

SOLO7 – HD Nano Transmitter

COFDM – Video, Audio Telemetry and IP Products

January 2014 Data Sheet

The most important thing we build is trust

COBHAM



The SOLO7 HD Nano Transmitter is an ultra-miniature COFDM digital video transmitter from Cobham Tactical Communications and Surveillance, designed specifically for Point-of-View (PoV) and body-worn applications.

With proven Cobham COFDM and H.264 encoder technology at its core, the exceptionally small size and ultra-low power consumption (typically 7.5W) HD Nano Transmitter enables production teams to offer viewers stunning high definition images from the heart of the action, in situations never previously possible due to equipment size and battery run-time constraints.

The small size and ultra-low power consumption make the HD Nano TX ideal for UAV 'Octocopter' installations, enabling true long range HD broadcasting from these increasingly popular devices for the first time. Optional lightweight, low power consumption amplifiers are also available for even greater range capability.

The HD Nano Transmitter employs ultra-low latency High Profile H.264 (MPEG-4 AVC) encoding for excellent image quality retention over the wireless link and supports composite, SDI, HD-SDI and HDMI video input formats.

The HD Nano Transmitter offers numerous modulation options to suit various deployment scenarios:

- Industry standard DVB-T modulation for full HD quality and compatibility with existing systems
- Cobham UMVL modulation for enhanced high speed operation (motorsports) and improved performance at high frequencies (6 & 7GHz)
- Cobham Narrowband (2.5 MHz), Ultra Narrowband (1.25 MHz) and Ultra-X (625 kHz) bandwidths. The narrowband modes allow users to share scarce spectrum allocation extremely efficiently.

The HD Nano Transmitter is supplied in a simple aluminium lightweight case and features an industry standard SMA RF connector. Composite video, audio, control and power interfaces use two latching Omnetics connectors. A latching DIN 1.0/2.3 co-axial connector is used for the SDI / HD-SDI input and a micro HDMI (with optional cable clamp) for the HDMI input.

The HD Nano Transmitter can be controlled via either USB or via RS232. The versatile and intuitive Cobham Field Controller can also be used.

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Specification:

IO

HDMI	Micro HDMI Type D
SD/HD-SDI	DIN 1.0/2.3 (or BNC via CA2396)
Composite Video	9-way Tri-Lobe (CA2254 Yellow RCA)
Stereo Audio	9-way Tri-Lobe (CA2254 White/Red RCA)
RS232 Data	9-way Tri-Lobe (CA2254 4-pin OB Lemo)
Camera Power	9-way Tri-Lobe (requires CA2298)
S-Video	9-way Tri-Lobe (requires CA2298)
Power	6-way Circular (CA2253 4-pin OB Lemo)
RS232 Control	6-way Circular (CA2253 3-pin OB Lemo)
USB Control	Micro-B USB
RF Output	SMA (100mW/50mW/10mW modes)

DVB-T Modulation

DVB-T Bandwidth	8MHz, 7MHz and 6MHz modes
DVB-T FEC	1/2, 2/3, 3/4, 5/6, 7/8
DVB-T Constellation	QPSK, 16QAM, 64QAM
DVB-T Guard Interval	1/4, 1/8, 1/16, 1/32
DVB-T Bitrates	3.732Mbps to 31.668Mbps

Narrowband/UMVL Modulation

NB Bandwidth	2.5MHz, 1.25MHz and 625kHz modes
UMVL Bandwidth	8MHz, 7MHz and 6MHz modes
NB/UMVL FEC	1/3, 2/3
NB/UMVL Constellation	QPSK, 16QAM, BPSK, 8PSK
NB/UMVL Guard Interval	1/8, 1/16
NB Bitrates	144kbps to 4.879Mbps
UMVL Bitrates	1.317kbps to 14.869Mbps

Video

Input Format	PAL, NTSC (with or without pedestal) 1920x1080i 60/59.94/50Hz 1920x1080p 30/29.97/25/24/23.97Hz 1920x1080psf 30/29.97/25/24/23.97Hz 1280x720p 60/59.94/50Hz
H.264 Compression	AVC / H.264 / MPEG-4 Part 10 High profile level 4.0
ASP Compression	ASP / MPEG-4 Part 2 with NB modulation and SD only
Coding Options	Horizontal scaling of 3/4, 2/3, 1/2, 1/4 Vertical scaling of 1/2, 1/4 Sub-frame rate of 1/2, 1/4, 1/8, 1/24
Encoder Delay	1s to 10ms (mode dependant)
Encoder Bitrates	0.25Mbps to 32Mbps

Audio

Analogue Audio Input	Analogue stereo pair or Differential mono +4dBu Max input level (up to 66dB gain)
Digital Audio Input	SD/HD-SDI 2 digital stereo pairs
Sample Rate	32kHz, 48kHz
Coding Modes	4 channels stereo or mono MPEG Audio Layer 1 64-448kbps MPEG Audio Layer 2 32-384kbps

Other

RS232 Data Input	1k2 to 115k2, 7/8 bit, no/odd/even parity
Remote Control	RS232 & USB Control from PC GUI Application or other device
Front Panel	None, use FCON field controller

Encryption

Type	ABS 32bit as standard AES128/256 (optional)
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Physical

Dimensions	L 67mm, W 68mm, H 22mm
Weight	135g

Power

DC Input	5.9V to 17.8V reverse polarity protected
Power Consumption	Typically 7.5W @ 100mW RF power

Environment

Temperature Range	-10 to +50 °C
Humidity	Less than 85% Non-Condensing

Product Codes:

<i>SOL7HDNTX-810890</i>	<i>* items not yet released</i>
<i>SOL7HDNTX-640750</i>	<i>SOLO7 HD NanoTX 8.10-8.90GHz *</i>
SOL7HDNTX-550600	SOLO7 HD NanoTX 6.40-7.50GHz *
SOL7HDNTX-440500	SOLO7 HD NanoTX 5.50-6.00GHz
SOL7HDNTX-300370	SOLO7 HD NanoTX 4.40-5.00GHz
SOL7HDNTX-198270	SOLO7 HD NanoTX 3.00-3.70GHz
SOL7HDNTX-165240	SOLO7 HD NanoTX 1.98-2.70GHz
SOL7HDNTX-100150	SOLO7 HD NanoTX 1.65-2.40GHz
SOL7HDNTX-030047	SOLO7 HD NanoTX 1.00-1.50GHz
SOL7HDNTX-020030	SOLO7 HD NanoTX 300-470MHz
	SOLO7 HD NanoTX 200-300MHz

Product Code Includes

1 x AP007377	Micro-B USB Cable
1 x CA0002	SOLO DC Power Lead Lemo-Wire
1 x CA2253	NTX DC Power / Ctrl Cable
1 x CA2254	NTX Audio / Video / Data Cable
1 x CA2396	DIN 1.0/2.3 to BNC Female Cable
TX-H264	Enables DVB-T, 2.5MHz Narrowband modulation and MPEG-4 H.264 encoder
TX-HDUP	Enables HD MPEG-4 H.264 encoder

Accessory Options

CA0001	SOLO RS232 Cable Lemo-Dsub9
CA2250	NTX DC Power Cable
CA2370	NTX DC Power / FCON Cable
CA2298	NTX 9-way Breakout Cable
NTXBAT	NTX 7.4V Battery Pack (2250mAh)
NTXBATCH	NTX Battery Charger (multi-region)
SOLAMP500mW-<freq>	500mW booster PA, 4W power consumption

Licensing Options

TX-UN	Enables 1.25MHz Narrowband modulation and MPEG-4 ASP encoder
TX-UXN	Enables 625kHz Narrowband modulation (requires TX-UN)
TX-UMVLUP	Enables UMVL modulation
AES128TX	AES 128 Bit encryption
AES256TX	AES 256 Bit encryption

Products are available to security users in licensed frequency bands. Encryption licences are subject to export control. These products are not approved for use by unlicensed users. Commercial products are available if used in appropriate licensed frequency bands.

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