

Standard Definition Messenger Transmitter (SDMT)

COBHAM

The most important thing we build is trust.

Applications

- High-Security Surveillance Applications
- Helicopter links
- UAV/UGV Applications
- Electronic News Gathering (ENG)
- Studio wireless Links
- Sports
- Point of View
- Mobile and Portable AV Applications



Key System Features

- Robust Link Performance with COFDM
- Low Power Consumption (~8.5 Watts)
- Rugged and Compact Design
- Local & Remote Control Interface
- Scrambling Option (AES)
- User Data Option
- Output Frequency: 0.36 to 7 GHz (In-Bands)
- Built-in 4:20:0 MPEG Encoder

GMS' Standard Definition Messenger Transmitter (SDMT) is one of the smallest and lowest power consumption DVB-T compliant COFDM transmitters available. GMS offers several companion receivers and ancillary equipment required to cover a wide variety of applications and budgets. Additionally, this transmitter is compatible with most commercial DVB-T receivers and Set-Top Boxes. The SDMT accepts Composite, S-Video or Component video as well as up to two audio channels (Mic or Line Level). Both the video and the audio are compressed according to MPEG specifications (Video MPEG2 and audio MPEG1 Layer II). However, unlike other MPEG systems, the high-frequency video signal components are preserved. The audio/video program element streams are multiplexed with basic service data to indicate the service name.

The stream can be scrambled with an optional AES scrambling system to provide secure protection in sensitive applications. This option requires the receive system to use a GMS Digital Data Processing Card (DDPC) with the AES decryption FW Option. The SDMT also has a User Data Option that allows RS-232 serial data with rates up to 9.6 kBaud within the transport stream.

A Standard Definition Messenger Link (SDML) is formed when the SDMT is combined with one of GMS' Messenger Smart Receivers, one or two external Down-Converters, antennas, and a SD MPEG2 decoder. GMS' SDMLs provide a unique combination of security and link reliability for the most demanding short or long distance Audio/Video (A/V) point-to-point and point-to-multipoint transmission applications.

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SDML uses a robust digital modulation system known as Coded Orthogonal Frequency Division Multiplexed (COFDM) that provides frequency diversity and powerful Forward Error Correction (FEC) algorithms. The Messenger Smart Receiver supports Spatial Maximal Ratio Pre-Detect Diversity Combining to combat short delay spread multipath reflections found in indoor environments. The SDML provides a robust wireless link that is effective against the multipath interference experienced by analog systems and provides crisp, clear pictures in the most difficult of terrains.

One of the biggest problems encountered in the transition from an analog to a digital A/V platform has been the inherent digital coding delays that in some digital systems are 400 ms or more. The SDMT/DDR (Digital Diversity Receiver) combination in SP@ML mode can provide an end-to-end latency down to approx. 200 ms *without* the introduction of any further MPEG encoding artifacts. This ensures that the picture you see is what is happening *now* - crucial for applications such as sports coverage, surveillance, and law enforcement, where personnel are reacting to real-time events.

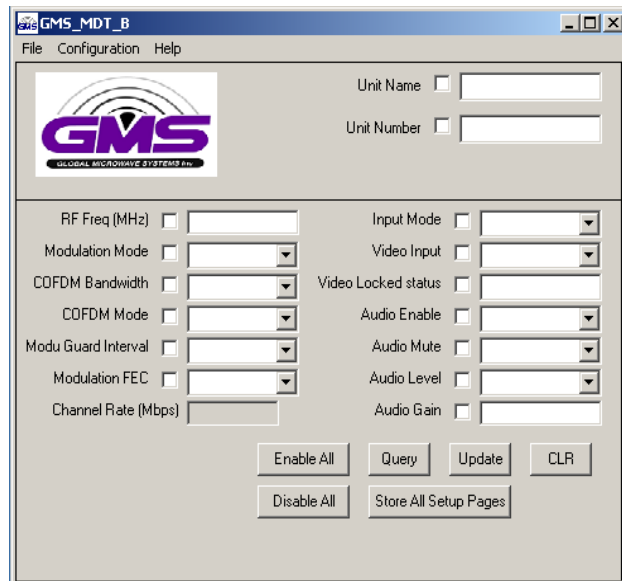
SDMT Special Features

Monochrome Video Mode (custom option, consult factory)

Surveillance applications often do not require chrominance data in the video. The SMDT has been provided with a luminance (monochrome) only mode. When in this mode, bit rate is saved giving sharper monochrome pictures.

Video Only Mode

In applications where audio is not required, the audio channels can automatically be switched off. Bit rate is automatically switched over to the video channel in this situation.



Control

SDMT is designed to be controlled through its USB-1 or RS-232 control port via the supplied MS Windows based control application. A remote control unit (RCU) is available. Local control of the operating frequency is provided on the side of the housing.

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Specifications:

COFDM RF Output

Output Frequency: 0.36 to 7 GHz (In-Bands)
Bandwidth: Selectable 6, 7, 8 MHz
RF Output Power: Up to 200 mW
(programmable)
Connector: SMA-F

Video Encoding

Composite or S-Video or Component Input:
Standards: NTSC or PAL
Compression Standard: MPEG-2
Chrominance Profile: 4:2:0
Line Standard: 525 and 625
Horizontal Resolution: 704 pixels
Vertical Resolution: 576 (625 line), and 480
(525 line)
Video Bit rates: 3.73 Mbit/s to 15 Mbit/s
System Latency¹ end to end delay: 200 ms
Connector: p/o DB-44F

Audio Encoding

Analogue Audio Inputs:
Dual, Line-Level or Mic-Level, Single-
Ended or Differential, Clip Level 12
dB
Input Impedance: 600 Ohms (Mic), 2 kOhms
(Line)
Compression Standard: MPEG Layer II
Bit rates: 256 kbit/s/ch
Sampling Frequency: 32 kHz, 44.1 kHz, or
48 kHz
THD: < 0.1 % max.
Response: 20 Hz to 12 kHz, +/- 0.25 dB
Crosstalk: >55 dB min
S/N: >60 dB RMS
Connector: p/o DB-44F

Scrambling Option

Type: 128 Bit Advanced Encryption Standard (AES)
Key Storage: User Controlled, Local or Remote
Implementation: Everything except TS Header
Requires DDPC with AES Option on RX Side

User Data Option

Protocol: RS-232C, Asynchronous, 8 Bits, No Parity, 1 Stop Bit
Data Rate: Selectable, Up to 9.6 kBaud
User Data PID: Selectable
Connector: p/o DB-44F

Modulation

Modulation Type: COFDM w/QPSK or 16 QAM
64 QAM available in ASI input mode only
FEC²: 1/2, 2/3, 3/4, 5/6, 7/8
Guard Intervals²: 1/32, 1/16, 1/8, 1/4
Spurious: <50 dBc
COFDM Carriers: 2k Carriers

Physical

(without mating connectors)
Dimensions: 3.25" (W) x 4.5" (D) x 1.0" (H)
8.26 cm x 11.43 cm x 2.54 cm
Weight: 10.69 oz (302 grams)
Environmental:
Operational Temperature: -10 to 70 deg C
Humidity: Up to 100% non-condensing

DC Power

DC Voltage Range: 9 -15 V
Power Consumption: 8.5-9.6 Watts (model dependent)
¹ Modulation mode and decoder dependant
² May be limited in certain modes