

SkySweep Technologies

Global Solutions for High Speed
HF/VHF/UHF DATA RADIO



SkySweep Data Radio System

Video

VHF/UHF based Video * available in 2012

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„Are you searching for a high speed Video DATA RADIO solution...?
 ...or a special data application?“

SkySweep Technologies can offer not only a simple data radio which are offered by many vendors without proper customer support. SkySweep can provide even more: unique high data rate and a high coverage data radio system.

Each of the SkySweep DATA RADIO variants offers

- ➔ **Embedded Windows™ computer**
- ➔ **Unique software applications**
- ➔ **High speed modems**
- ➔ **Standard Protocols**
- ➔ **Transceiver**
- ➔ **All of these in one high integrated data radio device. No need for expensive computers nor modems!**

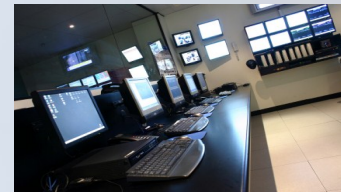


Normally there is one of the four possible basic situations:

1. No existing radio system => choose SkySweep Data Radios.
2. Existing voice radio system => SkySweep will provide add on high speed Data Radios.
3. Existing voice radios which need data solutions => SkySweep will provide the SkyCR-1 controller unit for data.
4. No existing secure voice / no backup-voice / no secure data solutions => choose SkySweep Data Radios for secure data and voice.

What is your basic situation?

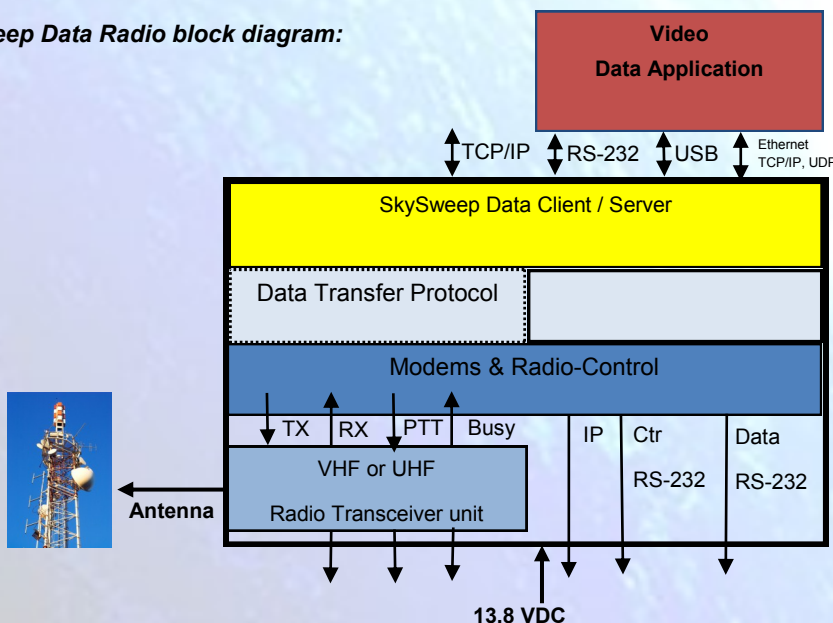
„Learn more about the many capabilities of the SkySweep system. Build up your secure VHF/UHF Video DATA RADIO network now. The possibilities will inspire you.“



A simplified topview block diagram of a **SkySweep Data Radio** supporting one high speed data channel is shown below. SkySweep Data Radios consist of a Windows™ pc controller unit, system software, modems and a radio transceiver.

The **SkySweep Data Radio** provides several flexible and standardized interfaces. It is very easy to install: Just connect the cables and start to operate.

SkySweep Data Radio block diagram:



„What are your requirements? Let`s define your Data Radio system now.“

„In today’s world a secure and independent reliable Data Radio network is valuable.“

The SkySweep Data Radio system is state-of-the-art OFDM modem based solution for high speed (up to 100 kbit/s) HF/VHF/UHF radio data communications.

Its main applications are: IP or RS-232 based data connection services, GPS based tracking, E-Mail, video, instant messaging (chat), and encrypted secure voice for HF/VHF/UHF (*). The contents of a product delivery may range from a software only delivery to complete customer specific turn-key system deliveries. (*Video, instant messaging (chat), secure voice: available in 2012)

The SkySweep Data Radio system adapts as well to a small few local stationary or mobile stations network as to systems of hundreds of stations.

The SkySweep Data Radio system can also be used with existing voice communications networks such as analog HF/ VHF/ UHF or digital (TETRA, P25, DMR, dPMR, TETRAPOL, etc) networks.

Why to choose a SkySweep Data Radio system?

One reason of many: Take data load away from voice systems.

Most PMR radio systems are optimised for voice but typically don’t have much extra capacity reserved for data. This means that, when the amount of data in the net increases, the quality of voice service decreases. Typically current voice systems don’t offer any solutions for advanced state-of-the-art highspeed data or mobile data transmission.

The SkySweep Data Radio system and SkySweep application interfaces are based on international standards.

Additionally the SkySweep system is compatible with NATO communication systems and provides encrypted and secure transmissions. The SkySweep Data Radio HF-system is STANAG 5066 compliant. Customer’s own applications and existing system interfaces can connect to these well known standards without any problems. This flexibility offers very cost efficient possibilities.

Just two examples of the system key benefits :

- **Cost efficient system.** The system is based on the IP network architecture and high coverage base stations. The SkySweep Data Radio can be used to run its own and customer specific applications => no extra computer is needed for applications.



- **Low power consumption.** The mobile and Base Station transmitters are switched on only, when there is something to send. The system can be powered independently by solar energy or a very small fuel cell. Long battery based operating times are ideal for emergency systems, etc. There are no control channels needing continuous transmit power.

The SkySweep Data Radio system provides high speed and very cost efficient data communication on VHF/UHF frequency bands. It is also possible to extend the coverage with SkySweep HF Data Radios.

The SkySweep Data Radio has different variants for:

- **VHF or UHF** for medium coverage with high data rate
- **or HF** for high coverage over long distances with a medium data rate
- **Frequency channel bandwidth**
- **System features**

The SkySweep Data Radio system can combine the benefits of VHF/UHF Data Radio systems to the benefits of HF Data Radio systems.

SkySweep VHF/UHF Base Stations

Base Station variants for Video

The SkySweep VHF/UHF Base Stations offer data gateway services between air interface (mobile stations) and IP-network data services.

SkyDR-1 Base Station Data Radios variants provide:

- IP based interface between radio interface and fixed network



The SkyDR-1V/U BS Base Station VHF/UHF TRX Data Radio, 19-inch 3U:



The SkyDR-1V/U RBS Base Station VHF/UHF rugged TRX Data Radio, compact rugged aluminium enclosure:



Rack installation can contain several single SkySweep Base Station Data Radios for multichannel solutions:



The SkyRX1/2 MRX Base Stations are capable to receive single 12.5/20/25/50 kHz VHF/UHF channel bandwidths.

MRX receiving Base Stations handle huge data load uplinks from the mobile stations:



SkySweep Base Station site supply system: SkySweep can provide a backup energy concept based on a small rugged Wind energy generator, solar cells, batteries or fuel cells. The power consumption of the SkySweep Base Station is very low and would consume around 2 Amperes/hour = 48Ah/day. This means a simple and very cost effective backup for mains power shortages longer than a week. This advantage provides independent system operation under harsh conditions.



Wind generator with Solar panel,
diameter 1.5 m



Battery unit



SkySweep Base Station Data Radio

SkySweep VHF/UHF Mobile Stations

Mobile Station variants for Video

The SkySweep VHF/UHF Mobile Stations offer various data services to be connected to other Mobile Stations or to fixed IP network through a Base Station.

The SkyDR-1 VHF/UHF Mobile Station Data Radio variants provides:

- Video



The **SkyDR-1V/U MV19** Mobile Station TRX VHF/UHF Data Radio, 19-inch enclosure:



The **SkyDR-1V/U RMV** Mobile Station rugged TRX VHF/UHF Data Radio, compact rugged aluminium enclosure:



„Make use of the many VHF/UHF based Data Radio communication advantages.

Connect your data sources and services with less costs.“

[See information about HF– Data Radio solutions in the Long Range information PDF.](#)

SkySweep VHF Data Radios and MRX Multichannel Receivers:

TRX Data Radios for VHF 12.5/20/25/50 kHz bandwidth channels:

- SkyDR-1VMV19 > Mobile or stationary Data Radio station, indoor use, 19-inch enclosure.
- SkyDR-1VRMV > Mobile or stationary Data Radio station, in-/outdoor station, compact rugged aluminium enclosure.
- SkyDR-1VBS > Base Station Data Radio, 19-inch enclosure.
- SkyDR-1VRBS > Base Station Data Radio: compact rugged aluminium enclosure.
- SkyRX-1VBS > MRX-Multicarrier-RX Data Radio up to 25 kHz, 19-inch enclosure, receiving only (*).
- SkyRX-2VBS > MRX-Multicarrier-RX Data Radio up to 50 kHz, 19-inch enclosure, receiving only (*).

SkySweep UHF Data Radios and MRX Multichannel Receivers:

TRX Data Radios for UHF 12.5/20/25/50 kHz bandwidth channels:

- SkyDR-1UMV19 > Mobile or stationary Data Radio station, indoor use, 19-inch enclosure.
- SkyDR-1URMV > Mobile or stationary Data Radio station, in-/outdoor station, compact rugged aluminium enclosure.
- SkyDR-1UBS > Base Station Data Radio, 19-inch enclosure.
- SkyDR-1URBS > Base Station Data Radio: compact rugged aluminium enclosure.
- SkyRX-1UBS > MRX-Multicarrier-RX Data Radio up to 25 kHz, 19-inch enclosure, receiving only (*).
- SkyRX-2UBS > MRX-Multicarrier-RX Data Radio up to 50 kHz, 19-inch enclosure, receiving only (*).

*MRX-Multicarrier-RX Data Radios available in 2012

HF TRX Data Radios:

„See about SkySweep HF Data Radio possibilities in our Long Range PDF-information.“

SkyDR VHF/ UHF data radio hardware and applications related to Tracking:

VHF TRX	VHF RX	TRX 12.5/20/25/50 kHz	RX 25 kHz	RX 50 kHz	19-inch	R-ALU	MS-MK	Vi
SkyDR-1VMV19								
SkyDR-1VRMV								
SkyDR-1VBS / RBS					-VBS	-VRBS		
	SkyRX-1VBS							
	SkyRX-2VBS							
UHF TRX	UHF RX	TRX 12.5/20/25/50 kHz	RX 25 kHz	RX 50 kHz	19-inch	R-ALU	MS-MK	Vi
SkyDR-1UMV19								
SkyDR-1URMV								
SkyDR-1UBS / RBS					-UBS	-URBS		
	SkyRX-1UBS							
	SkyRX-2UBS							

Marked green = Currently available

Definition of available hardware and applications:

TRX 12.5/20/25/50 kHz	Supported TRX channel bandwidth	R-ALU	compact rugged aluminium enclosure
RX 25 kHz	Receiving channel bandwidth up to 25 kHz	MS-MK	Mobile Station mounting kit for car or truck
RX 50 kHz	Receiving channel bandwidth up to 50 kHz	Vi	Video (available in 2012)
19-inch	19-inch enclosure		

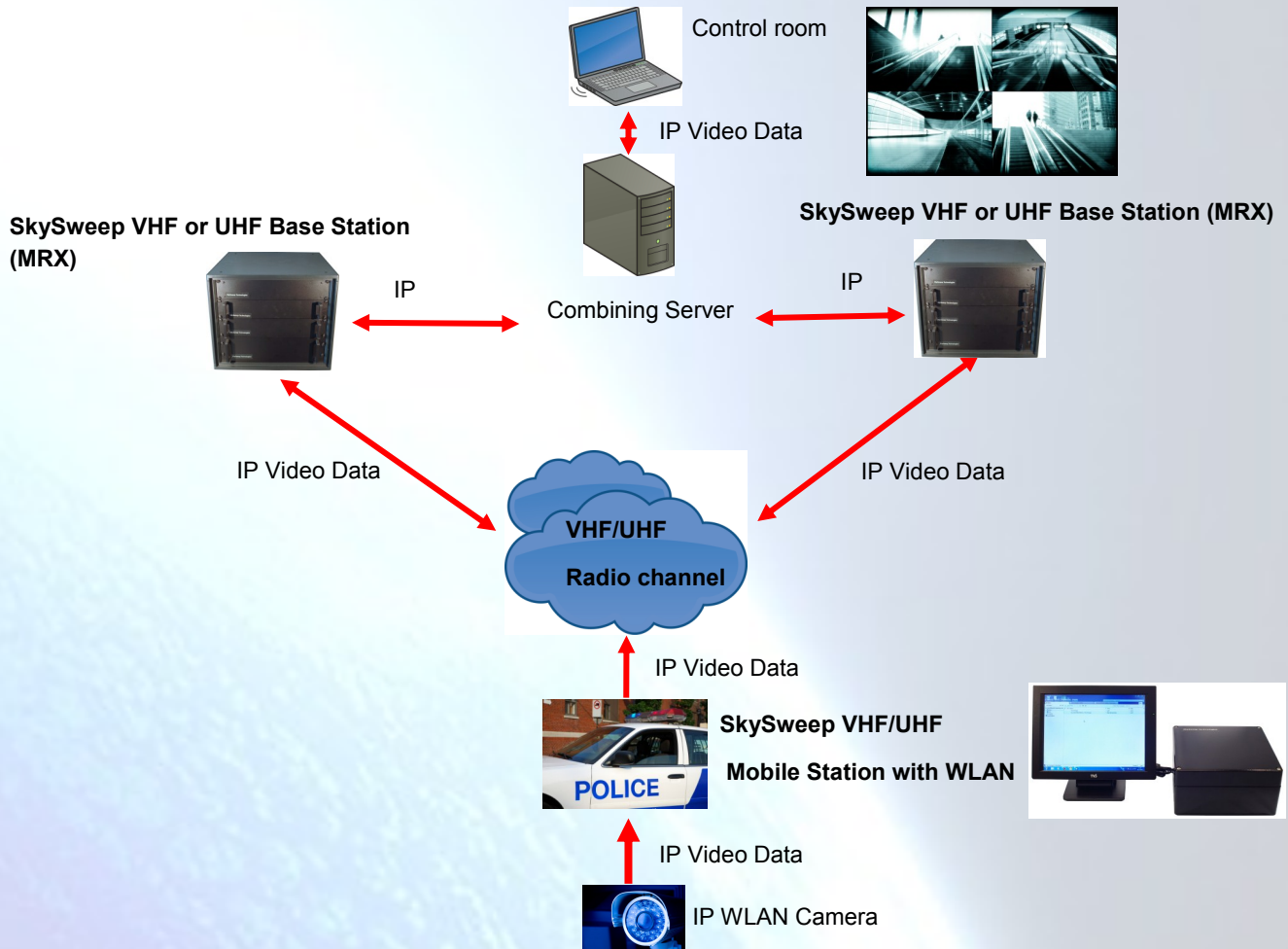
SkySweep VHF/UHF Video System

Description of the Data Radio Video system **available in 2012*

The SkySweep Video Application provides state-the-art video possibilities. It is based on the TRX and MRX type of Base Station. The MRX (MultiChannelReceiver) receives video signals which are transmitted from SkySweep VHF/UHF Mobile Stations . MRX Base Stations are capable to handle huge data load uplinks from the system participants.

“Don` t rely on costly 3G-/GSM based video transmissions, choose a VHF/UHF radio-link and the SkySweep systems to get more reliable results.”

An example system shows an WLAN IP Camera which can be located on a helmet, jacket, etc. The camera can send video with WLAN to a police-car which is equipped with a SkySweep Mobile Station. The IP Video Data is transmitted via the VHF/UHF radio channel to SkySweep Base Stations. A combining server is connected with IP to the workstation and dispatcher location.



The SkySweep IP based video system offers enormous capabilities but it is not designed for streaming huge video signals continuously. Instead of transmitting huge dataloads with less important content, the SkySweep Video system provides advanced recognition technologies and target to the moment of action and variation in front of the cameras.

When there is a change in the picture, - the picture has changed or action is going on, the video signal will be transmitted. Important video content can be stored also for later analysis.

The Video system can be based on just one single camera up to hundreds of cameras.

SkySweep can provide clever system settings for advanced video requirements.



Product comparison table SkySweep VHF and UHF Data Radios for Video

SkySweep VHF and UHF Data Radio variants	Mobile Stations	Base Stations
TRX 12.5/20/25/50 kHz VHF/UHF channel spacing:	SkyDR-1V/U MV19 SkyDR-1V/U RMV	SkyDR-1V/U-BS/RBS
MRX base station (up to 25 kHz, RX only)		SkyRX-1V/U-BS
MRX base station (up to 50 kHz, RX only)		SkyRX-2V/U-BS
Modems:		
SkyOFDM (VHF/UHF) up to 103 kbit/s (gross) , 88.0 kbit/s (net):	Yes	Yes
Supported services:		
Point-to-point data transfer	Yes	Yes
Point-to-multipoint data transfer	Yes	Yes
High capacity IP interface between base station and fixed network	No	Yes
Data modem services	Yes	Yes
TCP/IP data interface (client, server)	Yes	Yes
UDP data interface (client, server)	Yes	Yes
RS-232 data interface	Yes	Yes
Other features:		
High Encryption AES, DES and customer specific encryption possible	Yes	Yes
API for customer applications	Yes	Yes
Automatic data rate change	Yes	Yes
External modem support	Yes	Yes
Data compression	Yes	Yes
Base Station handover	Yes	Yes
Advanced collision avoidance	Yes	Yes

Hardware specifications SkySweep VHF and UHF Data Radios for Video

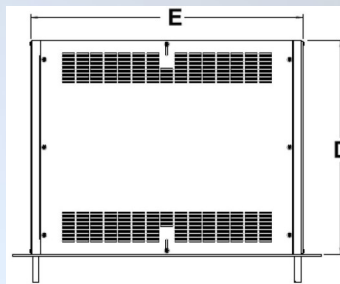
SkySweep Data Radio:	
Frequency band VHF:	134 - 174 MHz
Frequency band UHF:	400 - 512 MHz
Output power	25 W (adjustable)
Max data rate in 12.5 kHz channel	20.1 kbit/s (gross) / 17.6 kbit/s (net)
Max data rate in 25 kHz channel	40.2 kbit/s (gross) / 35.2 kbit/s (net)
Max data rate in 50 kHz channel	100.5 kbit/s (gross) / 88.0 kbit/s (net)
Transmission mode	16K0F3E, 11K0F3E
Antenna impedance	50 Ω unbalanced (tuner off)
Antenna connector	SO-239 (50 Ω)
Power supply requirement	13.8V DC or 110/230 VAC \pm 15 %
Temperature range	-30 to + 60 $^{\circ}$ C
Frequency stability	Less than \pm 2.5 ppm
Channel spacing	12.5, 20, 25, 50 kHz
Maximum deviation	\pm 5 kHz
Conducted spurious emission	70 dB below carrier
Sensitivity 12 dB SINAD	0.25 μ V
Adjacent channel selectivity	75, 65 dB
Intermodulation	68 dB
Spurious and image rejection	90 dB
Standards and declarations:	CE, EN 300 086-2 V1.1.1, EN 300 113-2 V1.4.1, EN 301 489-01 V1.8.1, EN 301 489-05 V1.3.1, EN 60065:2002

Controller unit:	SkyDR-RMV, RBS, SkyRX1/2:	SkyDR-MV19, BS:
Operating system	Windows™	Windows™
CPU	Intel® Atom™	Intel® Atom™
Memory	2 GB DDR SDRAM	2 GB DDR SDRAM
Storage	32 GB SSD disk	32 GB SSD disk
Display Interface	VGA	DVI-I, VGA with adapter
Data Interfaces	4 x RS-232 1 x RS232/422/485 with Auto Flow control 7 x USB 2.0	2 x RS232/422/485 with Auto Flow control (male connector) 3 x USB
Networking	1 x 1000 base T Ethernet	1 x 1000 base T Ethernet WLAN
Temperature range	--20 $^{\circ}$ C ~ 70 $^{\circ}$ C; 5 % ~ 95 % non-condensing	-10 to + 50 $^{\circ}$ C; 0 % - 90 % non condensing
Power consumption	20 W	20 W
Cooling	Passive	Passive

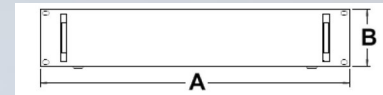
Specifications of SkySweep VHF/UHF Data Radio enclosures for Video

SkyDR-1V/U MV19 Data Radio:

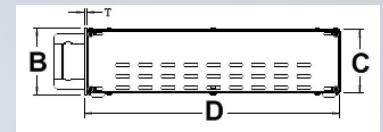
19 inch 3U top view:



front view:



side view:



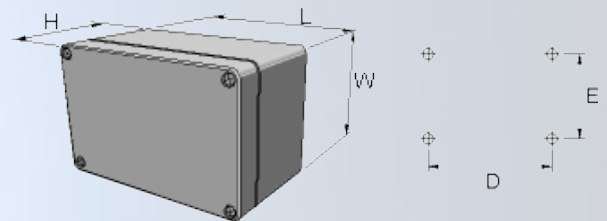
19 inch 3U enclosure (E x D x C)	425 x 425 x 128 mm
Front Panel (A x B)	483 x 133 mm
Weight	10.8 kg

SkyDR-1V/U RMV / RBS rugged Data Radio:

V/U RMV (Rugged Mobile) :



RBS (Rugged Base Station) :

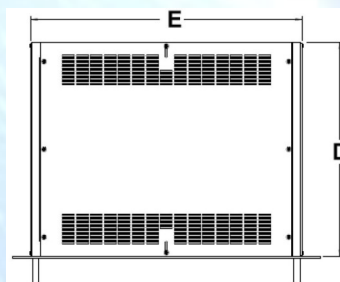
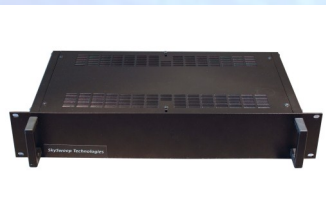


Compact rugged aluminium enclosure (L x W x H)	V/U RMV: 240 x 240 x 120 mm / RBS: 480 x 240 x 120 mm
Lid screw position	D: 220 mm / E: 220 mm
Weight	4.5 kg ~ 6.5 kg

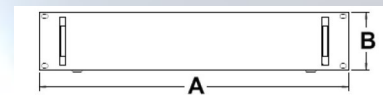
- High quality rugged aluminium alloy
- black powder coated RAL9005
- EMC-gasket (-20° up to +50 °C)
- stainless steel Lid screws
- IP 66 /IP 67 EN 60529
- external mounting brackets

SkyDR-1V/U BS Data Radio :

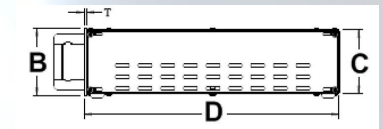
19 inch 3U top view:



front view:



side view:



19 inch 3U enclosure (E x D x C)	425 x 425 x 128 mm
Front Panel (A x B)	483 x 133 mm
Weight	10.8 kg

- Complies with IEC 297, EIA RS-310 C1977, DIN41494
- allows complete compatibility with all 19" standard equipment
- Powder coat finish preceded by 5 stage iron phosphate pretreatment
- High grade cold rolled steel
- Aluminum on front and rear panel
- Conforms to ASTM D610-01
- Conforms to ASTM B117

Various 19-inch rack mount options are available, ranging from one high speed data channel unit arrangements, to large scale multi channel installations.

SkySweep Technologies

Global Solutions for High Speed
HF/VHF/UHF DATA RADIO



**If you have any questions about our products,
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