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
- Telemetry & Video Streaming

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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Tactical Radio | BMS Applications | Mobile | Airborne | Shipborne | Stationary

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 Auxillary 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
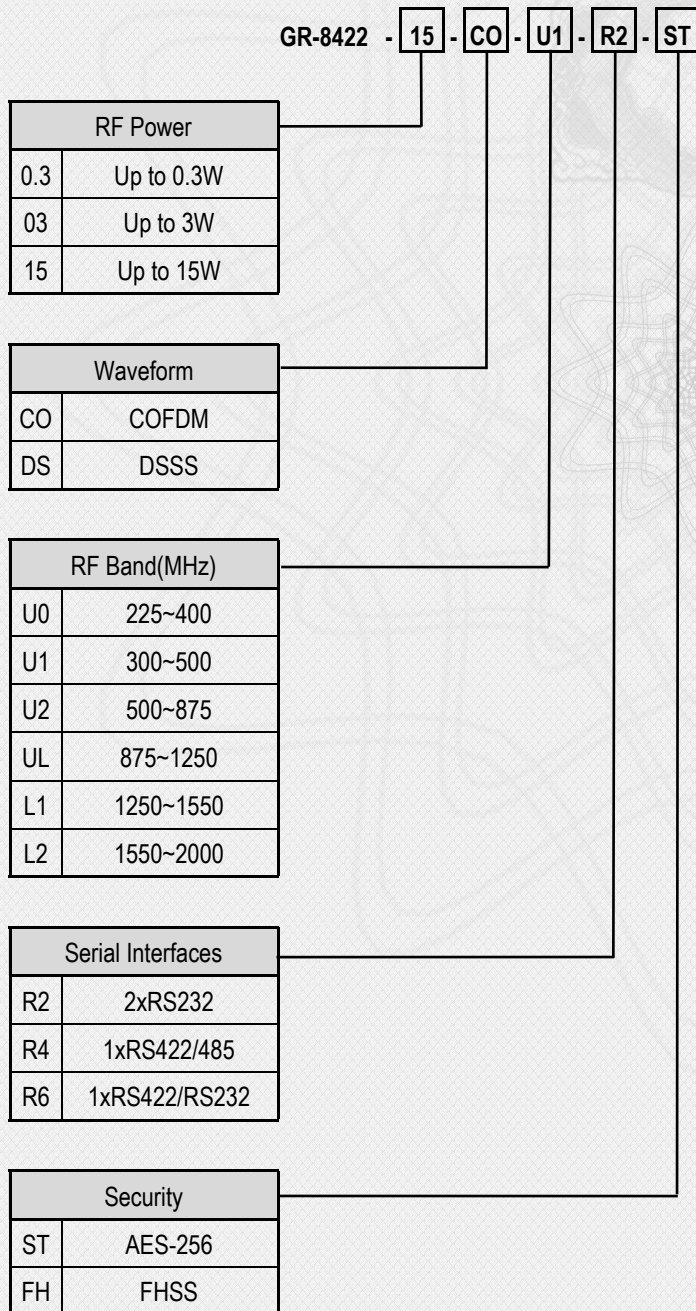
Avionics-grade Qualification

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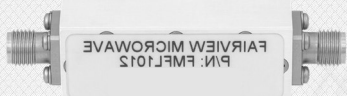
Data Transceiver(GR-8422-XX-CO-XX)

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
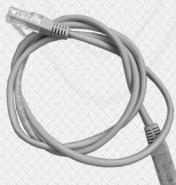
Ethernet Cable(A8422-EC10)

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.
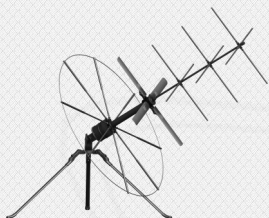(L)127mmX(W)61mmX(H)112mm , 1.3Kg, 14.4 or 28.8VDC

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
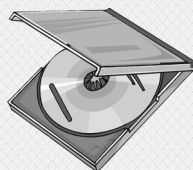
Setup, Operation Software(A8422-SW10)

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

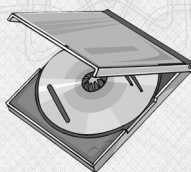Rugged structure tactical handset, easy to operate, Water-proof and moisture-proof.

Military Grade Notebook PC(Getac)

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

Military Grade HUB(3OneData)
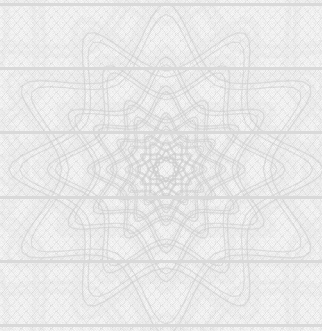
Tactical military HUB 5 ports from 3OneDate

System Library DLL(A8422-TL10)

System library software to develop C4I application.

MEMO

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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

Global Communications is a leading supplier of secure voice and data communications products, systems and networks to military, government and commercial organizations worldwide.

Glocom is an international communications and information technology company serving government and commercial markets in more than 50 countries. The company has annual revenue of over $15 million and 200 employees—including nearly 100 engineers and scientists. Glocom is dedicated to developing best-in-class communications products, systems and services. Additional information about Global Communications is available at Glocom website www.glocom-corp.com.

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