

AES/GCM ENCRYPTION UNIT (AGU)

National Institute of Standards and Technology (NIST) 140-2 validated encryption unit

The AGU is built on L3Harris' decades of heritage in spacecraft communications and encryption products. Our products have decades of cumulative on-orbit performance beyond mission life and have never caused a mission failure. To date, more than 100 AGU units have been delivered or are currently under contract to be delivered.

SPECIFICATIONS	
AGU	
Encrypt Data Rate	192 bytes, message spacing >300 μs apart
Decrypt Data Rate	192 bytes, message spacing >300 μs apart
Algorithms Supported	AES-GCM encrypt, AES-GCM decrypt
Key Selection	Supports 400 keys
Interfaces	
Key	Simple Key Loader (SKL) compatible keyfill through a DS-102 Interface
Data	1 Mbaud RS-422 serial universal asynchronous receiver/transmitter interfaces for encrypt, decrypt, and unit status
Power	Power and RS-422 over two DSUB9 connectors
Environmental	
Operating Temperature	-20°C to +70°C (-4°F to +158°F)
Non-Operating Temperature	-40°C to +80°C (-40°F to +178°F)
Random Vibration	18.4 G _{rms} , 3-axis
Pyrotechnic Shock	1400 (1 kHz to 10 kHz)
Radiation	Tested to 200 MeV without SEL
Physical	
Volume	5.025 W x 4 H x 1.7 D in 9.5 cubic in
Mass	1.25 ± 0.25 lbs
Power	15-50 V input power at 3 Watts
Mean Time Between Failures (MTBF)	230,660
Other	
Technology Readiness Level (TRL)	9



The encrypt and decrypt interfaces are separate, and packets can be simultaneously passed to the AGU for encryption and decryption. This AGU is fully compatible with the Common Communications for Visiting Vehicles protocol used on the International Space Station, as well as other AES-GCM links. A pair of AGUs can be used to secure a channel.

The AGU is a NIST 140-2 validated encryption unit using an Advanced Encryption Standard (AES) block cipher operating in Galois Counter Mode (GCM). This stand-alone unit localizes all security requirements for level 2 into one box.

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