

# SATELLINE®-3AS VHF

## High Speed VHF Radio Modem with Advanced Network Management Functions

*SATELLINE-3AS NMS introduces SATEL's new concept of remotely manageable radio modems. In addition to ordinary communication functions it exhibits configuration through radio, efficient diagnostics tools and accumulation of operation statistics data.*

*The management and surveillance of a network of 3AS VHF radio modems is effected through the Master Station connected by a serial interface to a PC with dedicated Network Management software. Long-term logs of the operational data on the SATEL NMS PC facilitate follow-up of trends and regularly occurring events.*

*The Network Management System provides easy configuration of the network and advance indication of faults, for maximum reliability, labour-saving maintenance work and efficient system management.*



A SATELLINE-3AS(d) VHF network consists of remotely adjustable radio modems operated in a polling mode, and controlled through the Master Station by dedicated SATEL NMS software residing in a PC. The user data and NMS information are transferred seamlessly together. The Network Management System is compatible with most user protocols, making the NMS network suitable for a wide range of applications.

SATELLINE-3AS(d) VHF is a half duplex, high speed radio modem, with up-to-date hardware features and completely renovated software architecture. It operates on 138...174 or 218...238 MHz frequency band.

Channel spacing 12.5 kHz or 25 kHz is available, with over-the-air data rates 9 600 bps and 19 200 bps, respectively. The SATEL NMS software provides the user with a powerful graphical tool for designing a radio network, which ensures that the NMS radio modems receive and transfer only desired messages.

The radio modem is compatible with the most widely used serial interfaces RS-232, RS-485 and RS-422. Terminal data rates are selectable between 1 200 bps and 38 400 bps. The carrier power level of the transmitter can be set between the limits 100 mW...5 W. SATELLINE-3AS(d) VHF with heat sink is the

appropriate choice when continuous transmission with 5 W output power is required. A connection range of up to tens of kilometres can be reached, depending on topography.

SATEL OY is a Finnish electronics and telecommunications company that specialises in wireless data communications. It designs, manufactures and markets radio modems for data and alarm transfer systems. The main user groups include industrial companies, public organisations and private persons. Today SATEL is one of Europe's leading manufacturers of narrow-band radio modems.



### Reliability and Efficiency

The NMS radio modems monitor the condition of the radio connection: strength of the signal (RSSI) and the voltage level of the power source as well as the inside temperature of the modem, on a continuous basis. The information is transmitted to the SATEL NMS PC, where it is stored and displayed as logs and trend data.

With the help of the graphical display of the network available at the SATEL NMS PC, the user can conveniently configure, add or remove radio modems without need of a terminal, as well as draw message routes and set repeater links.

The Network Management System offers the user several significant benefits, including

- **Enhanced reliability**, through advance indication of anticipated faults and failures
- **Reduced configuration and maintenance costs**, through remote configuration
- **Efficient network development tool**
- **Flexibility** in adapting to customer protocols and applications

A special advantage of the SATELLINE-3AS VHF is the wider coverage. With the same carrier power and antenna gain, the connection ranges are 30 to 50 per cent larger than those reached with the UHF radio modem.



### Wide Range of Applications

A NMS radio modem network provides a working solution to a large variety of wireless data communications applications. It is particularly well suited for frequently changing networks as well as for applications requiring utmost reliability, thanks

to efficient monitoring of the signal condition and flexible use of alternative routing. In mobile fleet management applications, use of VHF frequencies reduces signal fading significantly.

Remote, continuous monitoring of the voltage level of the power source as well as the temperature of the radio modem provide early indication of and possibility of avoiding anticipated problems.

### Technical Specifications • SATELLINE-3AS(d) VHF

SATELLINE-3AS(d) VHF complies with the following international standards: EN 300 113-1, -2 \*1 EN 301 489-1, -5, IEC 60950-1 and FCC CFR47 part 90.

#### TRANSCEIVER

Frequency Range

138...174 MHz  
(138...160 and 155...174 MHz variants)

Channel Spacing  
Number of Channels  
Frequency Stability  
Type of Emission  
Communication Mode

218...238 MHz  
12,5 kHz/25kHz  
1600/800  
< ± 650 Hz  
F1D  
Half-Duplex

#### Transmitter

Carrier Power  
Carrier Power Stability  
Adjacent Channel Power

100 mW, 500 mW, 1 W, 5 W / 50 ohm  
+1,5 dB / - 1,5 dB  
according to EN 300 220/EN 300 113  
and CRF47 part90

Spurious Radiations

according to EN 300 220/EN 300 113

#### Receiver

Sensitivity  
Co-channel Rejection  
Adjacent Channel Selectivity  
Intermodulation Attenuation  
Spurious Radiations

- 115... -110 dBm (BER < 10 E-3) \*2  
> - 12 dB  
> 50/60 dB  
> 60 dB  
< 2 nW

#### DATA MODEM

Interface level  
Interface  
Interface Connector  
Data speed of RS Interface  
Data speed of Radio Interface  
Data Formats

RS-232 or RS-485, RS-422  
One port for data and one for NMS  
D15, female  
1200 - 38400 bps  
9600 / 19200 bps  
Asynchronous data

#### GENERAL

Operating Voltage  
Power Consumption

+ 8 ...+ 30 VVC  
1.7 VA max (Receive)  
6.6 VA max (1 W Transmit)  
22 VA max (5 W Transmit)  
0.07 VA max (when DTR is "0")

Temperature Range  
Antenna Connector  
Construction  
Size H x W x D

-25 °C...+55 °C  
TNC, 50 ohm, female  
Aluminium enclosure  
137 x 67 x 29 mm (without a heat sink)  
137 x 80 x 56 (with heat sink)  
130 x 63 x 1 mm  
265 g (without a heat sink)  
550 g (with heat sink)

Installation Plate  
Weight

**Values are subject to change without notice.**

\*1 Full compliance with the Tx parameter limits. Please refer to specifications above for minor deviations from Rx parameter limits.

\*2 Depending on Receiver settings.

Manufacturer:



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