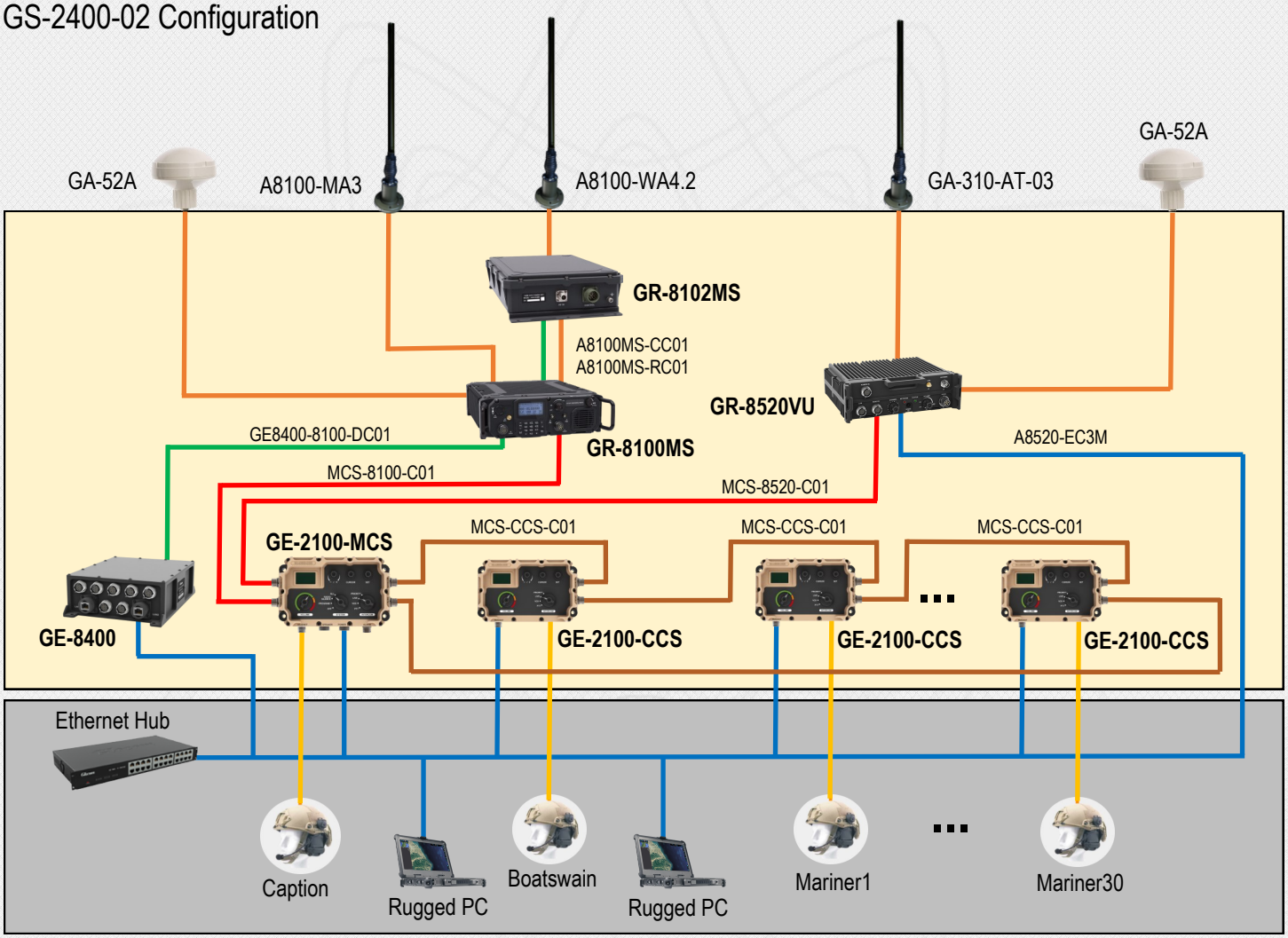
GS-2400-02 Destroyer/Frigate System

GS-2400-02 Configuration



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GS-2400-02 Ordering Information

№	DESCRIPTION	MODEL	BRAND	UNIT	QTY
1	**HF/VHF 100W Mobile Radio Set**	**GR-8100MS**	**Glocom**	**Set**	**1**
1-1	HF/VHF 100W Mobile Radio	GR-8100MS	Glocom	Pc	1
1-2	Military Official Handset	GA-8100OH	Glocom	Pc	1
1-3	HF 20m×2 Dipole Antenna	GA-113A	Glocom	Pc	1
1-4	VHF Mobile Antenna with Cable (30~88 MHz, 3.7m)	A8100-MA3	Glocom	Pc	1
1-5	Vehicle GPS Antenna	GA-52A	Glocom	Pc	1
1-6	HF 100W Automatic Tuning Unit	GR-8102MS	Glocom	Pc	1
1-7	Amplifier-ATU RF Cable	A8100MS-RC01	Glocom	Pc	1
1-8	Amplifier-ATU Control Cable	A8100MS-CC01	Glocom	Pc	1
1-9	Power Cable	A8100MS-PC01	Glocom	Pc	1
1-10	Asynchronous Data Cable	A8100-DC01	Glocom	Pc	1
1-11	Ethernet Cable	A8100-EC24	Glocom	Pc	1
1-12	27V/300W Power Supply Unit	A8100-PS300	Glocom	Pc	1
1-13	Field Reference Guide	A8100MS-UM01	Glocom	Copy	1
2	**High Capacity Data Radio Set**	**GR-8520VU**	**Glocom**	**Set**	**1**
2-1	High Capacity Data Radio (HCDR)	GR-8520VU	Glocom	Pc	1
2-2	Military Official Handset	GA-8100OH	Glocom	Pc	1
2-7	Mobile antenna with cable (225-512MHz, 1m)	GA-310-AT-03	Glocom	Pc	1
2-3	Vehicle GPS Antenna	GA-52A	Glocom	Pc	1
2-4	Ethernet Cable	A8520-EC3M	Glocom	Pc	1
2-5	Power Cable	A8520-PC2M	Glocom	Pc	1
2-6	User Manual	A8520-UM01	Glocom	Copy	1
3	**System Network Controller Set**	**GE-8400**	**Glocom**	**Set**	**1**
3-1	System Network Controller (SNC)	GE-8400	Glocom	Pc	1
3-2	Data Cable for GR-8100	GE8400-8100-DC01	Glocom	Pc	1
3-3	Power Cable	GE8400-PC01	Glocom	Pc	1
3-4	Commercial Ethernet Cable	5m	3rd Party	Pc	1
3-5	Vehicle GPS Antenna (Option)	GA-52A	Glocom	Pc	1

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№	DESCRIPTION	MODEL	BRAND	UNIT	QTY
4	**Tactical Network Intercom System**	**GE-2100**	**Glocom**	**Set**	**1**
1-1	Master Control Station	GE-2100-MCS	Glocom	Pc	1
1-2	Crew Control Station	GE-2100-CCS	Glocom	Pc	30
1-3	MCS Power Cable	MCS-PC-C01	Glocom	Pc	1
1-4	Data & Power Cable for MCS-CCS	MCS-CCS-C01	Glocom	Pc	31
1-5	Radio Voice & Data Cable for MCS-8100	MCS-8100-C01	Glocom	Pc	1
1-6	Radio Voice & Data Cable for MCS-8520	MCS-8520-C01	Glocom	Pc	1
1-7	Ethernet Cable for MCS	MCS-EC-C01	Glocom	Pc	1
1-8	Ethernet Cable for CCS	CCS-EC-C01	Glocom	Pc	30
1-9	Tactical Headset with U-329/U Plug	A8100-TH11	Glocom	Pc	31
5	**Computer & Peripherals**				
5-1	Rugged PC	Windows OS	Getac	pc	2
5-2	Ethernet-RS232C Converter (option)	NP301	3onedata	pc	1
5-3	Ethernet Cable (option)	5m	3rd party	pc	2
5-4	Ethernet Switching Hub (option)	8 ports	3rd party	pc	1
6	**Software Package**				
6-1	Data Link Processor Library and Demo Project	DLP library, Link-G Demo Project	Glocom	copy	1
6-2	GR-8100 Communication Planning Application	GC-8100 (Windows)	Glocom	copy	1

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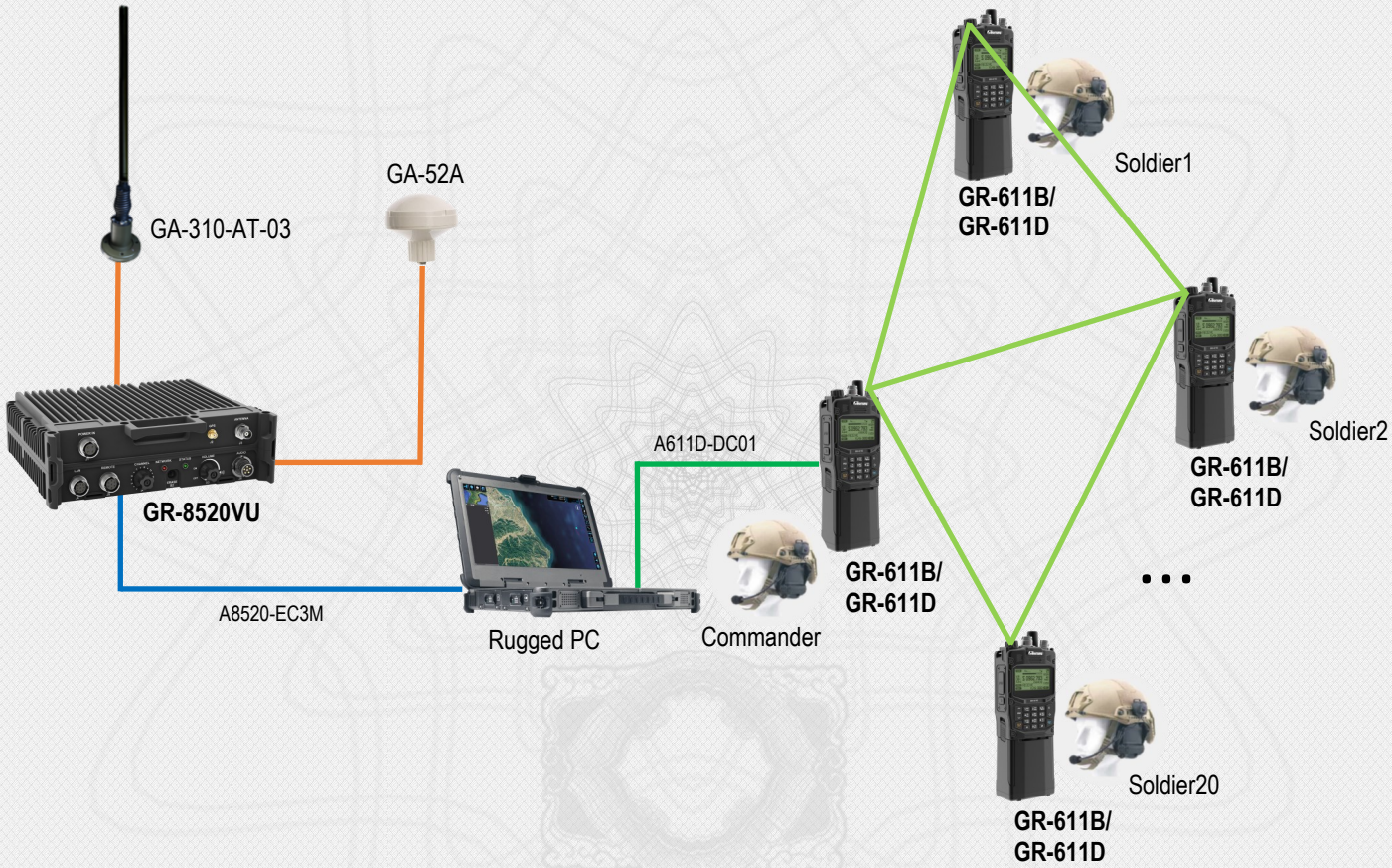
GS-2400-03 Patrol boat/USV(Unmanned Surface Vessel) System

GS-2400-03 Configuration



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GS-2400-03 Ordering Information

№	DESCRIPTION	MODEL	BRAND	UNIT	QTY
1	**High Capacity Data Radio Set**	**GR-8520VU**	**Glocom**	**Set**	**1**
1-1	High Capacity Data Radio (HCDR)	GR-8520VU	Glocom	Pc	1
1-2	Military Official Handset	GA-8100OH	Glocom	Pc	1
1-3	Mobile antenna with cable (225-512MHz, 1m)	GA-310-AT-03	Glocom	Pc	1
1-4	Vehicle GPS Antenna	GA-52A	Glocom	Pc	1
1-5	Ethernet Cable	A8520-EC3M	Glocom	Pc	1
1-6	Power Cable	A8520-PC2M	Glocom	Pc	1
1-7	User Manual	A8520-UM01	Glocom	Copy	1
2	**Personal Networking Radio Set**	**GR-611D**	**Glcom**	**Set**	**20**
2-1	Personal Networking Radio	GR-611D	Glocom	Pc	1
2-2	Whip Antenna	A611D-WA01	Glocom	Pc	1
2-7	Handheld GPS Antenna	GA-51A	Glocom	Pc	1
2-3	16-Way RS-232C Data Cable	A611D-DC01	Glocom	Pc	1
2-4	Battery Pack	A8600-BP01	Glocom	Pc	1
2-5	1 Bay Battery Charger	A8600-BC1B	Glocom	Pc	1
2-6	Carrying Pouch	A611D-CP01	Glocom	Pc	1
2-7	User Manual	A611D-UM01	Glocom	Copy	1
3	**Secure Personal Radio Set (option)**	**GR-611B**	**Glocom**	**Set**	**20**
3-1	Secure Personal Radio	GR-611B	Glocom	Pc	1
3-2	Whip Antenna	A611B-WA01	Glocom	Pc	1
3-3	Handheld GPS Antenna	GA-51A	Glocom	Pc	1
3-4	Data Cable	A611B-DC01	Glocom	Pc	1
3-5	Battery Pack	A611B-BP01	Glocom	Pc	1
3-6	Battery Charger	A611B-BC1B	Glocom	Pc	1
3-7	Carry Pouch	A611B-CP01	Glocom	Pc	1
3-8	User Manual	A611B-UM01	Glocom	Copy	1

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№	DESCRIPTION	MODEL	BRAND	UNIT	QTY
3	**Computer & Peripherals**				
3-1	Rugged PC	Windows OS	3rd party	Pc	1
3-2	Rugged Tablet	Android	3rd party	Pc	20
3-3	Ethernet-RS232C Converter (option)	NP301	3onedata	Pc	1
3-4	Ethernet Cable (option)	5m	3rd party	Pc	2
3-5	Ethernet Switching Hub (option)	8 ports	3rd party	Pc	1
4	**Software Package**				
4-1	GR-611D Setup/Control Application	GC-611D	Glocom	Copy	1
4-2	Tacti Chat Application (Windows/Android)	GS-910	Glocom	Copy	1
4-3	Command & Control Software for C2 center	GS-930FL	Glocom	Copy	1
4-4	GR-611B Setup/Control Application (option)	GC-611B	Glocom	Copy	1
4-5	GR-611B Tactical Chat Application (option)	GS-910B	Glocom	Copy	1

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Gloom
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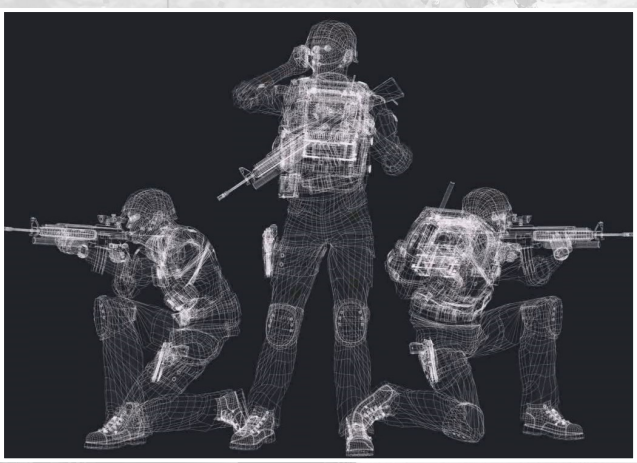
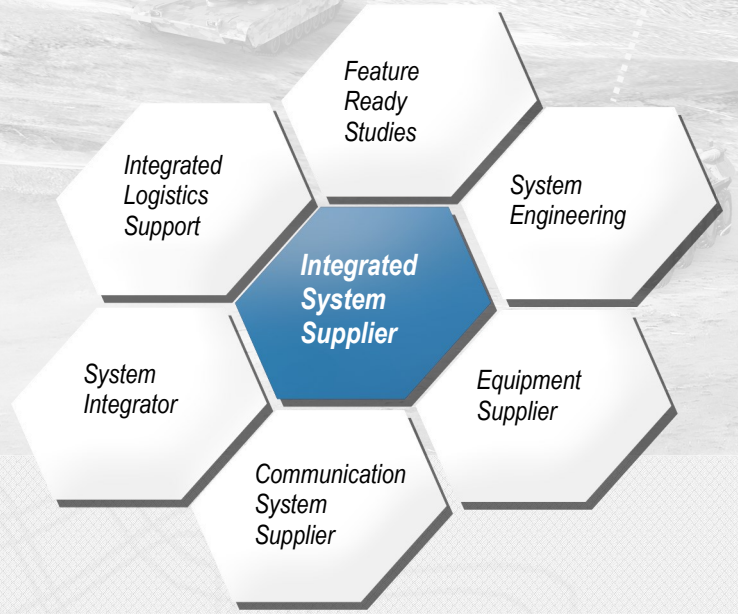
GS-2500 C4I Soldier System

Universal Soldier Information System





What is USIS? (Universal Soldier Information System)

This is a information system for soldier that protects soldiers on battlefield more safely, supports the effective operations, and maximize the capability of soldier on battlefield.

Main Feature

- Maximizes observation capability on battlefield by situation awareness and expansion of reconnaissance area.
- Improves individual soldier's capability by sharing of information like IFF, command & control, situation.
- Improves the command & control capability by real-time information transmission of command, control, direction and others.
- Optimizes soldier management by real-time observation of soldier position, health status and combat capability.
- Improves soldier's survival capability by cooperation between soldiers on battlefield.

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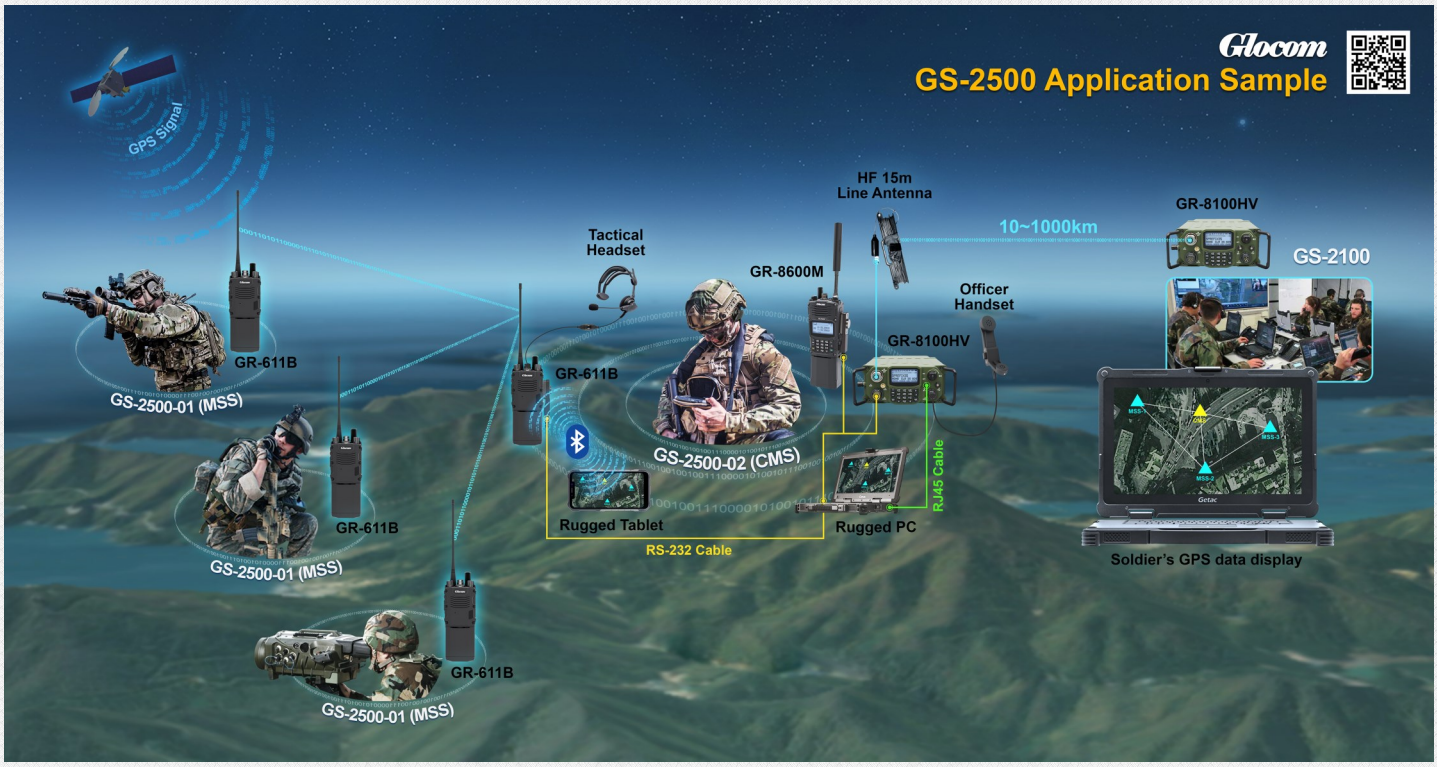
C4I Soldier System

GS-2500 Universal Soldier Information System



Regarding the future military concept, GS-2500 C4I Soldier System, which is planed to be designed as a part of GS-2000 C4ISR system, is a wireless communication system that provides secure (encrypted) information exchange (such as friendly unit position, tactical command, voice, image etc.) between command & control units and infantry units.

This tactical communication system aims to increase the situation awareness and operation efficiency on battlefield.

GS-2500 C4I Soldier System will enable dismounted soldiers to exchange tactical information with command & control units and among each other.

This communication system will provide dismounted soldiers situation awareness and real time feedback capability on battlefield.

The control of dismounted soldiers against enemy forces on battlefield is very important. Especially in irregular and crowded battlefields, identification of friend or foe has a vital importance.

Information Exchanged

- **Blue Force Position**

  The unit which are aware of the location of friendly units can do their missions more effectively. The blue force positions are obtained via GPS and UHF triangulation methods.

- **Digital Image**

  Image transfer from/to battlefield will provide information about current situation of operation both in command and control level and dismounted soldier level.

- **Secure Voice**

  GS-2500 C4I Soldier System has two encrypted voice communication channel. One channel for wide-network, one channel for local networks.

- **Emergency Status**

  Even in the absence of voice communication, emergency situation warning are needed to be transmitted. Dismounted soldiers need to share their special situations such as “I got shot/wounded” with team members and control units

- **Soldier Heart Rate**

  The heart rate of the individual soldier is reported to the control and command unit continuously which provides the monitoring of the soldier’s health status.

- **Reference Point**

  Through the GS-2500 C4I Soldier System , commanders will be able to deliver the critical reference points, that are identified by several sources of intelligence, to infantry units on battlefield.

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GS-2500-01 Modern Soldier Set (MSS)

The Glocom GS-2500-01 Modern Soldier Set will provide dismounted soldiers the tactical information exchange and situation awareness with command & control unit and among each other in real-time on battlefield. The standard set comprises:-

- Secure Personal Radio — GR-611B
  - Whip Antenna — A611B-WA01
  - Handheld GPS antenna — GA-51A
  - Battery Pack — A611B-BP01
  - Battery Charger — A611B-BC1B
  - Carry Pouch — A611B-CP01
  - User Manual — A611B-UM01
  - (Opt) Tactical Headset — A611B-TH01
  - (Opt) Light Headset — A611B-LH01
  - (Opt) Data Cable — A611B-DC01
  - (Opt) Setup/Control App (Android) — GC-611B
- Tactical Terminal (Android) — Ulefone
- Tactical Chat Application for Android — GS-910B
- Command and Control Software (Soldier) — GS-930B

Maximizes for Soldier's Capability!!

GS-2500 C4I Soldier System improves the combat capability of team on battlefield greatly by expansion of individual soldier's capability, effective military operation organization.

The soldier's capability is determined by the capability of situation awareness, the capability of real-time command & control acceptance and status report, the capability of decision making and the capability of strike.

Generally speaking, the capability of soldier will be improved more than 21 times by using GS-2500 C4I Soldier System.

Thus, the total combat capability of solider will be improved greatly by effective organization of military operation, and it minimizes the maintenance cost of military organization.

Classical conception, that means the soldiers are supported onto battlefield to handle any weapon system which will be needed in military operation, but now new conception, that means the soldiers are supported onto battlefield which are equipped with proper weapon system and information system which are enough to carry out the military operation.

What does a soldier need on a battlefield?

What a soldier fears most is solitude. Therefore, what he definitely needs is a strong sense of comradeship and trust in his superior. Along with this, he also needs information on the enemy, on his side and on himself (location, position, health, arms, mission and operational progress), and its real-time reporting to the superior and to the relief parties and reserve corps.

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GS-2500-02 Communication Man Set (CMS)

The Glocom GS-2500-02 Communication Man Set, which will work as Access Point, will provide dismounted soldiers the tactical information exchange and situation awareness with command & control unit and among each other in real-time on battlefield. The standard set comprises:-

• Secure Personal Radio	GR-611B
* Whip Antenna	A611B-WA01
* Handheld GPS antenna	GA-51A
* Battery Pack	A611B-BP01
* Battery Charger	A611B-BC1B
* Carry Pouch	A611B-CP01
* User Manual	A611B-UM01
* (Opt) Tactical Headset	A611B-TH01
* (Opt) Light Headset	A611B-LH01
* (Opt) Asynchronous Data Cable	A611B-DC01
* (Opt) Setup/Control App (Android)	GC-611B
• HF/VHF Manpack Radio	GR-8100VH
* Military Official Handset	GA-8100OH
* VHF 2.4m Whip Antenna	GA-211A
* HF 15m Line Antenna	GA-112A
* Mobile GPS Antenna	GA-50A
* Battery Box without Battery	A8100-BB31
* Battery Pack	BB-2590/U
* Battery Charger	A8100-BC1B
* Ground Stake Kit	A8100-GK25
* Field Reference Guide	A8100HV-UM01
* (Opt)HF 2.4m Whip Antenna	GA-111A
* (Opt)HF 20m x 2 Dipole Antenna	GA-113A
* (Opt)Asynchronous Data Cable	A8100-DC01
* (Opt)Ethernet Cable	A8100-EC24
* (Opt)CPA Application (Windows)	GC-8100
• Multiband Handheld Radio Set	GR-8600M
* Whip Antenna	A8600-WA01
* Handheld GPS Antenna	GA-51A
* Battery Pack	A8600-BP01
* 1 Bay Battery Charger	A8600-BC1B
* Radio Holster	A8600-RH01
* User Manual	A8600-UM01
* (Opt) Military Official Handset	GA-8100OH
* (Opt) Tactical Headset	A8100-TH11
* (Opt) SATCOM Antenna	GA-310-AT-04B
* (Opt) Ethernet Cable	A8600-EC01
* (Opt) Configuration/Fill DB9 Cable	A8600-DC01
* (Opt) Setup/Control App (Windows)	GC-8600M
• Tactical Terminal (Android)	Ulefone
• Rugged PC (Windows)	Military Grade
• Tactical Chat Application for Android	GS-910B
• Tactical Chat Application for Windows	GS-910
• Command & Control Software (Frontline)	GS-930FL
• Command & Control Software (Soldier)	GS-930EG

What does a commander need on a battlefield?

Real-time access to detailed information – on the movement of the enemy; on the situation of our troops (location, combat power, missions and operational progress) – that is needed for the correct and real-time decision-making, and its sharing with the allied forces.

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GS-2500 C4I Soldier System

Legacy vs Modern Soldier Comparison

Upgrade to 21 Times!

The soldier is the major element of military power along with weapons. Today, soldier don't exist to handle weapon no more, the weapons support for soldier in these days.

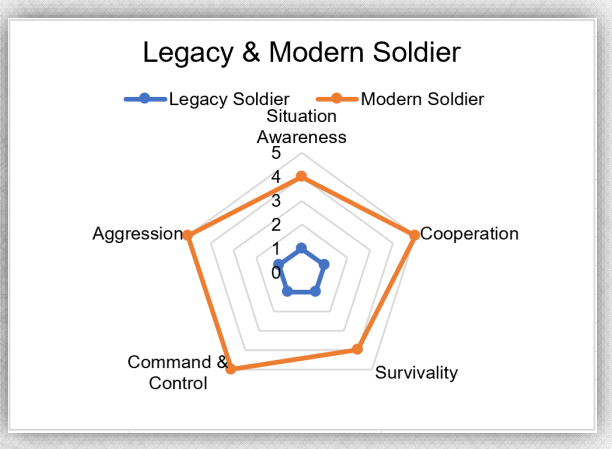
The goal of soldier modernization is to upgrade the operation power by accomplishing the multi-function and the high capability of soldier. This is the concept of the universal soldier.

The battlefield is expanding beyond sky, land, and sea to cyber and space. The battle aspect going on multi-concurrently in three dimention in multi domain requires to confront various operation mode actively like special military operation and asymmetrical operation.

The changes of socio-economical and cultural environment, the development of IT corresponding to high information society suggest the detail requirement for soldier modernization.

To satisfy this requirement, we takes pride in being able to guarantee the C4I Solider System here. GS-2500 C4I Soldier System will help you to upgrade your military power by supporting high operation capability with less military budget. Glocom will be always with you on the battlefield in anytime.

DESCRIPTION	OLD	NEW
Situation Awareness	1	4
Cooperation	1	5
Survivability	1	4
Command & Control	1	5
Aggression	1	5
TOTAL	2.37	49.93



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GS-2600-01 UAV/USV Video, Telemetry/Control System

DS-SS/QPSK/H.265 Technology

Multi-Channel, Full-Duplex data radio

GR-510G/M Transmitter

GR-510G/M Receiver

[Key Features]

■Frequency range (Video: 935~955MHz, Control: 2120~2160MHz) ■Compatible with various kinds of UAVs/USVs ■Low probability of interception (LPI) ■Low probability of detection (LPD) ■H.265 technology ■Full-duplex mode compatible ■Telemetry/remote control ■Video data rate 2Mbps ■Control data rate 2400bps ■Light weight and compact Size ■256-bits AES digital secure

Specifications

Range	> 100Km @ height 1000m
Channel frequency	2120-2160MHz (control), 935-955MHz (video & telemetry)
Channel number	10 channels (control), 5 channels (video & telemetry)
Communication mode	FDMA, TDMA
Modulation	DSSS/QPSK, BPSK
FEC	1/2
Data rate	Video(1, 2Mbps), Telemetry (115.2kbps), Control(2400bps)
ECCM	DS-SS/Encryption (256bit AES)
RF power	3W
Receiver sensitivity	<- 95dBm@BER=10^{-3})
Data interface	RS-232, RS-422, RS-485
Power Supply	10-14VDC, Over-voltage, polarity protection
Current Consumption	< 12V/3A(Tx), <12V/0.8A(Rx)
Continue Work Time	4 hours
Dimension	175x110x65mm(transmitter), 175x110x33mm(receiver)
Weight	1.3Kg(transmitter), 0.7Kg(receiver)
Vibration	Frequency 5~400Hz, amplitude 0.4~10mm, acceleration 4g
Shock	Acceleration 12g, duration 12ms
Operating temp.	-40°C~+60°C
Storage temp.	-50°C~+70°C
Humidity	95%
Video compression	H.265 Compatible
Resolution	720 x 576 pixel
Frame rate	25 frame/second

Traditional war-fighting strategies no longer apply in today's defense environments. Militaries are transforming into agile, network-centric, knowledge–based forces capable of conducting effective joint and combined military operations. Glocom are professional supplier for G4ISR system and necessary items for it. Specially, UAV/USV video control system is one of the main products, and have long history and experience. The GR-510 video transmission system supports the safe and high quality real-time video communication for UAV, USV, missile, remote sensing, telemetry/remote control etc. It uses high technology like DS-SS technology which is excellent for LPI & LPD, H.265 video processing technology, full-duplex communication technology etc.
The mobile system is universal mobile control system for USV/UAV. It supports high survival, quick deployment in battlefield. It is equipped with video receiver, command & control transmitter, status receiver, display system, computer network system, power supply system, HF, VHF, UHF radio system, and C4ISR software system etc. All equipment are compatible with electronic warfare, and for it, they have ECCM functionality. It is compatible with UAV and USV.

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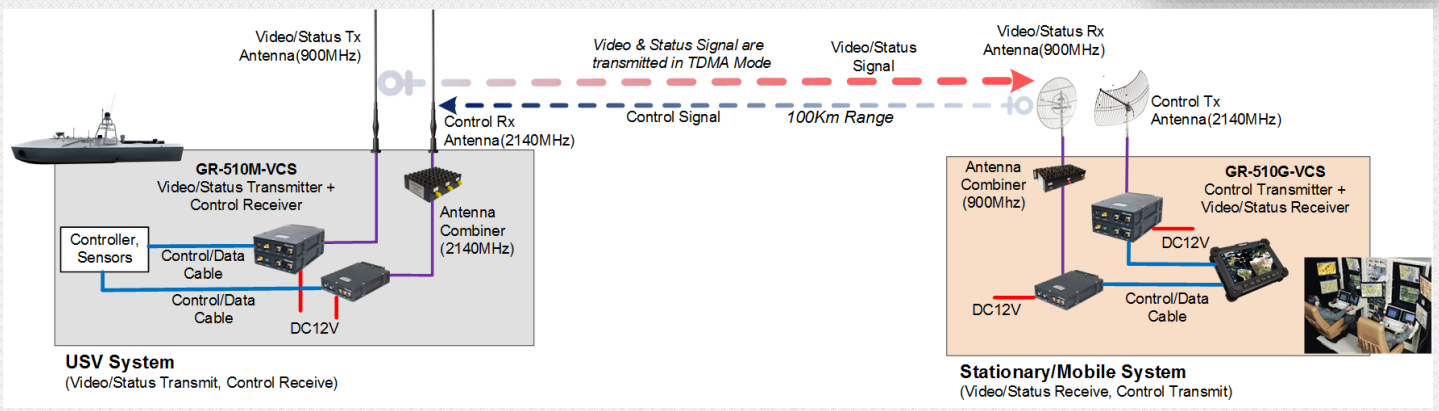
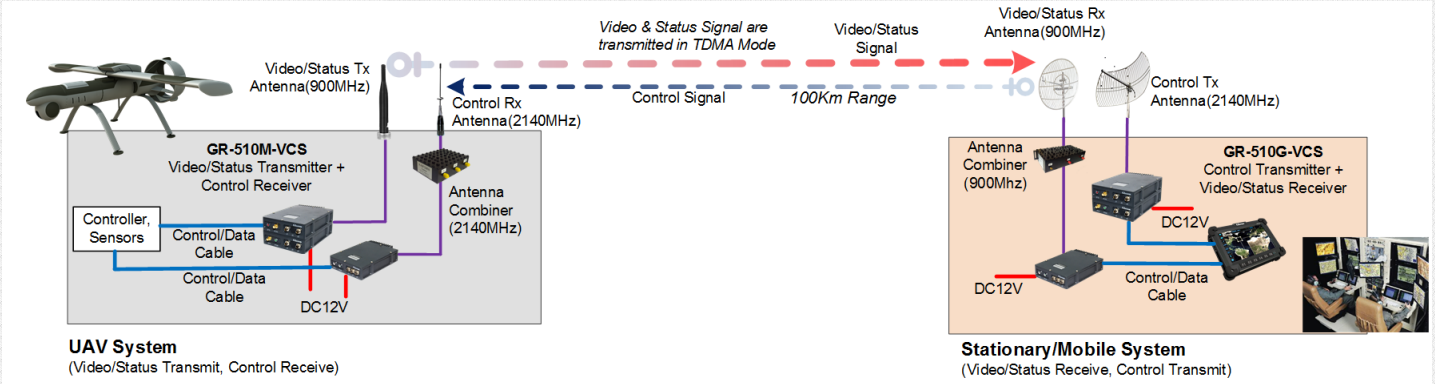
GS-2600-01 Video, Telemetry/Control System for USV/UAV

GS-2600-01 Video, Telemetry/Control System would be installed into any USV/UAV system, and it works for coast surveillance and special military operation. This system is compatible with ECCM.





GR-510M-VTC USV System

• Video/Telemetry Transmitter	GR-510M-VTT
• Control Receiver	GR-510M-CR
• Antenna Combiner	510M-AC01
• RF Cable 1 (SMA, 10cm)	510M-RF-C1
• RF Cable 2 (SMA, 20cm)	510M-RF-C2
• RF Cable 3 (SMA, 2m)	510M-RF-C3
• RF Cable 4 (SMA, 2m)	510M-RF-C4
• Video/Telemetry Antenna (USV)	510M-ANT01
• Control Antenna (USV)	510M-ANT02
• Video/Telemetry Antenna (UAV)	510M-ANT03
• Control Antenna (UAV)	510M-ANT04
• 4 Way Power Cable	510M-PW-C1
• 2 Way Power Cable	510M-PW-C2
• Transmitter Control Cable	510M-CON-C1
• Control & Data Cable	510M-CON-C2

GR-510G-VTC Stationary System

• Video/Telemetry Receiver	GR-510G-VTR
• Control Transmitter	GR-510G-CT
• Antenna Combiner	510G-AC01
• RF Cable 1 (SMA, 10cm)	510G-RF-C1
• RF Cable 2 (SMA, 20cm)	510G-RF-C2
• RF Cable 3 (SMA, 2m)	510G-RF-C3
• RF Cable 4 (SMA, 2m)	510G-RF-C4
• Video/Telemetry Antenna	510G-ANT01
• Control Antenna	510G-ANT02
• 4 Way Power Cable	510G-PW-C1
• 2 Way Power Cable	510G-PW-C2
• Transmitter Control Cable	510G-CON-C1
• Control & Data Cable	510G-CON-C2

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GS-2600-04 Telemetry/Remote Control System

One-time Use for Development Only

[Key Features]

■430MHz ~ 470MHz ■Data/RS232C Interface/Max 115.2kbps ■RF power 10W ■Full deplex with TDMA function(Option) ■Individual/group/system code identification function ■1:N communication mode

[Applications of GS-2600-04]

■ Remote control system ■Remote data Tx/Rx system ■Moving target status analysis system ■Security data network system ■ C4ISR system

The roles of the precision-guided weapon in modern war can't be disregarded anymore. Every countries and companies are competing to develop the new precision guided weapons, and to modernize the old generation weapons to precision guided weapon with low development cost and short period now. The most important technology in development stage is to telemetry and analysis the launched missiles and control them in real time. This technology makes the developers to save the development cost, and shorten the development period dramatically, and upgrades the safety of testing procedure of weapons.
Glocom is developing the data communication technology and supporting the developers of precision-guided weapon with the low cost, compact telemetry/remote controller for one-time use.

General Specifications (GR-422 Transceiver)

Frequency range	430~470MHz
Channel spacing	100kHz, 150kHz, 200kHz
Modulation	FSK
Data rate	1200bps~115.2kbps
Frequency stability	±1ppm
RF impedance	50Ω
Power supply	11~14VDC
	Over-voltage, polarity protection
Data interface	RS-232C
Programming	PC
Dimension	175x110x33mm
Weight	≤800g

Receiver

Sensitivity	-116dBm @ FSK, 1kbps, BER 10^{-3}
AFC	±50kHz
Current consumption	≤200mA

Transmitter

RF power	50mW~10W
Harmonic suppression	≥50dBC
Current consumption	≤4.5A

Environment

Operating temp.	-40~+60°C
Storage temp.	-50~+70°C
Humidity	95%

GS-2600-04 Telemetry/Remote Control System

The Glocom GS-2600-04 Telemetry/Remote Control System is ideal for telemetry and remote control operations providing the developers with effective, secure and comprehensive communications with remote sited command locations. It includes all necessary cables, converters, battery and charger, antennas. The standard set comprises:-

GR-422G-TC Station System (2set)

• UHF Data Radio	GR-422E
• Clone cable	GA-21A
• RS232-USB Converter	USB-4604BM
• PSU, 12VDC/100W	GA-33A
• Li-Ion Battery Pack(2pcs)	GA-31D
• Battery Charger	GA-32D
• Yagi antenna	GA-413C
• Application Software	GS-930

GR-422M-TC On-Board System (10sets)

• Telemetry/Controller	GR-422E
• Clone cable	GA-21A
• DC/DC converter(24/12)	GA-44A
• Li-Ion Battery Pack(2pcs)	GA-31D
• Battery Charger	GA-32D
• Fuselage antenna	GA-411B

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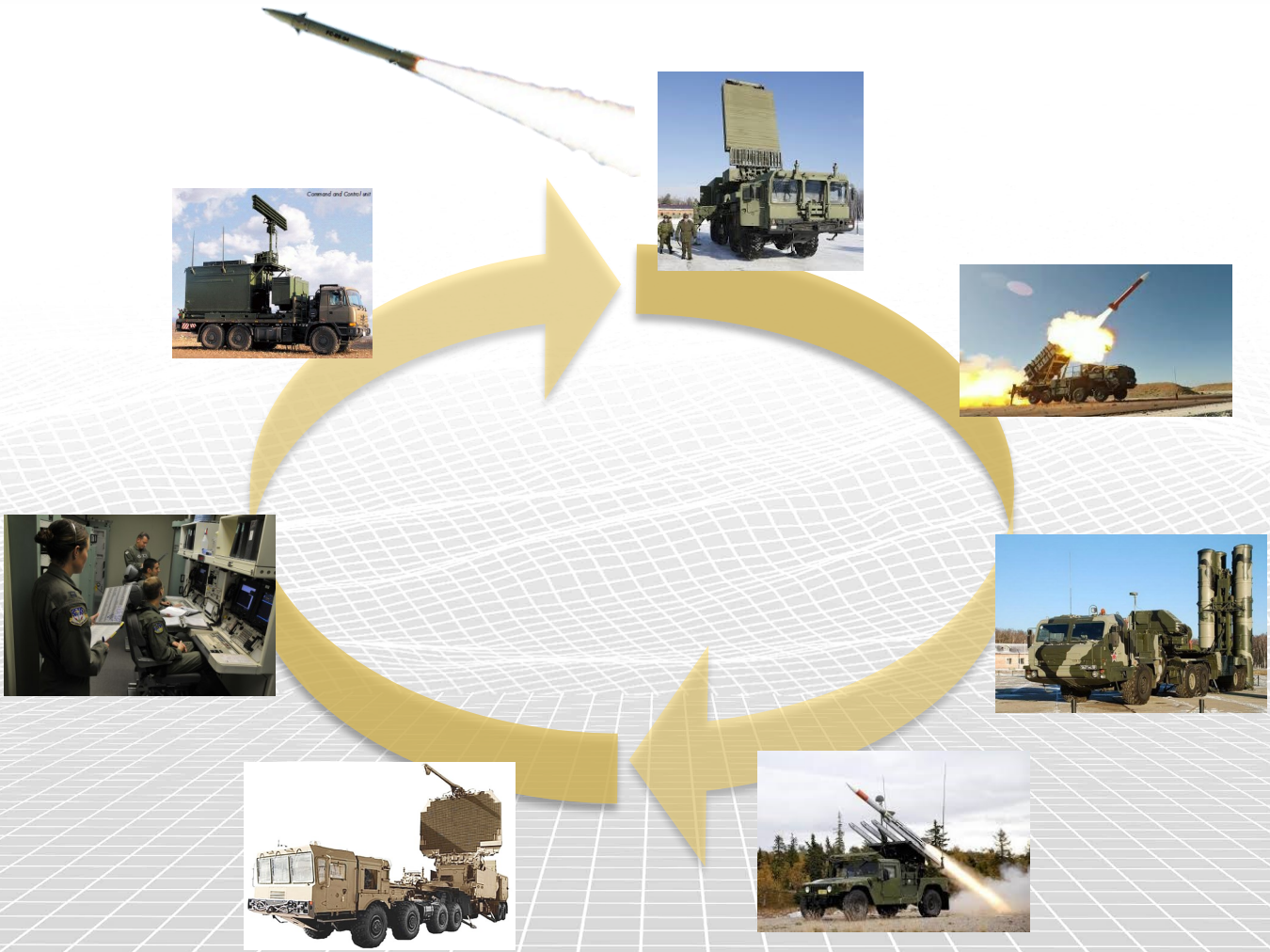
Telemetry/Tracking & Command System

GS-2600-02



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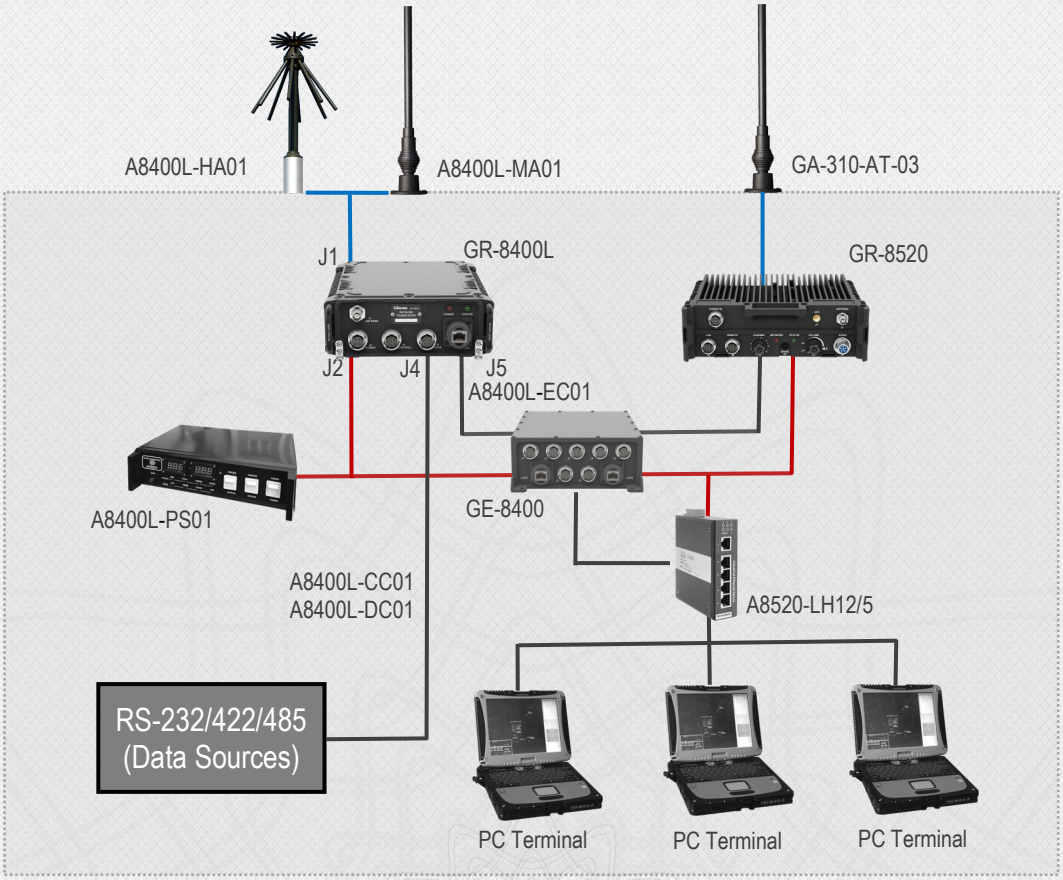
GS-2600-02 Telemetry/Tracking & Command System

The GS-2600-02 Telemetry/Tracking & Command System provides vital communication to and from the aircraft. TTCS is the only way to observe and to control the aircraft's functions and condition from the ground. The system supports ECCM capability and modular design, and software defined radio technology to upgrade the system functions without hardware upgrading.

The standard set includes:-

• Datalink Transceiver Set (Ground)	GR-8400L-GS	3sets
• Datalink Transceiver Set (On-board) (1)	GR-8400L-OS	10sets
• System Network Controller Set	GE-8400	3sets
• High Capacity Data Radio	GR-8520	3sets



CPC-1

CPC-2

LS

(1) The standard On-board datalink transceiver is same as ground datalink transceiver, but it can be customized according to the customer's requirement. It can be confirmed when contract with customer case by case.

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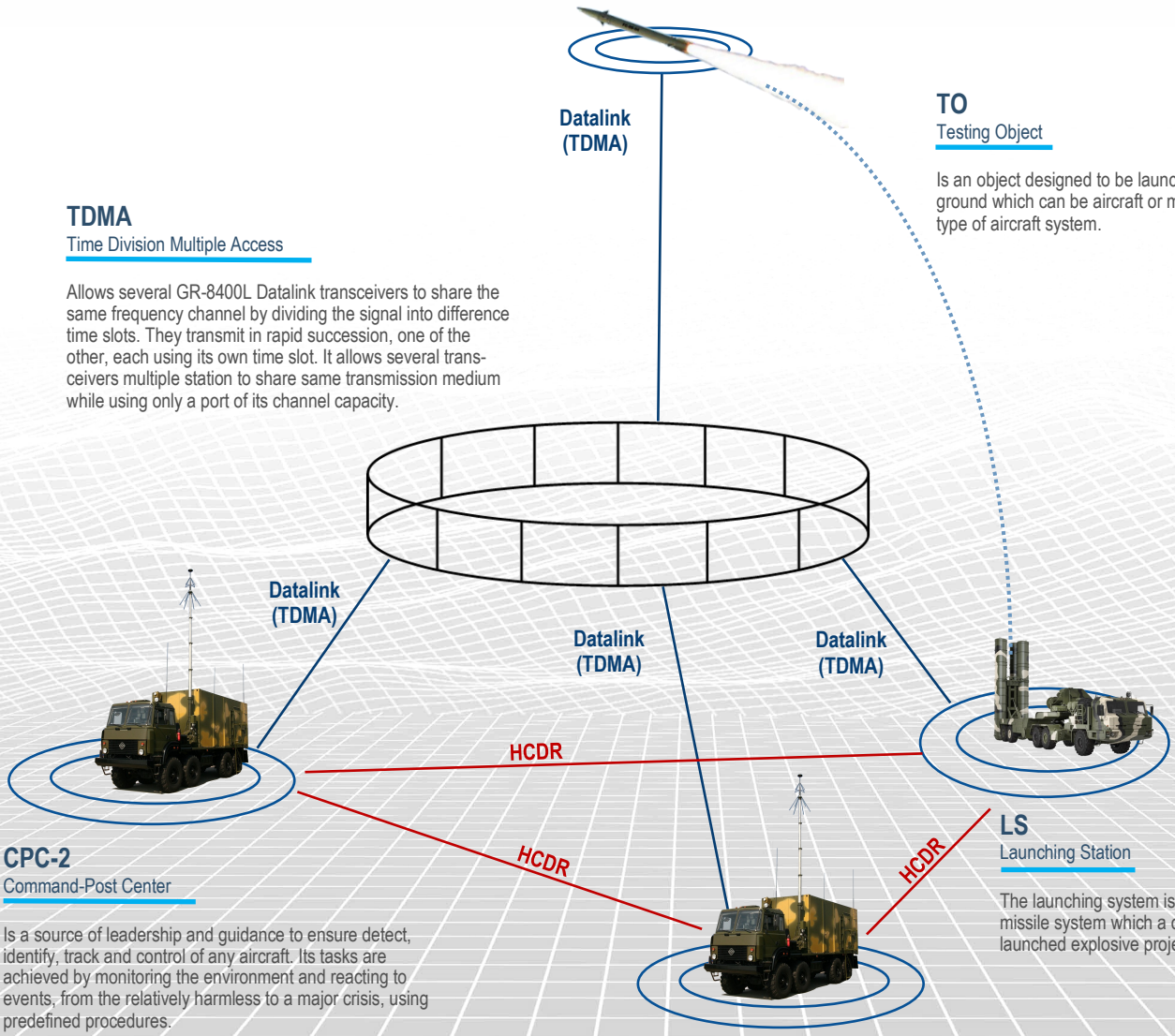
GS-2600-02 Telemetry/Tracking & Command System

TTCS

Telemetry/Tracking & Command System

Is provides vital communication to and from the aircrafts. TTCS is the only way to observe and to control the aircraft's functions and condition from the ground. The function is telemetry, tracking & command by one transceiver with TDMA technology in real-time. TTCS is the powerful tool system for development and operation for USV, UAV missiles and others. This system is compatible with ECCM, supports the real-time bi-direction. The system is very simple to install and operation.

- **Datalink(TDMA)** **GR-8400L Datalink Transceiver**
- **HCDR** **GR-8100HV HF/VHF Radio, GR-8520 High Capacity Data Radio**



TO

Testing Object

Is an object designed to be launched from the ground which can be aircraft or missiles. It is one type of aircraft system.

TDMA

Time Division Multiple Access

Allows several GR-8400L Datalink transceivers to share the same frequency channel by dividing the signal into difference time slots. They transmit in rapid succession, one of the other, each using its own time slot. It allows several transceivers multiple station to share same transmission medium while using only a port of its channel capacity.

CPC-2

Command-Post Center

Is a source of leadership and guidance to ensure detect, identify, track and control of any aircraft. Its tasks are achieved by monitoring the environment and reacting to events, from the relatively harmless to a major crisis, using predefined procedures.

LS

Launching Station

The launching system is a one main part of missile system which a class of weapon which launched explosive projectiles .

CPC-1

Command-Post Center

Is a source of leadership and guidance to ensure detect, identify, track and control of any aircraft. Its tasks are achieved by monitoring the environment and reacting to events, from the relatively harmless to a major crisis, using predefined procedures.

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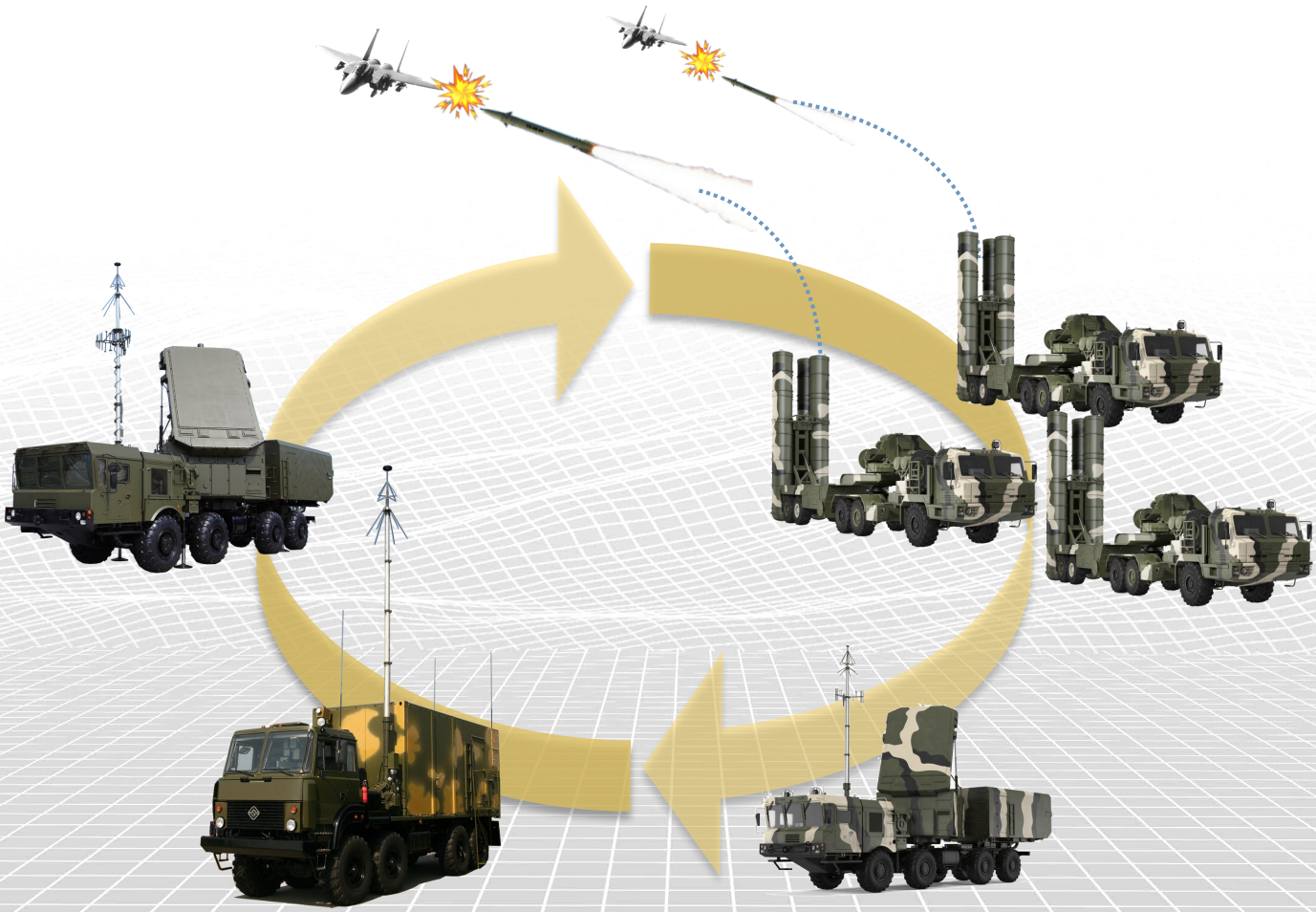
Air-Defense Datalink System
GS-2600-03



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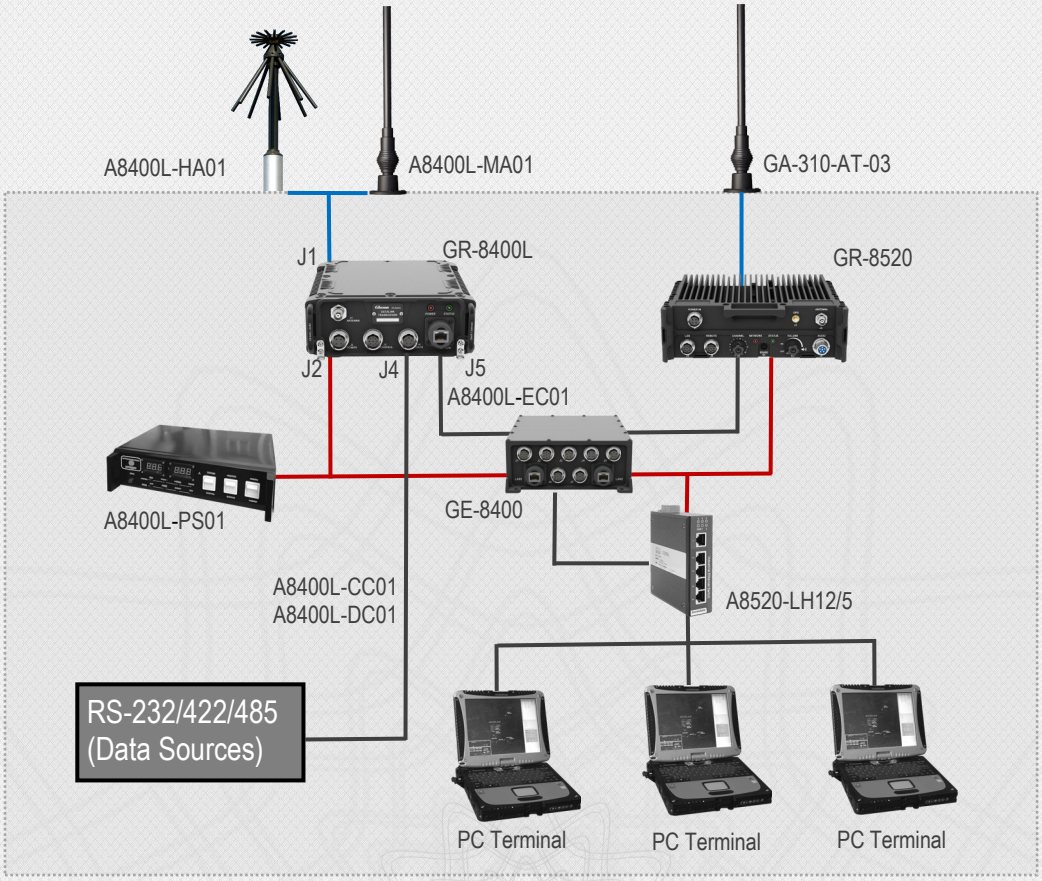
GS-2600-03 Air-Defense Datalink Configuration

The GS-2600-03 Air-Defense Datalink System is ideal for Air-Defense Command, Control & Communication system built providing real-time data exchange between radars, command post center, launching station and various missiles. It supports ■optimal deployment ■distribution of integrated air pictures ■battle management ■ priorities and responsibilities ■reduce time delays ■minimizing voice coordination ■interoperability with other AD and ATC/CRC systems ■utilization of legacy weapon system coverage and effectiveness ■avoid fratricide ■ avoid saturation.

The standard set includes:-

• Datalink Transceiver Set (Ground)	GR-8400L-GS	10sets
• Datalink Transceiver Set (On-board) (1)	GR-8400L-OS	32sets
• System Network Control Set	GE-8400	10sets
• High Capacity Data Radio	GR-8520	10sets



LRSR CPC TAGR LS

(1) The standard On-board datalink transceiver is same as ground datalink transceiver, but it can be customized according to the customer's requirement. It can be confirmed when contract with customer case by case.

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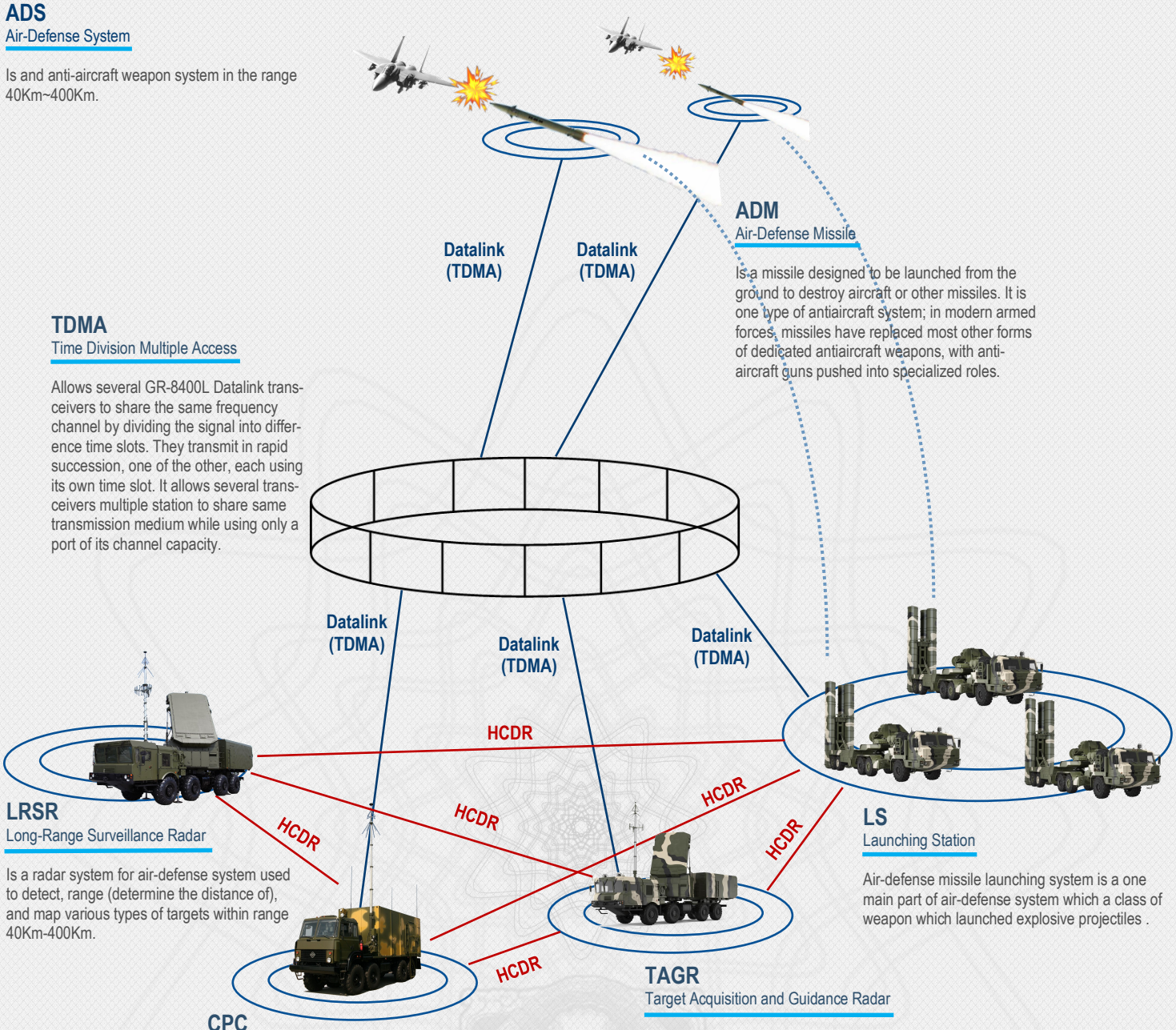
GS-2600-03 Air-Defense Datalink System

- Datalink (TDMA) GR-8400L Datalink Transceiver
- HCDR GR-8520 High Capacity Data Radio (HCDR)

ADS
Air-Defense System

Is and anti-aircraft weapon system in the range 40Km~400Km.



ADM
Air-Defense Missile

Is a missile designed to be launched from the ground to destroy aircraft or other missiles. It is one type of antiaircraft system; in modern armed forces, missiles have replaced most other forms of dedicated antiaircraft weapons, with anti-aircraft guns pushed into specialized roles.

TDMA
Time Division Multiple Access

Allows several GR-8400L Datalink transceivers to share the same frequency channel by dividing the signal into difference time slots. They transmit in rapid succession, one of the other, each using its own time slot. It allows several transceivers multiple station to share same transmission medium while using only a port of its channel capacity.

LRSR
Long-Range Surveillance Radar

Is a radar system for air-defense system used to detect, range (determine the distance of), and map various types of targets within range 40Km-400Km.

LS
Launching Station

Air-defense missile launching system is a one main part of air-defense system which a class of weapon which launched explosive projectiles .

CPC
Command-Post Center

Is a source of leadership and guidance to ensure detect, identify, track and destroy of any aircraft. Its tasks are achieved by monitoring the environment and reacting to events, from the relatively harmless to a major crisis, using predefined procedures.

TAGR
Target Acquisition and Guidance Radar

Is a radar that is designed specifically to provide information (mainly target azimuth, elevation, range and range rate) to a fire-control system in order to direct weapons such that they hit a target. It operates in three difference phases; designation or vectoring phase, acquisition phase and tracking phase.

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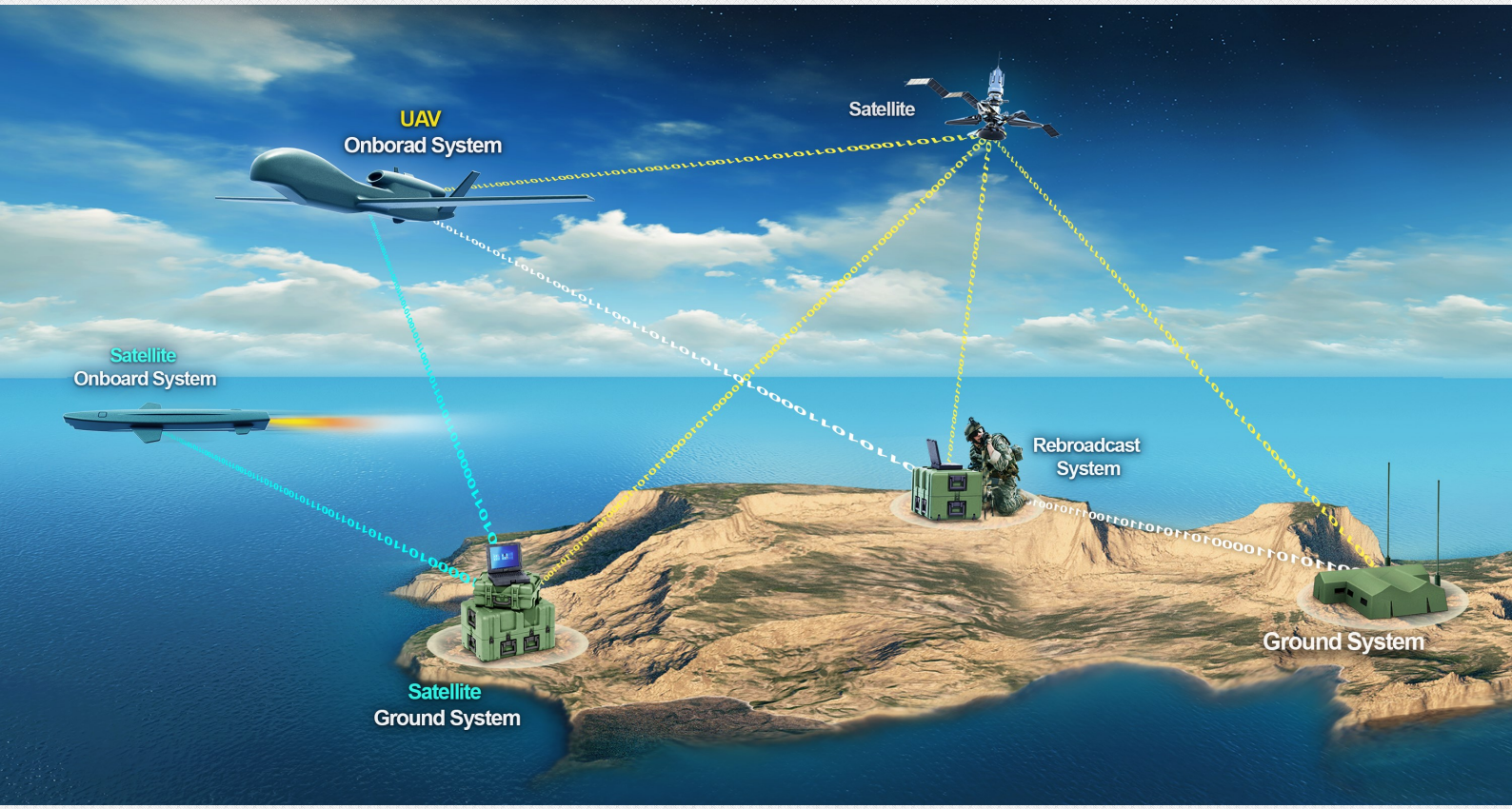

GS-2600-06xx Datalink/Telemetry System

Group UAV, Airborne, M/L UAV, Shipborne, Missile

Platforms

- GS-2600-0610 UAV Group Ad-Hoc System
- GS-2600-0620 Airborne Datalink System
- GS-2600-0630 M/Large UAV Datalink System
- GS-2600-0640 Naval Datalink System
- GS-2600-0650 Guided Missile Telemetry System
- GS-2600-0660 Ballistic Missile Telemetry System

GS-2600-06 Datalink/Telemetry System is datalink system for data transmission, remote control, remote measurement in various UAVs military airborne, shipborne, several kinds of missiles. It is designed to install on various platforms easily. This system can be used for tactical purpose and strategic purpose together. The system's data rate is very high with wideband capability. The transmission can support the information of status, command and videos for platforms between rebroadcast system and ground systems in real-time. The satellite communication is also available, so there is no block area within 10,000Km range. Because of voice communication functionality, it can be used to test and connect between ground system and rebroadcast system easily. To upgrade the system reliability, the systems are configured with double structure. The system is compatible with ECCM, and can work in rough environments in anytime.

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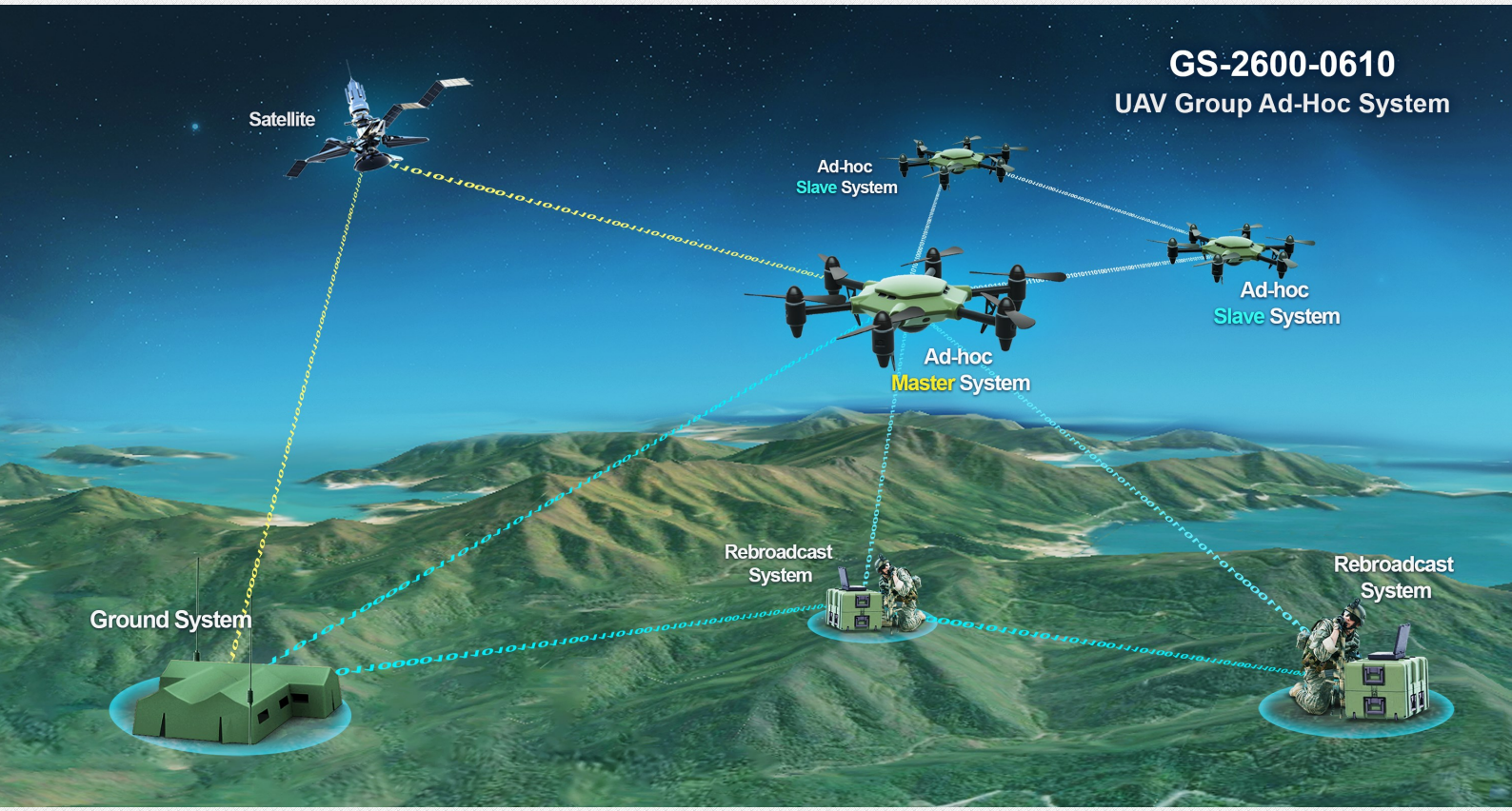
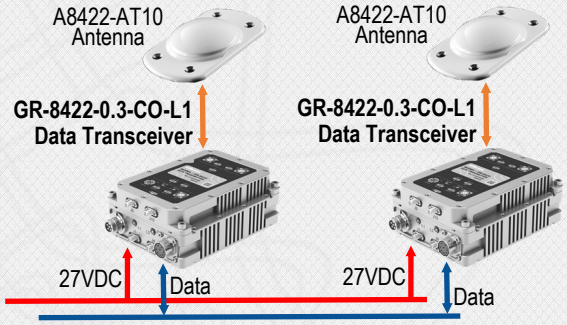
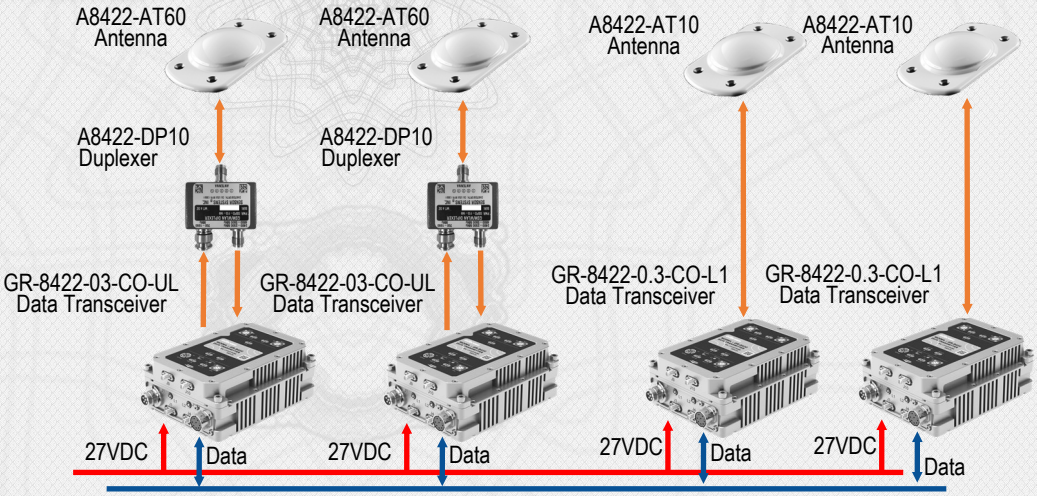


GS-2600-0610
UAV Group Ad-Hoc System

• Ad-Hoc Slave System	GR-8422OBS	10sets
• Ad-Hoc Master System	GR-8422OBM	2sets
• Re-Broadcast System	GR-8422RB	1set
• Ground System	GR-8422GS	1set



GR-8422OBS UAV Ad-Hoc Slave System



GR-8422OBM UAV Ad-Hoc Master System

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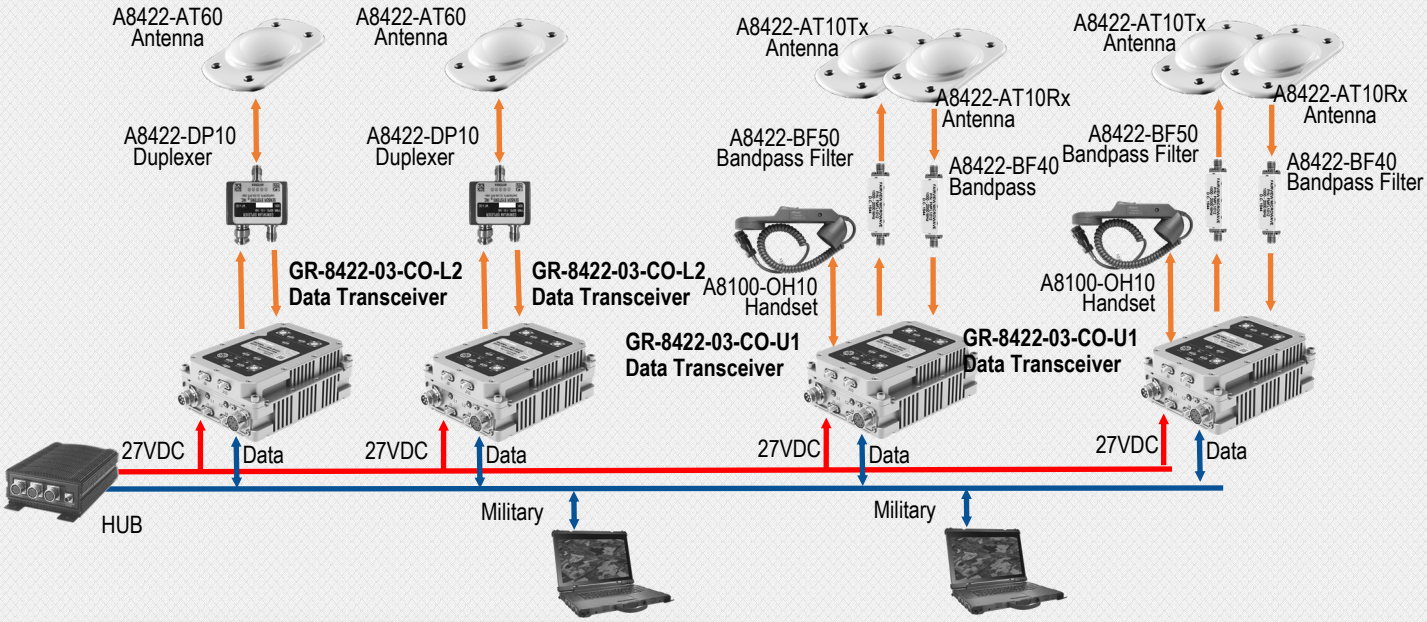
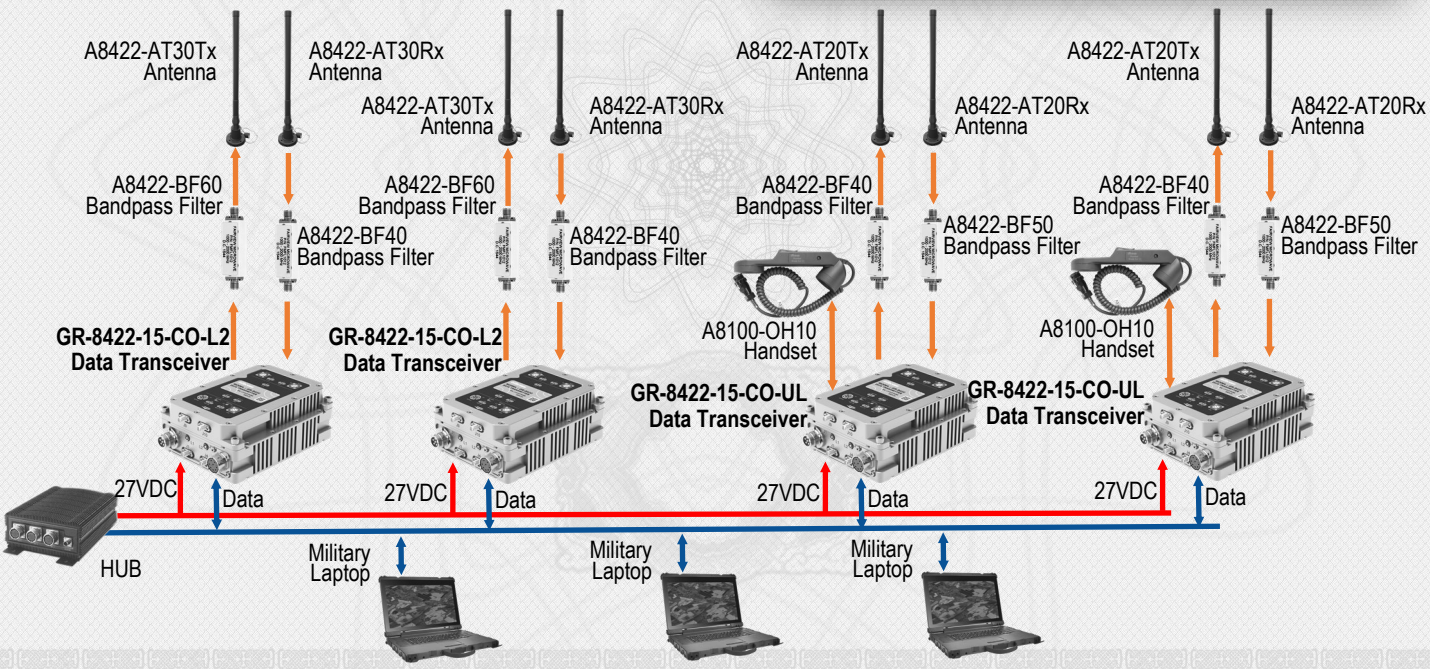
GR-8422RB Rebroadcast System



GR-8422GS Ground System



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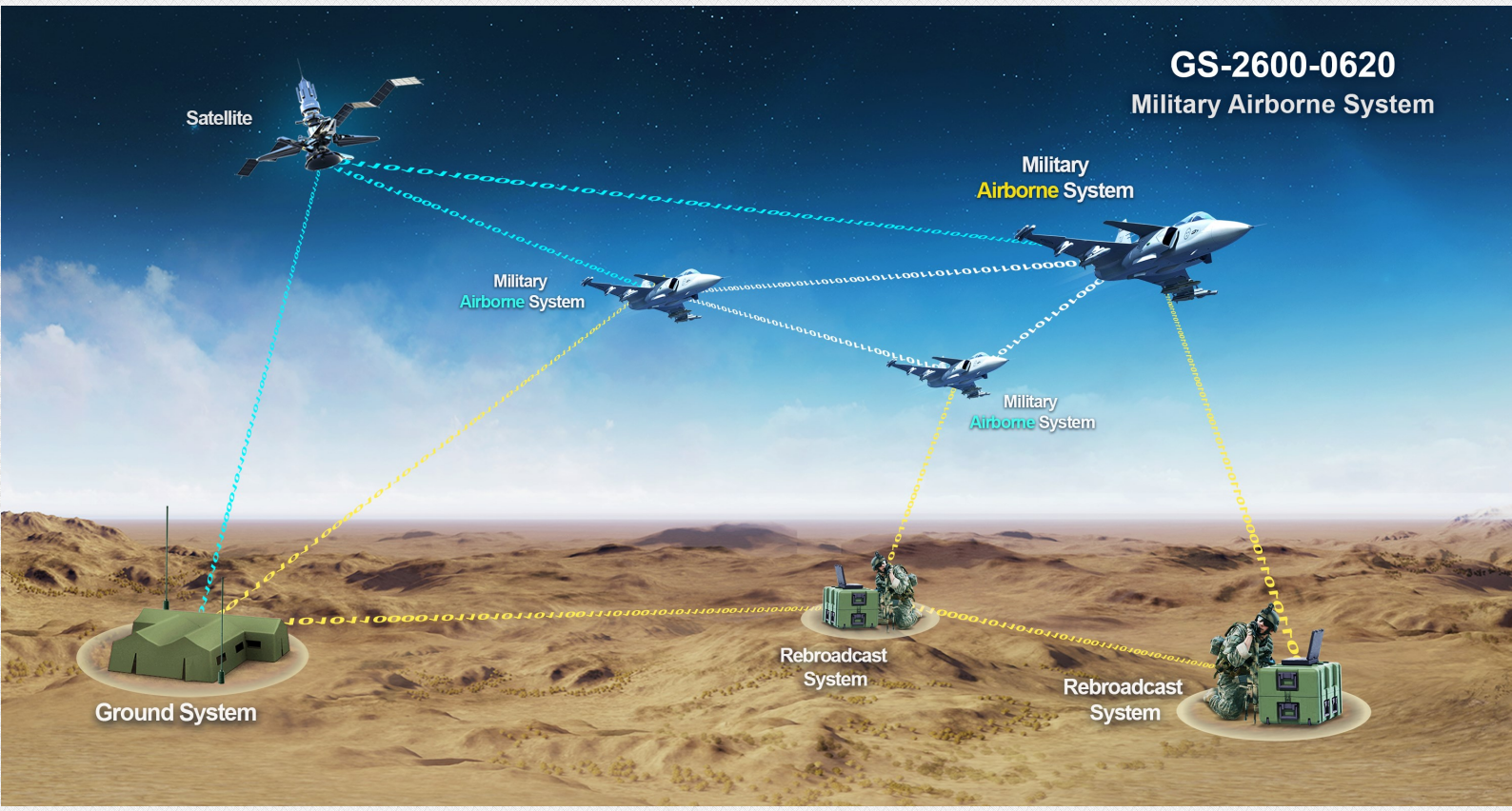
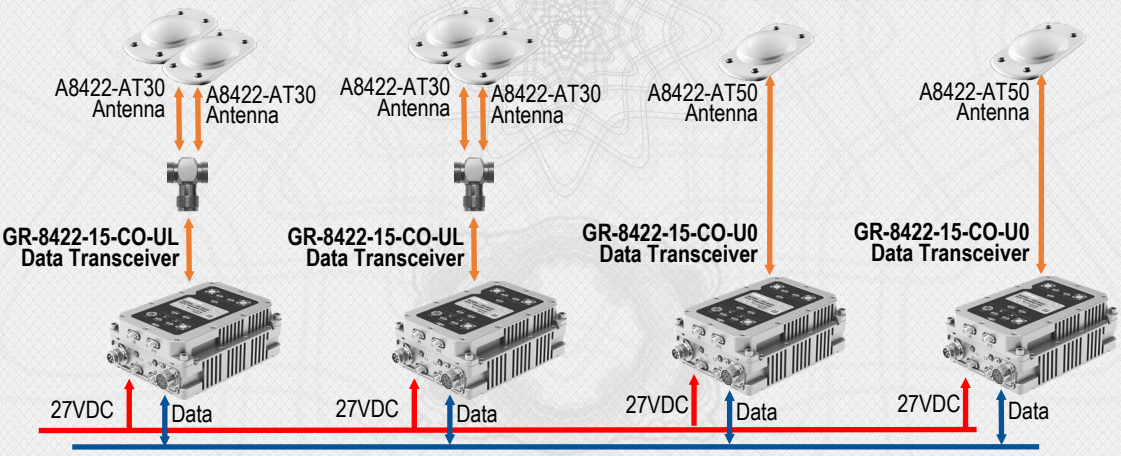


GS-2600-0620
Airborne Datalink System

- Military Airborne System GR-8422AB 8sets
- Re-Broadcast System GR-8422RB 1set
- Ground System GR-8422GS 1set



GR-8422AB Military Airborne System

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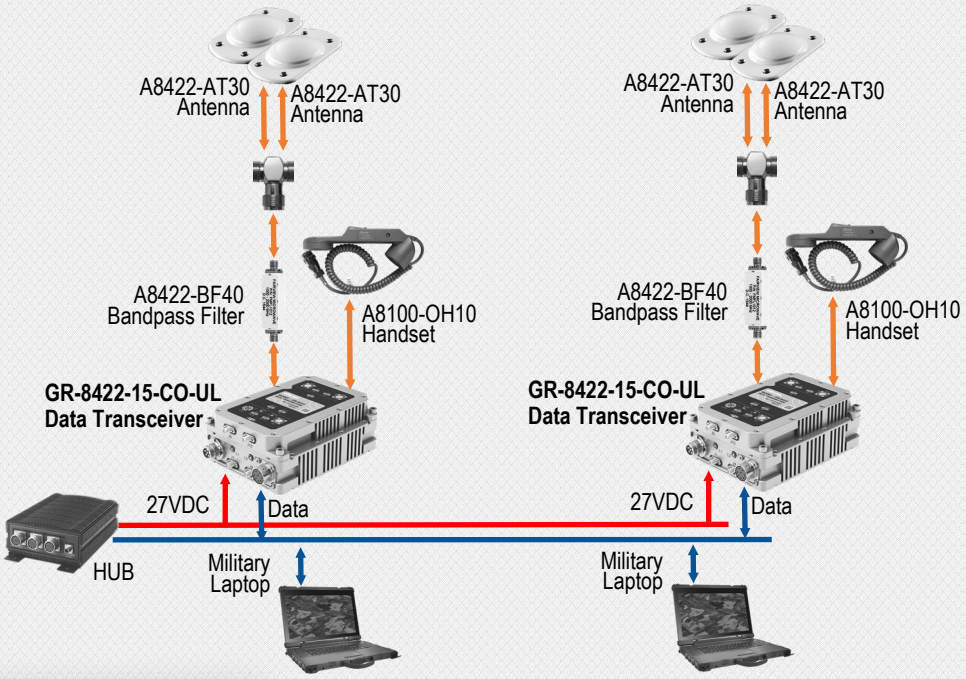
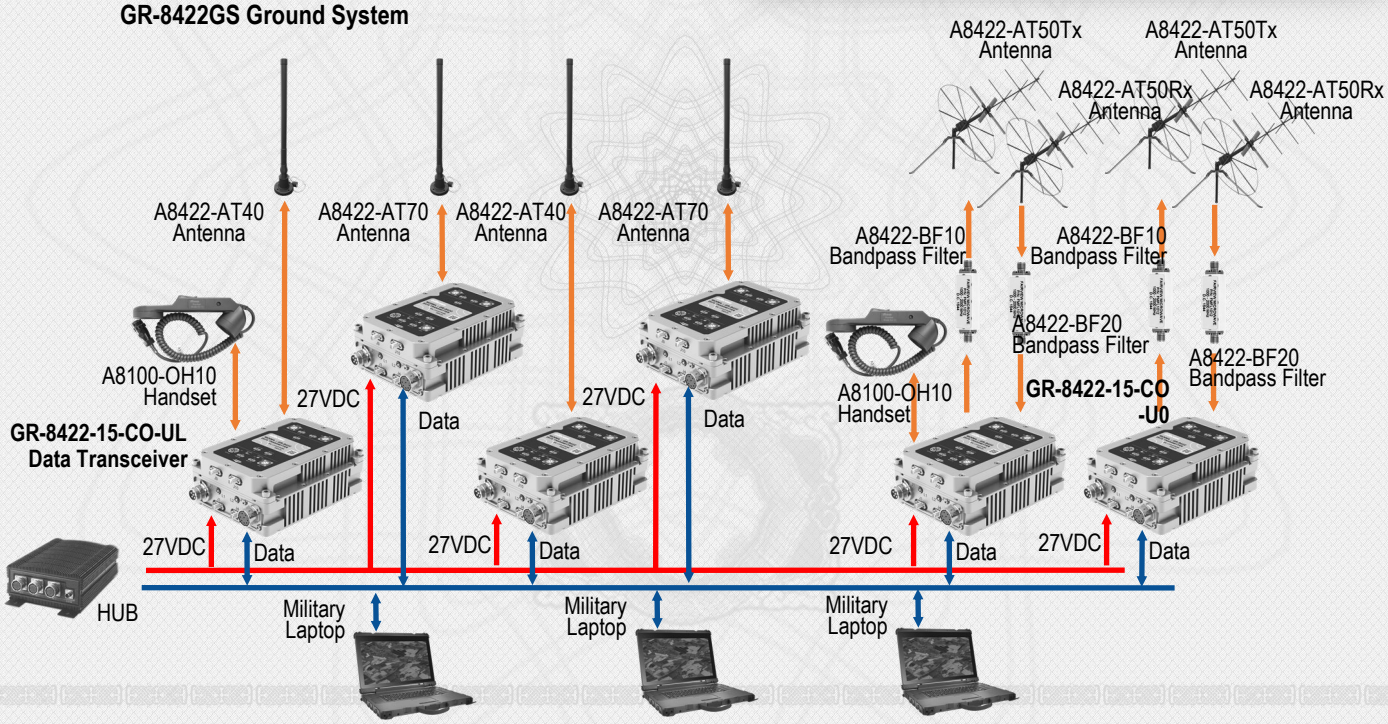
GR-8422RB Rebroadcast System



GR-8422GS Ground System



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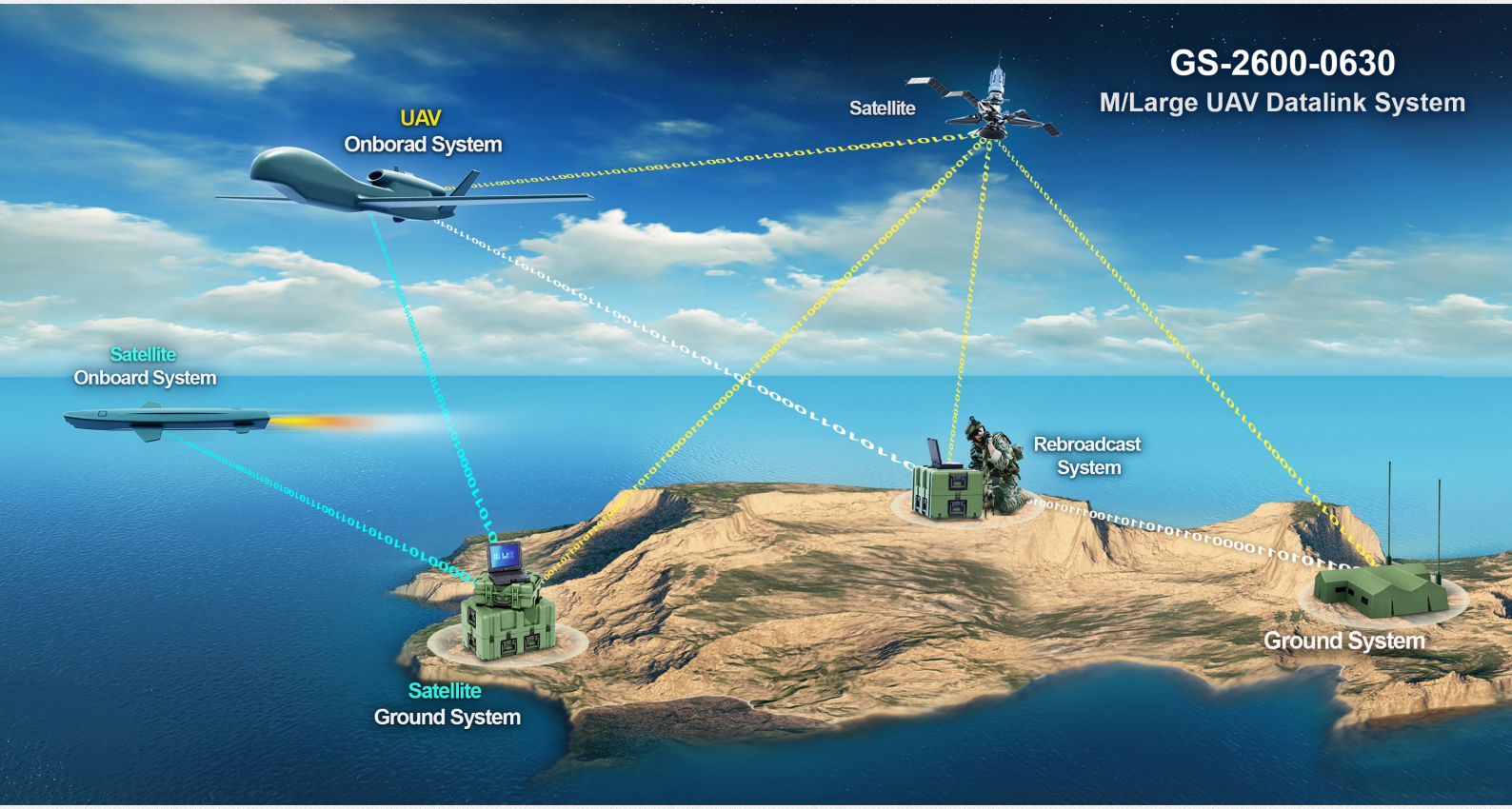
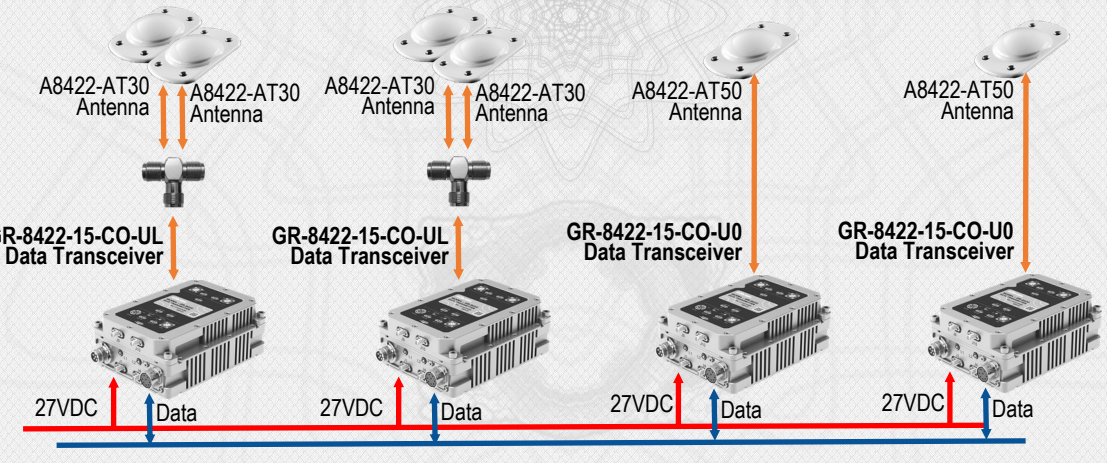


GS-2600-0630
Medium/Large UAV Datalink System

• Master System	GR-8422ML	5sets
• Re-Broadcast System	GR-8422RB	1set
• Ground System	GR-8422GS	1set



GR-8422ML UAV Onboard System

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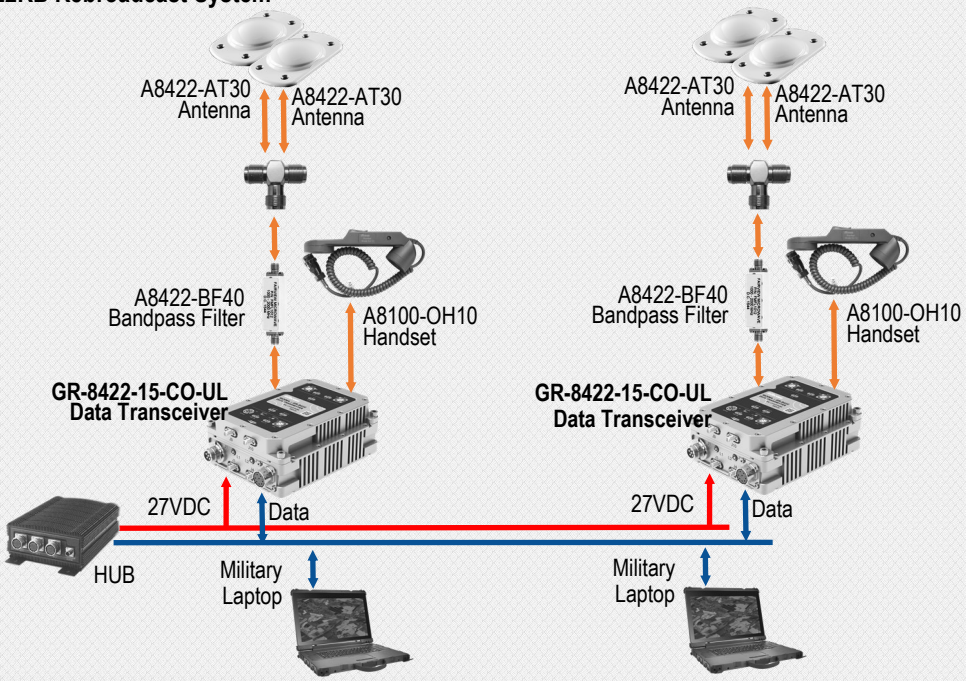
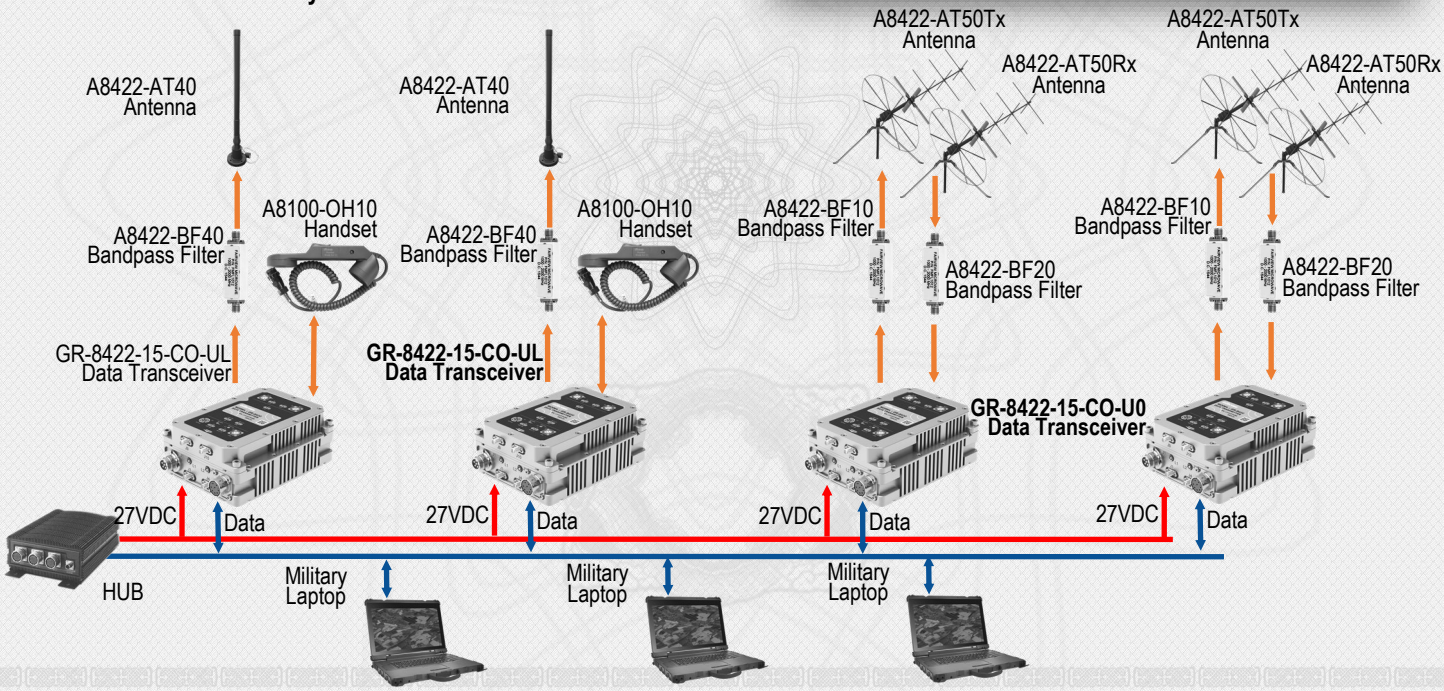
GR-8422RB Rebroadcast System



GR-8422GS Ground System



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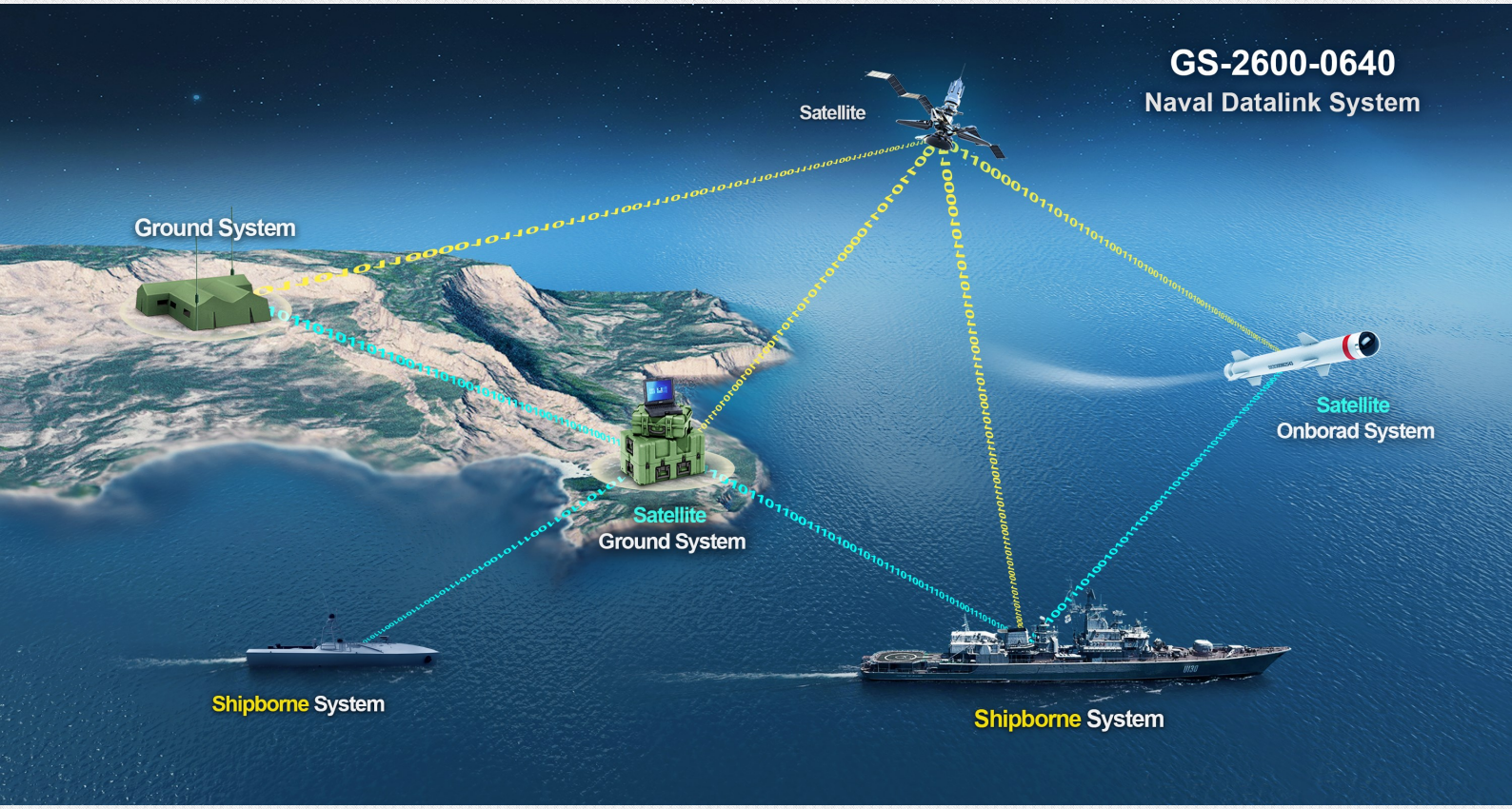
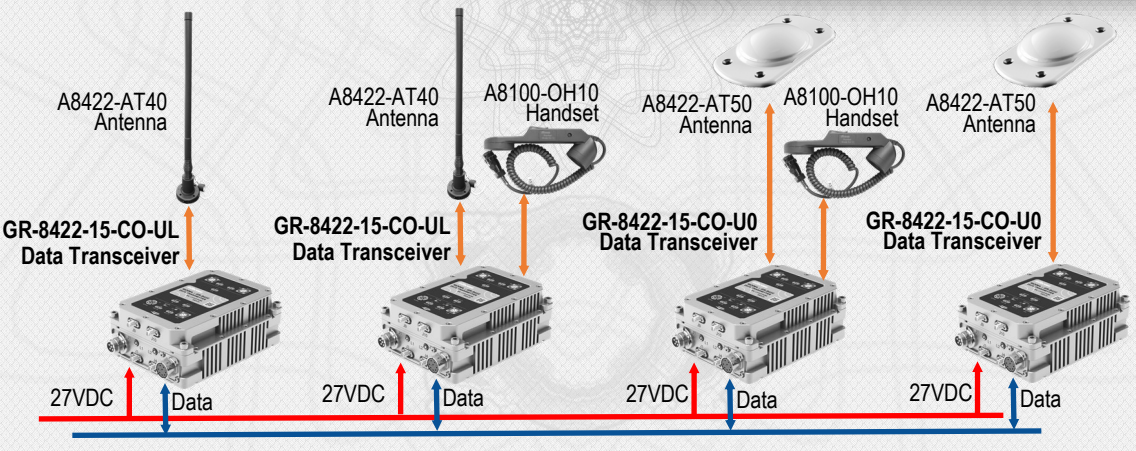


GS-2600-0640
Naval Datalink System

- Shipborne System GR-8422SB 5sets
- Ground System GR-8422GS 2sets



GR-8422SB Shipborne System

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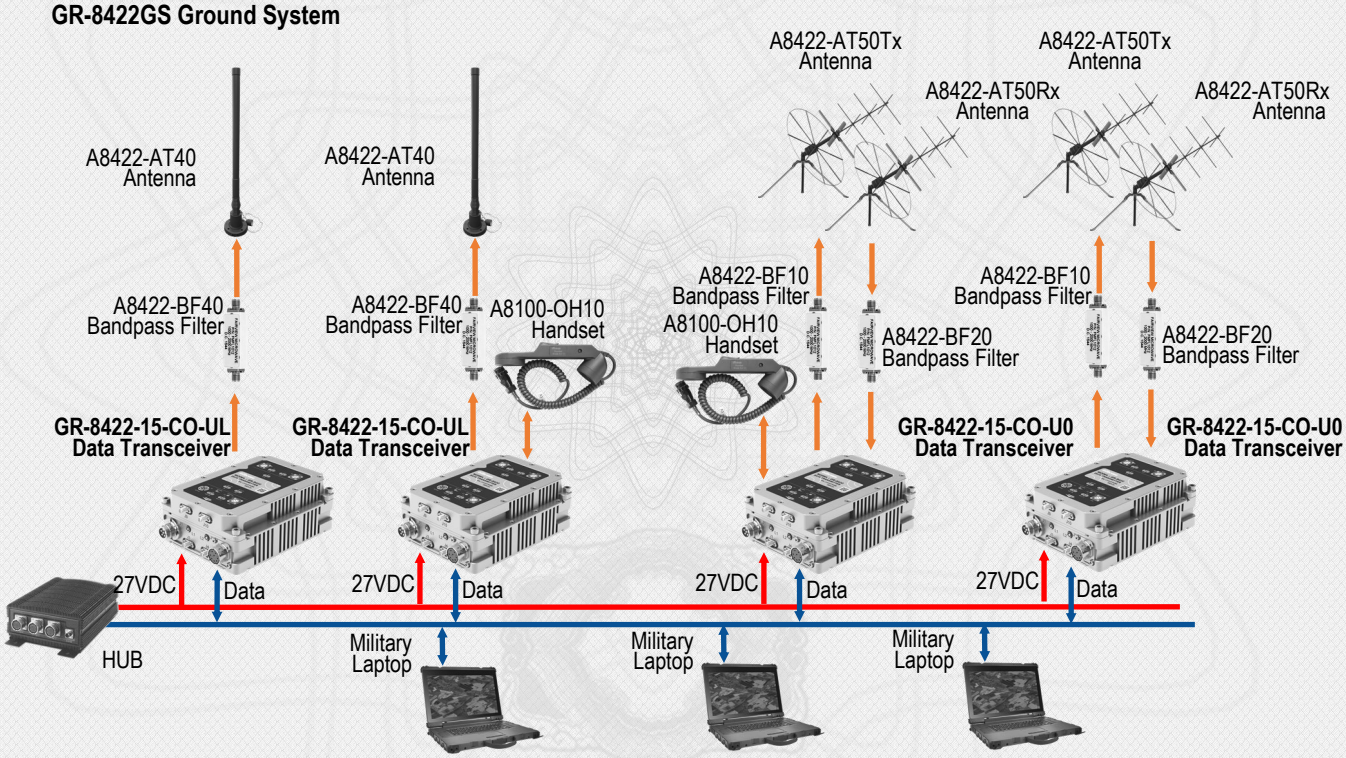
GR-8422GS Ground System



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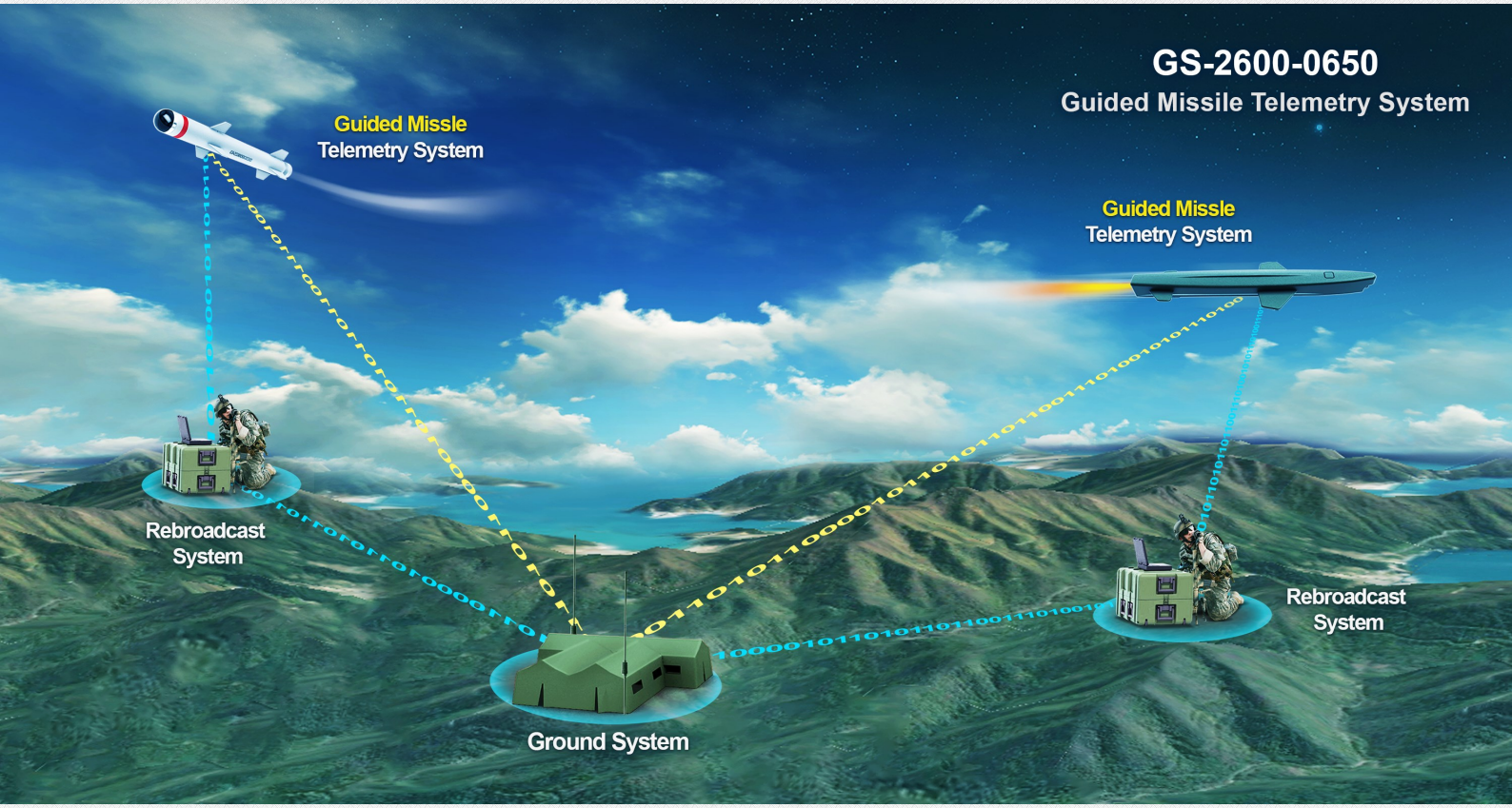
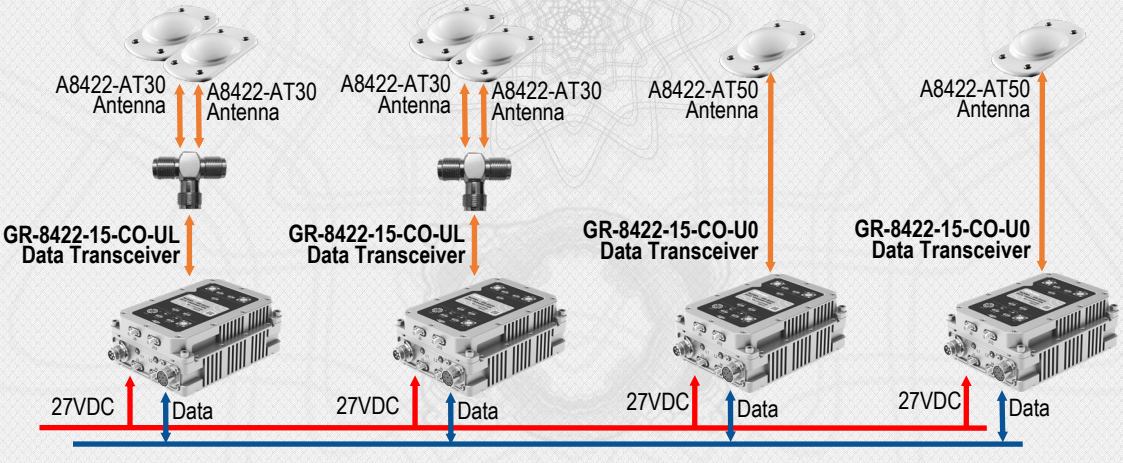


GS-2600-0650
Guided Missile Telemetry System

- Onboard System GR-8422GM 10sets
- Re-Broadcast System GR-8422RB 1set
- Ground System GR-8422GS 1set



GR-8422GM/GR-8422BM Guided/Ballistic Missile Telemetry System

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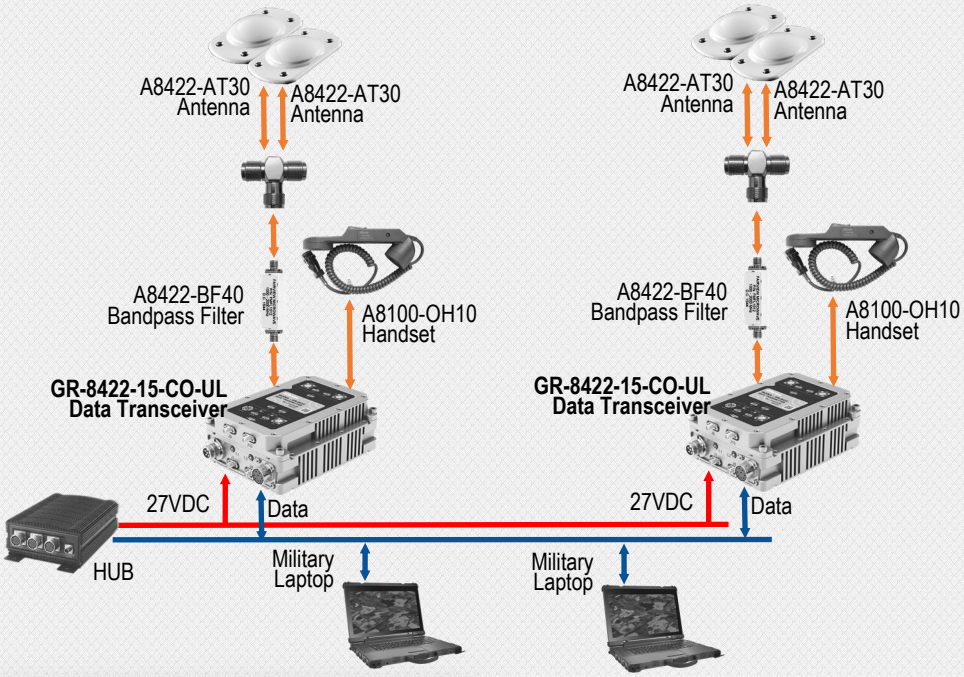
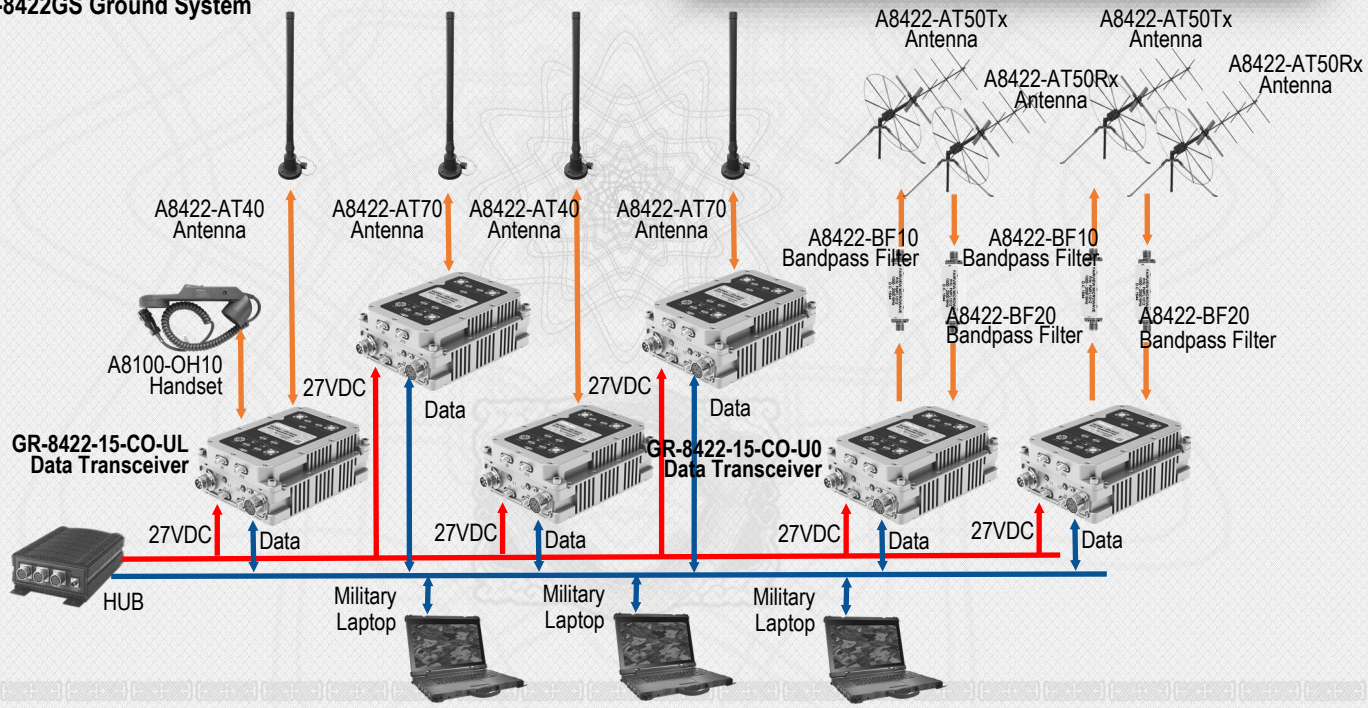
GR-8422RB Rebroadcast System



GR-8422GS Ground System



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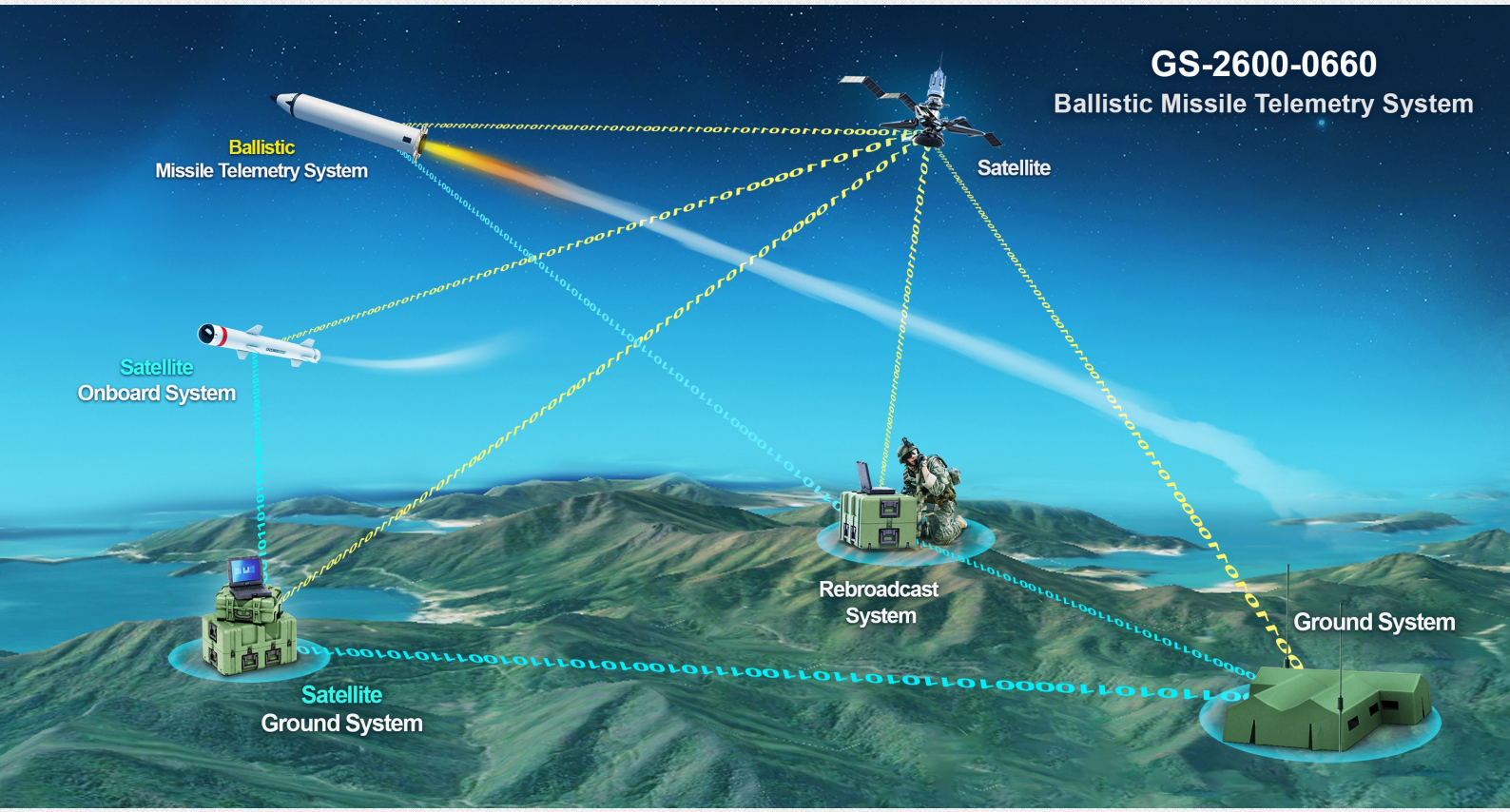
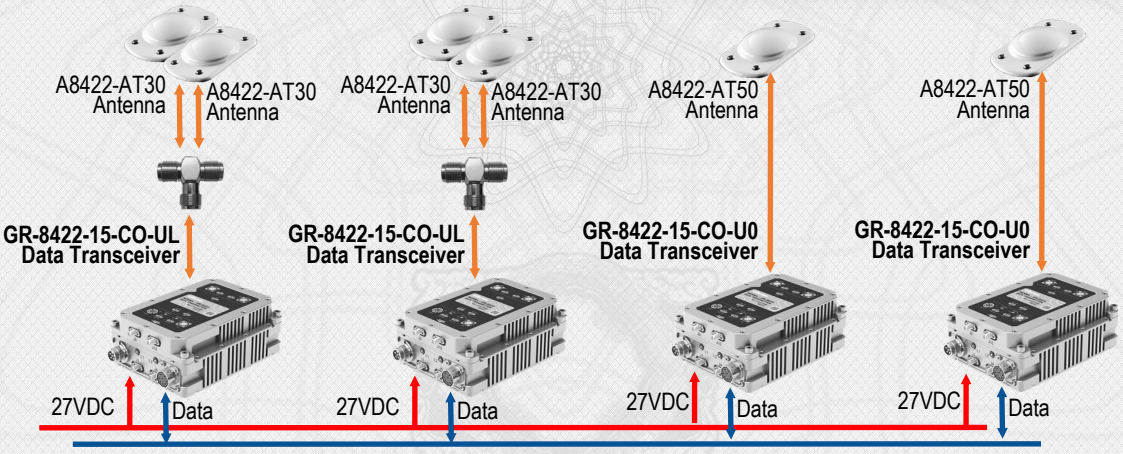


GS-2600-0660
Ballistic Missile Telemetry System

- Onboard System GR-8422BM 10sets
- Re-Broadcast System GR-8422RB 1set
- Ground System GR-8422GS 1set



GR-8422GM/GR-8422BM Guided/Ballistic Missile Telemetry System

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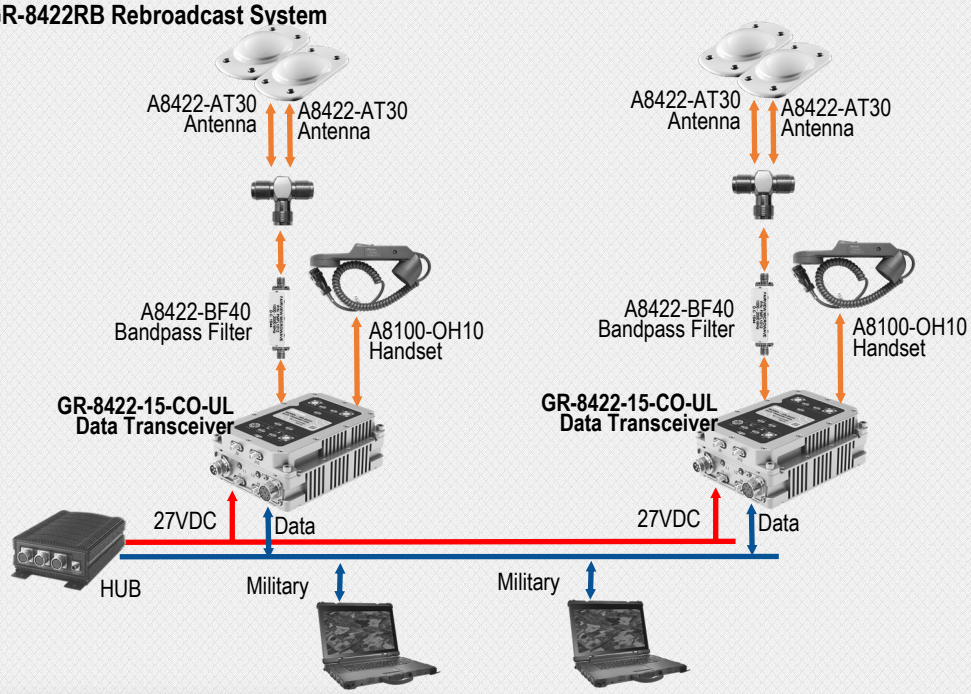
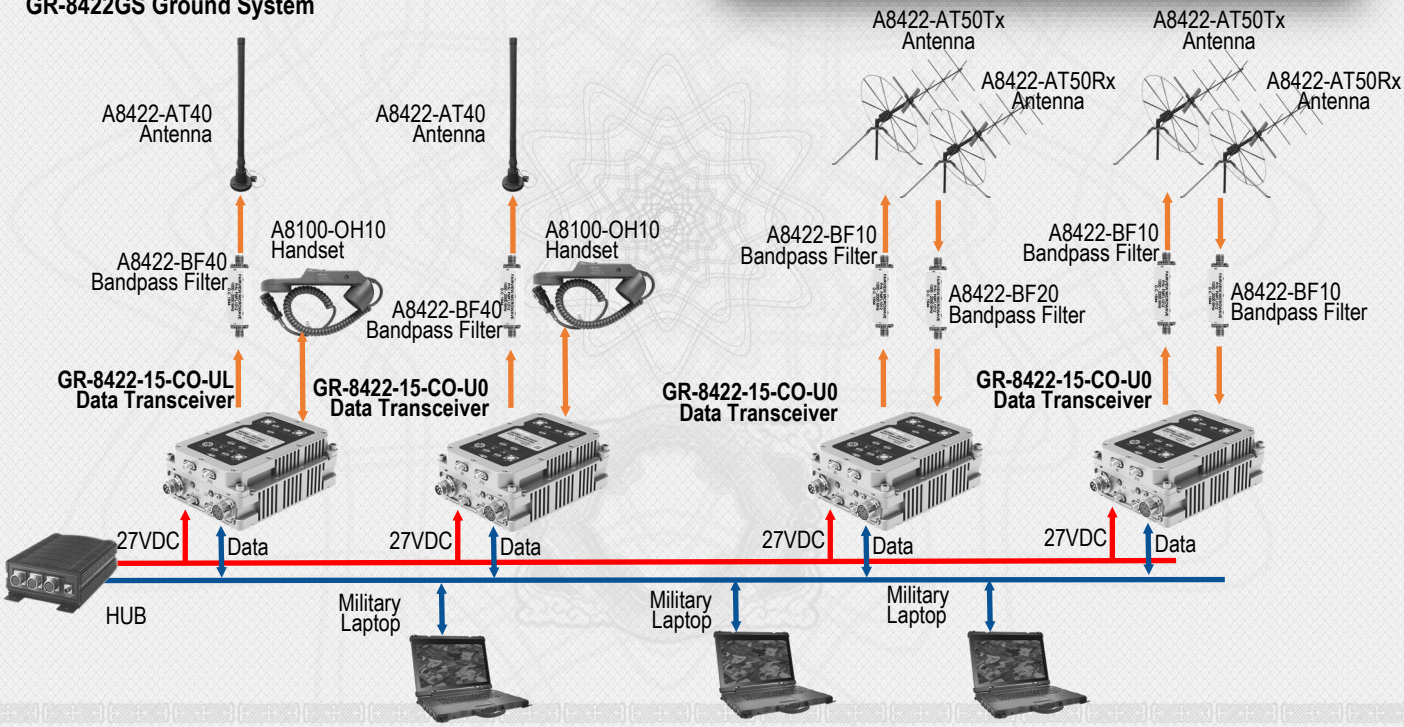
GR-8422RB Rebroadcast System



GR-8422GS Ground System



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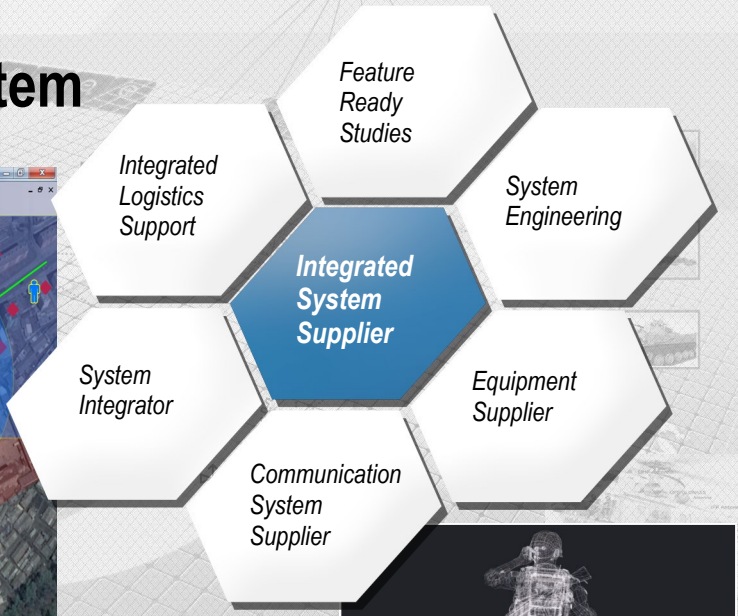
Global Communications Co.,

GS-2700 VIP Protect System



Glocom provides VIP Guards with its advanced communication technology and C2 software to organize and perform effectively their operation. The advanced VIP Protect System is based on GIS (1) software and USIS (2) system of Glocom.

[KEY FEATURES]

- Maximizes effectiveness of operation organization and minimizes operation failure by geographical analysis and search of GIS software.
- Improves individual guard's capability by sharing of information like command & control, situation.
- Maximizes observation capability by situation awareness.
- Improves the command & control capability by real-time information transmission.
- Optimizes guard management by real-time observation of guard position and health status.
- Improves guard's survival capability by cooperation between them.

[CUSTOMER NEEDS]

- Survey of danger points and observation points in advance
- Effective organization of operation and assurance of safety
- Improved situation awareness and instant respond to emergency
- Improved guard's survival capability

(1) GIS – Geographic Information System
(2) USIS - Universal Soldier Information System

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The effectiveness and success of operation come from Glocom GIS software! !

Glocom provides tactical GIS software, **GS-920**.

The GS-920 is a high performance tactical mapping system. The functionality includes track management, layered drawing tools, several geographical analysis tools and searching options.

The GS-920 maximizes effectiveness of operation organization and minimizes operation failure.

Before the operation, the commander of Guards knows the danger points and observation points in detail by using a complete set of functions such as buffering analysis, horizon diagram and geographical searching that are some functions of the GS-920, and arranges the guards based on the results.

The detailed and correct survey of the information in advance by the GIS software, GS-920, makes the operation success.

Route of VIP *Buffering area* *Expected danger point* *Expected observation point*

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The operation capability of Guards goes to maximum by Glocom USIS! !

The operation capability of Guards consists of individual guard's capability and command & control (C2) capability of team.

Universal solider information system GS-2500 improves the operation capability of team greatly by expansion of individual guard's capability, effective operation organization.

The guard's capability is determined by the capability of situation awareness, the capability of real-time command & control acceptance and status report, the capability of decision making and the capability of strike.

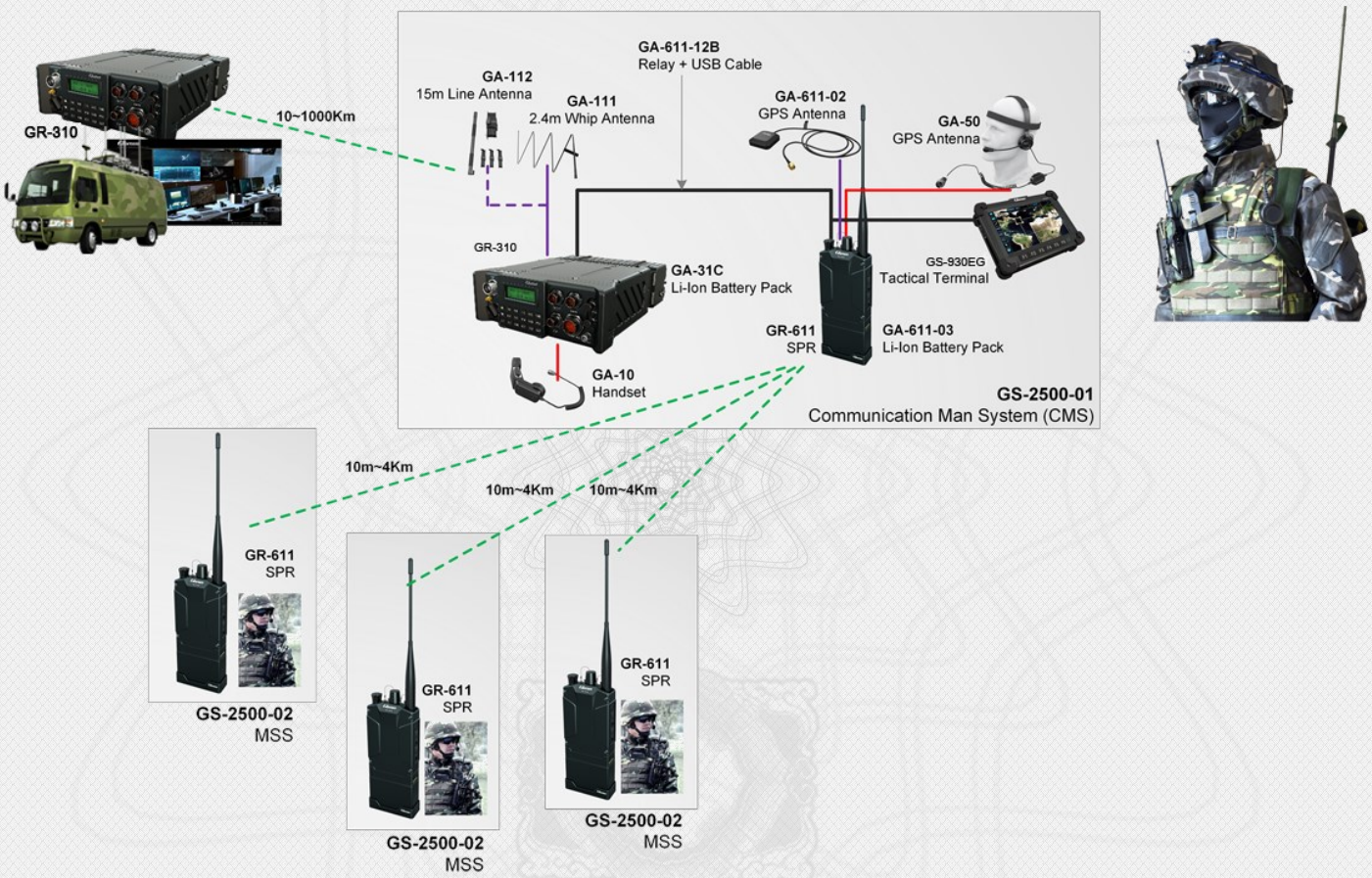
Regarding the future military concept, GS-2500 Universal Soldier Information System is a wireless communication system that provides secure (encrypted) information exchange (such as friendly unit position, tactical command, voice etc.) between command & control units and infantry units. This tactical communication system aims to increase the situation awareness and operation efficiency. GS-2500 Universal Soldier Information System will enable guards to exchange tactical information with command & control units and among each other.

Universal solider information system GS-2500 improves the C2 capability of team by its powerful C2 function. The commander of team displays the COP on C2 software in real-time on the basis of situation awareness obtained through tactical communication. The detailed and real-time COP enables the commander to make better decision faster and control the units best.

To sum up, the guard and the team are equipped with proper weapon system and information system which are enough to carry out his duty.

Generally speaking, the operation capability of Guards will be improved more than 10 times by using universal soldier information system.

GS-2500 consists of GS-2500-01 named "Communication Man Set" for dismounted soldier communicating with command post and GS-2500-02 named "Modern Soldier Set" for individual dismounted soldier.



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[ORDERING INFORMATION]

№	DESCRIPTION	MODEL	BRAND	UNIT	QTY
1	Tactical GIS Software, High performance tactical mapping system in a dynamic environment	GS-920	Glocom	Set	1
2	Command & Control Software, A battle and crisis management software for the monted and dismounted frontline commander.	GS-930FL	Glocom	Set	1
3	Command & Control Software, An Android-based management system for the commanders and soldiers at the tactical edge.	GS-930EG	Glocom	Set	1
4	Universal Soldier Information System, Communication Man Set (CMS)	GS-2500-01	Glocom	Set	2
	Included following items:-				
1)	HF Manpack Radio Set	GR-150	Glocom	Set	1
2)	VHF/UHF SATCOM Manpack Radio Set	GR-310	Glocom	Set	1
3)	Secure Personal Radio (SPR)	GR-611	Glocom	Set	1
5	Universal Soldier Information System , Modern Soldier Set (MSS)	GS-2500-02	Glocom	Set	20
	Included following items:-				
1)	Secure Personal Radio (SPR)	GR-611	Glocom	Set	1
2)	Android Tablet for Soldiers		3rd party	set	1

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Eco-Battle Management System

GS-2800

Redefining the Connected Battlefield

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THE MILITARY'S BEST END-TO-END TACTICAL NETWORK SOLUTION

Tactical decisions need to move at the speed of light—and be correct. Right data intelligence, video ISR, high-speed MANET networks and unwavering interoperability are critical for mission superiority. That is the foundation of Glocom Eco-Battle Management System (EBMS) technologies. This end-to-end solution is fueled by over 20 years of global tactical expertise, and our commitment to warfighter safety and overmatch capabilities.

DATA-DRIVEN MILITARY COMMUNICATION: FAST. ACCURATE. HARED.

REAL-TIME INTELLIGENCE

Battle management and multi-channel technologies support accurate, comprehensive ISR for shared milcom across echelons. This allows faster, better-informed decisions at the point of battle where needed most.

MULTI-DOMAIN INTEROPERABILITY

Land, sea, air and space—nations and their warfighters, first responders and border agents are able to communicate throughout joint operations. Hardware, software and applications work together to extend range and capabilities and to ensure robust, reliable connectivity.

SPECTRUM SUPERIORITY

Glocom proprietary waveforms can create and maintain a robust, high-throughput network connection at 75kHz, while other communications providers require 1.2MHz. This is a major differentiator in how Glocom waveforms efficiently use the spectrum.

RESILIENT COMMUNICATIONS

Warfighters stay connected as they move thoughout the battlespace. Waveforms and networks automatically adapt to communication interferences, environments and distances, environments and distances between units.

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Powered by tightly integrated networking technologies, the Glocom Eco-Battle Management System delivers robust, resilient, data-centric communications, no matter how complex the scenario.

Glocom Radios

Battle-proven technologies architected by the global leader in tactical communications.

- Converged video, data, Full Motion Video, cross-banding and Glocom radio interoperability
- Reduce need for extra radios through multi-channel, multi-mission capabilities
- Software-defined architecture simplifies upgrades and protects investments
- Engineered for warfighters-low SWaP, ruggedized, intuitive user interface

Waveforms

Growing, 50+ portfolio of waveforms gives warfighters the ability to keep pace with complex mission challenges

- Low-latency transmissions deliver high-accuracy Friendly Force and target locations
- Anti-jam solutions provide reliable communications in severely contested environments
- Mobile warfighters stay agile through self-forming, self-healing, multi-domain MANET networks

Tactical Applications

Near real-time delivery of actionable information speeds more informed decision making.

- Battle Management System processes raw battle data, delivering a shared Common Operation Picture
- Network design, deployment and monitoring are faster and more accurate
- Chat and messaging applications provide up-to-the moment mission status and Position Location Information

Service

Customized system design, deployment and operational services optimize battlefield performance.

- Proven hardware, software and applications now in +10 countries
- Seamless connectivity by land, sea, air and space, through a single system
- Scales with missions-active battle, border surveillance, peacekeeping and disasters

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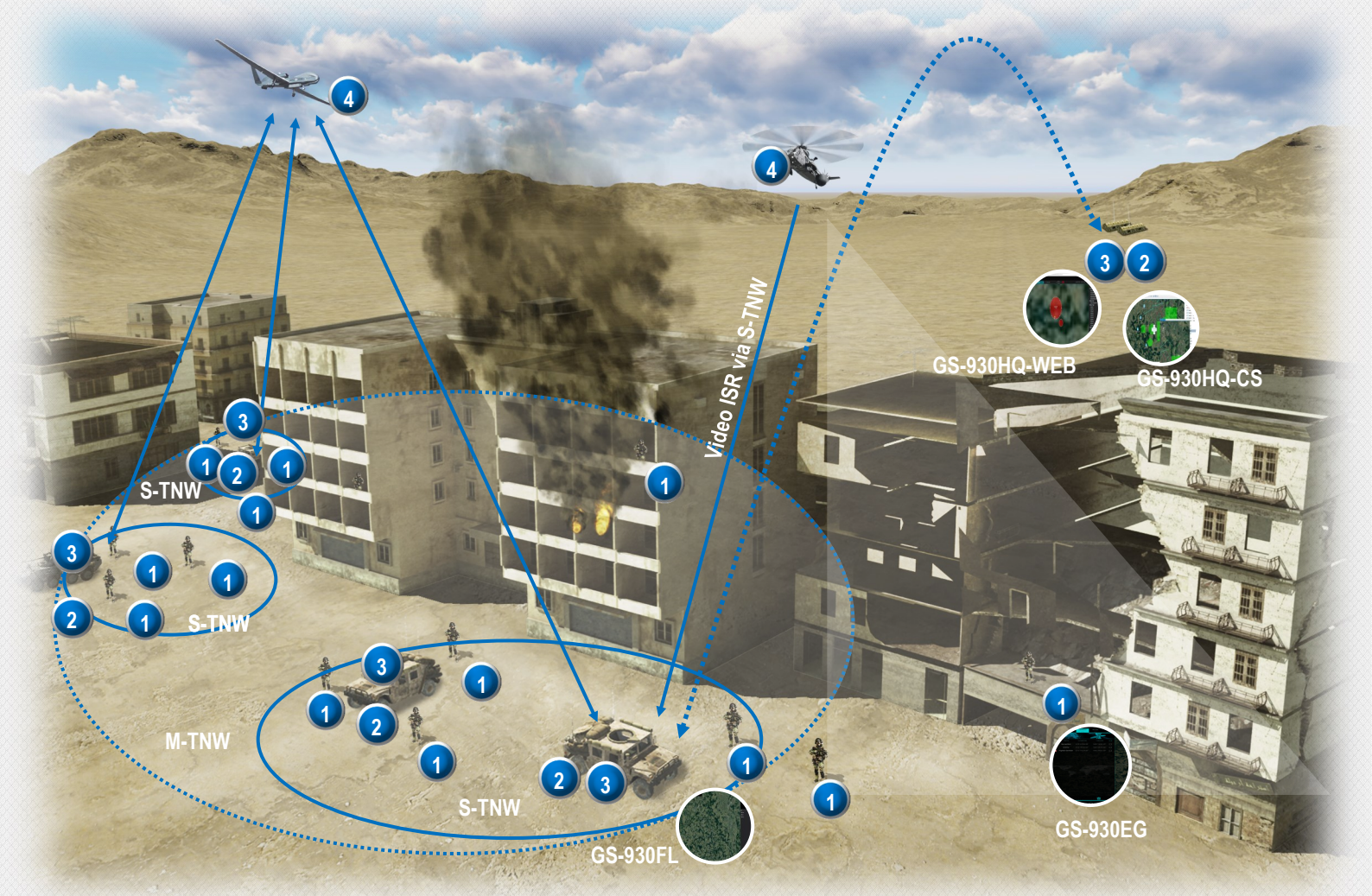

GS-2800-01 Rapid Reaction Forces (RRFS) : Anti-Terror Operation

An adversarial threat has been identified in an urban area. Tactical edge soldiers are deployed to pinpoint location and apprehend enemy forces. In absence of adversarial jamming, forces employ robust, multiband networking. Commanders launch a drone/UAV to relay ISR video of target to high commanders and soldiers. A Drone/UAV is deployed by mobile commanders to extend communications range.

Glocom Radios

① **GR-611D** Provides capabilities narrow band, TDMA full-duplex and Ad-Hoc for edge forces

② **GR-310** Provides robust VHF/UHF, SATCOM networking between Commanders, vehicular forces and edge soldiers

③ **GR-150** Provides Beyond Line-Of-Sight (BLOS) connectivity in absence of SATCOM

④ **Drone/UAVs** Provides ISR Video transmission and communication range extension

Waveforms

S-TNW Self-forming, self-healing networking, wideband ISR, Friendly Force identification for tactical edge forces

M-TNW Mid-tier, scalable MANET and wide-area battlespace management for tactical leaders

3G Automatic Link Establishment (ALE) Robust, reliable voice, SA and PLI despite congested HF channel conditions or reception interference

Tactical Applications

GS-930HQ-WEB Supports joint staffs and task force commanders with an up-to-date detailed picture of large-scale operations (mission planning, blue force tracking, remote control) using high performance web technologies.

GS-930HQ-CS Supports key operational activities such as situational awareness, Mission Planning, Mission Execution, and Mission Reporting.

GS-930FL Supports a battle and crisis management for the mounted and dismounted frontline commander.

GS-930EG Supports Android-based battle management for the commanders and edge soldiers.

Services

Engineering Design Services Design, verification and commissioning of communication solution including radios, OEM components and applications

Technical Customer Support Set up tactical radio network infrastructure including design, configuration, installation commissioning and training

In-Country System Support Comprehensive, scheduled updates, troubleshooting and repairs for all tactical network components

Test System Cost-effective, in-field radio test and repair solution

Premier Online product technical assistance, downloads, training and product demos

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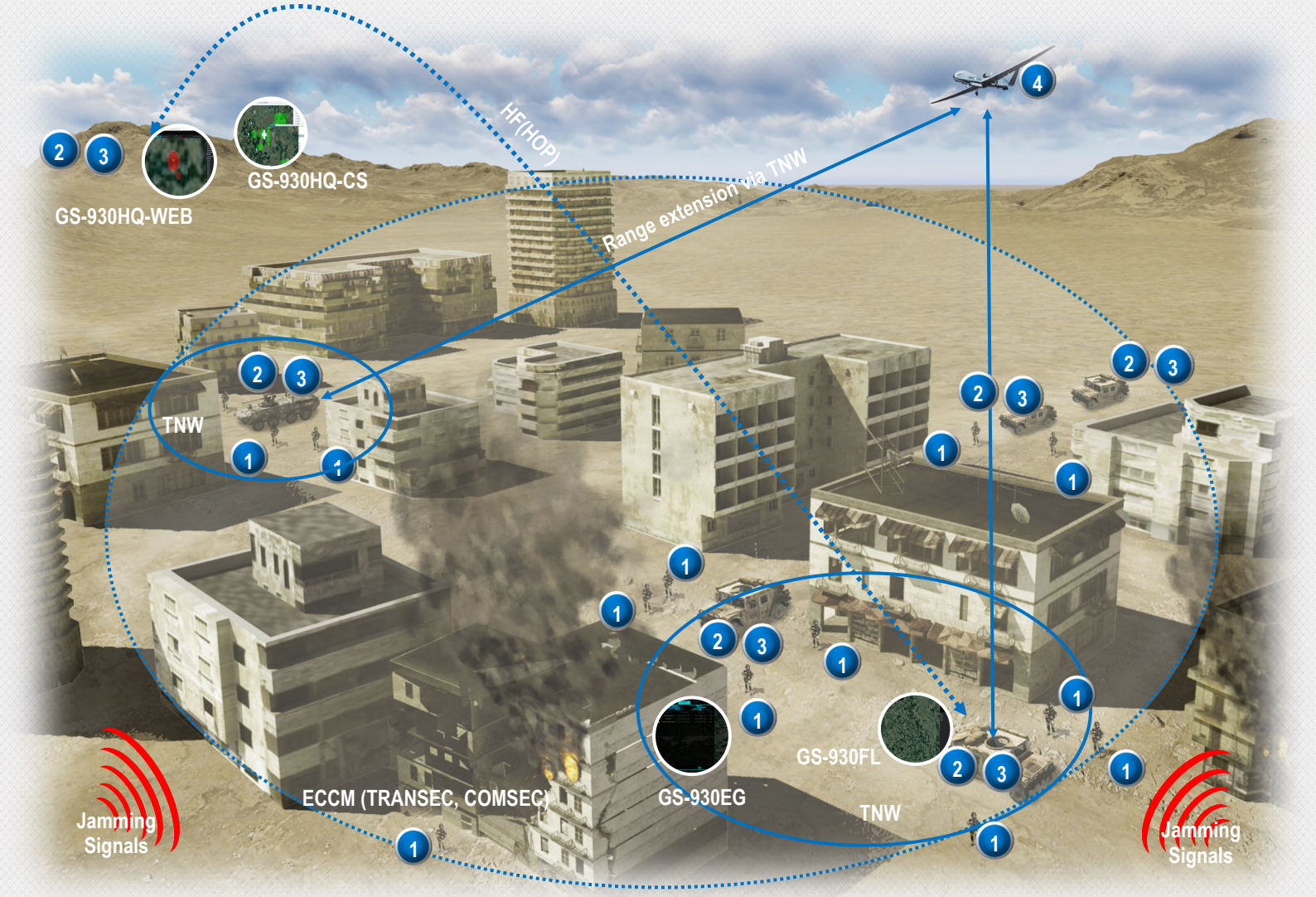

GS-2800-02 Rapid Reaction Forces (RRFS) : Resilient Communications

As edge forces close in on target area, the environment becomes contested with adversarial jamming impacting communications. Resiliency take priority over big data. Forces employ the same radios as in previous scenario but use different waveforms to maintain Push-To-Talk voice communications. Commanders launch a drone/UAV for range extension.

Glocom Radios

① **GR-611D** Provides capabilities narrow band, TDMA full-duplex and Ad-Hoc for edge forces

② **GR-310** Provides robust VHF/UHF, SATCOM networking between Commanders, vehicular forces and edge soldiers

③ **GR-150** Provides Beyond Line-Of-Sight (BLOS) connectivity in absence of SATCOM

④ **Drone/UAVs** Provides ISR Video transmission and communication range extension

Waveforms

ECCM Frequency Hopping Fast, anti-jamming frequency hopping across a wide spectrum enhances information security and reliability

TNW Self-forming, self-healing networking, Friendly Force identification for tactical edge forces

VHF/UHF Frequency Hopping High speed frequency hopping in VHF/UHF frequency band

HF Frequency Hopping 10 hop per second frequency hopping in HF frequency band

Tactical Applications

GS-930HQ-WEB Supports joint staffs and task force commanders with an up-to-date detailed picture of large-scale operations (mission planning, blue force tracking, remote control) using high performance web technologies.

GS-930HQ-CS Supports key operational activities such as situational awareness, Mission Planning, Mission Execution, and Mission Reporting.

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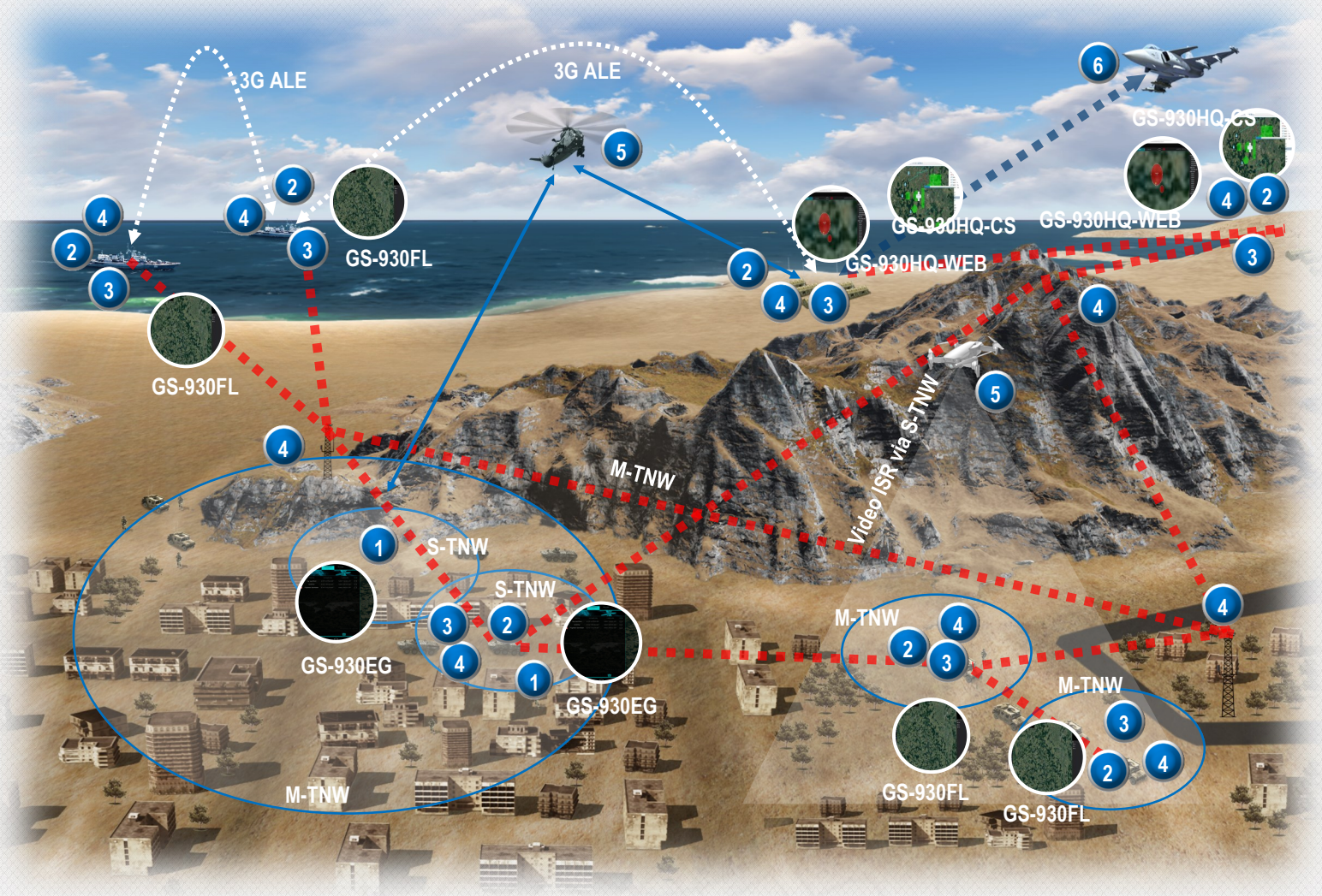

GS-2800-03 Multi-domain Border Operations

A geographically divers nation needs continuous monitoring of border areas for potential threats. Robust, reliable communications are key for forces deployed by land, air and sea. A HCLOS-based strategic backbone system links C4I across domains from command to edge.

Glocom Radios

① **GR-611D** Provides capabilities narrow band, TDMA full-duplex and Ad-Hoc for edge forces

② **GR-310** Provides robust VHF/UHF, SATCOM networking between Commanders, vehicular forces and edge soldiers

③ **GR-150** Provides Beyond Line-Of-Sight (BLOS) connectivity in absence of SATCOM

④ **GR-8520** HCDR, Ad-Hoc

⑤ **Drone/UAVs** Provides ISR Video transmission and communication range extension

⑥ **Tactical Data Link** Supports TDMA, ECCM, Real-time Data

Waveforms

S-TNW Self-forming, self-healing networking, wideband ISR, Friendly Force identification for tactical edge forces

M-TNW Mid-tier, scalable MANET and wide-area battlespace management for tactical leaders

3G Automatic Link Establishment (ALE) Robust, reliable voice, SA and PLI despite congested HF channel conditions or reception interference

Tactical Applications

GS-930HQ-WEB Supports joint staffs and task force commanders with an up-to-date detailed picture of large-scale operations (mission planning, blue force tracking, remote control) using high performance web technologies.

GS-930HQ-CS Supports key operational activities such as situational awareness, Mission Planning, Mission Execution, and Mission Reporting.

GS-930FL Supports a battle and crisis management for the mounted and dismounted frontline commander.

GS-930EG Supports Android-based battle management for the commanders and edge soldiers.

Services

Engineering Design Services Design, verification and commissioning of communication solution including radios, OEM components and applications

Technical Customer Support Set up tactical radio network infrastructure including design, configuration, installation commissioning and training

In-Country System Support Comprehensive, scheduled updates, troubleshooting and repairs for all tactical network components

Test System Cost-effective, in-field radio test and repair solution

Premier Online product technical assistance, downloads, training and product demos

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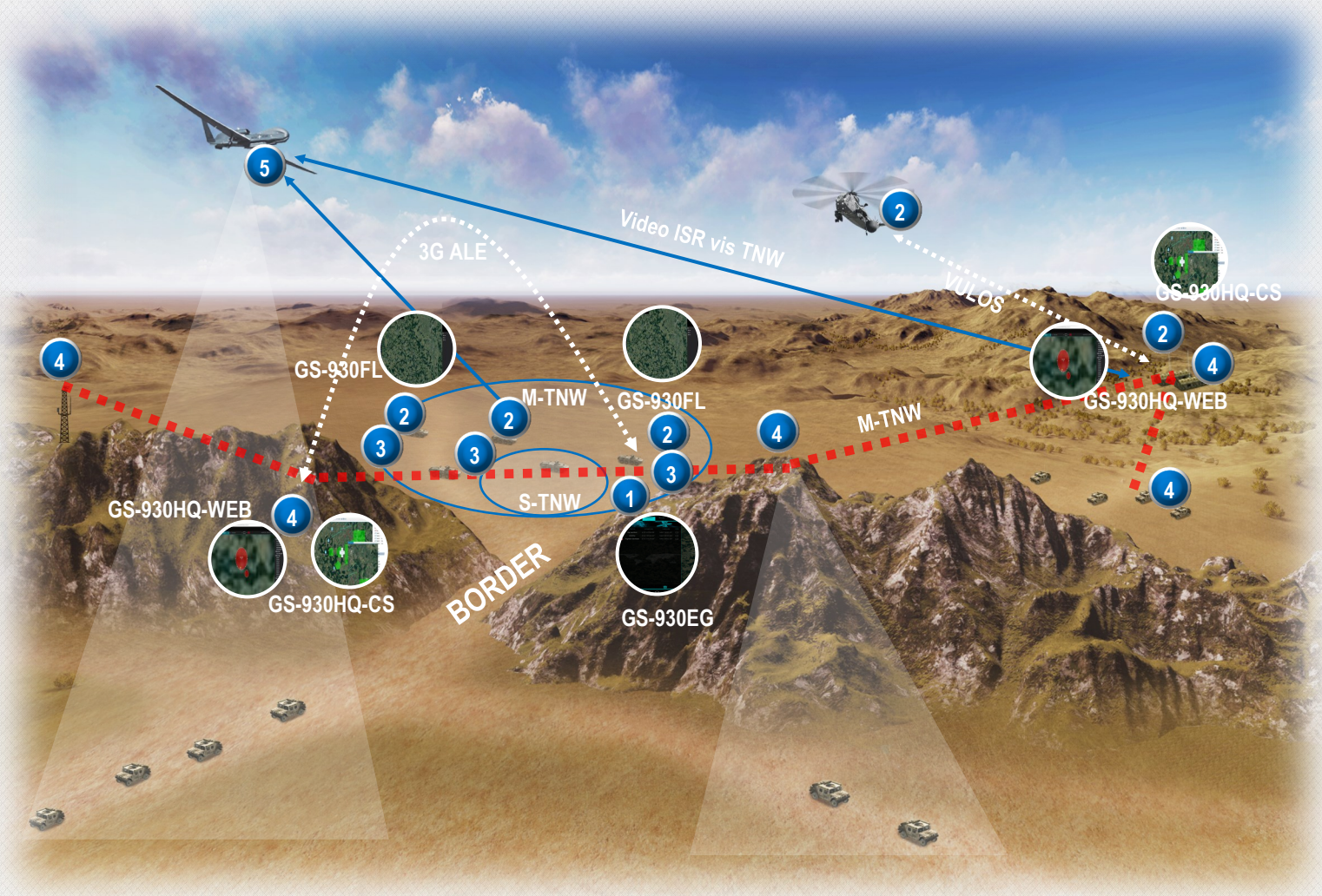

GS-2800-04 Multi-national Sensing and Response

Terrorists threaten the peace and security of multiple nations. The broad-scale, multi-national response is collaborative, involving command, vehicular and edge forces tracking targets over extreme terrain and great distances. Speed and accuracy of locating threats are powered by shared data from numerous ground and airborne assets, delivered by broadband radio technologies.

Glocom Radios

① **GR-611D** Provides capabilities narrow band, TDMA full-duplex and Ad-Hoc for edge forces

② **GR-310** Provides robust VHF/UHF, SATCOM networking between Commanders, vehicular forces and edge soldiers

③ **GR-150** Provides Beyond Line-Of-Sight (BLOS) connectivity in absence of SATCOM

④ **GR-8520** HCDR, Ad-Hoc

⑤ **Drone/UAVs** Provides ISR Video transmission and communication range extension

⑥ **Tactical Data Link** Supports TDMA, ECCM, Real-time Data

Waveforms

S-TNW Self-forming, self-healing networking, wideband ISR, Friendly Force identification for tactical edge forces

M-TNW Mid-tier, scalable MANET and wide-area battlespace management for tactical leaders

VULOS VHF/UHF Line-Of-Sight encrypted voice and Position Location Information

3G Automatic Link Establishment (ALE) Robust, reliable voice, SA and PLI despite congested HF channel conditions or reception interference

Tactical Applications

GS-930HQ-WEB Supports joint staffs and task force commanders with an up-to-date detailed picture of large-scale operations (mission planning, blue force tracking, remote control) using high performance web technologies.

GS-930HQ-CS Supports key operational activities such as situational awareness, Mission Planning, Mission Execution, and Mission Reporting.

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Technical Customer Support Set up tactical radio network infrastructure including design, configuration, installation commissioning and training

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Premier Online product technical assistance, downloads, training and product demos

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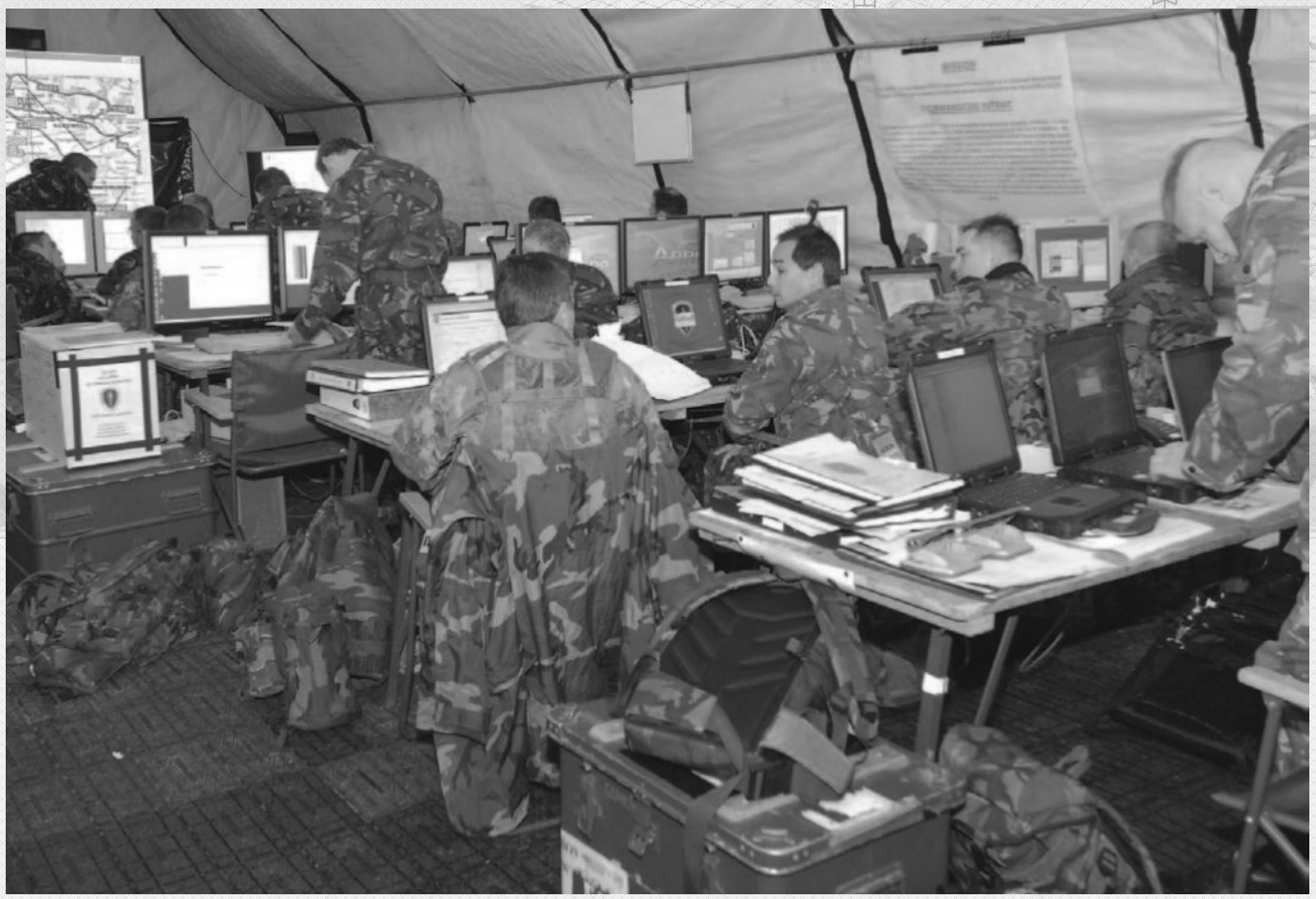
GS-3100 Headquarters C4I System

Integrated Tactical Command & Control System for Land Forces



Precise, relevant and real-time information is critical for mission success at all levels of command & control.

[NEW CHALLENGE]

The nature of modern warfare requires a digitalized battlespace that fully supports the entire spectrum of military operations. However, the vast amounts of data flowing through military networks have given rise to a new challenge – the need to channel the data properly for effective decision making at all levels of command & control.

[CUSTOMER NEEDS]

- Clear and up-to-date vision of the tactical situation
- Collaboration with other friendly and allied forces
- Reliable battle-proven communications
- Supports scalable command & control capabilities

As a world leader in the implementation of the digital army doctrine, our renowned C⁴I solutions connect all forces on land from high-echelon HQ to the individual platform creating a force multiplier by maximizing combat resource coordination.

Information superiority over tactical networks allows commanders to build and share fused operational pictures.

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System Overview

The GS-3100 is a field-proven C4ISR solution for tactical headquarters (Battle Groups and Task Forces) and strategic headquarters (from Division level and up to the Joint Command).

The GS-3100 allows headquarters to generate superior tempo relative to their adversary and shortens the decision-action cycle for the delivery of kinetic and non-kinetic effects in the battlespace.

The GS-3100 is composed of tactical communications system and command and control (C2) software system. Glocom's battle-proven tactical communications system ensure a reliable flow of information throughout all echelons and in all combat scenario. The complete range of products, including the recent Glocom radio family of advanced Software-Defined Radio, meets the requirements of the modern battlefield – from the individual soldier, through various types of combat platforms and up to large systems required by HQ.

Glocom's C2 software GS-930 suite provide military commanders at all echelon levels with high-performing C2 solution that offers clarity, simplicity, and high performance that addresses real world C2 challenges. GS-930 is an integrated command and control C2 software suite with features such as ■ **digital map display,** ■ **situational awareness,** ■ **Blue Force Tracking,** ■ **instant messaging,** ■ **collaborative planning and record & replay**. GS-930 suite connects the headquarters to the tactical edge with its four products: ■ GS-930HQ, ■ GS-930FL, ■ GS-930EG. GS-930 is designed to provide a Joint Common Operational Picture (JCOP) within all the operation domains.

[CUSTOMER BENEFITS]

SHARED SITUATIONAL AWARENESS

Make better informed decisions through an updated picture of own forces, staff assessments, and shared enemy reports, including type, size, and location.

BLUE FORCE TRACKING

Displaying up-to-date Friendly Force Tracks reduces the strain on voice communication and increases situational awareness on the battlefield.

COLLABORATIVE PLANNING

High flexibility during the planning cycle through collaborative construction of both textual and graphical plans and orders. Distribute directly to deployed forces.

TACTICAL CHAT & STRUCTURED MESSAGING

Attach documents such as plans, orders, and pictures in chat messages to individuals or groups across all echelons.

JOINT AND COALITION INTEROPERABILITY

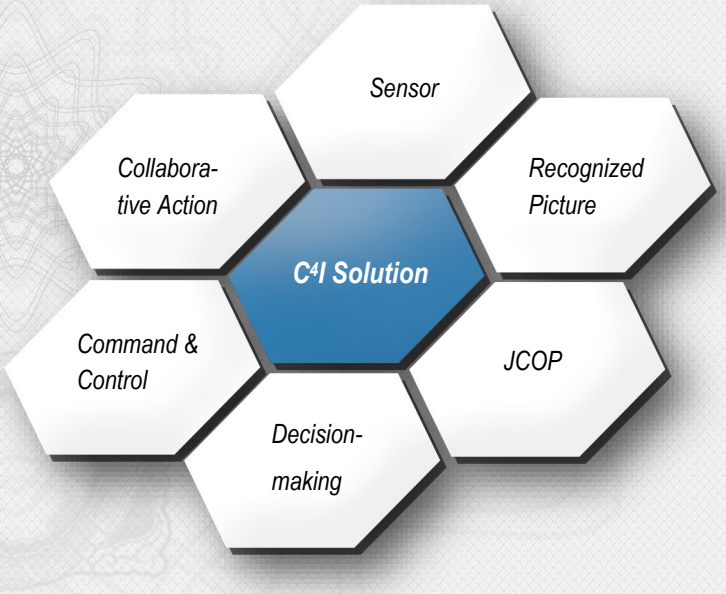
Increase the operational tempo with top-to-bottom interoperability across all echelons of command as part of the Glocom C4I suite.

INTUITIVE USER EXPERIENCE

A simple and intuitive user interface reduces both the cognitive load and training burden for the user.

Mission success at all levels of command & control

Our C4I systems provide actionable, real-time information and enables situational awareness, in-depth collaborative mission planning and management, and a constantly-updated common operational picture (COP). The systems offer solutions that deal with modern-day challenges (e.g., terrorism, urban warfare, guerilla warfare, and complex terrain). The solutions implement advanced combat concepts that increase operational effectiveness and connectivity – *combining logistics, mission planning and fire support in one single system.*



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Tactical Communications

Glocom's battle-proven communications systems ensure a reliable flow of information throughout all echelons and in all combat scenario. The complete range of products, including the recent family of advanced Software Defined Radio, meets the requirements of the modern battlefield – from the individual soldier, through various types of combat platforms and up to large systems required by HQ. Based on decades of communications experience, including the legacy Communication radio product line, Glocom has acquired extensive operationally-proven expertise in voice, data and video technologies. The company's know-how in HF/VHF/UHF/L bands radio and satellite radio has resulted in the implementation of integrated military communications infrastructures for C^4I and triple-play (voice, data and video) applications supporting advanced counter-measure techniques (e.g., frequency hopping and direct sequencing). These systems provide reliable communication in all terrains including harsh battle environments, by using cutting-edge modem techniques, all optimized to every communication solution.
Glocom's comprehensive leading-edge communications equipment and systems integrate seamlessly with their C^4I and land systems.

[KEY FEATURES]

- Tactical communications over different radio systems (VHF, UHF, HF, Satcom)
- Advanced software defined radio systems
- Secure communications for voice and data (COMSEC, TRANSEC)
- Easy deployable communications system

Fully Scalable Command & Control Software

GS-930 is an integrated command and control software suit with features such as digital map display, situational awareness, Blue Force Tracking, instant messaging and collaborative planning. GS-930 suite connects the headquarters to the tactical edge with its four products: GS-930HQ, GS -930FL, GS-930EG. They are fully integrated through tactical communications, which is the communication core of the GS-930 suite. GS-930 tactical communications provide networked command and control and shared situational awareness, from the higher headquarters to the commander at the tactical edge. It supports IP and non-IP Glocom radios and can handle different types of radios, even within the same vehicle. GS -930 is designed to provide a joint Common Operational Picture (COP) within all the operation domains.

[KEY FEATURES]

- **Digital Map**: Geographical Information System (GIS) supports the widest range of map formats, terrain data and terrain tools, in both 2D and 3D including GeoTiff, ESRI Shape, Digital Elevation Model (DEM)
- **Situational Awareness**: Handling the live feed tracks from various sensors and tactical edge, Blue Force Tracking and supporting of contemporary military and civilian data feed standards: AIS, ADS-B messages
- **Mission Planning**: Constructing textual and graphical plans & orders in a collaborative manner
- **Interoperability and Sharing**: The highest degree of interoperability and sharing is achieved through Glocom Tactical Communications composed of Glocom radios and software
- **Record & Playback**: Allowing debriefing or after action review of specific parts or periods of an operation

The system is a fully scalable Command & Control solution that fulfils core requirements of all the hierarchical levels of command and with coalition partners.

- **GS-930HQ** is a C2 Information System designed to provide joint or strategic headquarters with a detailed joint Common Operational Picture (COP) of large-scale operations using high performance software technologies.
- **GS-930FL** is a battle and crisis management software for the mounted and dismounted frontline commander. Designed with operational simplicity, it fits into any organization by providing precisely the tools needed by battlefield commanders. Its design and features address both military and civilian commanders at lower organizational levels.
- **GS-930EG** is an Android-based battle management system for the commanders and soldiers at the tactical edge. Designed for simplicity it provides the commander with fast and clear friendly force tracking (FFT) picture.

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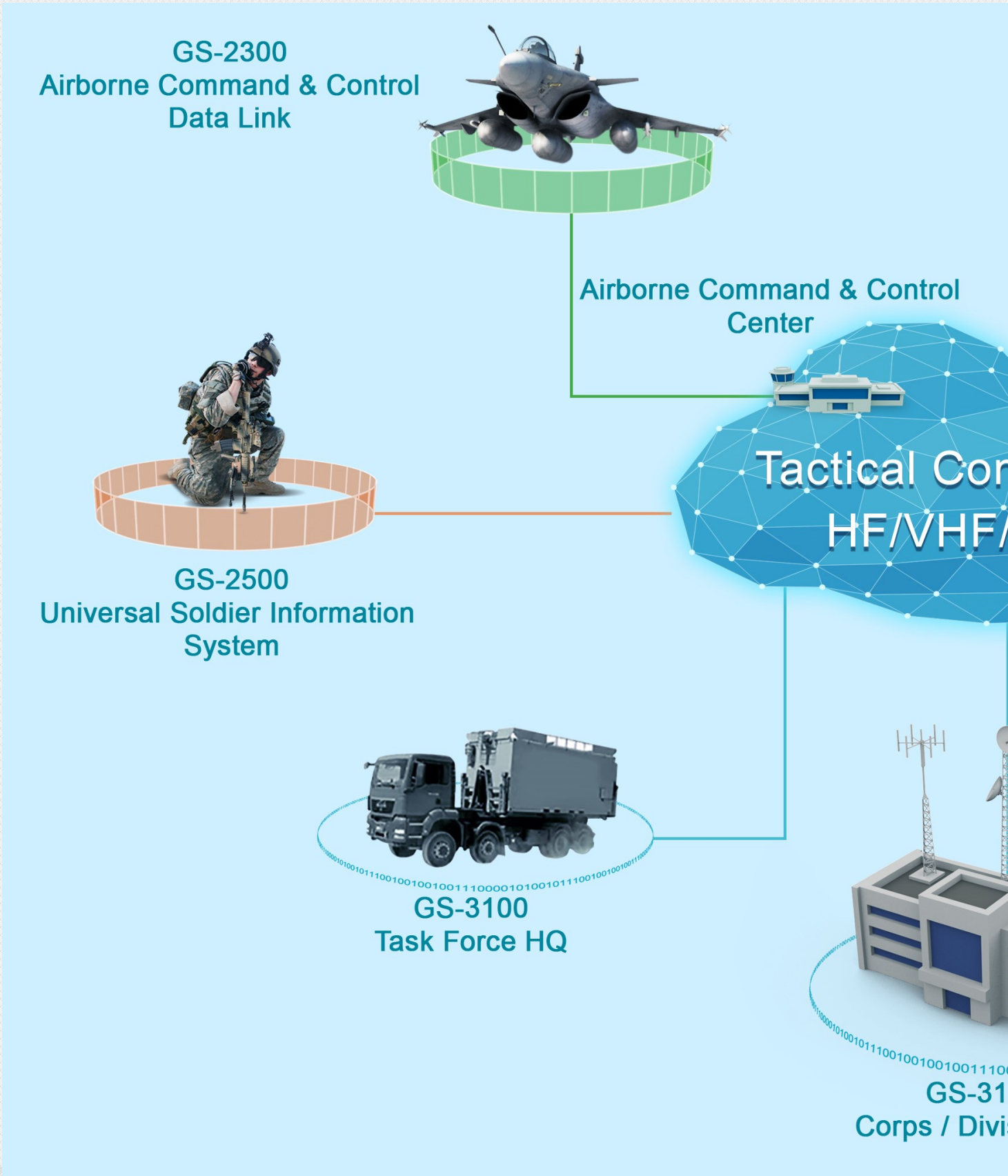
The GS-3100 makes a large scale system together with other solutions such as GS-2200, GS-2300, GS-2400 and GS-2500 so on, has resulted in the implementation of integrated military communications infrastructures for C4I offering more powerful solution for ground forces.



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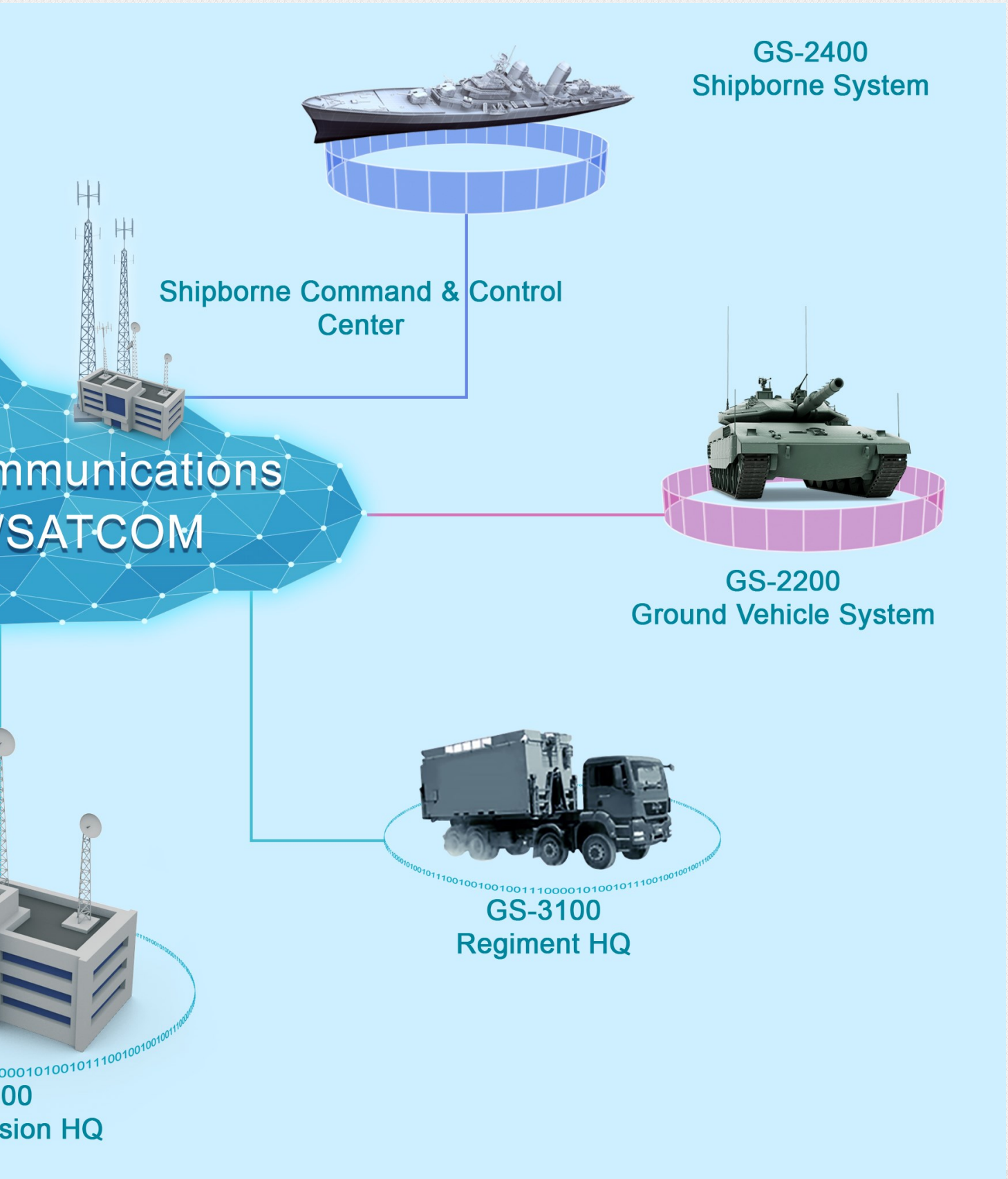
Real-time situation of large-scale operations on land, at sea or in the air is seen in easy-to-grasp visual form. It effectively aggregates different kinds of information from multiple domains, and gives commanders and their staff the overviews essential for making critical decision in complex, collaborative operating scenarios.



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GS-3100 Ordering Information

GS-3100-01 “Elephant” class (Joint / Corps / Division)

№	DESCRIPTION	MODEL	BRAND	UNIT	QTY
1	**HF/VHF 100W Mobile Radio Set**	**GR-8100MS**	**Glocom**	**SET**	**4**
2	**VHF/UHF SATCOM Manpack Radio Set**	**GR-310**	**Glocom**	**SET**	**4**
3	**Secure Personal Radio (SPR) Set**	**GR-611B**	**Glocom**	**SET**	**21**
4	**Computer & Peripherals**				
4-1	Rugged PC (Windows, 1366*768)	S410	Getac	pc	4
4-2	Tactical Terminal (Android)	Ulefone	Ulefone	pc	11
4-3	Ethernet Hub (8 port)	Brand	3rd Party	pc	1
4-4	RS-232 to Ethernet Converter	NP301	3rd Party	pc	4
5	**Software**				
5-1	Command & Control Software (Headquarters)	GS-930HQ	Glocom	copy	1
5-2	Command & Control Software (Frontline)	GS-930FL	Glocom	copy	1
5-3	Command & Control Software (Soldier)	GS-930EG	Glocom	copy	1

GS-3100-02 “Wolf” class (Regiment / Task Force)

№	DESCRIPTION	MODEL	BRAND	UNIT	QTY
1	**HF/VHF 100W Mobile Radio Set**	**GR-8100MS**	**Glocom**	**SET**	**2**
2	**VHF/UHF SATCOM Manpack Radio Set**	**GR-310**	**Glocom**	**SET**	**2**
3	**Secure Personal Radio (SPR) Set**	**GR-611B**	**Glocom**	**SET**	**6**
4	**Computer & Peripherals**				
4-1	Rugged PC (Windows, 1366*768)	S410	Getac	pc	2
4-2	Tactical Terminal (Android)	Ulefone	Ulefone	pc	6
4-3	Ethernet Hub (8 port)	Brand	3rd Party	pc	1
5	**Software**				
5-1	Command & Control Software (Headquarters)	GS-930HQ	Glocom	copy	1
5-2	Command & Control Software (Frontline)	GS-930FL	Glocom	copy	1
5-3	Command & Control Software (Soldier)	GS-930EG	Glocom	copy	1

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Radio Set Parts

№	DESCRIPTION	MODEL	BRAND	UNIT	QTY
1	**HF/VHF 100W Mobile Radio Set**	**GR-8100MS**	**Glocom**	**SET**	**1**
1-1	HF/VHF 100W Mobile Radio	GR-8100MS	Glocom	pc	1
1-2	Military Official Handset	GA-8100OH	Glocom	pc	1
1-3	Mobile GPS Antenna	GA-50A	Glocom	pc	1
1-4	HF 20mx2 Dipole Antenna	GA-113A	Glocom	pc	1
1-5	HF Mobile Antenna with Cable	A8100-WA4.2	Glocom	pc	1
1-6	VHF Mobile Antenna with Cable	A8100-MA3	Glocom	pc	1
1-7	HF 100W Automatic Tuning Unit	GR-8102MS	Glocom	pc	1
1-8	Amplifier-ATU RF Cable	A8100MS-RC01	Glocom	pc	1
1-9	Amplifier-ATU Control Cable	A8100MS-CC01	Glocom	pc	1
1-10	Mobile Installation Kit	A8100-IK10	Glocom	pc	1
1-11	Field Reference Guide	A8100MS-UM01	Glocom	pc	1
1-12	Power Cable	A8100MS-PC01	Glocom	pc	1
1-13	Asynchronous Data Cable (option)	A8100-DC01	Glocom	pc	1
1-14	Ethernet Cable (option)	A8100-EC24	Glocom	pc	1
1-15	Communication Planning App (Windows)	GC-8100	Glocom	copy	1
2	**VHF/UHF SATCOM Manpack Radio Set**	**GR-310**	**Glocom**	**SET**	**1**
2-1	VHF/UHF SATCOM manpack radio	GR-310	Glocom	pc	1
2-2	Officer handset	GA-10A	Glocom	pc	1
2-3	Whip antenna	GA-310-AT-02	Glocom	pc	1
2-4	Li-Ion battery pack	GA-31D	Glocom	pc	1
2-5	Battery charger	GA-32D	Glocom	pc	1
2-6	User manual	A310-UM01	Glocom	pc	1
2-7	SATCOM Antenna (option)	GA-310-AT-04B	Glocom	pc	1
2-8	Mobile GPS Antenna (option)	GA-50A	Glocom	pc	1
2-9	Clone cable (option)	GA-21A	Glocom	pc	1
2-10	Setup/Control Application (Windows)	GC-310	Glocom	copy	1
3	**Secure Personal Radio (SPR) Set**	**GR-611B**	**Glocom**	**SET**	**1**
3-1	Secure Personal Radio	GR-611B	Glocom	pc	1
3-2	Whip Antenna	A611B-WA01	Glocom	pc	1
3-3	Handheld GPS Antenna	GA-51A	Glocom	pc	1
3-4	Battery Pack	A611B-BP01	Glocom	pc	1

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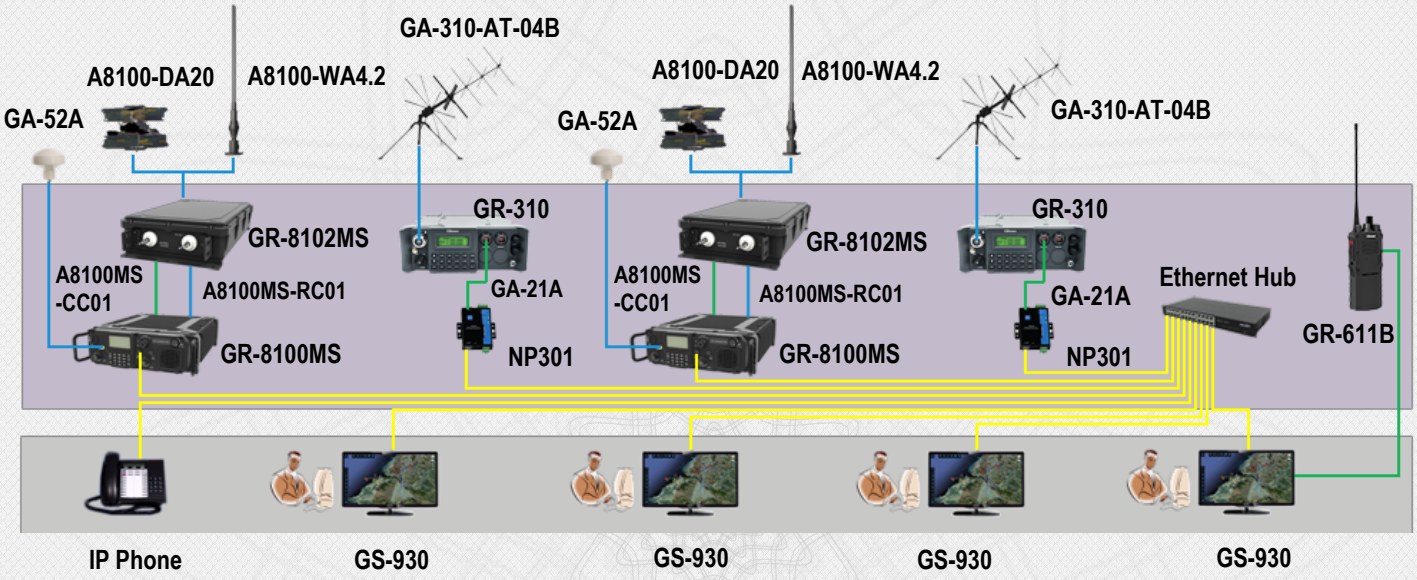
Radio Set Parts - cont

№	DESCRIPTION	MODEL	BRAND	UNIT	QTY
3-5	Battery Charger	A611B-BC1B	Glocom	pc	1
3-6	Carry Pouch	A611B-CP01	Glocom	pc	1
3-7	User Manual	A611B-UM01	Glocom	pc	1
3-8	Tactical Headset	A611B-TH01	Glocom	pc	1
3-9	Light Headset	A611B-LH01	Glocom	pc	1
3-10	Asynchronous Data Cable	A611B-DC01	Glocom	pc	1
3-11	Setup/Control Application (Android)	GC-611B	Glocom	copy	1

GS-3100 Configuration



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GA-114A HF NVIS Antenna

HF Radio Antenna for Mobile/Shipborne Communication

[Key features]

■ Near Vertical Incidence Skywave (NVIS) Propagation ■ All terrain coverage - no skip zone in HF band ■ High efficient ATU with minimum VSWR ■ Rugged construction - easy to installation ■ Flexible mounting options ■ Compatibility with GR-100 & GR-150 HF radio ■ Folding antenna structure - compact size

[Applications]

■ Humanitarian & peacekeeping ■ Police & customs Drug enforcement & private security ■ Military & paramilitary ■ Border patrol ■ Mining, oil & gas ■ National guard ■ Public & commercial ■ Aid & relief, emergence service ■ Forestry & transportation ■ Deep sea fishery

NVIS propagation

Propagation refers to the path a radio frequency signal travels when radiated from antenna. There are three main types of propagation commonly used in vehicle HF SSB systems:

- Skywave - the signal radiates at a low angle towards the horizon and is refracted by the ionosphere to return back to earth at a long distance away from the source
- Groundwave - the signal radiates along the ground directly from the radiating antenna following the contour of the earth
- NVIS - the signal radiates at a high angle towards the ionosphere and is refracted to return at a close to medium distance from the source.

[High Efficient] Radiates 10dB to 14dB more than a whip antenna, Equivalent to a 500W transmitter with a whip antenna **[Simple Installation]** Does not require welding or mounting plates, No separate antenna tuner to install, Fast & inexpensive installation, Easily moved between vehicles **[Integrated Roof Rack]** Conventional roof rack for storing tents, boxes, Additional storage w/o compromising performance **[No Skip Zone]** Eliminates or minimizes skip zones, Virtually continuous HF coverage from 0~1000Km+ **[Noise Reduction]** Increased immunity to ignition & power line noise **[Simple Design]** Mechanically simple & robust folding mechanism, Low risk of failure [**Covert]** Easily disguised for covert applications, Not immediately recognizable as an antenna, No unwanted attention in areas of conflict

General specifications

Frequency range	3.7MHz ~ 13MHz
Power rating	Up to 125W PEP
Power supply	12VDC (24VDC Option)
Radiation pattern	Omni directional at high radiation angles, NVIS optimized
VSWR	≤1.3:1@50Ohm
Tune control	Control signal from radio, Customizable to suit 3rd party radios
Tune time	Approximately 3 seconds
Tuning method	Continuously variable tuning capacitor
Drive method	Microprocessor controlled precision stepper motor
Tune point	Peak antenna current
Receive bandwidth	Variable from 40kHz at 3.7MHz to 280kHz at 13MHz
Gain	+8dB ~ +22dB @ 0-300Km distance (vs typical 1.8m mobile whip)
Dimension	1700 x 1256 x 795mm Folding: 1700 x 1256 x 140mm
Weight	45Kg (w/o mounting bracket)
Environmental	IP67 for outdoor and indoor modules, MIL-STD-461, MIL-STD-810F (Clauses 516.5 for shock, 514.f for vibration, 510.4 for dust
Operating temperature	-40°C ~ +70°C
Humidity	95%

Continues coverage & no skip zone

Glocom's GA-114A NVIS antenna is a technological breakthrough in vehicle based HF radio communications. It is without doubt the best type of antenna for vehicular NVIS operations and is effective in overcoming the skip zone common in whip based antenna systems. GA-114A is a magnetic half loop antenna which predominantly radiates RF energy towards the ionosphere, making it ideal for NVIS propagation, with the correct selection of frequency, is virtually continuous from 0 to 1000Km or more. Glocom's GA-114A antenna system also provides highly effective medium range communications, reducing the skip zone traditionally found between 30-150Km. The skip zone refers to the area where groundwave propagation ends and skywave propagation begins. Between these two points, HF coverage using a whip antenna is very limited or non existent. GA-114A overcomes this by using NVIS propagation, providing continuous coverage for up to 1000Km or more. Whip antennas, which are usually vertically polarized, radiate most of their RF signal radiates towards the horizon. As a result, very little signal radiates towards the zenith, which is required to facilitate NVIS propagation.

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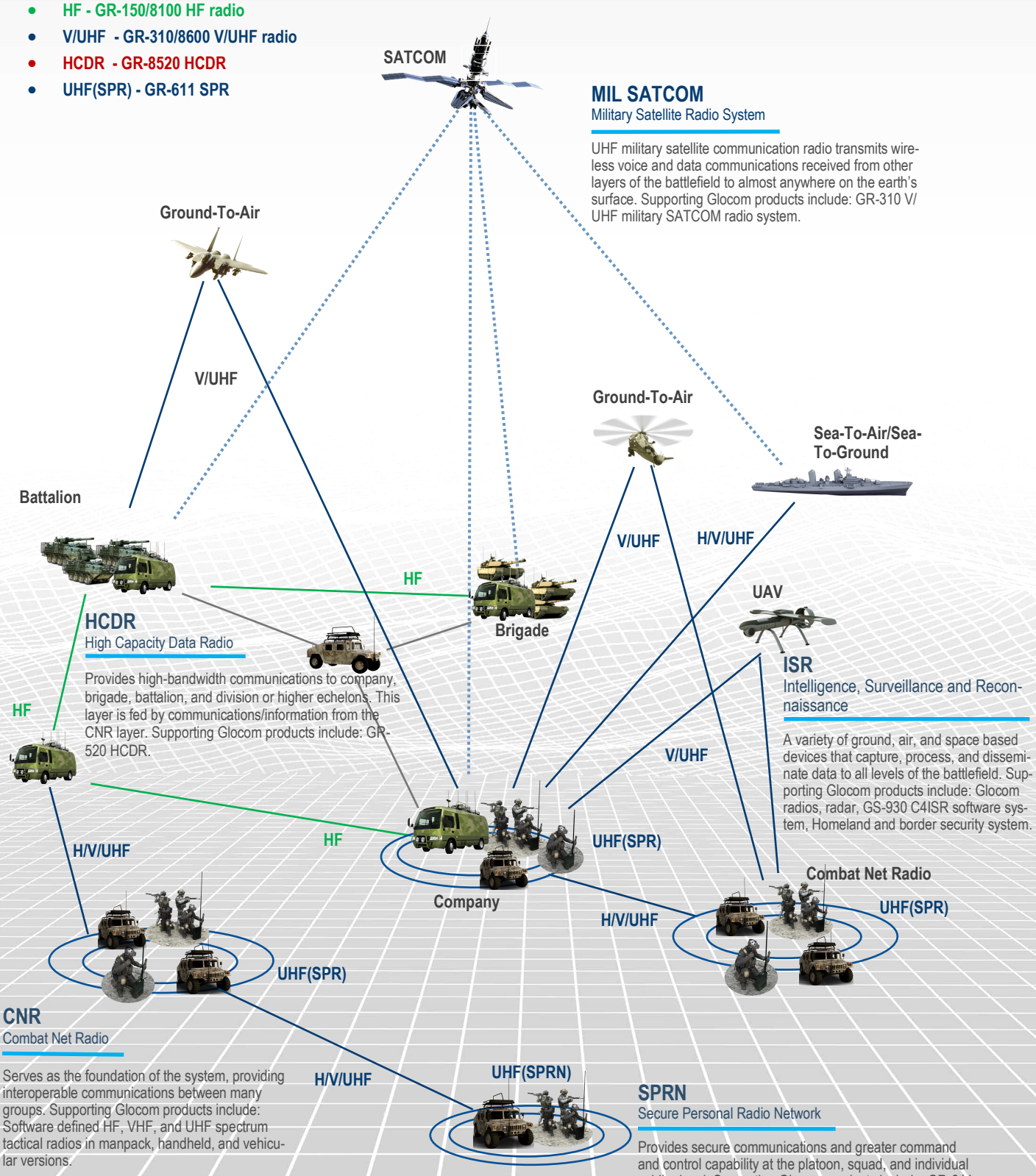
Glocom Battlefield Communications Architecture

- HF - GR-150/8100 HF radio
- V/UHF - GR-310/8600 V/UHF radio
- HCDR - GR-8520 HCDR
- UHF(SPR) - GR-611 SPR



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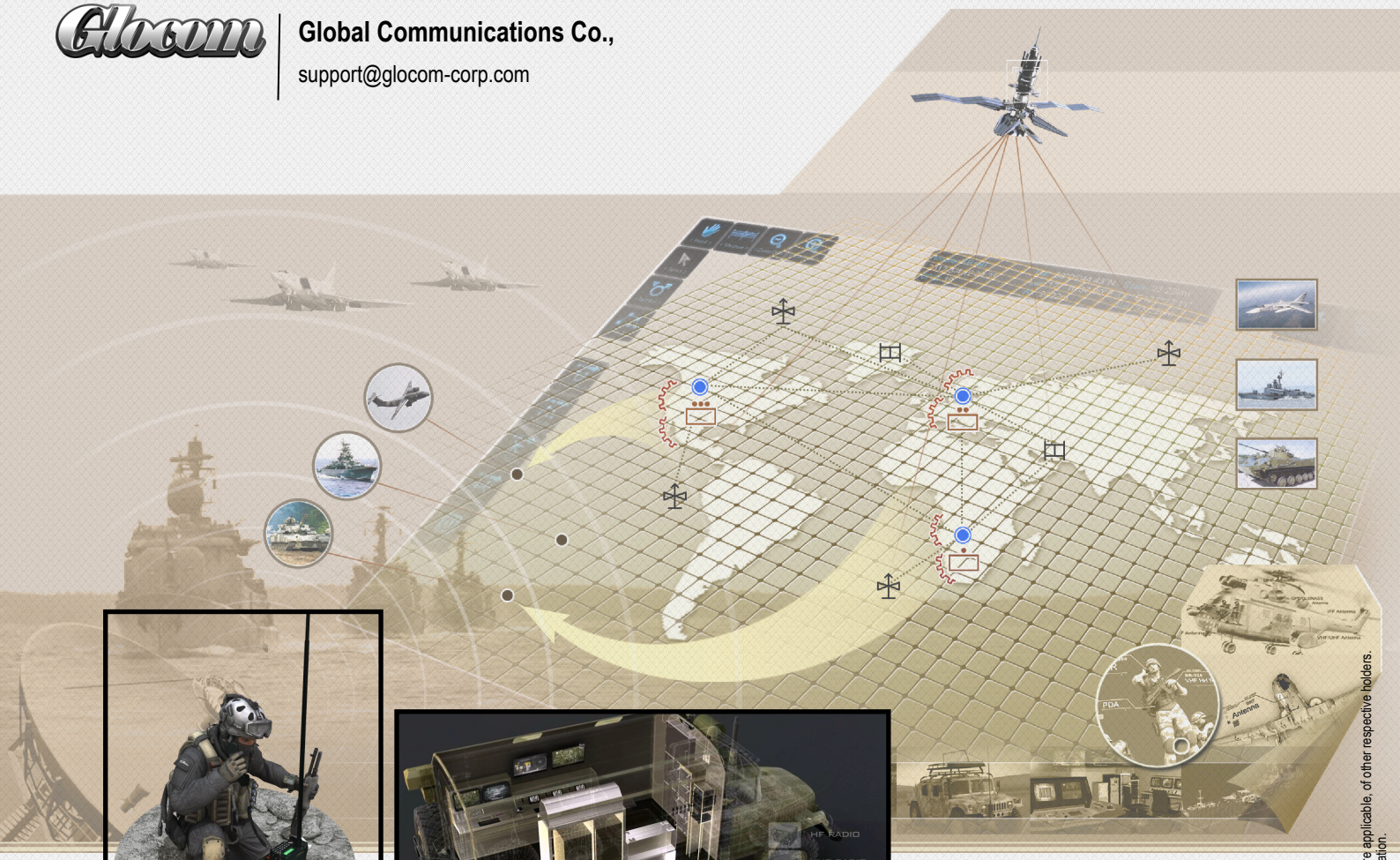

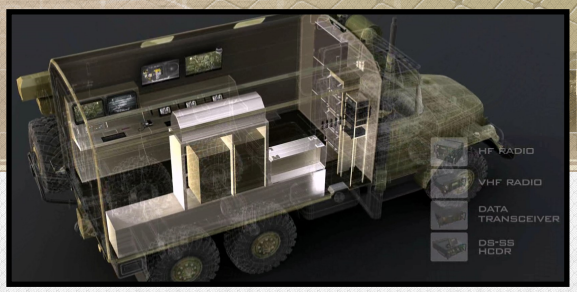

- Manpack Radio Systems
- Handheld Radio Systems
- Stationary Systems
- Mobile Systems
- Airborne Systems
- Shipborne Systems
- Soldier Systems
- BMS Applications

Communications solutions for anywhere, anytime in battlefield

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