

SkySweep Technologies

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



SkySweep Data Radio System **Long Range**

Data Radio variants for HF

SkySweep HF Base Stations

HF Base Station variants for Long Range

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

The SkyDR-1 Base Station Data Radios variants provide:

- IP based interface between radio interface and fixed network
- E-mail routing between radio interface and fixed network
- STANAG (5066,4285, 4539) and MIL-STD-188-141 (ALE) compliant HF communication
- Secure voice (available in 2012)

The SkyDR-1H BS Base Station HF TRX Data Radio, 19-inch 3U:



The SkyDR-1H RBS Base Station HF rugged TRX Data Radio, compact rugged aluminium enclosure:



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



The SkyRX1 HF MRX Base Stations are capable to receive HF communication.

MRX receiving Base Stations handle huge data load uplinks from 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 HF Mobile Stations

HF Mobile Station variants for Long Range

The SkySweep HF Mobile Stations offer various data services to be connected to other mobile stations or to a fixed IP network through a Base Station.

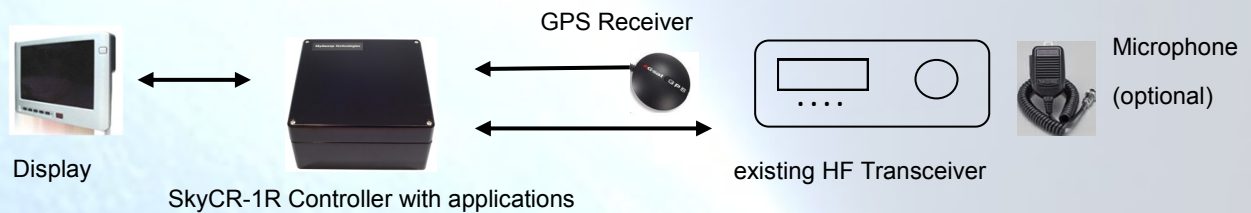
The SkyDR-1 Mobile Station Data Radios variants provide:

- GPS based tracking
- Telemetry / SCADA
- Customer specific data applications
- E-mail
- SMTP / POP 3 based data services
- Customer specific data applications
- Video (for VHF/UHF) (available in 2012)
- Instant messaging (Chat Client) (available in 2012)
- STANAG (5066, 4285, 4539) and MIL-STD-188-141 (ALE) compliant HF communication
- Secure voice (available in 2012)

The SkyDR-1HM Mobile Station Data Radio:

Entry solution: a typical setup of the SkyDR-1HM based Mobile Station contains a professional rugged small size SkyCR-1R controller unit, display, GPS receiver, microphone (optional, if voice used) and an existing HF/VHF/UHF transceiver unit.

* A compatible TRX on request



The SkyDR-1HM19 Mobile Station: TRX HF Data Radio, 19-inch enclosure, GPS-receiver:



The SkyDR-1HRM Mobile Station rugged: TRX HF Data Radio, compact rugged aluminium enclosure, GPS-receiver:



Example: SkyDR-1HRM Mobile Station, rugged TRX VHF/UHF Data Radio, compact rugged aluminium enclosure, GPS-receiver:



Expand world wide communication with HF

„Make use of the many HF (shortwave) communication advantages.

Connect your data communication over huge distances with less costs.“

SkyCR-1/CR-1R Controller unit

SkyCR-1/Sky CR-1R Controller unit

The Windows™ based **SkySweep SkyCR-1/SkyCR-1R rugged Controller unit** is a small sized controller unit for local stationary or mobile station use. The device has an passive cooling system and does not include any moving parts. It can be used with customer`s existing (*) HF transceivers. *Compatible transceivers on request.



SkyCR-1 Controller with applications

< either >



SkyCR-1R rugged Controller with applications

The **SkyCR-1/SkyCR-1R controller** provides the SkySweep applications like E-Mail, GPS based tracking etc. The platform also supports customers specific Windows™ based applications. The configured controller is delivered with installed software.

SkyCR-1/SkyCR-1R Data interface based on RS-232 and Ethernet interfaces

The **SkyCR-1/SkyCR-1R** provides standard RS-232 and Ethernet (TCP/IP, UDP) interfaces allowing to smoothly connect different applications and devices.



SkyCR-1 Controller

< either >



SkyCR-1R rugged Controller

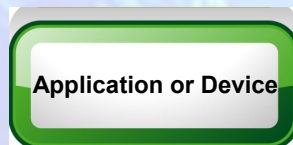


Existing HF Transceiver

Microphone (optional)



RS-232 / Ethernet



Overview of the SkySweep Long Range Data Radio product variants

The **SkySweep Data Radio system with a embedded Windows™ computer** provides very cost efficient data communication and high coverage solutions on HF frequency bands with the SkySweep HF-system.

A state-of-the-art **SkyOFDM** modem offers high speed (VHF/UHF up to 100 kbit/s / HF up to 9.6kbit/s) transmissions with many applications.

HF TRX Data Radios:

TRX Data Radios for HF Frequencies:

SkyDR-1HM > SkyCR-1 or SkyCR-1R controller unit + GPS receiver, mounting kit to be used with an existing or new HF radio.

SkyDR-1HM19 > Mobile Data Radio Station, 19-inch enclosure, GPS-receiver.

SkyDR-1HRM > Mobile rugged Data Radio Station, compact rugged aluminium enclosure, GPS-receiver.

SkyDR-1HBS > Base Station Data Radio, 19-inch enclosure.

SkyDR-1HRBS > Base Station rugged Data Radio, compact rugged aluminium enclosure.

SkyRX-1HF > MRX-Multicarrier-RX Data Radio, 19-inch enclosure, HF receiving only (*).

*MRX-Multicarrier-RX Data Radios available in 2012

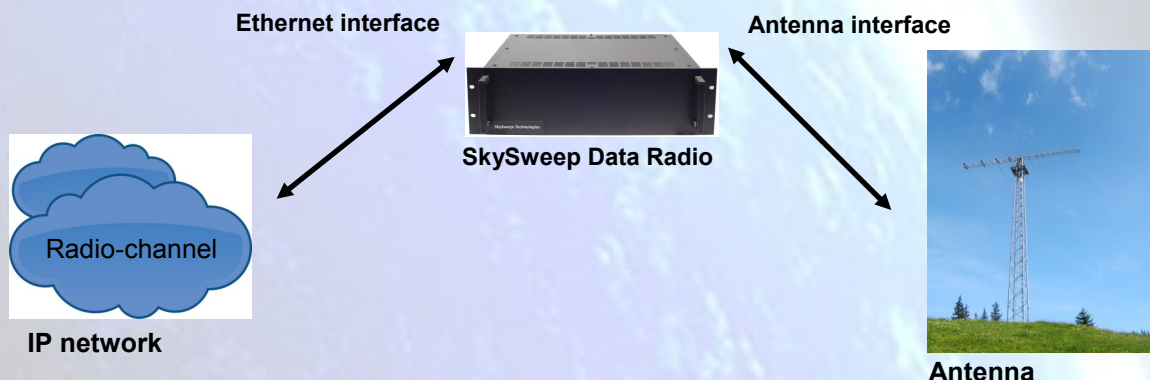
SkyDR HF data radio hardware and applications related to Long Range:

HF TRX	TRX 1.6–30MHz	HF-RX	MS-MK	19-inch	R-ALU	GPS	EM	MS	TR	DA	CA	CH	CR
SkyDR-1HM/ M19			-HM	-HM19									
SkyDR-1HRM													
SkyDR-1HBS													
SkyDR-1HRBS													
SkyRX-1HF													

Definition of available hardware and applications:

Marked green = Currently available

TRX 1.6–30MHz	HF TRX frequency range
19-inch	19-inch enclosure
R-ALU	compact rugged aluminium enclosure
MS-MK	Mobile Station mounting kit for vehicles
GPS	GPS receiver
EM	Secure E-mail
MS	Mail-server
TR	Tracking
DA	Data Connection Service
CA	Customer own applications
CH	Instant messaging (Chat Client) (available in 2012)
CR	Secure voice (available in 2012)



Product comparison table Long Range HF Data Radios

SkySweep HF Data Radio variants	Mobile Station	Base Station
Frequency band 1.6 - 30 MHz	SkyDR-1HRM / M19	SkyDR-1HBS / RBS
Software-features:		
STANAG 5066 v1.0/1.2 data transfer protocol:	Yes	Yes
CFTP / HMTP:	Yes	Yes
POP3:	Yes	Yes
SMTP:	Yes	Yes
Modems:		
SkyOFDM (VHF/UHF) up to 103 kbit/s (gross)/ 88.0 kbit/s (net):	Yes	Yes
SkyOFDM (HF) up to 9.6 kbit/s (net):	Yes	Yes
STANAG 4285 (up to 2.4 kbit/s):	Yes	Yes
STANAG 4539 (up to 2.4 kbit/s):	Yes	Yes
MIL-STD-188-110A/B:	Yes	Yes
MIL-STD-188-141A (ALE):	Yes	Yes
Supported services:		
Point-to-point data transfer	Yes	Yes
Point-to-multipoint data transfer	Yes	Yes
STANAG 5066 compliant system	Yes	Yes
High capacity IP interface between base station and fixed network	No	Yes
E-mail routing between radio interface and fixed network	No	Yes
E-mail (group, individual)	Yes	Yes
GPS position and status report	Yes	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
STANAG 5066 subnet data interface	Yes	Yes
POP3 data interface	Yes	Yes
SMTP data interface	Yes	Yes
High Encryption AES, DES and customer specific encryption possible	Yes	Yes
API for customer specific 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
Instant messaging (Chat Client) (available in 2012)	Yes	Yes
Secure voice (see additional PDF information)	Yes	Yes



Hardware specifications of SkySweep HF Data Radio

SkySweep Data Radio:	
Frequency band	1.6 - 30 MHz
Output power	100 W
Max data rate	12.8 kbit/s (gross) / 9.6 kbit/s (net)
Transmission mode	USB
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	-10 to + 50 $^{\circ}$ C
Modulation system	DPSN modulation
Spurious emission	Less than -50 dB
Carrier suppression	More than 50 dB
Receive system	Triple conversion super-heterodyne system
Sensitivity 10 dB SINAD	Less than 0.16 μ V
Selectivity	More than 2.4 kHz/-6dB
	Less than 3.6 kHz/-60 dB
Spurious and image rejection	More than 70 dB
Standards and declarations	CE
	ETSI 1999/5/EC
	FCC approved

Controller unit:	SkyDR-HBS / M19:	SkyDR-HRM / RBS / SkyRX1:
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	DVI-I / VGA with adapter	VGA
Data Interfaces	2 x RS-232 (Male connector) 4 x USB	4 x RS-232 1 x RS232/422/485 with Auto Flow control 8 x USB 2.0
Networking	1 x 1000 base T Ethernet WLAN	1 x 1000 base T Ethernet
Temperature range	-10 to + 50 $^{\circ}$ C; 0 - 90 % non-condensing	--20 ~ 70 $^{\circ}$ C; 5 ~ 95 % non-condensing
Power consumption	20 W	20 W
Cooling	Passive	Passive

Specifications of SkySweep HF Data Radio enclosures for Long Range

SkyDR-1HM Mobile Station Data Radio solution (single units):

Entry solution:

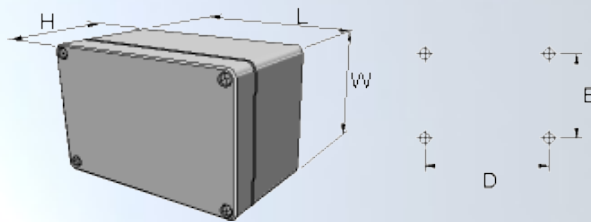
SkyCR-1 or SkyCR-1R Data Radio controller unit + GPS receiver, mounting kit to be used with an existing or new HF radio.



SkyCR-1 controller unit for indoor use (L x W x H)	110 x 170 x 47 mm, Weight 1.2 kg
SkyCR-1R rugged controller unit for in-/outdoor use (L x W x H)	200x 200 x 80 mm, Weight 2 kg

- SkyCR-1R: High quality rugged aluminium alloy, black powder coated RAL9005, EMC-gasket (-20° up to +50°C)
- SkyCR-1R: stainless steel Lid screws, waterproofed IP 66 /IP 67 EN 60529, external mounting brackets

SkyDR-1H RM / RBS rugged Data Radio:

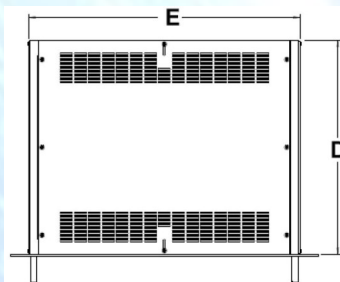


Compact rugged aluminium enclosure (L x W x H)	480 x 240 x 120 mm
Lid screw position (D x E)	460 x 220 mm
Weight	6 kg

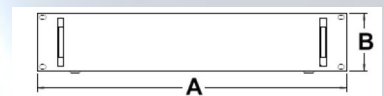
- High quality rugged aluminium alloy
- black powder coated RAL9005
- EMC-gasket (- 20° up to + 50°C)
- stainless steel Lid screws
- waterproofed IP 66 /IP 67 EN 60529
- external mounting brackets

SkyDR-1H M19 / BS Data Radio:

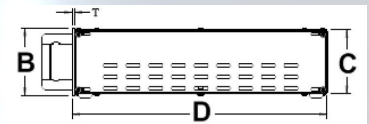
19-inch 3U top view:



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.

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**If you have any questions about our products,
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