

CHALLENGE. SOLUTION. SUCCESS.



17
PRODUCT
CATALOGUE

High quality
radio technology
for wireless data
communication

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SATEL

Mission-Critical Connectivity

SOLVING YOUR CHALLENGES

SATEL is one of the world's leading experts and innovators of radio technology for wireless data communication.

Our solutions are used in wide range of industrial applications. We are known for our high quality and expertise. All the products are designed and manufactured in Finland.

Reliable connections, protected business

SATEL radio technology is easy and fast to implement and use, and has low life cycle costs.

The solutions we offer are also expandable, customizable, flexible and secure. You get added value from our services. We offer network design and technical support, and we have a wide distributor network at your service.



Expertise
High quality
Easy implementation
Independence

Operational security
Low life cycle costs
Service and support
Global distribution network





ENVIRONMENTAL MONITORING

Wireless radio technology is one key aspect in Environmental Monitoring. It brings safety, operability and control. With SATEL's solutions you can monitor weather conditions and get information for example in flood, fire or drought situation. They provide real-time information of environmental conditions without additional costs and with a minimum supervision.



OEM

SATEL have produced a range of OEM radio modules for system manufacturers to integrate into customer solutions. They are secure, customizable and flexible in mounting options. SATEL's solutions are widely compatible and also support other manufacturers' radio protocols.



SCADA

SCADA system requires a highly reliable monitoring and controlling network. Malfunctions should be pinpointed quickly and even restored remotely. SATEL offers comprehensive solutions that are easy to implement and expand. SATEL radio technology is currently being used e.g. in electricity distribution, electric meter, windmills, waterworks, sewer networks, district heating and gas pipelines.



ITS

Intelligent Transport Systems are improving travel experience everywhere, and operational communication is a major factor in this. Private radio data network ensures the functionality of these applications. SATEL's radio technology is used in in public transport e.g. in traffic light and traffic sign control, real-time passenger information system and automatic vehicle location.



GNSS

Accurate and up-to-date data transfer in precise positioning systems is vital. With radio technology the information is transferred wirelessly in real time. SATELLINE radio modems are used in GNSS RTK, remote measurement and control applications. They provide an independent solution based on quality, continuity and low life cycle cost. SATELLINE modems are used both separately and also as integrated into measurement devices.

THE HEART OF THE SATEL XPRS SOLUTION

SATELLAR IP radio router is an excellent choice for data transfer for mission-critical applications requiring long range and the benefits of the privately owned networks.

The heart of the SATEL XPRS solution, the SATELLAR IP radio router provides high availability connections with device and routing protection. The SATEL XPRS solution utilizes the interoperability of the SATELLAR radio modem with other communications technologies, as well as technology switchovers.

SATELLAR



SATELLAR radio router is suitable for both serial and IP data networking in UHF frequencies. It provides a reliable data connectivity for applications that require stability, high availability and long range. It supports low latency networking and has easy remote management with intuitive user interface.

The SATELLAR consists of two separate modules, a radio unit and central unit. The radio unit alone can be used as a serial data radio router and as a repeater in packet routing networks. When central unit is added to the radio unit, full TCP/IP functionality is obtained. Features such as remote monitoring & management, SNMP, NTP, data compression and serial data encapsulation provide a complete digital solution that takes into account all data transfer scenarios.



SATELLAR XT 5R

SATELLAR XT 5RC

**SATELLAR XT 5RC
w. DISPLAY**

	XT 5R (FSK)	XT 5RC (FSK)	XT 5R (QAM)	XT 5RC (QAM)
SATEL order code with display	YF0100	YF0110 YF0120	YF0200	YF0210 YF0220
Frequency	360–405 MHz 400–445 MHz 440–485 MHz		360–405 MHz 400–445 MHz 440–485 MHz	
Tuning range	45 MHz			
Channel width (programmable)	12.5 kHz / 25 kHz / 150 kHz		6.25 kHz / 12.5 kHz / 25 kHz	
Data speed radio (max.)	38.4 kbs @ 25 kHz (16FSK) 230 kbps @150 kHz (16FSK)		121 kbps @ 25 kHz (64QAM)	
RX sensitivity (BER 10E-6)	-94 dBm @ 25 kHz (16FSK) -84dBm @150 kHz (16FSK)		-100 dBm @ 25 kHz (64QAM)	
TX power (nominal)	37 dBm (5 W)		37 dBm (5 W) mean: average 30 dBm (1 W), max 32 dBm (1.5 W) PEP: average 37 dBm (5 W), max 38 dBm (6.6 W)	
Interface	RS-232, -422 / -485	RS-232, -422 / -485, USB, Ethernet	RS-232, -422 / -485	RS-232, -422 / -485, USB, Ethernet
Operating voltage	+ 10.6 Vdc ... +30 Vdc		+ 10.6 Vdc ... +30 Vdc	
Power consumption without display TX / RX	17.9 W / 2.8 W	19.3 W / 4.2 W	14.4 W / 3.8 W	15.8 W / 5.2 W
with display TX / RX		19.9 W / 4.8 W		16.4 W / 5.8 W

PRBS (Pseudorandom Binary Sequence), measured with 30 V add 2.5 W for connected USB devices

Long range	VLAN	SATEL NMS	Bridge mode	NETCO	Redundant routing	SNMP monitoring	Radio data up to 230 kbps
Modular construction	Firewall	Secured connectivity	0.1-5 W TX-power	Interoperability	Serial over IP	Cyber security	UHF

LONG DISTANCES MADE SHORT

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SATELLINE-3AS VHF

SATEL order code	YM5000
SATELLINE-3AS VHF	YM5010 (with display)
SATELLINE-3ASd VHF	YM5020 (with cooling part)
SATELLINE-3AS VHF C	YM5030 (with display and cooling part)
SATELLINE-3ASd VHF C	

Frequency	135...174 / 218...238 MHz
Tuning range	135...155, 138...160, 155...174, 218...238 MHz
Channel width	12.5 / 25 fixed kHz
RX sensitivity	-115 dBm
TX power (max.)	5 W
Interface	RS-232, -422, -485
Operating voltage	+9 ... +30 Vdc
Power consumption TX / RX	6.6 W @ 1 W, 22 W @ 5 W / 1.7 W
Data speed (max.) radio / serial	19200 bps / 38400 bps

* NETWORK MANAGEMENT SYSTEM

SATEL NMS software can be used to set up a new radio modem network or modify an existing one. It is also an excellent tool for monitoring the condition of the radio network, and by setting different alarm levels it enables immediate reactions.

- Graphical tool for designing a radio network
- Enhanced reliability through advance indication of anticipated faults and failures
- Reduced configuration and maintenance costs through remote configuration
- Flexibility in adapting to customer protocols and applications



YM5000



YM5010



YM5020



YM5030

SATELLINE-3AS NMS

SATEL order code	
SATELLINE-3AS NMS	YM1070
SATELLINE-3ASd NMS	YM1075 (with display)
Frequency	330 ... 470 MHz
Tuning range	±2 MHz from central freq.
Channel width	12.5 / 20 / 25 fixed kHz
RX sensitivity	-115 dBm
TX power (max.)	1 W
Interface	RS-232, -422, -485
Operating voltage	+9 ... +30 Vdc
Power consumption TX / RX	6 W / 1.4 W
Data speed (max.) radio / serial	19200 bps / 38400 bps



YM1070

YM1075

SATELLINE-3AS Epic NMS

SATEL order code	
SATELLINE-3AS Epic NMS	YM3010 *
SATELLINE-3AS Epic C NMS	YM3012 (w. cooling part)*
SATELLINE-3AS Epic NMS DB	YM3014 (Dual Band)
SATELLINE-3AS Epic NMS DB C	YM3016 (Dual Band w. cooling part)
SATELLINE-3ASd Epic NMS DB C	YM3017 (Dual Band w. display and cooling part)
Frequency	412.5 ... 427.5 and 442.5...457.5 MHz
Tuning range	±2 MHz from central freq.
Channel width	12.5 / 20 / 25 fixed kHz
RX sensitivity	-115 dBm
TX power (max.)	10 W
Interface	RS-232, -422, -485
Operating voltage	+11.8 ... +30 Vdc
Power consumption TX / RX	36 W / 1.6 W
Data speed (max.) radio / serial	19200 bps / 38400 bps
Notes	Diversity reception * Frequency MHz 330 ... 470



YM3010 / YM3014



YM3012 / YM3016



YM3017

MEETING YOUR NEEDS

SATELLINE-EASy is equipped with wide tuning range and programmable channel spacing. It provides a compact and flexible solution for many different long-range applications. Wide tuning range and channel spacing are both easy to modify. The radio modem endures temperature changes from -25°C to $+75^{\circ}\text{C}$, and has a low power consumption.

SATELLINE-3AS Epic DB includes a high power (10W) transmitter and two receivers that improve the reliability of the connection when there are a lot of reflections and fading. The distances between two modems can be more than doubled with this model.



SATELLINE-EASy

SATEL order code	YM6500 YM6550 (with display)
Frequency	330 ... 420 / 403 ... 473 MHz
Tuning range	90 / 70 MHz
Channel width	12.5 / 20 / 25 kHz programmable
RX sensitivity	-114 dBm
TX power (max.)	1 W
Interface	Port1: RS-232 fixed Port2: RS-232 / -422
Operating voltage	+3 ... +9 / +6 ... +30 Vdc
Power consumption TX / RX	7 W / 1.2 W
Data speed (max.) radio / serial	19200 bps / 38400 bps



YM6500

YM6550

SATELLINE-3AS Epic DB

SATEL order code	YM3004
SATELLINE-3AS Epic DB	YM3004
SATELLINE-3AS Epic C DB	YM3006 (with cooling part)
SATELLINE-3ASd Epic C DB	YM3007 (with display and cooling part)
Frequency	397.5 ... 470 MHz
Tuning range	±2 MHz from central freq.
Channel width	12.5 / 20 / 25 fixed kHz
RX sensitivity	-115 dBm
TX power (max.)	10 W
Interface	RS-232, -422, -485
Operating voltage	+11.8 ... +30 Vdc
Power consumption TX / RX	32 W / 1.6 W
Data speed (max.) radio / serial	19200 bps / 38400 bps
Notes	Diversity reception



YM3004



YM3006



YM3007

THE WORLD IS OPEN

SATELLINE-EASy 869

SATEL order code
SATELLINE-EASy 869
SATELLINE-EASy 869

YM6501
YM6551 (with display)

Frequency	869.4125 ... 869.6375 MHz (865 ... 867 MHz for India)
Channel width	25 kHz
RX sensitivity	-111 dBm
TX power (max.)	500 mW (1 W for India)
Interface	RS-232, -422
Operating voltage	+6 ... +30 Vdc
Power consumption TX / RX	TX 3.8 W (869 MHz)/7 W (865 MHz)/RX 1.2 W
Data speed (max.) radio / serial	19200 / 38400 bps



YM6501

YM6551

SATELLINE-1870E

SATEL order code
SATELLINE-1870E

YM4010

Frequency	869.4125 ... 869.6375 MHz (865 ... 867 MHz for India)
Channel width	25 kHz
RX sensitivity	-108 dBm
TX power (max.)	500 mW (1 W for India)
Interface	RS-232
Operating voltage	+8 ... +30 Vdc
Data speed (max.) radio / serial	9600 / 19200 bps



**Power consumption
SATELLINE-1870E**

INPUT VOLT- AGE (V)	OPERATION MODE (typical values)					
	Re- ceive (mA)	Transmit on different power levels (mA)			Power save (mA)	Stand- by (µA)
		500 mW	100 mW	5 mW		
8	136	444	244	168	25	55
12	89	296	166	105	19	62
30	40	128	76	47	13	1717

DEFYING ALL CHALLENGES



SATEL Compact-Proof is particularly well suited for outdoor use (land surveying, for instance) under varying weather conditions.

The lithium-ion battery provides a long-lasting performance and plenty of operating hours. The operating time in +25°C is more than 15 h.



LICENCE FREE RADIO MODEM

IP67 RADIO MODEM

SATEL Compact-Proof (869 MHz)

SATEL Compact-Proof

SATEL order code	YM6575 with battery YM6576 w/o battery
Frequency	869.4125 ... 869.6375 MHz (865 ... 867 MHz for India)
Channel width	25 kHz
RX sensitivity	-111 dBm
TX power (max.)	500 mW (1 W for India)
Interface	RS-232
Operating voltage	+9... + 16 Vdc
Power consumption TX / RX	TX 3.8 W (869 MHz) / 7 W (865 MHz) / RX 1.2 W
Data speed (max.) radio / serial	19200 bps / 38400 bps

SATEL order code	YM6570 with battery YM6571 w/o battery
Frequency	330... 420 / 403...473 MHz
Tuning range	90 / 70 MHz
Channel width	12.5 / 20 / 25 kHz programmable
RX sensitivity	-114 dBm
TX power (max.)	1 W
Interface	RS-232
Operating voltage	+9... + 16 Vdc
Power consumption TX / RX When idle (no charging and modem off)	7 W / 1.2 W 6 mW

Data speed (max.) radio / serial 19200 bps / 38400 bps

BATTERY for SATEL Compact-Proof

Capacity and type	7.2 V, 8700 mAh, Li-Ion	
Charging current (max.)	1.6 A	
Charging time (empty to full)	5.5 h @ + 25 °C	
Charging voltage	+9... + 16 Vdc	
Max. time of operation	+ 60 °C (1 W) + 60 °C (50 % TX / RX ratio 1 W) - 20 °C (1 W) - 20 °C (50 % TX / RX ratio 1 W) - 20 °C RX	13.8 h 22.2 h 10.5 h 16.9 h 44 h

IP67 RADIO MODEMS

SATELLINE-4Pro

SATEL order code	YM6804
Frequency	406.180 ... 470 MHz
Tuning range	63.8 MHz
Channel width	12.5 / 25 kHz
RX sensitivity	<-117 dBm
TX power (max.)	35 W
Interface	RS-232
Operating voltage	+9 ... +16 Vdc
Power consumption TX / RX	120 W / 1.8 W
Data speed (max.) radio / serial	28800 bps / 115200 bps



SATELLINE-EASy Pro

SATEL order code	YM6803
Frequency MHz	403 ... 473 MHz
Tuning range	70 MHz
Channel width kHz	12.5 / 20 / 25 kHz programmable
RX sensitivity	-114 dBm
TX power (max.)	35 W (25 W as an order option)
Interface	RS-232
Operating voltage	+9 ... +16 Vdc (≥ +12 Vdc @ 35 W)
Power consumption TX / RX	110 W / 1.8 W
Data speed (max.) radio / serial	19200 bps / 38400 bps



IP69K RADIO MODEMS

WHEN IT GETS TOUGH

SATEL EASy-Proof

SATEL order code	YM6580
Frequency	330 ... 420 / 403 ... 473 MHz
Tuning range	90 / 70 MHz
Channel width	12.5 / 20 / 25 kHz programmable
RX sensitivity	-114 dBm
TX power (max.)	1 W
Interface	RS-232
Operating voltage	+6 ... +30 Vdc
Power consumption TX / RX	7 W / 1.2 W
Data speed (max.) radio / serial	19200 bps / 38400 bps
Note	Interface connector: Deutsch DT04-6P-CL09



SATEL EASy-Proof

Sealed housing and connectors to ensure the functionality even under extremely harsh environmental conditions.



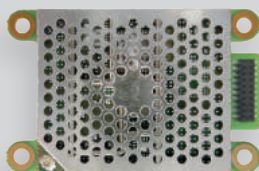


SATELLINE-M3-R3

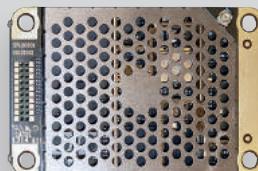
SATEL order code	YM6900
Frequency	403 ... 473 MHz
Tuning range	70 MHz
Channel width	12.5 / 25 kHz programmable
RX sensitivity	-114 dBm
Interface	CMOS-UART
Operating voltage	+4 Vdc
Power consumption RX	0.5 W
Data speed (max.) radio / serial	19200 bps / 115200 bps

SATELLINE-M3-TR3

SATEL order code	YM7000 (YM7100 w/o AES)
Frequency	403 ... 473 MHz
Tuning range	70 MHz
Channel width	12.5 / 25 kHz programmable
RX sensitivity / TX power (max.)	-116 dBm / 1 W
Interface	CMOS-UART
Operating voltage	+4 Vdc
Power consumption TX / RX	4.7 W / 0.73 W
Data speed (max.) radio / serial	19200 bps / 115200 bps



RECEIVER



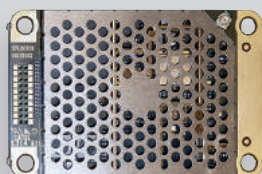
TRANSCIVER

SATELLINE-M3-TR4

SATEL order code	YM7400 (YM7410 w/o AES)
Frequency	403 ... 473 MHz
Tuning range	70 MHz
Channel width	12.5 / 25 kHz programmable
RX sensitivity / TX power (max)	-116 dBm / 1 W
Interface	CMOS-UART
Operating voltage	+4 Vdc
Power consumption TX / RX	4.7 W / 0.73 W
Data speed (max.) radio / serial	28800 bps / 115200 bps

SATELLINE-M3-TR8

SATEL order code	YM7800 (YM7810 w/o AES)
Frequency	868 ... 870 MHz (865 ... 867 MHz for India)
Tuning range	2 MHz
Channel width	25 kHz
RX sensitivity / TX power (max.)	-112 dBm / 0.5 W (1 W for India)
Interface	CMOS-UART
Operating voltage	+4 Vdc
Power consumption TX / RX/	TX 4.3 W (869 MHz) / 7.3 W (865 MHz) / RX 0.875 W
Data speed (max.) radio / serial	19200 bps / 115200 bps



TRANSCIVER WITH 16FSK MODULATION



LICENCE FREE

CUSTOMIZED RADIO MODEMS

SATELLINE-M3 VHF

SATEL order code	YM6000
Frequency	135...174 / 218...238 MHz
Tuning range	135...155, 138...160, 155...174, 218...238 MHz
Channel width	12.5 / 25 fixed kHz
RX sensitivity / TX power (max.)	-115 dBm / 1 W
Interface	RS-232, -422, -485
Operating voltage	+9 ... +30 Vdc
Power consumption TX / RX	6.6 W / 1.7 W
Data speed (max.) radio / serial	19200 / 38400 bps

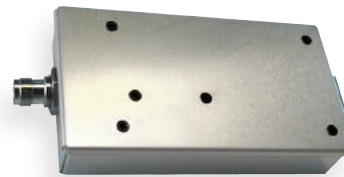
SATELLINE-M3-TR1

SATEL order code	YM6300
Frequency	330 ... 420 / 403...473 MHz
Tuning range	90 / 70 MHz
Channel width	12.5 / 20 / 25 kHz programmable
RX sensitivity / TX power (max.)	-114 dBm / 1 W
Interface	RS-232, -422, LVTTTL, TTL
Operating voltage	+3 ... +9 / +6 ... +30 Vdc
Power consumption TX / RX	3 W @ 0.5 W, 7 W @ 1 W / 1.2 W
Data speed (max.) radio / serial	19200 / 38400 bps

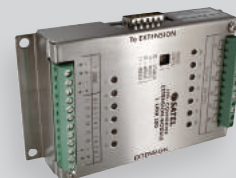
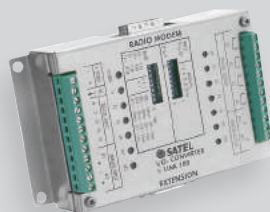
SATELLINE-M3-TR1 869

SATEL order code	YM6301
Frequency	869.4125 ... 869.6375 MHz (865 ... 867 MHz for India)
Tuning range	0.25 MHz (2 MHz India)
Channel width	25 fixed kHz
RX sensitivity / TX power (max.)	-111 dBm/ 0.5 W (1 W for India)
Interface	RS-232, -422, LVTTTL, TTL
Operating voltage	+6 ... +30 Vdc
Power consumption TX / RX	3.8 W / 1.2 W
Data speed (max.) radio / serial	19200 bps / 38400 bps

Examples of the customized radio modems.
Ask your local SATEL distributor about the various options.



SATELLINK I/O CONVERTERS



* Extension module for I-LINK

SATEL i-LINK

SATEL I-LINK 100

SATEL I-LINK 200

SATEL I-LINK 300

	SATEL order code	Digital I/Os	Analog I/Os 4-20 mA	Pulse counter	Connectors, switches
SATEL i-LINK	YI0090	2	-	•	Screw conn. / 16-pin 2x8 f / DIP
SATEL I-LINK 100	YI0007	4	2	-	Screw conn. / D15m / D15f / DIP
SATEL I-LINK 100 MB	YI0017	4	2	-	Screw conn. / D15m / D15f / DIP
SATEL I-LINK 200*	YI0009	4	2	-	Screw conn. / D15m / D15f / DIP.
SATEL I-LINK 300*	YI0010	6	-	-	Screw conn. / D15m / D15f / DIP

For simple I/O and serial communication



SATEL-LP24

SATEL order code	YM0424
Frequency	2.4002 ... 2.4785 GHz
Tuning range	FHSS
RX sensitivity / TX power (max.)	-106 dBm / 100 mW
Interface	T-BUS (for extension modules), RS-232, -485
Operating voltage	+19.2 ... +30.5 Vdc
Power consumption (Max. @ 24 Vdc)	≤ 65 mA
Dataspeed (max.)	250 kbps



SATEL-LP9

SATEL order code	YM0409
Frequency	902 ... 928 MHz
Tuning range	FHSS
RX sensitivity / TX power (max.)	-112 dBm / 1000 mW
Interface	T-BUS (for extension modules), RS-232, -485
Operating voltage	+10.8 ... +30.5 Vdc
Power consumption (Max. @ 24 Vdc)	328 mA
Dataspeed (max.)	500 kbps



SATEL-LP8

SATEL order code	YM0408
Frequency	869.4 ... 869.65 MHz
Tuning range	FHSS*
RX sensitivity / TX power (max.)	-122 dBm / 500 mW
Interface	T-BUS (for extension modules), RS-232, -485
Operating voltage	+19.2 ... +30.5 Vdc
Power consumption (Max. @ 24 Vdc)	≤ 65 mA
Dataspeed (max.)	120 kbps



* Depends on topology and air interface data rate.

SATEL-LP I/O EXTENSION MODULES

Product	SATEL order code	Interfaces
SATEL-LP-DI4	YI0101	4 x digital inputs (0 ... 250 V AC/DC)
SATEL-LP-DOR4	YI0102	4 x digital relay outputs (6 A, 24 Vdc / 250 Vac)
SATEL-LP-AI4	YI0103	4 x analog inputs (0...20 mA / 4 ... 20 mA)
SATEL-LP-AO4	YI0104	4 x analog outputs (0... 20 mA / 4 ... 20 mA, 0 ... 10 Vdc)
SATEL-LP-DAIO6	YI0105	1 x analog inputs (0... 20 mA / 4 ... 20 mA) 1 x analog outputs (0... 20 mA / 4 ... 20 mA, 0 ... 10 Vdc) 2 x digital inputs / outputs (0 ... 250 V AC/DC)
SATEL-LP-DI8	YI0106	8 x digital inputs (0 ... 30.5 Vdc) OR 2 x pulse inputs (0 ... 100 Hz)
SATEL-LP-DO8	YI0107	8 x digital transistor outputs (30.5 Vdc / 200 mA)
SATEL-LP-PT100	YI0108	4 x PT 100 resistance thermometer inputs (-50 °C ... +250 °C)

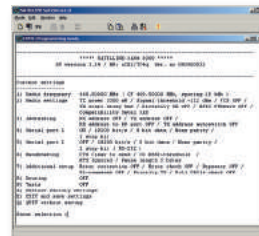


Software – Ready, steady, go!

(MS Windows compatible)

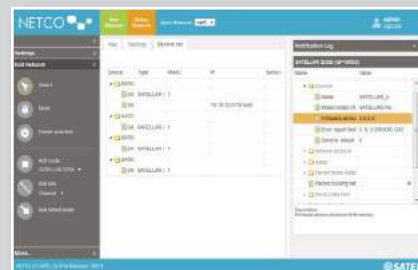
SaTerm

SaTerm is software, which can be used for configuration, testing, reprogramming and for updating the firmware of the SATELLINE-3AS Epic DB, –3ASd Epic DB, -EASy and –EASy Pro radio modems.



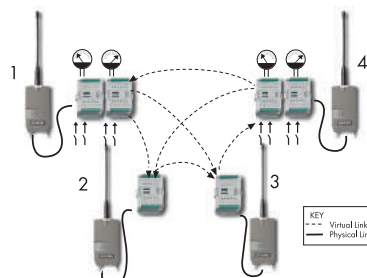
NETCO

NETCO is an intuitive and user friendly network configuration program for SATELLAR. It is designed to make configuration as easy as possible. With NETCO a fully functional communication network can be configured with a few simple clicks. It has SATELLAR-based network commissioning and it can configure large network (up to 5000 devices) without delays.



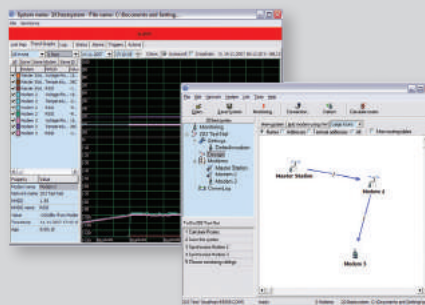
SATELLINK PC Pro

Point-to-multipoint program for driving SATEL I-LINK and i-LINK I/O-converters. Operate systems, which are connected to the I/O-ports, change values, collect pulses and monitor the radio link. For max. 127 slaves.



SATEL NMS PC

Network Management System software for creating and managing SATELLINE-3AS NMS, -3ASd NMS, -3AS Epic NMS, -3ASd Epic NMS, -3AS VHF, -3ASd VHF and SATELLAR networks, including the graphical design of topology and message routing or repeater functions, remote modification of settings, and logging and trending of field data.



Configuration Manager

SATEL Configuration Manager (CM) is available for SATELLINE-M3-TR1, -EASy, -EASy Pro, -M3-R3, -M3-TR3, -M3-TR4, -M3-TR8, -EASy 869, -M3-TR1 869, Compact-Proof and EASy-Proof products. The program makes it possible to edit the modem settings and update the firmware.

Help Editor

Help Editor can be used for creating and editing different language versions for Configuration Manager.

FCS Monitor

Free Channel Scanning Monitor program can be used for setting the FCS parameters and for loading them to modems and for monitoring the channels for noise or interference.

Channel List Editor

Channel List Editor program can be used for creating the channel list for Epic Pro modems.

Antennas & cables

Antennas

- Half Wave Antennas for frequencies 400 ... 470 MHz for short distances
- Quarter Wave Antennas for frequencies 400 ... 470 MHz and 869 MHz for short distances
- Helix Antennas for frequencies 400 ... 470 MHz for short distances
- Directional Antennas for frequencies 330 ... 470 MHz, 869 MHz and 135 ... 174 / 218 ... 238 MHz for long distances
- Omnidirectional Antennas for frequencies 330 ... 470 MHz, 869 MHz and 135 ... 174 / 218 ... 238 MHz for long distances.



Cables

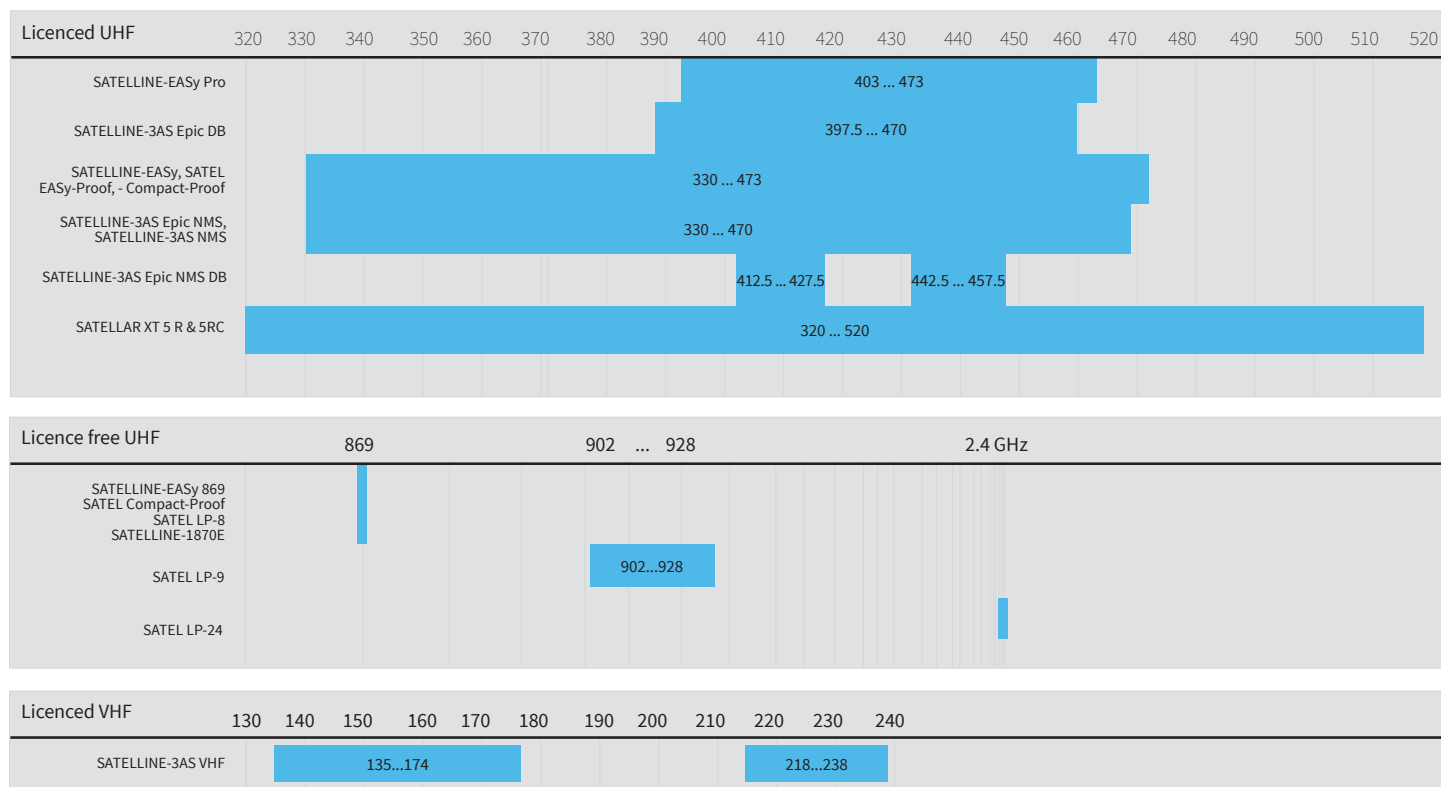
- CRF-1 RG58 length 1 meter with TNC male / TNC female -connectors
- CRF-5F RG58 length 5 meter with TNC male / TNC female -connectors or CRF-5M TNC male / TNC male -connectors
- ECOFLEX10 low loss (0.9 dB / 10 m) cable for cable lengths over 20 meter with N or TNC -connectors.
- ECOFLEX15 low loss (0.6 dB / 10 m) cable for cable lengths over 20 meter with N -connectors.

We can also offer wide range of interface cables, for example:

- CRS-2M length 2 meter, includes power supply wires, with D15 / D9 male or CRS-2F female -connectors
- CRS-PB length 2 meter, includes power supply wires, with D15 / D9 male -connectors for RS-485 interface
- CRS-9 length 2 meters, with D9 male / D9 female -connectors
- CRS-TSU length 2 meters or 50 cm, with D15 male / D15 female connectors, to be used between SATELLINE-3AS or Epic radio modems and I-LINK 100
- CRS-NMS length 1.5 meters, with D15 male / 2 x D9 female connectors from Master modem to user system and NMS PC. Including power supply wires

Please contact your local distributor to get more information regarding cable types.

Available frequencies for SATEL radio modems



Channel width and data speed

Channel width	12.5 kHz	20 kHz	25 kHz	150 kHz	
SATELLAR XT 5R	19.2 kbps (FSK)		38.4 kbps (FSK)	230.4 kbps (FSK)	Programmable
SATELLAR XT 5RC	60.5 kbps (QAM)		121 kbps (QAM)		
SATELLINE-EASy Pro					
SATELLINE-EASy SATEL EASy-Proof SATEL Compact-Proof	•	•	•		
SATELLINE-3AS Epic DB SATELLINE-3AS Epic NMS SATELLINE-3AS NMS SATELLINE 3AS VHF	•	•	•		Fixed*
SATEL Compact-Proof 869 SATELLINE-EASy 869			•		
max. air data speed	9600 bps	9600 bps	19200 bps	230 kbps	
max. serial data speed	38400 bps				

*The radio channel spacing is set at the factory and cannot be changed afterwards by modifying system settings.

Channel width	FHSS
SATEL LP-8	max. air data speed 120 kbps
SATEL LP-9	max. air data speed 250 kbps
SATEL LP-24	max. air data speed 500 kbps



Protocols

SATEL radio modems are compatible with all commonly used industrial protocols. Here are some examples of the protocols: ANSI, ASCII, CACTUS, COMLI, DNP 3.0 Serial & IP, 4 Exoline, HostLink, IEC 60870-101, IEC 60870-104, IEC 61850, Mewtocol, Modbus ASCII, Modbus RTU, Modbus TCP, Profibus DP, R-com, RP-570, RP-571, SATELLINK, S-bus, Siemens 3946 (R), SNMP, TCP/IP, SATEL NMS, Rockwell DF etc.

Ask for more information from your local distributor.

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