

SOLO8 Software Defined Radio (Robust)

Domo – Video, IP and Sensors

April 2016 Data Sheet



The SOLO8 Software Defined Radio (SOL8SDR) is an ultra-miniature COFDM digital video transceiver, designed specifically for Point-of-View (PoV), body-worn and concealment applications.

Three enclosure variants are available. Robust (-R) provides a passively cooled IP66 rated enclosure ideal for outdoor, or body worn applications. Concealment (-C) is an ultra-miniature package for integration into concealment solutions. Plain (-P) provides a compact higher power solution (2x500mW) for increased range and enhanced connectivity with native RJ45 and USB as standard.

With proven DTC COFDM and H.264 encoder technology at its core, the exceptionally small size and ultra-low power consumption (5 to 10W mode dependant, higher for 2x500mW plain enclosure variant) enables stunning high quality high definition images from the heart of the action, in situations never previously possible due to equipment size and battery run-time constraints.

Built-in motion detection can be used to further expand battery life, or storage capacity, with event triggered transmission and/or recording.

The DTC SOL8SDR is derived from the successful SOLO7 HD Nano Transmitter range. It uses the same high performance video codec on a more flexible yet compact hardware platform. The SOLO8 supports dual High Definition HD-SDI inputs. In addition the SOL8SDR integrates 128GB of internal video storage on Flash memory. An integral battery backed-up real time clock provides a time and date stamp. The SOL8SDR also provides both USB and Ethernet I/O interfaces. The Ethernet interface supports IP streaming of video via both 'RTSP' and multicast streaming compliant to ONVIF Profile S. This one unit can effectively be either an IP encoder, front end recorder, a COFDM TX, or an IP Mesh NETNode in one box.

The small size and ultra-low power consumption make the SOLO8 Software Defined Radio ideal for concealments and hidden point of view applications. Optional lightweight, low power consumption amplifiers are also available for even greater range capability.

The SOLO8 Software Defined Radio employs ultra-low latency High Profile H.264 (MPEG-4 AVC) encoding for excellent image quality retention over the wireless link or contested IP network.

The transmitter integrates an ISM band telemetry modem, which currently supports 433MHz and 915MHz. This telemetry receiver allows return command and control information to be sent to the SOL8SDR unit. The command information can be used to control the inbuilt recording and to power on and off the unit. The return data link has sufficient capacity to support PTZ commands for a connected PTZ camera – VISCA and PELCO-D protocols can be supported.

Software Defined Radio App available options are as a COFDM Transmitter (SDRAPP-TX), an IP Encoder (SDRAPP-ENC) and IP MIMO Mesh (SDRAPP-MESH) supported by software updates.

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Specification:

IO

RF COFDM Output 1	SMA (female)
RF COFDM Output 2	SMA (female)
RF Telemetry Input	SMA (female)
Video SD/HD-SDI 1	DIN 1.0/2.3 (female)
Video SD/HD-SDI 2	DIN 1.0/2.3 (female)
USB Control and Download	Fischer UltiMate (to USB 2.0 Micro-B)
Power Input	Fischer UltiMate (to 4-way Lemo)
Power Output	Fischer UltiMate (to 4-way Lemo)
PA Control	Fischer UltiMate (to wire)
Microphone 10V	Fischer UltiMate (to wire)
Microphone/Line Input	Fischer UltiMate (to male RCAs)
Headphone Output	Fischer UltiMate (to 3.5mm socket)
PTZ Control, or Data IO	Fischer UltiMate (to 9-way D-Sub)
Gigabit Ethernet	Fischer UltiMate (to RJ45 Magnetics)

COFDM Output

Power	100mW, 0.25dB incremental control
Tuning Range	Frequency variant dependant
Tuning Step	125kHz

Telemetry Transceiver

Tuning Range	Frequency variant dependant
Code reference 43	433.05-434.79MHz
Code reference 91	902-928MHz
Receiver Sensitivity	-114dBm

DVB-T Modulation

DVB-T Bandwidth	8MHz, 7MHz, 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	1.555Mbps 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

Mesh Modulation

Mesh Bandwidth	10MHz, 8MHz, 7MHz, 6MHz, 5MHz, 3.5MHz, 3.0MHz and 2.5MHz modes
Mesh FEC	1/2, 2/3 (adaptive)
Mesh Constellation	BPSK, QPSK, 16QAM (adaptive)
Mesh Capacity	Maximum 14.6Mbps (TX/RX)
MIMO Mesh Capacity	Maximum 25.0Mbps (TX) Maximum 12.4Mbps (RX)

Video

Video Input	2 video streams Max total throughput of 1920x1080p30 2 HD inputs at half resolution or frame rate
Input Format	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 720x576i 50Hz or 720x480i 59.94Hz
H.264 Compression	AVC / H.264 / MPEG-4 Part 10 High profile level 4.0
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	High gain microphone stereo pair
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

Data Interface

PTZ Control	Formats including VISCA and PELCO-D over Telemetry, or Ethernet
Data Input	1k2 to 115k2, 7/8 bit, no/odd/even parity RS232 (standard), or RS485 (optional cable)

Encryption

Type	ABS 32bit as standard with SDRAPP-TX DES as standard with SDRAPP-MESH AES128/256 (optional)
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Streaming

Format	UDP Multicast/Unicast RTSP Multicast/Unicast ONVIF profile S TCP
MJPEG	

Recording

Medium	Internal microSD 128GB (>8 hours recording at max DVB-T bitrate) (>29 hours recording at max NB bitrate)
Encryption	As per transmission

Control

USB	PC Application control and file download
Ethernet	Web GUI control and file download
Access	User, Super User and Admin accounts

Physical

Dimensions	L 130mm, W 100mm, H 25mm
Weight	314g

Power

DC Input	8V to 18V reverse polarity protected
DC Output	1A pass-through (switchable)
Camera/Adapter Power	5V over video input (switchable)
Typical Power Consumption	7.5W (SD), 8.5W (HD), 9.5W (Dual)

Environment

Temperature Range	-20°C to +60°C
Humidity	Less than 85% Non-Condensing
Cooling	Passive, external heat sink or fan
Sealing	IP66
EMC Conformance	CE marked

Product Codes:

Please see configurator table on the following page.

* Future development

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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Family: SOLO8

Product: SDR

Please enter required codes

SOL8SDR-R	-	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
		↑	↑	↑	↑
Code	Frequency	Code	Software License	Code	Encryption
204091	1.78-2.3GHz + 902-928MHz	S	Silver <i>included</i>	* ABS32 included	
Other combinations available on request		G	Gold	AES128	AES128 Encryption
		P	Platinum	AES256	AES256 Encryption
				* restrictions apply	
				BC	BCrypt
Software License Code Includes					
S	Audio, Data, Streaming, Recording				
G	Silver plus MPEG-4 H.264 (SD)				
P	Gold plus MPEG-4 H.264 (HD)				
SDRAPP					
	-	<input type="text"/>	<input type="text"/>		
		↑	↑		
Code	Frequency	Additional SDR License Include			
	100mW COFDM Transmitter	S	Telemetry, DVB-T		
TX		G	Silver plus Narrowbands 2.5MHz & 1.25MHz		
		P	Gold plus Ultra Extreme Narrowband 625kHz, Ultra Mobile Video Link (UMVL)		

Product Code Includes	
AP007377	Micro-B USB Cable
CA0002	12V DC Power lead Lemo-wire 3m
CA2519	UltiMate DC Power / PA Cable
CA2520	UltiMate Audio / RS232 Cable
CA2521	UltiMate Ethernet Breakout
CA2522	UltiMate USB Breakout
2x CA2396	DIN 1.0/2.3 to BNC Female Cable
MISC DRTAC	Mission Commander Tactical Base Level (USB stick)

Compatible Products (sold separately)	
SOL5RX	SD Receiver
SOL5RXIF	SD Receiver
SOL4NNV	Handheld SD Receiver
SOL4MIV2	Tactical SD Receiver
PRORXB	HD Receiver
PRORXD	Dual HD Receiver
SOL7NNV	Handheld HD Receiver
SOL7MIVHD	Tactical HD Receiver

Related Accessories (sold separately)	
SOL8SDR-RSK*	SOL8SDR Robust Surveillance Kit, incl CAMuPHDK (HD SDI Pin-hole camera & 3 lenses), Microphone, ANT, Battery, Pelicase, excl SOL8SDR-R*
SOL8KF-U91	Three button key fob (902-928MHz)
SOL8SDI	HDMI / Composite to SDI converter
CAMuPHDK	Pin-hole HD camera kit
CA2830	DIN 1.0/2.3 to MMCX Cable for CAMuPHD
AP000908	820-960MHz SMA dipole antenna
AP002075	1.65-1.95GHz SMA 1dBi dipole antenna
AP001901	2.0-2.5GHz SMA 2dBi dipole antenna
Wide range of antennas available on request.	

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