



communications

Communication Systems-West

Surface Common Data Link Products

Tactical Interoperable Ground Data Link (TIGDL)

The Tactical Interoperable Ground Data Link (TIGDL) is a Common Data Link (CDL) interoperable surface terminal that provides the capability to receive sensor data from an airborne platform. The TIGDL is divided into two functional groupings, the Tracking Antenna Group (TAG) and the Control Processing Group (CPG).

PRODUCT DESCRIPTION

The TIGDL is the current generation of ground data link terminals and is designed to be more cost effective and performance scalable than previous generation ground terminals.

TIGDL cost effectiveness is achieved through the utilization of Commercial-Off-The-Shelf (COTS) components and standard architectures such as VME/VXI and Asynchronous Transfer Mode (ATM) where applicable. The TIGDL consists of more than 50% COTS components and provides flexibility and scalability through its modular design to add and/or delete functions depending on user requirements and constraints. The use of standard COTS architecture also provides the advantage of continuing development without costly investment.



range and provides for the addition of Ku-band to accomplish dual-band operation. Upgraded data rates are also available.

The TIGDL interfaces to data link users via a COTS standard ATM fiber optic interface compliant with the Common Image Ground/Surface Station (CIG/SS). A CDL "legacy" interface is available in the TIGDL. This alternative can be provided either instead of, or in addition to the ATM interface.

The TIGDL satisfies the CDL Class I specification for the ground terminal supporting the full waveform for the CDL command link (surface to aircraft) and all three CDL return link (aircraft to surface) data rates. The TIGDL operates in the X-band frequency

The TIGDL can also operate as the Flexible Information Dissemination System (FINDS) ground station to provide secure transmission of data such as imagery to an aircraft relay for re-transmission to the portable/mobile FINDS ground receiver.

KEY FEATURES AND BENEFITS

- High Bandwidth Digital Data Link
- CDL compatible
- Low cost COTS design
- Upgradeable to higher data rates
- Rapid communication of high volume
- Government approved waveform
- Upgradeable easily
- Even more bandwidth availability

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SPECIFICATIONS

TIGDL

PHYSICAL CHARACTERISTICS

	TAG	CPG
Size	165"L x 85"W x (142"H Deployed) (102"H Transport Mode)	24"L x 19"W x 21"H
Weight	3440 lb	100 lb
Power	1200 Watts Three Phase 120/280V 50/60 Hz	400 Watts Single Phase 120V 50/60 Hz

PERFORMANCE CHARACTERISTICS

	TIGDL	Enhanced
Command Link		
Data Rates	200 kb/s, 2 Mb/s	200 kb/s, 2 Mb/s
Modulation	Spread Spectrum BPSK	Spread Spectrum BPSK
Power Amp	5 Watt SSPA	5 Watt SSPA
Bit Error Rate (BER)	1×10^{-6}	1×10^{-6}
COMSEC	Embedded	Embedded
Return Link		
Data Rates	10.71, 137, 274 Mb/s	10.71, 137, 274 Mb/s
Modulation	Offset QPSK	Offset QPSK
BER	1×10^{-6}	1×10^{-6}
COMSEC Y	Yes (10.71 Mb/s)	Yes (274 Mb/s)
Antenna		
Size	6 foot parabolic reflector	6 foot parabolic reflector
Frequency	X-band	Dual-band (X and KU)
Azimuth capability	Continuous 360° azimuth	Continuous 360° azimuth
Slew rate	20 deg/sec	30 deg/sec
Operational wind	40 mph	70 mph
Remoting	500 m	10 m
Other		
2 Band Operation	Optional	Yes
Frequency Tuning	CDL 5 MHz steps	CDL 5 MHz steps
BIT	To module level	To module level
Link audio	Yes	Yes
UHF	No	Yes
ACA (Audio Control Assembly)	No	Yes
Aircraft Position Display/Maps	No	Yes
Ancillary Equipment		Remote Spectrum
Yes	Analyzer Only	
Mission Record	No	Yes
ATM User I/F	Yes	Yes
CDL User I/F	Optional	Yes

TAG & CPG FEATURES

The TAG includes a trailer-mounted 6 foot diameter parabolic antenna with tracker, antenna pedestal, power conditioning, and RF/IF electronics. The trailer is capable of being towed by a High Mobility Multi-Wheeled Vehicle (HMMWV).

The CPG consists of a notebook computer and a VME chassis of digital electronics. The CPG is mounted in a standard 19" rack that may reside in a shelter mounted on a HMMWV. The TAG and CPG are connected via two fiber optic cables that provide for easy connection and remoting of the antenna as desired.

TAG & CPG FEATURES

	TAG	CPG
Temperature (Operating)	- 40° to +49°C	+ 18 to +32°C
Temperature (Storage)	- 40° to +63°C	- 40° to +63°C
Natural Environment	4"/hour rain, ice, & snow conditions Wind - 40 mph Blowing dust & sand Salt fog Operating Slope - Up to 10 degrees	Shelter
Altitude (Operating)	0 - 8,000 ft	0 - 8,000 ft
Altitude (Storage)	0 - 40,000 ft	0 - 40,000 ft
Roadability	MIL-M-8090F, type on III mobility	In S-788/G Shelter HMMWV (heavy variant)

For further information on TIGDL contact:

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