SATELLINE-3AS(d) VHF (C)
software version 4.0.13 release note

APPLICABILITY

The software version **4.0.13** is the new **default software** for SATELLINE-3AS VHF radio modems.

It is a major update that includes several improvements and corrections to the previous versions.

The applicable product types are:

- SATELLINE-3AS(d) VHF
- SATELLINE-3AS(d) VHF (C)

CHANGES

The major changes to the previous released versions 4.0.9, 4.0.11 and 4.0.12* are:

ADDED/MODIFIED:

1. Noise level indication to LCD display
2. Protocol support modifications (e.g. ANSI and IEC 60870-5-101)
    - 2.1 Default Pause Length value (3) for Port1
    - 2.2 IEC 60870-5-101 – 1 byte addr with SY support
3. Continuous test modes
4. SL command harmonization
5. New/modified SL commands
6. Modified Default settings
    - 6.1 Default Pause Length value (3) for Port1
    - 6.2 Default Pause Length value (10) for Port2
    - 6.3 Default RX Delay value (1) and value range
    - 6.4 Default setting for Protocol mode
7. Net ID and Network ID level

FIXED:

8. Reduced transmission delay variations
9. RSSI value outcome in NMS PC monitoring application
10. TX delay operation in repeater mode
11. Frequency change with SL commands
12. Improved accuracy in CD line behavior

1. Noise level indication to LCD display

Received signal strength indication (RSSI) field has been taken to dual operation use.
When antenna icon is shown in front of the value, it indicates RSSI of the last received signal. The value is shown for ~7 seconds after the reception.
When character "**n**" is shown instead of the antenna icon on the LCD display, the value refers to current noise level on the channel.

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2. Protocol support modifications

2.1 *Support for ANSI protocol*

When ANSI protocol is in use, the master radio stores the address field from the polling message for using it later in sending the acknowledgement message to the slave station.
In ANSI master polls the substation, the substation responds with data, the master sends the acknowledgement message and finally the slave responds to that accordingly.
Note, that slave-slave communication hasn't been tested yet.*2.2 IEC-60870-5-101 -1 byte addr with SY support*
Added the possibility to send the power distribution network related time synchronization message without NMS data.

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3. Continuous Test modes

Continuous Short Block Test
This setting allows the radio modem to start sending short block test package (1 message / sec) immediately after the radio has been started up. This mode remains valid until it is disabled from the programming menu or the radio modem is switched off.

Continuous Long Block Test
This setting allows the radio modem to start sending test signal immediately after the radio has been started up. This mode remains valid until it is disabled from the programming menu or the radio modem is switched off.

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4. SL command harmonization

The support for "classic mode" SL command syntax has been added and the descriptions of different SL command options have been harmonized according to SATELLINE-3AS and SATELLINE-1870 family radio modems.
The following options can be found from the programming menu:

- ✓ OFF = SL commands are OFF
- ✓ ON = SL commands are ON, with SATELLINE-3AS "classic" syntax without any framing. *Please note, that the SL&F? –command returns only the TX frequency information, despite the fact that the RX frequency can be something else.*
- ✓ Extended = SL command are ON, the original NMS style framing ("SL:") in use

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5. New/modified SL commands

5.1 FEC ON/OFF

- ✓ SL%F=1, enables FEC
- ✓ SL%F=0, disable FEC
- ✓ SL%F? is a request for FEC status (response is either 0 (FEC OFF) or 1 (FEC ON)

5.2 SL&+=nnnn / SL&-=nnnn

The previous firmware versions accepted the channel step values within the range of 00…99.
As the SATELLINE-3AS VHF models support wider operating frequency adjustment range, there appeared a need for getting this adjustment range wider.

Now the frequency can be set by entering the channel number with four digits (nnnn=0000…9999):

- ✓ SL&+=nnnn
- ✓ SL&-=nnnn

In case the user enters an insufficient channel (= out of the frequency limits of the NMS family radio modem), the modem doesn't change the frequency.

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6. Modified Default settings

6.1 Default Pause Length value (3) and value range for Port1

The default value range is three (3) and the supported value range 3..255.

6.2 Default Pause Length value (10) and value range for Port2

The default value range is ten (10) and the supported value range 3..255.

6.3 Default RX Delay value (1) and value range

The default value range is one (1) and the supported value range 1..255.

6.4 Default setting for Protocol mode

The default setting is *Basic – TX Priority*.
Earlier NMS family radio modems are shipped with Basic – RX Priority setting.

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7. NetID and Network ID level

A new parameter, Network ID Level, for enhancing the security of individual NMS radio network is presented. This parameter is shown in Settings tab in SATEL NMS PC software (since v.2.0.8).
There are two options for Network ID levels:

- ✓ Network ID level = Level 0
- ✓ Network ID level = Level 1

Level 0 is the default setting to provide a compatible radio device to existing networks containing radio modems with earlier firmware version(s).
Level 1 is recommended to be used in systems, where the radio modems run firmware v.4.0.12 or later.

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8. Reduced transmission delay variations

The data resolution of radio modem operating system has been increased from 5 ms → 1 ms.
The transmission delay variation in previous software versions could be even 5 ms, which had some affects in radio network timings. This could be noticed e.g. when using the timing synchronizing message with IEC protocol.

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9. RSSI value outcome in NMS PC monitoring application

When Full Error Check or Partial Error Check function was set on, the modem didn't give out the correct RSSI value.

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10. TX delay operation in repeater mode

In earlier software versions, the specific case, when repeater modem received data during TX Delay countdown, the radio modem ended up to transmit the IDLE frame in continuous loop.

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11. Frequency change with SL commands

In the previous versions, the first message after the frequency change done by an SL command was transmitted on the old frequency in case it was fed from the serial interface quickly (~100 ms) after the SL command.

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12. Improved accuracy in CD line behavior

CD line follows the reception state even better than in previous software versions.

RELATED FILES

The Flash file (the actual executable software):

- **SATELLINE-3AS_VHF_sw_4_0_13.exe** for SATELLINE-3AS(d) VHF modems

NOTES

Note 1. **The flash update of the software versions starting from 4.00 is performed by running the specific exe file.**

Note 2. **The numbering of the software versions:**
The software versions starting from number 4.00 apply for the radio modems which are NMS compatible; NMS compatible modems have either indication NMS (e.g. SATELLINE-3AS NMS) or VHF (e.g. SATELLINE-3AS VHF) in the modem name.