SOLO8 Software Defined Radio (Concealment)

COFDM – Video, Audio Telemetry and IP Products

March 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 SOL07 HD Nano Transmitter range. It uses the same high performance video codec on a more flexible yet compact hardware platform. The SOL08 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.
**Specification:**

**IO**
- RF COFDM Output 1: SMP (male 50ohm)
- RF COFDM Output 2: SMP (male 50ohm)
- RF Telemetry Input: MCX (female 75ohm)
- Video SD/HD-SDI 1: MCX (female 75ohm)
- Video SD/HD-SDI 2: USB 3.0 Micro-B
- Power Control and Download: USB 3.0 Micro-B
- Power Input: Harwin Gecko or JST (4 pins)
- Power Output: Harwin Gecko or JST (2 pins)
- PA Control: Harwin Gecko or JST (4 pins)
- Microphone/Line Input 1: Harwin Gecko or JST (3 pins)
- Microphone/Line Input 2: Harwin Gecko or JST (3 pins)
- Headphone Output: Harwin Gecko or JST (2 pins)
- PTZ Control or Data IO: Harwin Gecko or JST (7 pins)
- Gigabit Ethernet: Harwin Gecko or JST (10 pins + 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: 43.05-43.79MHz
- Code reference: 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 14.896Mbps

**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 16.4Mbps (TX/RX)
- MIMO Mesh Capacity: Maximum 25.0Mbps (TX)
- Maximum 12.4Mbps (RX)

**Video**
- Video Input: 2 video streams
  - Max total throughput of 1290x1080p30
  - 2 HD inputs at half resolution or frame rate
- Input Format: 1920x1080i 60/59.94/50Hz
  - 1920x1080p 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, 1/16
- 1s to 10ms (mode dependant)
- Encoder Delay: 0.25Mbps to 32Mbps
- Encoder Bitrates

**Audio**
- Analogue Audio Input
- 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: 1x2 to 11.5kb, 7/8 bit, no/odd/even parity
- RS232 or RS485

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

**Streaming**
- Format: UDP Multicast/Unicast
- RTSP Multicast/Unicast
- ONVIF profile S
- MJPEG TCP

**Recording**
- Medium: Internal microSD 128GB
- Stream duration: (>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 50mm, W 50mm, H 18mm
- Weight: 70g

**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 to +60 °C with additional cooling
- Humidity: Less than 85% Non-Condensing
- Cooling: External heat sink or fan required
- Sealing: IP40
- EMC Conformance: None guaranteed, not 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.
Domo – Video, IP and Sensors

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Please enter required codes

Family: SOLO8  Product: SDR

Further options may be available on request.

DTC Sales Code

Please enter required codes

Code Description

ENC  IP Encoder

IX  100mW COFDM Transmitter

MESH  100mW IP Mesh MIMO

SDRAPP

Code Frequency

32.945  1.141-1.596GHz + 4.0GHz
20.195  1.67-2.33GHz + 4.0GHz
20.491  1.76-2.33GHz + 5GHz
47.691  4.46-5.0GHz + 5GHz

Code Encryption

* AES256 included as standard for SOLO8-FX

SPEKE available on request for SOLO8-FX

AES128  AES128 Encryption

AES256  AES256 Encryption

Software License Codes (Silver / base level included in SDR)

Silver  SOLO8-FX includes Audio, Data, Broadcasting, Streaming

Platinum  Gold plus MPEG4 H.264 (H.264)

Gold  Gold plus Ultra Extreme Narrowband 4GHz, Ultra Mobile Video Link (UMVL)

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Related Accessories (sold separately)

 SOLO8-CK  SOLO8-WNG (Concealment Kit) and SDR-FWNG (3.5GHz)
 SOLO8-WNG  Pickle box carrier (6.4GHz), white box, Antenna, Battery, Dacode, Rackcase, and SOLO8-FX
 SOLO8-WNG  Three button cover kit (3GHz, 4.3GHz, 6.6GHz)
 SOLO8-FWNG  Gold plus SDR-FWNG (H.264)
 SOLO8-FX  Gold plus Ultra Extreme Narrowband 4GHz, Ultra Mobile Video Link (UMVL)
 SOLO8-FX  Gold plus Ultra Extreme Narrowband 4GHz, Ultra Mobile Video Link (UMVL)

Product Code Includes

D1554  Geeky Breakout PCB
D959  Ethernet RJ45 to SDR
C25426  Ethernet 3.5mm cable
C25430  DC Power Lead
S25724  USB 30-pin connecting MXP

IPXAPP

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