

SVA Manual



SVA Manual

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1 Introduction

This manual covers the SVA module equipped with firmware version 1.0 and higher.

The SVA is an alarm dialler and can be used to monitor processes and report alarms via SMS and email.

1.1 Variants

The SVA is available in two variants:

- The SVA with universal inputs.
- The SVA with universal inputs and a relay output.

1.2 Features of the SVA series

- Checkmyproces.com
- Configurable delay times.
- Reporting of power failure
- Periodic restart (reset) of the SVA (can be switched on and off)
- Ethernet interface UTP connection
- Settings and SMS texts are permanently stored in the internal flash memory of the SVA..



We recommend that you read the user manual carefully so that you can make optimal use of all SVA options.

1.3 Safety criteria

Before using the SVA, there are several criteria that the user should meet.

- The SVA should be installed in a controlled environment (for reasons of fire prevention).
- The SVA should be supplied with power using a SELV-type power supply.
- External Ethernet should not be connected directly to an SVA, but should be connected via an overvoltage protection device.
- To reduce the probability of damage to the equipment, the SVA should be placed in an environment protected against electrostatic discharge (ESD).
- The SVA is intended for use as a modem or alarm dialler. The SVA is not intended for use as part of a critical safety system in a critical process.

1.4 Checking the delivery

Check the packaging for damage. Contact your supplier immediately if the delivery is found to be damaged or incomplete upon receipt.

The standard delivery includes:

- SVA module
- Connection terminals
- Ethernet cable
- This user manual

Optional items include:

- Antenna and antenna cable (various models, including vandalism-proof antennas)
- Mains adapter 230 Vac/12 Vdc (item number **SV-20**)



1.5 Environment



This product contains materials that can harm the environment. For the sake of the environment, if the product has to be replaced at the end of its service life please do not dispose of it through the household waste. Please return the device to your supplier or hand it over to a designated depot.

1.6 Warranty and repair

ADÉSYS performs a series of extensive tests on each SVA before dispatch. ADÉSYS uses a warranty period of **1 year**.

Warranty claims are invalidated if:

- The defect is caused by gross negligence or inexperienced installation
- The device has been opened and/or repairs or modifications have been performed without the permission of ADÉSYS
- It is found that the serial number has been removed or damaged.

Please get in touch with Adésys customer service if you have any questions regarding the warranty or repairs.

1.7 Liability

ADÉSYS accepts no liability for consequential loss in the event of the stagnation of the alarm. An alarm dialler does not provide a 100% guarantee against damage, it is merely a tool to prevent damage. You should therefore discuss the remaining risk with your insurer.



1.8 Identification

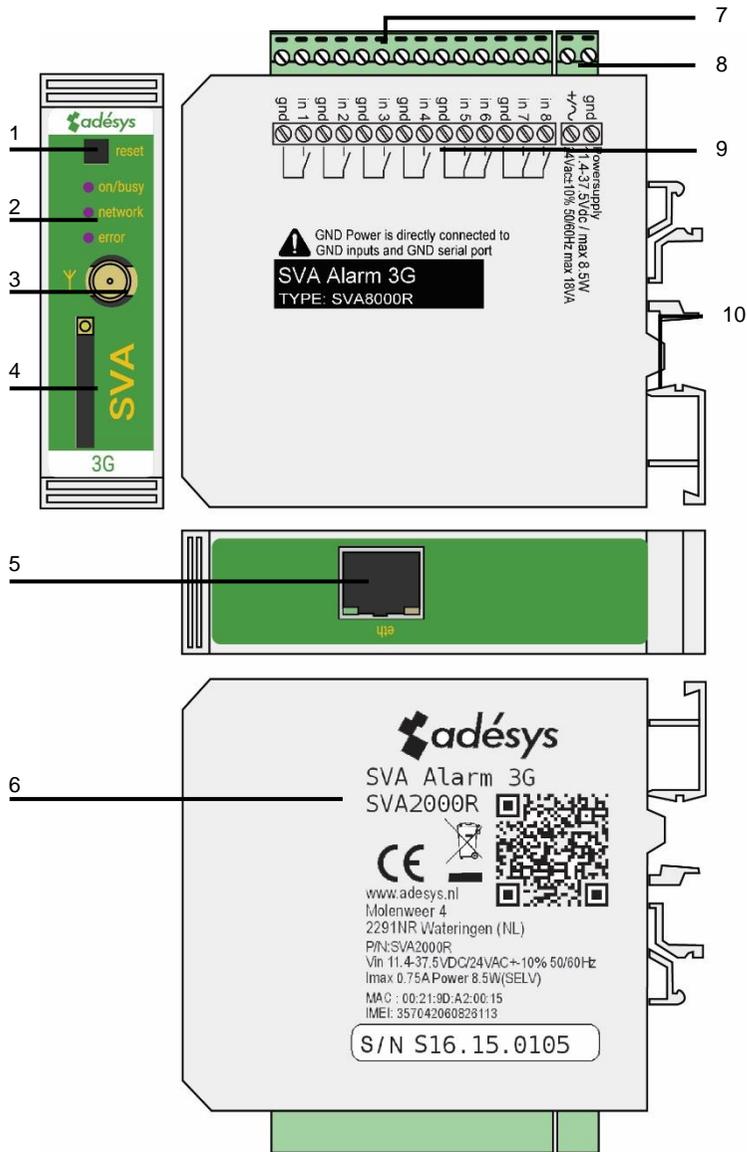


Figure 1 Identification of SVA



- 1 Reset button
- 2 LED status indicator: antenna level (network), error messages (error) and general status (on/busy)
- 3 Antenna connection type: SMA female
- 4 SIM card holder
- 5 Ethernet connection
- 6 Information sticker
- 7 Input/output connection terminals
- 8 Supply voltage connection terminals
- 9 Connection sticker
- 10 DIN-rail mounting clamp

2 Connection

To connect the SVA correctly, we recommend using exclusively Camden CTB922HE/# type connectors. Measurements may be affected if other connectors are used.

2.1 Positioning

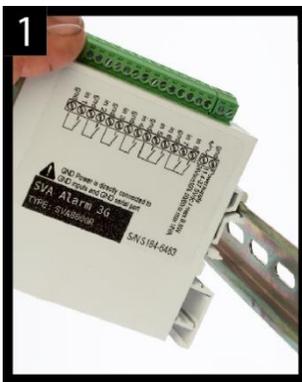
Position the SVA where it is not affected by direct sunlight or other heat sources. Choose the place of installation such that moisture cannot penetrate the device. The SVA can be mounted onto the TS35 rail without screws. The permitted ambient temperature range for the electronics is -20°C to +55°C.



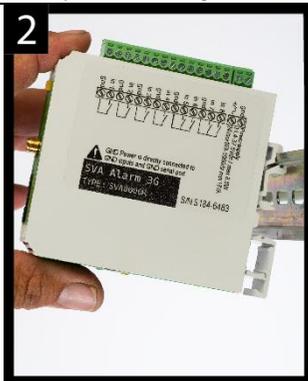
The transmission power of the SVA's internal GSM/3G module is higher than that of a standard mobile phone. Under certain conditions this may affect the functioning of surrounding electronic equipment. The effects depend upon the distance between the antenna and surrounding equipment.

2.2 Affixing and removal: DIN rail

The SVA should be affixed to a DIN rail before connection.

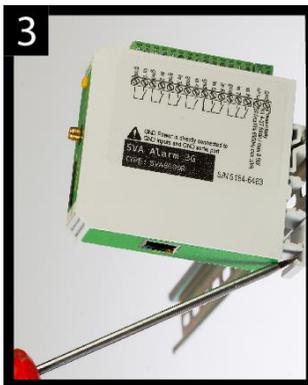
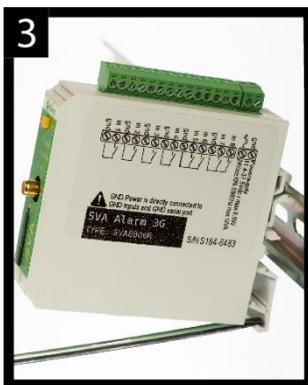


- Put the SVA onto the DIN rail at an angle [1]. It is important that the SVA's DIN rail clip is positioned on the top of the DIN rail.



- Tilt the SVA to clip it into place [2]. Then check whether it is securely seated.

The SVA is removed from a DIN rail as follows.



- Place a screwdriver on the underside of the DIN rail clip [3]. Use this as a lever; after approx. 3 mm the SVA can be tilted to release it from the DIN rail.

2.3 SIM card

If the SIM card has a PIN code, this should be entered in the setup tool SV-prog. The required SIM card is installed as follows:

- Switch the SVA off by disconnecting the supply voltage, then press and hold the reset key for 8 seconds to switch off the dialler.
- The SIM card holder is made accessible by pressing the button next to it using a sharp object. The holder is then pushed outwards.
- Place the SIM card in the holder and slide this back into the SVA.
- Reconnect the supply voltage to switch the SVA on.



The SVA should be completely switched off before the SIM card is installed. Fitting or removing the SIM card with the SVA switched on may damage the SIM card.



The use of a “Prepaid” SIM card for dialling purposes is strongly discouraged. The mobile network cannot automatically request the call credit, which means that this can be run down without anyone noticing, resulting in outgoing notifications coming to a standstill.

2.4 Antenna

Connect the antenna cable to the SVA’s antenna connection. The antenna plus associated cable can be obtained from Adésys. The antenna should be affixed to as high a point as possible to obtain the best possible range.



After installation, always check the field strength of the antenna signal (max. is 5 flashes of the yellow “network” LED). Notification of changes in signal strength will always take place after a long delay (± 30 seconds). Take this into account if, for example, the antenna is moved.

2.5 Power supply

2.5.1 SV-20 mains adapter

A 230Vac/12Vdc mains adapter with item number SV-20 can be obtained as an option to supply power to the SVA.



When fitting the terminal block to the power supply cable, ensure that the polarity plus (+) and minus (-) is correct.

An extra power supply fuse is not necessary here.

If the SVA is not supplied with power using the above-mentioned mains adapter, the connection regulations in the section below apply.

2.5.2 Power supply

Connect the SVA to a DC power supply of 12 to 37.5 Vdc (at least 8.5 W) or a transformer of 24Vac (at least 18VA). The power supply input of the SVA is **not galvanically isolated** from the other connections. The GND connection of the power supply connector is directly connected internally to the GND connection of the input connector and the COM port.



If the SVA is connected to an application (process controller, PLC, computer, active sensor, etc.) without galvanic isolation and the SVA is connected to the same power supply, there is a real chance of earth loops and/or short circuits in this power supply.

2.6 Reset key

The reset key has three functions: first of all, it is used to interrupt the alarm. Pressing this briefly ends the current notification; the SMS messages that have not yet been sent are not sent.

A second function of the reset key is to restart the dialler. The dialler can be restarted by holding this key down for a period of 8 seconds. This only occurs if a power supply is connected.

If no power supply is connected, the reset key functions as an off button. Holding the key down for a period of 8 seconds switches off the dialler.



Statuses of inputs will **not** be stored in a permanent memory. If the supply voltage fails, and the built-in supercap is entirely discharged, the contents of this memory is lost. If the SVA is restarted manually, this status will also be reset. When the supply voltage is restored, the SVA behaves as if it is being started up for the first time. This means that:

- After the supply voltage has been restored, **only** active inputs are reported **once again**.
- **No** recovery message will be sent if the status of the input has been recovered **during** this power failure.

2.7 Ethernet

The Ethernet connection can be used for an **external** connection. This is set up in the SVA: see the **SV-prog** section. By default this is set up to connect to Checkmyproces.com.

2.8 2G/3G connection

To use the SVA with a 2G/3G connection, a SIM card with Internet subscription should be installed in the SVA. It is important that the correct APN, APN user and APN password are entered, otherwise the SVA will not be able to connect. This can be entered in SV-prog in the 2G/3G window.



The SVA does not provide a notification if something goes wrong with the APN. For more information about the APN, please contact your provider.

2.9 Inputs and outputs

It is possible to connect several variants of inputs and outputs to the SVA, such as contact inputs and voltage inputs. When connecting different inputs it is important to look carefully at the wiring diagram. This can be found on the side of the SVA.

3 SV-prog

3.1 Installation

SV-prog is used to set up the SV series. This program can be downloaded free of charge from the Adésys website (www.adesys.nl). All settings will be stored in the internal flash memory. It is **not** possible to store the settings on the SIM card.

SV-prog must be installed on your PC before it can be used. Follow the instructions displayed on your screen during the installation process. As soon as the installation process is complete, start the program via the shortcut or via the program menu in MS Windows.

Connect the SVA to a power source and connect the SVA to the PC using the Ethernet cable set supplied. The SVA can be connected to the local network or directly to the PC.

As soon as the SVA has been switched on, the tool will display this in the overview after a few seconds and the SVA can be configured by clicking it. When search diallers is pressed, SV-prog shows all accessible diallers.

Terms used in SV-prog

The terms you will encounter in SV-prog are explained below.

3.2 Status screen

The status screen provides you with information on the SVA. Examples of this information are the IMEI code, the serial number, the MAC address and the current status of the inputs and alarms/errors.



3.3 Call list

A call list is a group of contacts(SMS or email) that can be coupled to the input to send an alarm message or alarm recovery message.. One to eight contacts can be programmed into a call list

3.4 I/O

Inputs are displayed in this window. All inputs can be set up separately from one another. Settings can also be established here for **Mains Power Failure** and **System Errors**.

One call list can be set up for each input. As soon as an input becomes active, the notification procedure starts. The associated alarm message is sent to all set telephone numbers one after the other. This is explained further in the **Notification Procedure** section.

3.4.1 Input delay

A delay can be set for the status notification (active and idle message) in *input delay*. This means the status notification will not be sent until the input has been activated or deactivated for longer than this period. The maximum that can be set is "3600" seconds.



If an input goes back into idle mode during the delay time, the notification procedure does **not** start.

3.4.2 Recovery report (idle)

If desired, a *recovery report* SMS can be sent after the input goes into idle mode. The default setting is off even if nothing has been selected. Select "Yes" to activate this notification. A recovery report will always be sent to the external server.

3.4.3 System errors

Various system errors can be detected by the SVA. Notifications can be set up individually for each error. Depending upon the error, this is displayed in the programming tool and a notification is sent via SMS. By default the notification of all system errors via SMS is switched off.

3.5 Connections

The term 'connections' is used to mean the connection to an external server. With the SVA it is possible to make a connection to Checkmyproces.com or to a dedicated server.

3.5.1 Checkmyproces.com

Checkmyproces is a server on which the status of the SVA is displayed via the cloud. After logging in, SVA diallers can be connected to the account. This connection takes place via the IMEI number. The IMEI number can be obtained via SV-prog in the status screen.



If the network is secured by use of a firewall. Please make the following exceptions.

Data connection

| | |
|-----------|--------------------------------------|
| url: | http://svx.meetcentrale.nl:80/severa |
| protocol: | http |
| port | 80 |



System settings

| | |
|-----------|----------------------|
| url: | mqtt.meetcentrale.nl |
| protocol: | mqtt |
| port | 1883 |

3.5.2 Own server

It is also possible to enter your own server IP instead of Checkmyproces.com. The status is then sent to this IP address. The connection to your own server is made via two paths. The message is sent via HTTP POST and the settings via MQTT. For more information please contact Adésys.

3.6 System

In the system section you can change the general SVA settings, enter GSM and mobile data settings or trigger a factory reset.

3.6.1 Device

In this window you can change device-specific settings such as device name, alarm active text, alarm recovery text, automatic updates and a periodic reset.

3.6.2 Ethernet

Ethernet can be set up with a DHCP server or with the IP, DNS and gateway entered by the user.

3.6.3 GSM and mobile data

Here, the GSM module can be switched off, the PIN code entered, 2G/3G mobile data switched off or the data from the APN set up. Please contact your provider for the APN settings.

3.6.4 Factory reset

By performing a factory reset all settings will be lost and a reset to the default settings will be prompted.

4 Notification procedure

The notification procedure starts in the event of a status change or error. If set up, the SVA will first establish a data connection and send data, and then send the associated notification message to the first contact on the call list that has been set up. After the notification message has been sent, the SVA waits for an acceptance SMS. This is called the acceptance period. During this period, the user is required to send an SMS back to the SVA to ensure that the notification procedure is ended. If this does not occur, the next contact from the call list will receive an SMS.

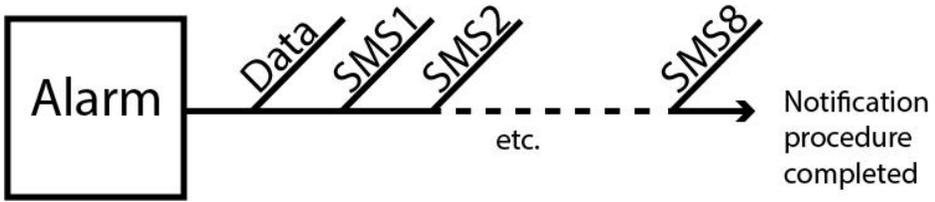


Figure 2: Notification procedure

4.1 SMS notification message

An SMS alarm message is structured as follows.

Device name, input name, status

- “Device name”: contains a text chosen by the user. This can be set up in the system menu.
- “Input name”: contains a text chosen by the user, which is coupled to the input channel. This can be set up in the I/O menu for the relevant input.



System errors such as the Ethernet error and the ‘no numbers coupled’ error have a fixed text (in English) that cannot be changed. For example, **powerfailure** is used for a mains power failure.

- “STATUS” shows whether an input channel is *Active* or *Idle*. Active and recovery texts can be set up in the system menu.

Email

- This is used if an email address is entered in the call list. In the event of a notification, the dialler first sends a message to Checkmyproces via httpost, whereupon Checkmyproces converts the notification into an email message and sends this to the email address that has been entered. The structure of the message is the same as the SMS.

4.2 Notification of status changes

After input channel 1 has been activated, the following can be observed:

- The green LED (on/busy) flashes 1x to indicate that input channel 1 is active.
- After a few seconds, the green LED (**on/busy**) flashes faster to indicate that the SMS message is being sent.
- The green LED (**on/busy**) again flashes 1x. The SMS message has been sent.
- The notification message appears on the mobile phone to which the SMS message has been sent; this message can be structured as follows:
LOCATION PUMP FAULT Active
- The green LED (**on/busy**) continues to show the status of the input until this ceases to be active.



- If the input returns to idle mode and a recovery report has been set up, the notification message will be structured as follows:

LOCATION PUMP FAULT Idle

4.3 Acceptance SMS

After receiving the alarm message, an acceptance SMS should be sent back. The content of this message does not matter as the SVA uses number recognition to accept the SMS

4.4 Notification of mains power failure

The SVA is equipped with a supercap. This gives the dialler the option of sending a few messages in the event of a power failure. The associated notification message is sent to the first number in the call list linked to the mains power failure. After the power fails, the following can be observed:

- The red LED (**error**) flashes 5x to indicate that the supply voltage has been lost.
- After a few seconds, the green LED (**on/busy**) flashes faster to indicate that the SMS message is being sent.
- The green LED (**on/busy**) remains on. The SMS message has been sent.
- The notification appears on the mobile phone to which the SMS message has been sent; this message can be structured as follows:
LOCATION powerfailure Active
- The red LED (**error**) continues to show the status of the mains power failure until this has been recovered.



A mains power failure message always takes priority over an ongoing notification of a status change. After notification of the mains power failure, any interrupted notification can be restarted. Notification of status changes that have not yet been notified then continues. This priority arrangement applies for both **Active** and **Idle**.

5 Output switching by SMS

With the SVA, the output channel can be switched by means of an SMS message. The SMS message should be structured as follows.

#<Command><parameter1><parameter2>#

Where:

Command = O (Output)

Parameter1 = A (Active) of I (Idle) or P (switch Pulse, default: 2 seconds active)

Parameter2 = input number

Examples:

Output 1 active: #OA1#

Output 1 Idle: #OI1#

Output 1 with default Pulse: #OP1#

Output 1 with 8s Pulse: #OP18#

Output 1 with 20s Pulse: #OP120#



6 Appendices

6.1 LED status indication

| Number of flashes for error (red) | |
|-----------------------------------|---|
| 1x | Problem with GSM module |
| 2x | No SIM card detected |
| 3x | Incorrect pin code |
| 4x | PUK code necessary |
| 5x | Power failure |
| 6x | No SMS central number / no antenna level |
| 7x | No telephone number coupled to input / 2G/3G connection cannot be established / Ethernet error |
| 8x | Connection to external server cannot be established. |

| Number of flashes for network (orange) | |
|--|---|
| Off | No antenna |
| Constant | Connected to external server |
| 1x | Antenna level 1% <> 20% |
| 2x | Antenna level 21% <> 40% |
| 3x | Antenna level 41% <> 60% |
| 4x | Antenna level 61% <> 80% |
| 5x | Antenna level 81% <> 100% |
| 1x long | In case of modem emulation, ring signal |
| Faster | Establishing connection |



| Number of flashes for on/busy (green) | |
|---------------------------------------|-------------------------------|
| Off | SVA is switched off |
| On | SVA is switched on |
| Faster | Starting up / sending message |
| 1x | Input 1 active |
| 2x | Input 2 active |
| 3x | Input 3 active |
| 4x | Input 4 active |
| 5x | Input 5 active |
| 6x | Input 6 active |
| 7x | Input 7 active |
| 8x | Input 8 active |



6.2 Technical specifications

| General | | |
|---|--|-------|
| Number of dialling numbers | 3 call lists, each containing 8 dialling numbers per call list, maximum of 20 digits per dialling number | |
| Notification by: | SMS message or text message over IP network | |
| Input/output options (differs for each SVA model) | Contact input | 2 – 8 |
| | Digital input (0=10V) | 2 – 8 |
| | Relay output | 0 – 2 |

| Physical properties | |
|----------------------------|--|
| Connection | DIN rail (TS35) enclosure |
| Dimensions (D x W x H) | 104 x 95 x 23 (mm) |
| Weight: | 125g |
| Max. operating temperature | -20°C to +55°C |
| Air humidity | Between 20 and 85 % (without condensation) |
| IP code | IP10 |
| Operational height | Up to 2000 metres (Above 2000 metres the max. operating temperature is reduced by 1.5°C per 300 metres up to a maximum height of 4000 metres) |
| Enclosure | Fire resistant UL94-V0 |

| Power supply | |
|---------------------------------|---|
| Power supply: | Nominal: 1-2 watts (2W whilst the supercap is charging) Peak: 8.5 watts / 18 VA (AC) Imax: 0.75A @ Vin= 11.4 V |
| Power supply range | 11.4 - 37.5 V DC (SELV) 24 V (± 10%)AC (SELV)* * if 24 Vac is used, it is possible that communication will not work if the following situations all arise at once. - GPRS 800/850 MHz mode - Weak connection with GSM mast (for example in the event of an incorrect antenna combination) and - Multi-slot class 1 to 10 not supported by the provider |
| Built-in emergency power supply | Supercap; this means the emergency power supply is very quickly charged and the dialler can still send a few alerts in the event of a mains power failure |



| GSM/GPRS/UMTS | |
|----------------------|--|
| Mobile network: | GSM/GPRS/EDGE 850/900/1800/1900 MHz (Quadband) UMTS/HSPA+ 800/850/900/1900/2100 MHz (Pentaband) |
| Power supply | Class 4 (+33dBm \pm 2dB) with EGSM850 Class 4 (+33dBm \pm 2dB) with EGSM900 Class 1 (+30dBm \pm 2dB) with GSM1800 Class 1 (+30dBm \pm 2dB) with GSM1900 Class E2 (+27dBm \pm 3dB) with GSM 850 8-PSK Class E2 (+27dBm \pm 3dB) with GSM 900 8-PSK Class E2 (+26dBm +3 /-4dB) with GSM 1800 8-PSK Class E2 (+26dBm +3 /-4dB) with GSM 1900 8-PSK Class 3 (+24dBm +1/-3dB) with UMTS 2100, WCDMA FDD BdI Class 3 (+24dBm +1/-3dB) with UMTS 1900, WCDMA FDD BdII Class 3 (+24dBm +1/-3dB) with UMTS 900, WCDMA FDD BdVIII Class 3 (+24dBm +1/-3dB) with UMTS 850, WCDMA FDD BdV Class 3 (+24dBm +1/-3dB) with UMTS 800, WCDMA FDD BdVI |
| Antenna connection: | Connector type SMA female |

| Ethernet | |
|-----------------|----------------------|
| Type | 10Base-T/ 100Base-TX |
| Auto MDIX | Yes |

| EMC rules | |
|------------------|--|
| CE | Emission: EN 301 489-01 V1.9.2 & EN 301 489-03 V1.4.1 (Class B) Immunity: EN 301 489-01 V1.9.2 & EN 301 489-03 V1.4.1 (Class A) |

| Safety | |
|---------------|---|
| CE | EN 60950-1 (2006) + A11 (2009) + A1 (2010) + A12 (2011) + AC (2011) + A2 (2013) |

| Expected service life | |
|--|--------------------------|
| Calculated MTBF (According to component-counting method) | 88167 hours (= 10 years) |

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