ELBRO AG
Swiss Technology Company

# Operating Instructions

## *SMSB12*
## *SMSB12SW*

# Safety Information

- The SMSB12 device incorporates a latest-generation Dual Band GSM engine. To install and use it correctly, the indications given in this manual are to be strictly respected.
- The SMSB12 device is a low-power radio transceiving device. When it is operating, it sends and receives radio frequency energy. Operating the SMSB12 device close to radios, televisions, telephones or electronic devices in general may cause interference. The SMSB12 device may be subject to interference that affects its performance.
- Do not install the SMSB12 device close to pacemakers, auditory prostheses or medical devices in general as the SMSB12 device may interfere with the operation of these devices.
- The SMSB12 device must be turned off on aeroplanes. Make sure that the device cannot be turned on accidentally.
- Do not use the SMSB12 device in the presence of inflammable gases or fumes. Turn off the device when close to petrol stations, fuel deposits and chemical plants.
- The SMSB12 device operates by means of a radio signal, no mobile telephone operator is capable of ensuring a connection at all times. For this reason, the SMSB12 device cannot be used in life support systems.

# Notes

- All information contained in this manual is subject to change without prior notice.
- No part of this manual may be reproduced, in any form or by any means, electronic or physical, or otherwise, including photocopying or storage, for needs other than the personal use of the user, without the prior written permission by Elbro AG.
- The use, copying, modification, disassembly or transmission of the SMSB12SW software is forbidden, except for needs specifically authorized under this licence. Unless specifically authorized, all rights are held by Elbro AG and/or its suppliers.
- All illustrations in this manual refer to version SMSB12SW 1.1 with Windows XP platform. Unless indicated otherwise, the capabilities of SMSB12SW refer to the XP version.
- Windows 98SE, Windows Me, Windows NT, Windows 2000 and Windows XP refer to relative trademark registered by Microsoft inc.
- For any other trademark or product cited reference is made to relative owner.

# Foreword

The SMSB12 device is a latest generation stand-alone GSM remote control provided with two signalling inputs and an SPDT relay output.
Up to five SMS messages for opening and closing the contact can be associated with each signalling input line.
The SMSB12 device is able to receive commands sent via SMS messages or else through a simple voice call with zero cost.
The SMSB12 device is provided with specific configuration software that allows considerable simplification of the installation procedure, namely SMSB12SW software. The SMSB12SW software features a user-friendly graphic interface which guides the user step-by-step through the installation procedure of the SMSB12 device.

# Installation

In order to ensure the operator's safety and the correct operation of the SMSB12 device, the device should be installed exclusively by qualified staff. The rules listed below should also be strictly observed.

## *Environmental conditions*

The SMSB12 device (the instrument and all cables connected to it) should be installed in places either free or far from:

- Dust, humidity, great heat;
- Direct exposure to sunlight;
- Objects radiating heat;
- Objects generating a strong electromagnetic field;
- Liquids or corrosive chemical substances.

The SMSB12 device has been designed to operate at a temperature of between -5°C and +45°C (standard working temperature)[1].
Avoid sudden changes in temperature and/or humidity.

## *Degree of Protection*

During the installation of the SMSB12 device, the following degree of protection is to be ensured:

- IP40: minimum degree of protection, which must always be guaranteed;
- IP54: protection to be guaranteed when using the device outdoors.

## *Power supply*

Observe the following rules:

- Do not use cables longer than 3 m;
- The external power supply unit (e.g. mains charger), must comply with the EN 60950 Directive (electrical safety);
- Do not invert the polarity of the power supply cables.

## *Signalling Inputs*

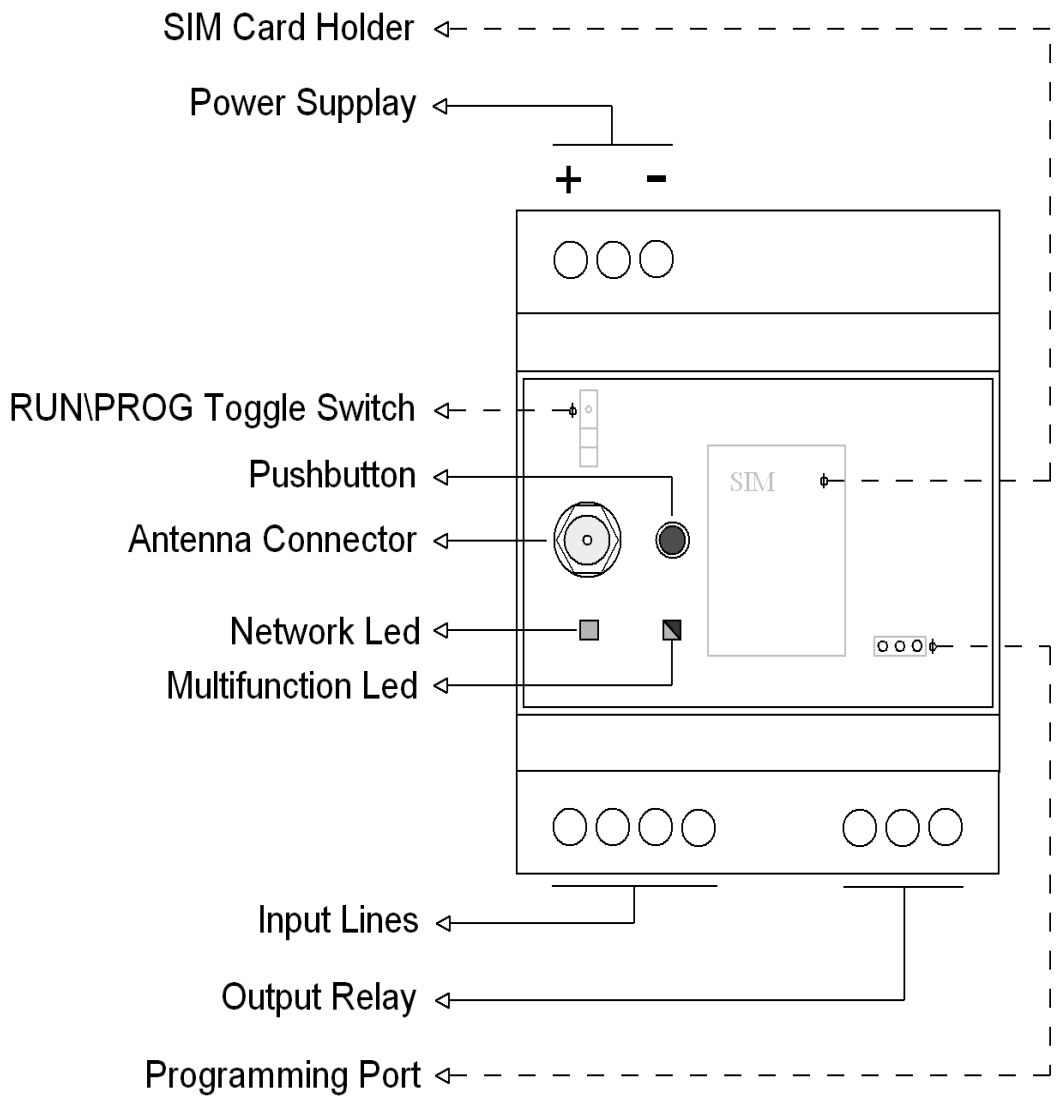
During the installation of the device, strictly observe the indications given in this manual.
Observe the polarities and nameplate data indicated in the manual.

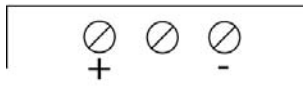
## *Relay Output*

During the installation of the device, strictly observe the indications given in this manual.
Install the external equipment correctly and observe the nameplate data indicated in this manual.
Under no circumstances, exceed the nameplate data

[1] The temperature range indicated refers to standard applications and corresponds to the factory setting.

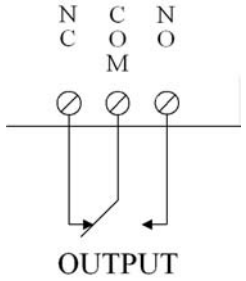
# Description of the SMSB12 Device



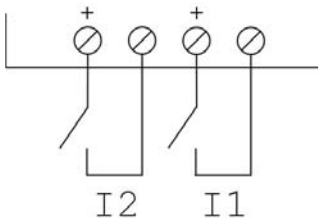

## POWER SUPPLY

- 12 to 24V DC [Nominal Range];
- 9 to 30V DC [Extended Range ]
- $I_{max}$=500mA;
- Never use cables with length exceeding 3m;




## BISTABLE RELAY OUTPUT

- Rest position: NC-COM [red Multifunction LED];
- Rated switching capacity: 10A, 250V AC;
- Never use cables with length exceeding 3m.




## VOLTAGE-FREE CONTACT INPUTS

- It is possible to connect switches such as:
  - Mechanical and electromechanical with suitable nameplate data: 5V DC min. 50µA;
  - Electronic with suitable nameplate data: 5V DC min. 50µA. Observe the polarity given alongside.
- Status:
  - ON : Closed;
  - OFF : Open.
- Each input can be associated with up to five SMS for both ON-OFF transition and OFF-ON transition.

## Network LED

The Network LED is able to provide the following information:

| LED STATUS | DEVICE STATUS |
|---|---|
| Unlit | The device is off |
| Rapid flashing<br>(the LED is almost always lit up) | • the SIM card has not been inserted correctly;<br>• the SIM card is protected by a PIN code;<br>• the device is not linked to the GSM network and is in the network search phase. |
| Slow flashing<br>(the LED is almost always unlit) | The device is linked to the GSM network and is ready to receive commands |
| Lit up | A data call is in progress |

## Multifunction LED

The multifunction LED is able to provide the following information:

- relay output status:
  - Red LED: contacts on COM-NC,
  - Green LED: contacts on COM-NO.
- Reception Level of the GSM network measured by the device;
- Device in PROG. Mode.

## Push button

The push button located on the front panel can be used for:

- Changing the output status of the device;
- Displaying the reception level of the GSM network measured by the device.

## RUN\PROG toggle switch

The RUN\PROG switch allows:

- Starting the PROG mode for programming the SMSB12 device;
- Ending the PROG mode and starting the RUN mode after programming the SMSB12 device.

## Programming Port

The programming port is used during installation, for connecting the SMSB12 device to a PC and for setting the configuration parameters via the SMSB12SW software.

## Input and Output lines

After the programming procedure has ended, the status of the signalling inputs is considered as current status of the signalling lines.

The device memorizes each variation of the input and output lines. In case of a black-out, when the power supply is restored, the device gives the output at the last known status and handles any new requests for forwarding signalling SMS messages.

# Installation of the SMSB12SW Software

SMSB12SW is a software package designed for very easy presetting of the SMSB12 device. SMSB12SW features a user-friendly graphic interface, allowing easy approach even for the less expert users.

The following material (contained in the kit) is required for programming the SMSB12 device:
- One cable for RS232 proprietary programming.
- Configuration CD.

Before proceeding to install the software, it is advisable to upgrade your own operating system.

The SMSB12SW installation procedure is as follows:
1. Switch on the computer and start Windows;
2. Insert the Mini-CD in the CD-ROM drive;
3. Wait for the automatic starting of the CD-ROM. If the automatic starting has been disabled, open ***Computer Resources (My Computer)*** and click on the CD-ROM icon with the **right** mouse button, then click on ***Autoplay***.
4. Click on the setup icon *"Install SMSB12SW"*

**Caution:** during installation of the SMSB12SW software it could be necessary to install Microsoft .NET Framework 1.1.

Before running the program, read the chapters regarding the programming procedure of the SMSB12 device.

# Configuration of the SMSB12 device

For correct operation of the SMSB12 device, proceed as follows:
1. start the SMSB12 device in PROG mode;
2. start the SMSB12SW program and connect to the device;
3. enter the configuration parameters through the SMSB12SW software, and download them in the device;
4. start the RUN mode of the SMSB12 device.

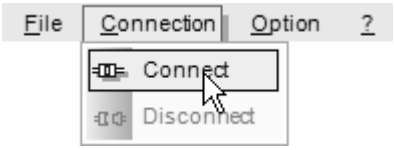
## *PROG mode*

To configure SMSB12 with SMSB12SW software, start the device in programming mode.
Proceed as follows:
1. switch off the SMSB12 device;
2. insert the SIM Card in relative slot;
3. connect the RS232 proprietary data cable to the programming port of the device;
4. connect the RS232 data cable to relative port on the PC.
5. turn the RUN\PROG toggle switch to PROG;
6. switch on the device;

The programming mode is indicated by the green flashing of the multifunction LED.

## *Connection to the device*

- Start the SMSB12SW;
- Select the communication (COM) port where to connect the SMSB12 device;
- From the *"Connection"* menu, select *"Connect";*




In order to ensure correct operation of the SMSB12 device, connection should be made to the device only and exclusively during the programming mode.
After connection and formatting the SIM card, it is then possible to enter the parameters described below.

## Formatting of the SIM Card

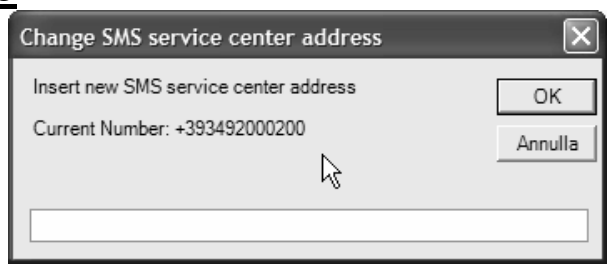
Click on the "Format SIM" button to delete all data present on the SIM Card.
During first installation of the device, proceed to format the SIM card.

## PIN code

If your SIM card is protected by a PIN code, the SMSB12SW software automatically opens a mask for entering the PIN code. After entering the code, the mask will be disabled permanently.
If the SIM card is blocked owing to more than 3 attempts to enter an incorrect PIN code, the program requests entry of the PUK code and a new PIN code.
**Caution:** If an incorrect PUK number is entered 10 times, the SIM code will be blocked permanently and it will be necessary to contact the network operator.

## Number of the SMS Service Centre

Select *Options* → *"Service Centre number"*. If the current number fails to appear, enter the Service Centre Number of the operator of the SIM Card inserted in the device.

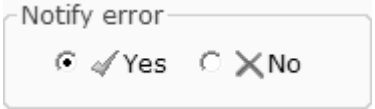



## System Password

The SMSB12 device is protected by a four-digit password, defined as "system password".
The system password can be selected freely by the end user; it must be used each time a command SMS message is sent.
Enter the password in the appropriate field.


## Error notification

During programming, it is possible to decide whether the SMSB12 device should send an error SMS message when necessary or not to send it (see figure alongside).



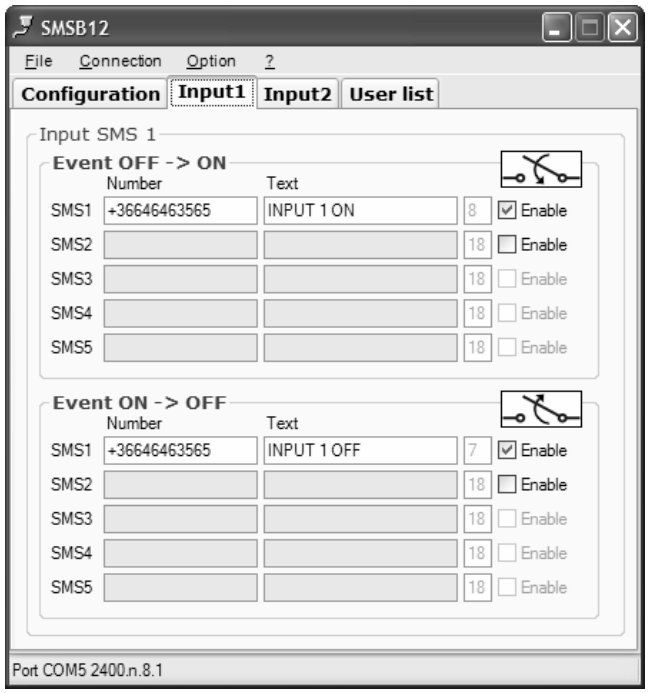

The SMSB12 device sends an error SMS message if the contents of a command SMS are not valid (incorrect password, command non existent)

## Signalling Inputs

The device is provided with two signalling inputs.
Two events can be associated with each input, namely:

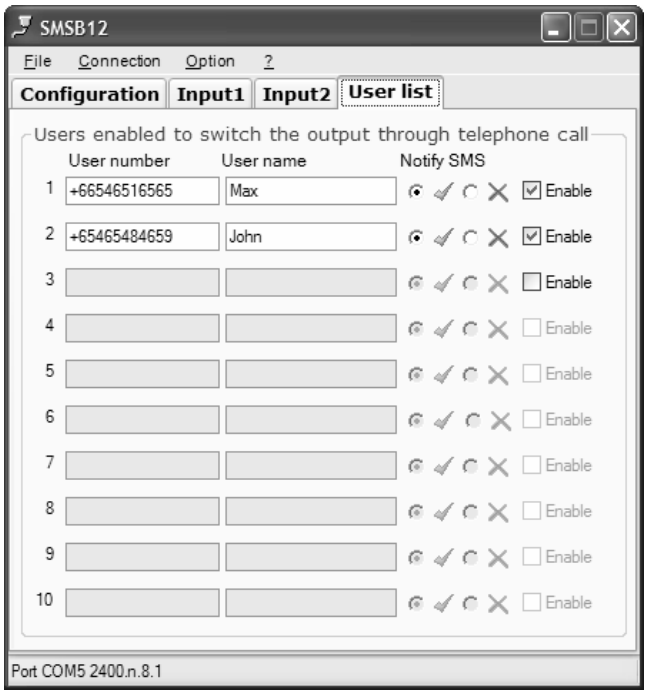
- "closing" event: corresponds to closing the contacts of the signalling line;
- "opening" event: corresponds to opening the contacts of the signalling line.

The end user can associate from a minimum of zero (0) up to a maximum of five (5) SMS messages with each event.
The end user can choose freely the text of a signalling SMS message (max. length 15 characters) and the destination.




## User List

During programming, it is possible to define up to 10 users enabled for the voice call (see Voice call chapter). It is possible to select, for each enabled user, whether the device, after carrying out the command via a voice call at zero cost, whether to send or not to send a notification SMS to the enabled user generating the command.



## *RUN mode*

To make the settings operative, after downloading the parameters in the device (*Download data* button), proceed to terminate the programming mode, then start the RUN mode.

To terminate the programming mode and to be able to use the device, proceed as follows:

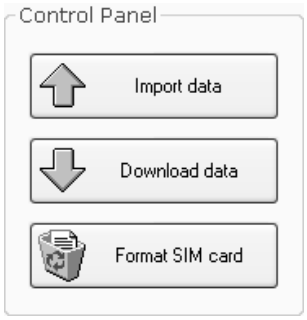
1. press the *Download data* button in the *Control Panel* and wait for the confirmation window;
2. select *Connection→Disconnect*;
3. disconnect the proprietary data cable from the device;
4. turn the RUN\PROG switch to RUN [the multifunction LED will stop flashing and will show the output status of the device];
5. reposition the front panel.

After starting the RUN mode, the device is ready to receive commands.

## *Control Panel*

The "Control Panel" of the program has three buttons as follows:

- Import Data: serves for importing data from an already programmed device [the device must be in programming mode];
- Download Data: allows sending configuration parameters to the device connect to the PC [after entering the configuration parameters, press this button to make the settings definite];
- Format SIM: Allows deleting all the data contained in the device connected to the PC [the device must be in programming mode];



# Command SMS

The SMSB12 device has been especially designed to receive commands via SMS messages.
The commands should be sent to the phone number of the SIM Card inserted in the device.
Format of a command SMS is as follows:

| * | PASSWORD | # | COMMAND | Reply |
|---|---|---|---|---|

where:

- * : is a separator;
- PASSWORD : is the password set during the installation phase;
- # : is a separator;
- COMMAND : is one of the commands listed below;
- Reply : can assume the values #, *, or else no character.

The commands which can be sent are as follows:

- 1 : Activates Output [multifunction LED Green → contacts on COM and NO];
- 0 : Disactivates Output [multifunction LED Red → contacts on COM and NC];
- ? : Status request [no effect on the output].

The SMSB12 device, after receiving a command SMS message, carries out its contents (if correct), and sends a notification SMS to the mobile phone number of the user if and only if the Reply field is blank (it is omitted).

# Notification SMS

Format of a notification SMS is as follows:

GSM Remote Control: Output: X. Inputs: $Y_1Y_2$.

Where:

- X: represents the output status:
  - 0 :contacts on COM-NC;
  - 1 :contacts on COM-NO.
- $Y_i$: represents status of inlet line n°i:
  - 0 :signalling input n°i open;
  - 1 :signalling input n°i closed.

Sending of a notification SMS after receiving a command SMS message depends on the omission or non omission of the Reply parameter (see Command SMS).

The SMSB12 device sends an error SMS message if the contents of a command SMS are not valid (incorrect password, command non existent) and if, and only if, such function is enabled during the installation phase.

# Voice Call (without reply)

An Enabled User can switch the status of the relay output line of the device by making a simple voice call (to the phone number of the SIM Card inserted in the device) and, depending on the device settings, the user is able or not able to receive a notification SMS.
The voice call has zero cost. After recognizing the caller, the device does not accept the call and it performs the command received.

# Display of Reception Level of the GSM network

When the push button is held down for more than five seconds it is possible to display, via the multifunction LED, the reception level of the GSM network measured by the device.

Indications supplied by the LED are as follows:
- LED red: bad reception, reposition the antenna;
- LED flashing (red\green): insufficient reception, reposition the antenna if possible;
- LED green: sufficient reception

After displaying the reception level measured, the multifunction LED will display the current status of the output.

The Network LED combined with the multifunction LED is able to supply information regarding the current status of connection of the device to the GSM network.

# Guarantee

Elbro devices are manufactured under strict quality control. If nevertheless functional faults occur during daily usage, they are covered by a guarantee of 12 months (valid only with receipt).

- We will eliminate any manufacturing or material faults without charge providing the unit was not opened or subjected to external influences and was returned to us.

- Damage resulting from mechanical effects or improper handling are not covered by the guarantee.

Our service department will correct faults occurring after expiry of the guarantee.

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# Nameplate Data SMSB12 device

| | |
|---|---|
| **GSM selection** | • Dual Band EGSM 900 and GSM 1800<br>• Certified for GSM Phase 2/2+<br>• Power output:<br>  o Class 4 (2W) for EGSM 900<br>  o Class 1 (1W) for GSM 1800<br>• SMS: MO, MT |
| **Power supply** | • Supply voltage: 9V to 30V DC [Extended range]<br>• Current: Imax = 500mA<br>• Power terminals: max. conductor size 2.5mm$^2$<br>• Power supply protected against short circuit through internal fuse<br>• Power supply protected against reversed polarity |
| **Relay output** | • Bistable SPDT relay;<br>• Contact load capacity.:<br>  o 10A, 220V AC (Resistive);<br>  o 8A, 30V DC. |
| **Main characteristics** | • Enclosure for EN-50022 rail, 4 modules<br>• Degree of inflammability: UL94V-0<br>• Degree of protection: IP40 (if installed correctly)<br>• Standard operating temperature: from -5°C to +45°C<br>• Approx. weight: 200g<br>• 1 bistabile relay output<br>• 2 inputs with no-voltage contacts<br>• Network LED and multifunction LED<br>• Push button for manual switching of the output<br>• SMA antenna connector<br>• max. conductor size which can be held in the terminals: 2.5mm$^2$<br>• programming port |
| **Certifications** | • EN 301 489-7 V1. 1.1 (2000-09)<br>• EN 301 511 V7. 0.1 (2000-12)<br>• EN 60950 (2000) |
| **Configuration** | • Device protected by password<br>• Provision for customizing the signalling SMS messages to be sent<br>• Provision for enabling or not enabling sending of error SMS<br>• Sending of notification SMS upon request<br>• Provision for defining “Enabled Users” for remote control of relay output at zero cost |
| **Protection** | Device protected by system password preset by the end user. |
| **Control** | • Provision for sending command SMS messages to the device for:<br>  o Changing output status<br>  o Status request<br>• Provision for remote control of the relay output of the device at zero cost. |
| **Current drawn (typical values)** | |

| | Vers. = 9 V | Vers. = 30 V |
|---|---|---|
| Standby | 40 mA | 18 mA |
| Send / Receive SMS | 100 mA | 35 mA |

## *Software (Requirements)*

| Hardware | Minimum | Recommended |
|---|---|---|
| CPU | PIII 500Mhz<br>AMD Athlon 500 | P4 1.0Ghz<br>AMD Athlon XP1000+ |
| RAM | 128 Mbytes | 256 Mbytes |
| Video | Vga 800x600 | SVGA 1024x768 |
| CD-ROM | 4x | 16x |
| Free space | 6931 Kbytes for SMSB12SW<br>27 Mbytes for Microsoft .NET Framework | |

Requirements for installation of Microsoft .NET Framework :

- For Microsoft Windows NT 4.0, Service Pack 6.0a is required
- For Windows 2000, Windows 98, Windows ME, Windows NT, Windows Server 2003, Windows XP Microsoft Internet Explorer 5.01 or later version is required.

# Declaration of Conformity

Hereby, **Elbro AG** declares that the device **SMSB12** is in compliance with the essential requirements and other relevant provision of Directive 199/5/EC; as having been designed in conformity with the requirements of following Reference Standards:

- EN 301 489-7 V1.1.1 (2000-09)
- EN 301 511 V7.0.1 (2000-12)
- EN 60950 (2000)

The declaration of conformity may be requested at the following address:

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