

# MAGIC SDC

ETI/EDI Switch & Converter

Hardware/Software Manual





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## INTRODUCTION

*MAGIC SDC* can be operated as ETI or optionally as EDI switch or EDI/ETI converter.

The *MAGIC SDC* monitors the ETI or the EDI stream of the main Multiplexer and in case of an error it switches to the redundant Multiplexer. With the integrated Link Mode two switches can be operated in redundancy mode.

The configuration of *MAGIC SDC* can be carried out via the LAN interface using the Windows application software included in delivery or via the front keypad and display of the unit. With the implemented SNMP functionality the system can also be integrated into a network management system via its LAN interface.



## S A F E T Y

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### Introduction

The unit described has been designed to the latest technical parameters and complies with all current national and international safety requirements. It operates on a high level of reliability because of long-term experience in development and constant and strict quality control in our company.

In normal operation the unit is safe.

However - especially if daily routine and technical errors coincide - some potential sources of danger for person, material and optimal operation remain.

This manual therefore contains basic safety instructions that must be observed during configuration and operation. It is essential that the user reads this manual before the system is used and that a current version of the manual is always kept close to the equipment.

---

### General safety requirements

To keep the technically unavoidable residual risk to a minimum, it is absolutely necessary to observe the following rules:

- Transport, storage and operation of the unit must be under the permissible conditions only.
- Installation, configuration and disassembly must be carried out only by trained personal on the basis of the respective manual.
- The unit must be operated by competent and authorised users only.
- The unit must be operated in good working order only.
- Any conversions or alterations to the unit or to parts of the unit (including software) must be carried out by trained personnel authorised by the manufacturer. Any conversions or alterations carried out by other persons lead to a complete exemption of liability.
- Only specially qualified personnel is authorised to remove and override safety measures, and to carry out the maintenance of the system.
- External software is used at one's own risk. Use of external software can affect the operation of the system.
- Use only tested and virus-free data carriers.

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## Text Conventions

In this manual the following conventions are used as text markers:

*Accentuation*: product names or important terms

*LCD TEXT*: Labelling on the front display of the system

*PC Text*: Labelling in the PC Software

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### TIP

The symbol **TIP** marks information which facilitates the operation of the system in its daily use.

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### NOTE

The symbol **Note** marks general notes to observe.

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### ATTENTION



The symbol **Attention** marks very important advice that is absolutely top observe. In case of non-observance malfunctions and even system errors are possible.

---

## 1 CONSTRUCTION

The functions of the *MAGIC SDC* are implemented in a single unit. The system is carried out as 19" x 1 U unit and has an integrated power supply.

FIG. 1 FRONT SIDE: MAGIC SDC SWITCH & CONVERTER







## 2.1

---

**Functionality**

In its function as ETI switch *MAGIC SDC* provides two *G.703/G.704* inputs and outputs and supports *ETI-NI* as well as *ETI-NA*. During a power breakdown the signal is automatically bridged. To use the system as EDI switch it is additionally equipped with two *LAN interfaces*.

As *GPS inputs* a 10 MHz as well as a 1pps input are available. The time reference is received via NTP.

Configuration and control is especially comfortable with the *MAGIC DSC Windows PC software* which is included in delivery and which communicates with the system via the LAN interface.

For an external alarm signalling eight *TTL* contacts and eight *relays* are provided. An integrated protocol storage is also available.

With the implemented *SNMP* functionality the system can also be integrated into a network management system via its LAN interface.



### 3.1 **Mounting**

With its dimensions (W × H × D) of 440 mm × 44,5 mm (1 U) × 260 mm the *MAGIC SDC* System can be used either as desktop device or mounted in 19 inch racks. Corresponding 19" mounting brackets are included in delivery.

When mounting the unit please keep in mind that the bending radius of the connected cables is always greater than the minimum allowed value.

When the *MAGIC SDC* is installed in a rack, please make sure that there is sufficient ventilation: it is recommended to keep a spacing of ca. 3 cm from the openings. In general, the ambient temperature of the system should be within the range of +5°C and +45°C. These threshold are especially to observe if the system is inserted in a rack. The system works without ventilation.

#### **TIP**

The temperature of the system can be indicated on the display (*MENU STATUS INFORMATION*)

During operation humidity must range between 5% and 85%.

#### **ATTENTION**



**Incorrect ambient temperature and humidity can cause functional deficiencies.**

Operation outside the threshold values indicated above leads to a loss of warranty claim.

### 3.2

#### **Connection to the mains voltage**

The system can be operated with mains voltage in the range from 90 V to 253 V via the internal power supply and the mains type appliance cable. The line frequency can vary from 45 Hz to 65 Hz. The maximum power consumption is 15W. The rack must be earthed according to the EMC regulations. The earthing can be carried out via the earthing screw on the back side of the unit.

The unit has a circuit closer. After plugging in the mains type appliance cable and pressing the circuit closer, the system boots within a few seconds. In stand-by mode the AVT logo is shown on the display<sup>1</sup>.

<sup>1</sup> Depending on the delivery status all menus are possibly displayed in German. The configuration of the menu language is described in CHAPTER 5.1.1.

### 3.3 Earthing of the system

For EMC reasons an earthing via the earthing screw must be carried out in either case.

**ATTENTION Earthing**



A lacking earthing can cause functional deficiencies within the unit. Because of the “pending” potential, unlike the protective earth conductor potential, slight electric shocks can occur by touching the rack. These are absolutely not dangerous, however they can be avoided totally by earthing.

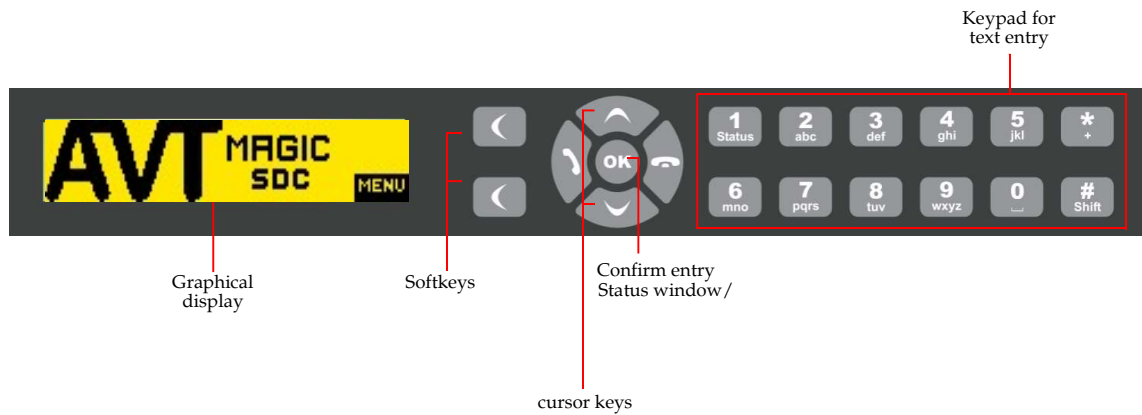
### 3.4 Operational elements on the front side

The system has an illuminated graphical display with a resolution of 160 x 32 pixel and 19 operating buttons.

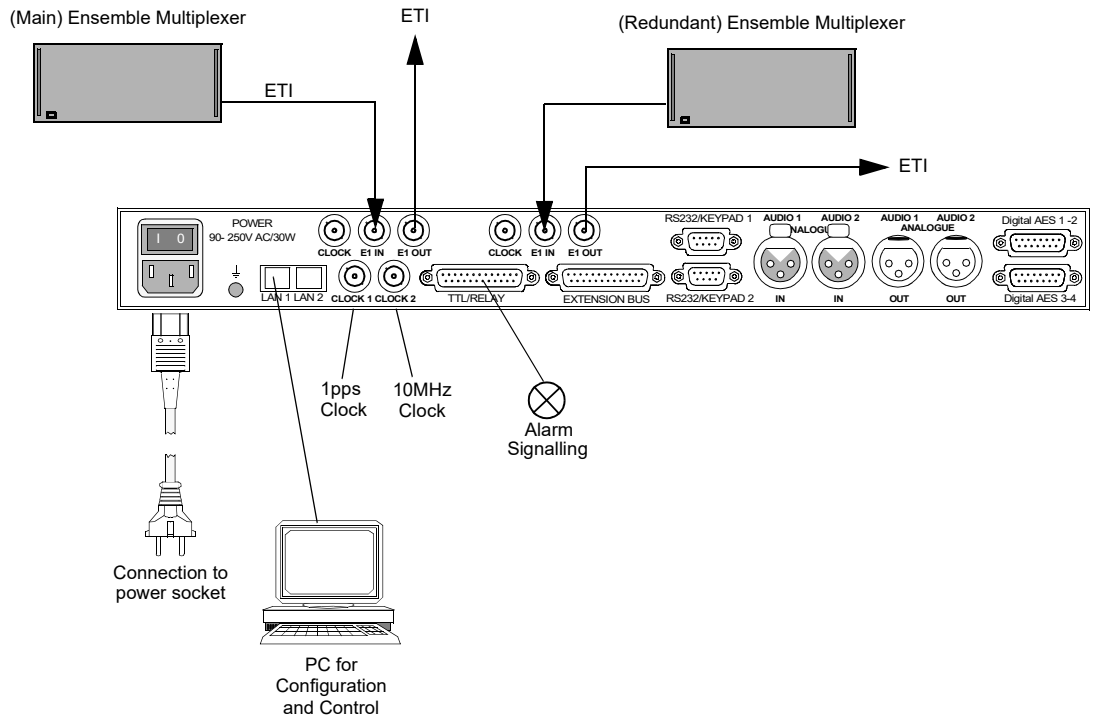
On the right next to the display there are two softkeys whose current functions are indicated on the display. In the middle there are two cursor buttons (upwards/downwards) as well as an **OK** button. The numerical pad supports in addition to the numerical characters **0...9**, the **'\*-** and **#**-key. For text entries the numerical pad can also be used as a normal keypad.

During a connection additional functions are possible that are explained in chapter 5 - “Operation via display and keypad”.

FIG. 2 OPERATIONAL ELEMENTS ON THE FRONT SIDE



3.5 Wiring diagram





The configuration of the system is especially comfortable with the Windows PC Software included in delivery.

---

#### 4.1 Hardware requirements

The PC must meet the following minimum requirements:

- IBM PC AT, IBM PS/2 or 100% compatible
- Windows XP/7
- 6 MB available hard disc space
- Screen resolution with 1024 x 768 Pixels
- LAN interface for configuration
- Microsoft, IBM PS/2 or 100% software compatible mouse

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#### 4.2 User Registration

To get information about the latest software always automatically, please register on our homepage:

**<http://www.avt-nbg.de>**

Go to **Create an account** under the **Log In** section and enter your name and email address. Define a user name and click on **Register**. You will receive a confirmation email that includes a link which allows you to activate your account.

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#### 4.3 Installing the Windows PC Software

Please insert the CD (430306) included in delivery in your CD-ROM drive. The software automatically starts your internet browser. Possible safety warnings can be ignored for the moment.

Please read also the **Release Letter** that will inform you about the latest functions and about the corrected bugs.

Please press under **Software Updates** the **MAGIC SDC** button. Subsequently the setup program is executed.

Alternatively, you can install the software directly from the CD. You will find the installation file **setup.exe** in the folder **Software\MAGIC SDC** on the CD.

Please follow the instructions of the installation routine.

After the installation the software can be started by clicking on the **MAGIC SDC** symbol on the desktop.

Connect the system via the LAN interface with your network. If you do not have a network you can also connect the unit to your PC directly via a so-called cross over network cable.

How to configure the LAN interface is described below (see CHAPTER 4.7.1, Page 30).

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#### 4.4 Software update from the internet

Software updates can be downloaded from our homepage

<http://www.avt-nbg.de>

free of charge. Please note that you need to register yourself on our homepage to have access to the download area. Go to **Create an account** under the **Log In** section and enter your name and email address. Define a user name and click on **Register**. You will receive a confirmation email that includes a link which allows you to activate your account. If you are already registered, you just need to log in.

Now, please go to our **Download** section and select **Software**. Under **MAGIC DAB** please download the file with the order number xxx. When the download is completed, execute setup and follow the instructions.

In addition to the PC Software, the setup also includes the **Firmware** for the system. If it also has to be updated, the **MAGIC SDC** Software displays an error message when it is started. The instructions for a Firmware update are described in CHAPTER 4.8.4, Page 49.



## 4.5 Operation via the Windows PC Software

In the following chapter all functions of the PC Software are described in detail.

### 4.5.1 The MAGIC SDC main window

After starting the *MAGIC SDC Software* the main window is automatically displayed.

FIG. 3 MAIN WINDOW - ETI SWITCH



The connection status between the PC and the system is displayed in the upper right corner of the window:



**PC ONLINE:** Connection to the PC is ok



**PC OFFLINE** or **NO CONNECTION:** Connection to the PC is faulty

The following status messages are also possible:



**PC ONLINE ALARM:** An alarm has occurred (see **System Monitor**)



**BOOT MODE:** No valid firmware on the system (orange). Please download the latest software (see CHAPTER 4.8.4)

## TIP

If you click on the status message, the **System Monitor** is displayed which shows the system status in detail (see CHAPTER 4.9.1).

**NOTE**


---

If the connection is faulty, please check the following points:

- Power supply cable is plugged in
  - Circuit switch of the system is in the ON position (display is available)
  - Network cable is connected to the PC and the system
  - Right IP address and right Control Port are selected in the software  
(**Configuration** → **Control Interface**, see Page 30)
- 

**Layout**

The main window is splitted into three parts:

- Left side: Information & alarms relevant for the Multiplexer connected to **Interface 1**
- Middle part: Information & alarms relevant for MAGIC SDC
- Right side: Information & alarms relevant for the Multiplexer connected to **Interface 2**

**Meaning of the LEDs**

The LEDs can be displayed in three different colours:

- **green:** no error
- **red:** error
- **blue:** error has occurred

To reset all LEDs to green, you need to press the **Reset Counter** button.

**4.5.1.1 Interface 1 / Interface 2**

Under **Interface 1** and **Interface 2** the status of the connected systems is displayed. The status message can be **ACTIVE**, **INACTIVE**, **VALIDATING** or **FAILED AND ACTIVE** (manual selection).

**4.5.1.2 E1 Input**

The following alarms are displayed under **E1 Input** if the system is operated as ETI switch. Next to the LEDs you can see the number of the occurred alarms.

- **Signal:** No 2-Mbit/s signal is received.
- **Sync:** No 2-Mbit/s framing can be found. This alarm is only signalled if „G.704-NA“ has been selected as ETI format.
- **AIS** (Alarm Indication Signal): Two or less „0“ are received within the last two frames. This alarm is only signalled if „G.704-NA“ has been selected as ETI format.
- **NA T1ST:** The NA T1ST is not continuous. This alarm is only signalled if „G.704-NA“ has been selected as ETI format.
- **Local D Alarm** (Local Deferred Alarm): The local error bit rate is higher than  $10e^{-03}$ . If this alarm occurs, the 2-Mbit/s signal cannot be decoded anymore. This alarm is only signalled if „G.704-NA“ has been selected as ETI format.

- **Local N Alarm** (Local Nondeferred Alarm): The local error bit rate is higher than  $10e^{-06}$ . This corresponds to one bit error in four minutes. This alarm usually occurs, when the system is switched on and when the line interface is connected. The alarm should not last longer than four minutes. This alarm is only signalled if „G.704-NA“ has been selected as ETI format.
- **C Reed Solomon**: Errors have been corrected by the Reed Solomon code. This alarm is only signalled if „G.704-NA“ has been selected as ETI format.
- **F Reed Solomon**: Errors couldn't be corrected by the Reed Solomon code (Failure). This alarm is only signalled if „G.704-NA“ has been selected as ETI format.

#### 4.5.1.3 EDI Input

The following alarms are displayed under **E1 Input** if the system is operated as EDI to ETI converter. Next to the LEDs you can see the number of the occurred alarms.

- **Signal**: No EDI signal is received.
- **PFT Sync**: This alarm is set if the Sync PFT is faulty.
- **PFT CRC**: This alarm is set if the CRC PFT is faulty.

#### 4.5.1.4 ETI

Directly below the **ETI** bar it is displayed if and when a reconfiguration is pending.

In the next line the name of the **Ensemble** is shown followed by the detected **Format**.

Additionally, the following alarms and status messages are displayed:

- **ETI Framing**: This alarm occurs if the ETI frame cannot be found.
- **Error Level 0**: This LED indicates that the Error Level is 0.
- **Error Level 1**: This LED indicates that the Error Level is 1.
- **Error Level 2**: This LED indicates that the Error Level is 2.
- **Error Level 3**: This LED indicates that the Error Level is 3.
- **Header CRC**: This alarm is set if the CRC header is faulty.
- **MST CRC**: This alarm is set if the CRC MST is faulty.
- **Frame Counter**: The frame counter is not continuous.
- **Frame Phase**: The frame phase is not continuous.
- **Frame Length**: The indicated frame length is wrong.
- **LI TIST**: The LI TIST is not continuous.

The number of Audio and Data subchannels is displayed under **No. Subchan.** (Number of Subchannels).

Under **FIC included** you can see if the Fast Information Channel (FIC) is included into the ETI data stream.

Also displayed are the **DAB Mode** and the **Frame Length**.

#### 4.5.1.5 Output

The following alarms are displayed under **Output**. Next to the LEDs you can see the number of the occurred alarms.

- **Output open**: There is no further processing unit.
- **Output shorted**: 2-Mbit/s output is shorted.

#### NOTE

---

The output alarm messages can be disabled for **Interface 2** under **Configuration** → **System** → **Operation Settings** → **E1 Interface**.

---

#### 4.5.1.6 Operation

The operation mode of **MAGIC SDC** is indicated under **Mode**.

Additionally, the following status messages are displayed:

- **Seamless switching**: Seamless switching is possible as long as the LED is displayed in green.

#### 4.5.1.7 Clocks

Under **Clocks** the following alarms and status messages are indicated:

- **NTP**: Display of the IP address of the connected NTP Server. The alarm is set if both NTP servers are not available.
- **1 PPS**: The 1 pps clock is faulty.
- **10 MHz**: The 10 MHz clock is faulty.

#### 4.5.1.8 System Clock

Here it is indicated which system clock is currently used.

- **10 MHz**
- **Recovered E1 In 1**
- **Recovered E1 In 2**
- **Internal**

#### 4.5.1.9 Reset Counter

In the middle part of status window you will find the **Reset Counter** button. If you press this button, all LEDs will be reset to green and all error counters are reset to 0.



## 4.6 Menu File

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### 4.6.1 Submenu Exit

Via the submenu **Exit** you can close the *MAGIC SDC* software.

## 4.7 Menu Configuration

### 4.7.1 Submenu Control Interface

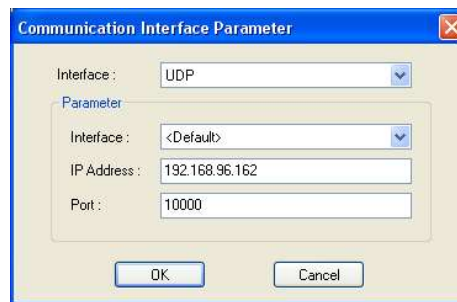
The system is configured and operated via the LAN interface.

Select under **Configuration** → **Control Interface**.

#### LAN

For controlling the system via the LAN interface please select **Interface** → **UDP**.

FIG. 4 LAN PARAMETERS



Under **Parameter** → **Interface** edit **<Default>**. If there should be more than one network interface card in your PC, select the desired one.

The standard **IP Address** of the system is **192.168.96.102** and the standard control **Port 10000**.


To enable a connection with your PC, you have to be in the same **subnet**. Therefore, please enter an IP address from your subnet<sup>1</sup>.

To change the IP address at the front keypad of the system, press the softkey **MENU** → **SYSTEM SETTINGS** → **LAN INTERFACES** → **IP ADDRESS**. Enter now the desired IP address. When entering manually you have to be sure that the IP address is not already used by another unit<sup>2</sup>.

#### NOTE

Maybe further settings are necessary (e.g. sub-net mask, standard: 255.255.255.000). In that case please contact your network administrator, who can tell you the correct settings.

#### TIP

The currently allocated IP address of the system can be displayed by pressing the right telephone button .

Please enter the correct IP address of the system under **IP Address**.

<sup>1</sup> In this way you can find out your own subnet: Under *Windows XP* click on **Start** → **Execute ...**. Enter **cmd** in the command line. An entry window is displayed in which you must enter **ipconfig**. Your IP address is displayed (e.g. 192.168.12.35). Your subnet is accordingly 192.168.12.xxx.

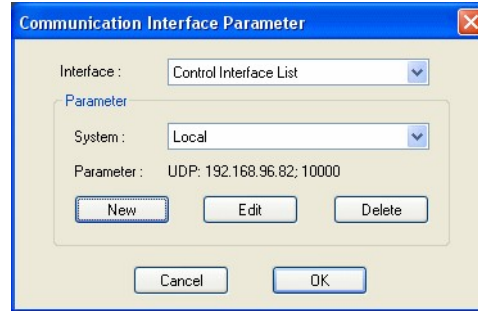
<sup>2</sup> To check if the IP address is already used in the network, follow the instructions: Under *Windows XP* click on **Start** → **Execute ...**. Enter **cmd** in the command line. An entry window is displayed in which you must enter **ping xxx.xxx.xxx.xxx**. Whereas xxx stands for the IP address you want to check.

## Control Interface List

If you want to manage several units with the PC Software, you can enter all systems by selecting under **Interface** the option **Control Interface List**.

To create a new list entry, press the **New** button. Please enter the settings for the LAN parameters as described above. Additionally, you can enter a **Name** for the list entry.

FIG. 5 CONTROL INTERFACE LIST PARAMETER



By the key **Edit** you can edit the currently selected entry. With **Delete** you can cancel the list entry.

## 4.7.2 Submenu System

Via the submenu **System** *MAGIC SDC* can be configured completely.

After the configuration has been changed, the following options are available:

- With **OK** the configuration dialogue is closed and all settings are saved and applied to the system.
- The function **Apply Now** allows you to save the current settings without closing the configuration dialogue.
- **Cancel** cancels all settings made.

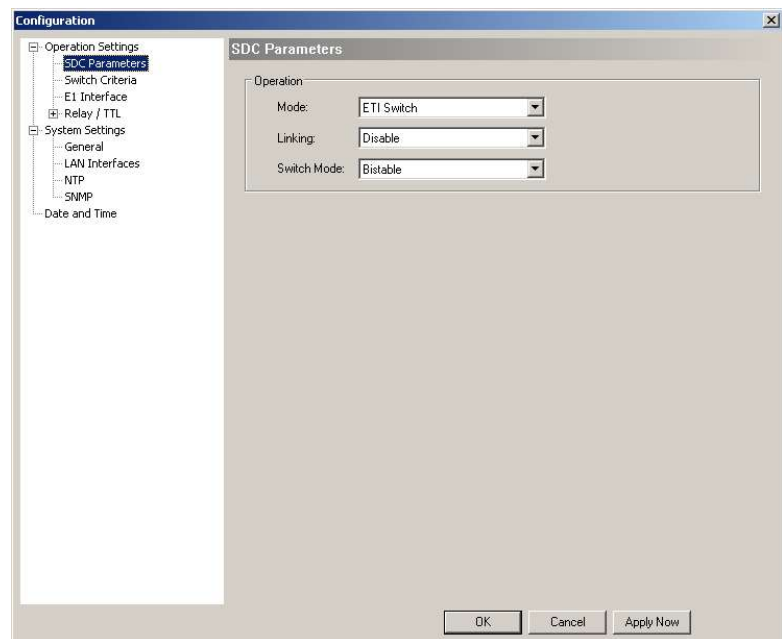
The configuration differentiates between **System Settings**, which usually do not have to be changed during the operation and the actual **Operation Settings** for the current operational case.

### 4.7.2.1 Operation Settings

#### 4.7.2.1.1 SDC Parameters

Under **SDC Parameters** the operating mode for *MAGIC SDC* is configured.

FIG. 6 SDC PARAMETERS



### Operation

- Please select the desired operation mode for they system under **Mode**. You can chose between
  - **ETI Switch**
  - **EDI Switch** (optional)
  - **ETI to EDI Converter** (optional)
  - **EDI to ETI Converter** (optional)

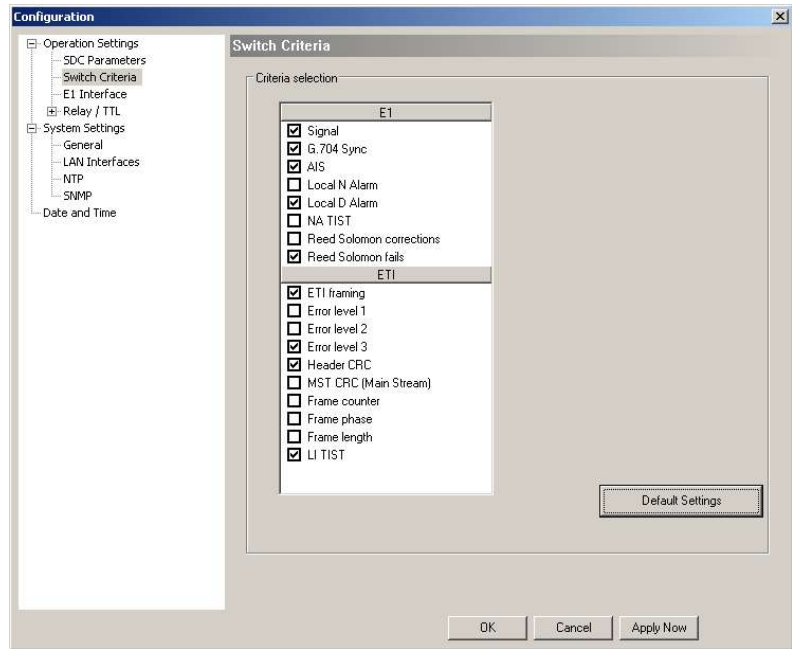


- Under **Linking** you can select if you want to operate the system in redundancy mode. Currently, this function is not yet implemented.
- If you operate the system as switch, you can select under **Switch Mode**, the operating mode of the switch. The following options are available:
  - **Bistable**: In case of an alarm, *MAGIC SDC* switches to E1 Interface 2. Even if the alarm does not exist anymore, *MAGIC SDC* will not switch back to E1 Interface 1.
  - **Monostable 1**: In case of an alarm, *MAGIC SDC* switches to E1 Interface 2. As soon as the alarm does not exist anymore, *MAGIC SDC* will switch back to E1 Interface 1.
  - **Monostable 2**: In case of an alarm, *MAGIC SDC* switches to E1 Interface 1. As soon as the alarm does not exist anymore, *MAGIC SDC* will switch back to E1 Interface 2.

4.7.2.1.2 Switch Criteria

The menu item **Switch Criteria** allows you to select the alarms which trigger a switching procedure.

FIG. 7 SWITCH CRITERIA - ETI



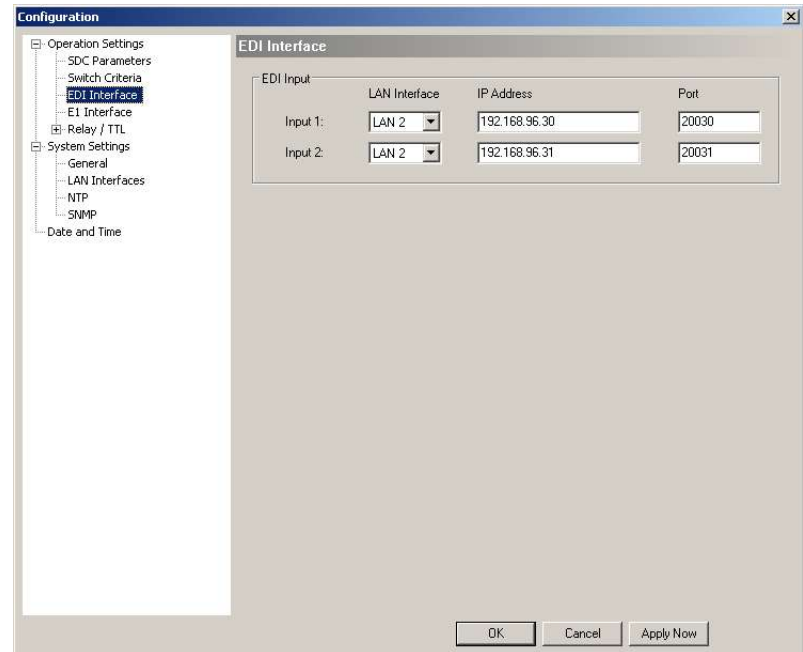
Criteria selection

The alarms are divided into **E1/T1** (for ETI Switch mode), **EDI** (for EDI to ET converter mode) and **ETI** alarms. If you want **MAGIC SDC** in case of an alarm, please select the relevant alarm from the list.

### 4.7.2.1.3 EDI Interface

This menu is only displayed if you have selected the **EDI to ETI converter** mode under **SDC Parameters**.

FIG. 8 EDI INTERFACE



- Under **EDI Input** you need to enter the **IP Address** and the **Port** of **Input 1** and **Input 2**. Additionally, you must select which **LAN Interface** you want to use for the EDI streams.

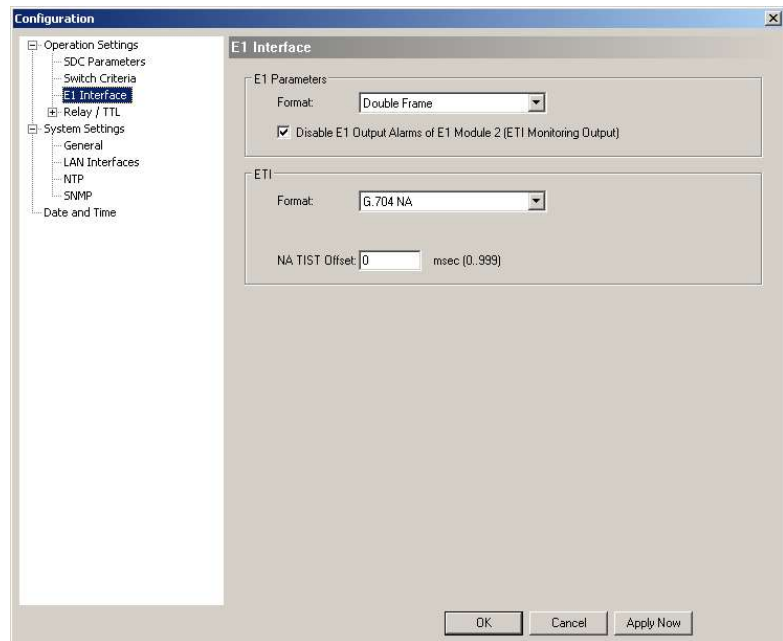
#### NOTE

Since the **MAGIC SDC** provides two LAN interfaces, you can use one for data and the other one for control. The configuration of the LAN interfaces can be done under the menu item **LAN Interfaces** (see CHAPTER 4.7.2.2.2, Page 41).

#### 4.7.2.1.4 E1 Interface

The menu item **E1 Interface** allows a configuration of the E1 and the ETI parameters.

FIG. 9 E1 INTERFACE



#### E1 Parameters

- Please select the **Format** of your E1 (2-Mbit/s) network. You can choose between **Double Frame** and **CRC Multi Frame**.

#### NOTE

This selection depends on the network and is a setting in the last E1 transmission equipment before it is connected to the ETI Switch. All countries except Germany are normally using **Double Frame** format. If you select the wrong format you will get immediately signal errors.

In case you do not know which E1 (2-Mbit/s) format you use, please ask your network provider.

- Via the option **Disable E1 Output Alarms of E1 Module 2 (ETI Monitoring Output)**, you can deactivate the output alarms for the E1 Interface 2. If you select this option, the alarms will be no longer displayed in the main window.

#### ETI Parameter

- Please select which ETI **Format** you use. *MAGIC SDC* supports **G.704-NA** and **G.703-NI**.
- Under **TIST insertion** (only in EDI to ETI converter mode) you need to enter if you want the EDI deti TAG item TSTA field to be inserted into the **LI TIST and NA TIST**, **LI TIST** or **NA TIST** fields of the generated E1 output signal.
- Under **NA TIST Offset** you can select a value for the NA TIST Offset between **0 ...999 msec**.

#### 4.7.2.1.5 Relay/TTL

The *MAGIC SDC* has **eight GPIO Pins (TTL)** which can be programmed individually. Furthermore, eight **relays** are also available.

The following description applies to all eight configuration windows **TTL 1 (Pin 1), TTL 2 (Pin 2), TTL 3 (Pin 3), TTL 4 (Pin 4), TTL 5 (Pin 5), TTL 6 (Pin 6), TTL 7 (Pin 7) and TTL 8 (Pin 8)**.

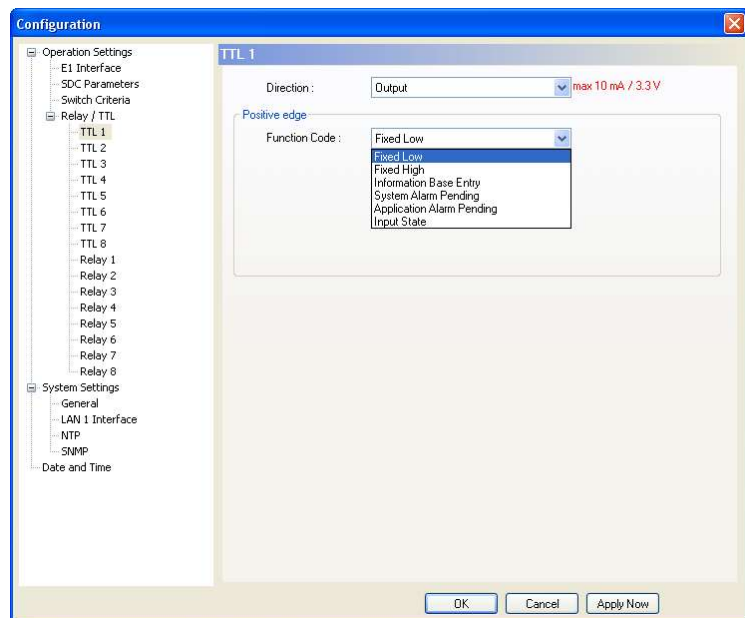
#### TTL Pin as Output

#### ATTENTION



Please note that the maximum switching current is 10 mA and the maximum switching voltage is 3.3V per TTL output.

FIG. 10 TTL PIN AS OUTPUT



If a TTL Pin is configured as an **Output**, the event is signalled when the voltage at the TTL Pin changes from 0V to +3.3V.

Under **Positive edge** you can select the following **Function Codes**:

- **Fixed Low**: The TTL Pin is fixed to 0V.
- **Fixed High**: The TTL Pin is fixed to +3.3V.
- **Information Base Entry**:
- **System Alarm Pending**: This function signals a pending system alarm (see CHAPTER 4.9.1).
- **Application Alarm Pending**: This function signals a pending application alarm. You can select up to three specific alarms or the options **Any Clock Alarm** or **Any input Alarm**.

- **Input State:** You can signal a certain **Input State** (**Failure**, **Active**, **Inactive** or **Validating**) for the E1 **Module 1** or **2**.

## Relay

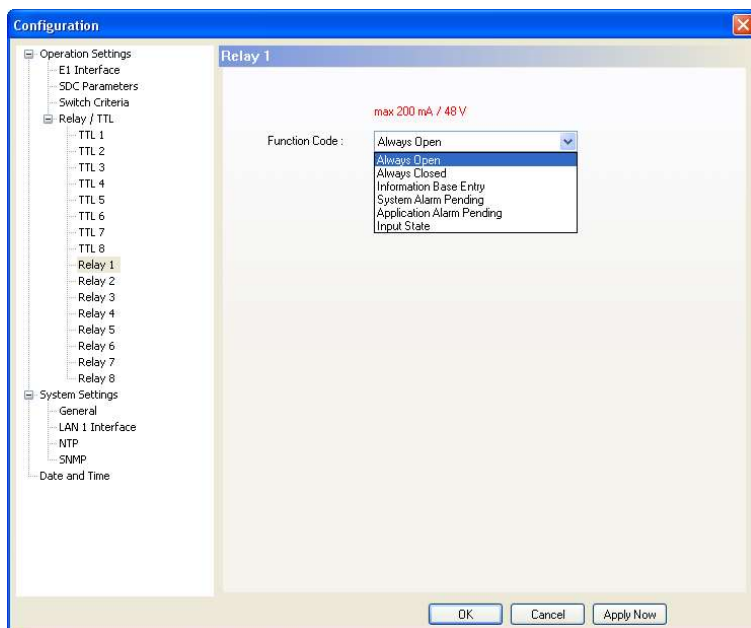
### ATTENTION



Please note the maximum switching current is 200 mA and the maximum switching voltage is 48V per relay output.

The following description is valid for all eight configuration windows **Relay 1 (Pin 14+15)**, **Relay 2 (Pin 17+18)**, **Relay 3 (Pin 19+20)**, **Relay 4 (Pin 21+9)**, **Relay 5 (Pin 22+10)**, **Relay 6 (Pin 23+11)**, **Relay 7 (Pin 24+12)** and **Relay 8 (Pin 25+13)**.

FIG. 11 RELAY



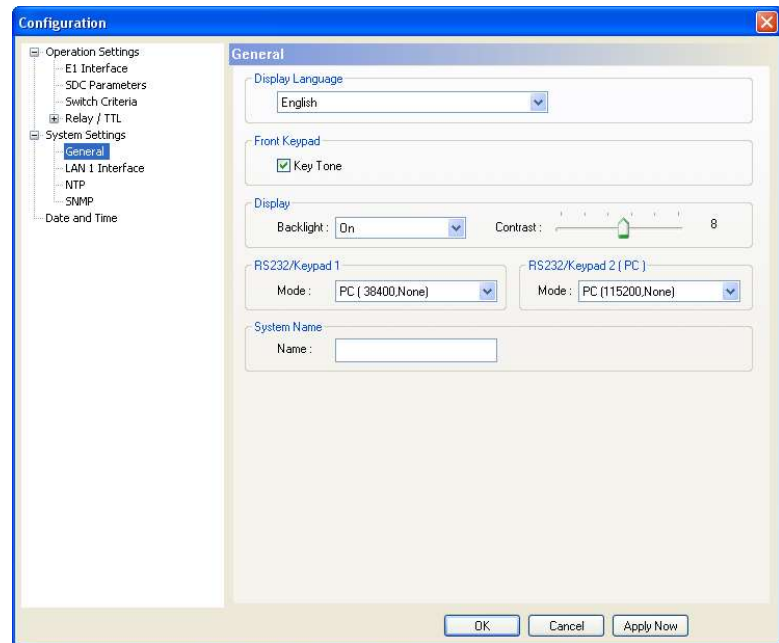
The functions for programming the relays are identical with the function codes for the TTL output. The following options (**Function Code**) are available:

- **Always open:** The relay contacts are always open.
- **Always closed:** The relay contacts are always close.
- **Information Base Entry:**
- **System Alarm Pending:** This function signals a pending system alarm (see CHAPTER 4.9.1).
- **Application Alarm Pending:** This function signals a pending application alarm. You can select up to three specific alarms or the options **Any Clock Alarm** or **Any input Alarm**.
- **Input State:** You can signal a certain **Input State** (**Failure**, **Active**, **Inactive** or **Validating**) for the E1 **Module 1** or **2**.

## 4.7.2.2 System Settings

## 4.7.2.2.1 General

FIG. 12 GENERAL



## Display Language

- Currently **English** and **German** are supported as display languages.

## Key Tone

- To activate the key tone for the system, please select the check box **Enabled**.

## Display

- The **Display** has a backlight. Under **Backlight** you can set it on permanently if you select **On**. If **Auto off** is selected, the backlight is automatically turned off **60** seconds after the last keystroke. The backlight can be activated again by pressing any key (e.g. **OK**).

**NOTE**

Please notice that if the key lock is enabled, the backlight is not activated before you press the key sequence **MENU \***.

- With the slide controller **Contrast** you can set the desired contrast for the display within the range of **-16 ... 15**. The default setting is 0.

## RS232/Keypad 1

This interface is currently not in use.

### RS232/Keypad 2 (PC)

Via the RS232 you can connect a PC via RS232 to configure the system with the Windows PC Software. Please select the right baud rate under **Mode**.

### System Name

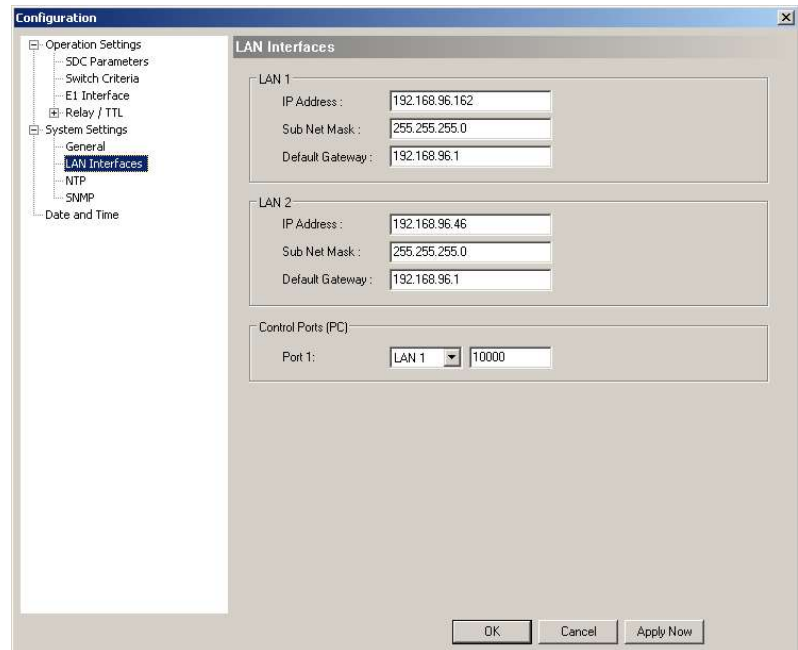
Under **System Name** you can enter a name for the system. The name is displayed in the headline of the PC software.



#### 4.7.2.2.2 LAN Interfaces

Under **LAN Interfaces** you need to enter the configuration details of the LAN interfaces.

FIG. 13 LAN INTERFACE



#### IP Address

- Under **IP Address** please enter the IP address of your system.
- Under **Subnet Mask** you need to enter the correct subnet mask. The default value is **255.255.255.0**.
- Under **Default Gateway** please enter the IP address of your default gateway.

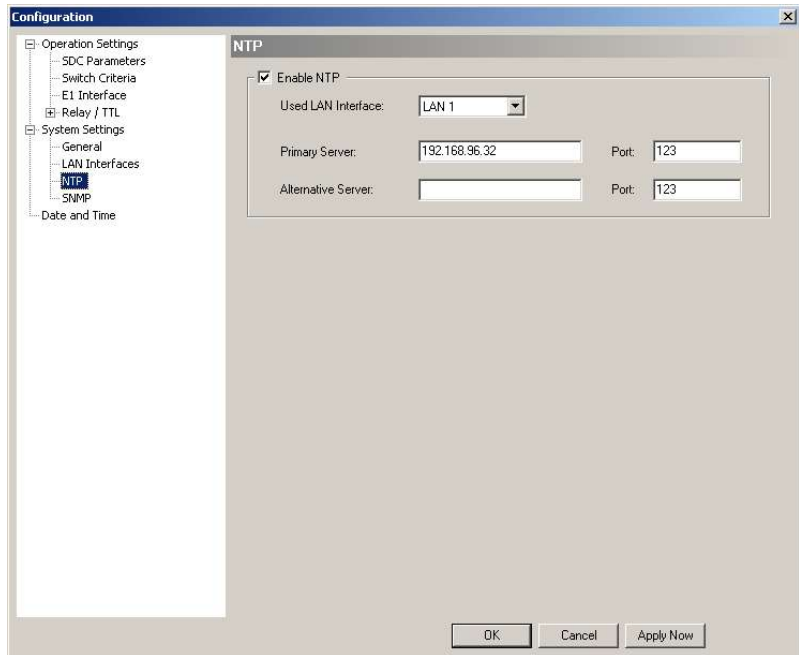
#### Control Port

- Please select the LAN interface which you want to use for the control of the system and enter the Control Port that is used.

## 4.7.2.2.3 NTP

Under the menu item **NTP** you can enable NTP and configure the NTP settings for your system.

FIG. 14 NTP

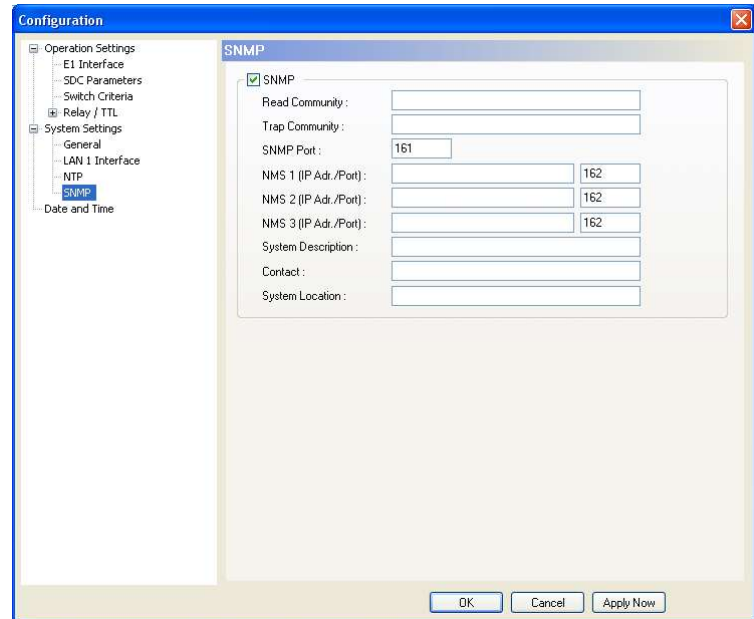


- To activate NTP, please select **Enable NTP**.
- Under **Used LAN Interface** you must select which LAN interface you want to use for NTP.
- Enter the IP address and the port for your NTP Server under **Primary Server**.
- If you want to add a second NTP Server as backup you can enter the IP address and port under **Alternative Server**.

#### 4.7.2.2.4 SNMP Parameter

To integrate the *MAGIC SDC* into a network management system, the SNMP function can be used. Currently, the system supports SNMP V2.

FIG. 15 SNMP PARAMETER



Under SNMP Parameter the function can be activated by enabling the option **SNMP**.

Please ask your network management system administrator for the correct SNMP settings.

- The **Read Community** entry is an identifier to read data. The name has to be identical with the name in your Management System. By default, the name **public** is used.
- Under **Trap Community** you define the name for the trap datagrams. The name has to be identical with the name in your Management System.
- Please enter the port on which MAGIC AD1 ETI receives messages under **SNMP Port**. The default setting is usually **Port 161**.
- *MAGIC SDC* allows the addressing of up to three different Network Management Systems. Please enter the corresponding IP addresses and Ports under **NMS 1 (IP Adr./Port)**, **NMS 2 (IP Adr./Port)** and **NMS 3 (IP Adr./Port)**.
- Under **System Description** you can assign a name for *MAGIC SDC*.
- Under **Contact** an email address can be entered.
- Under **System Location** you can enter the location of the switch.

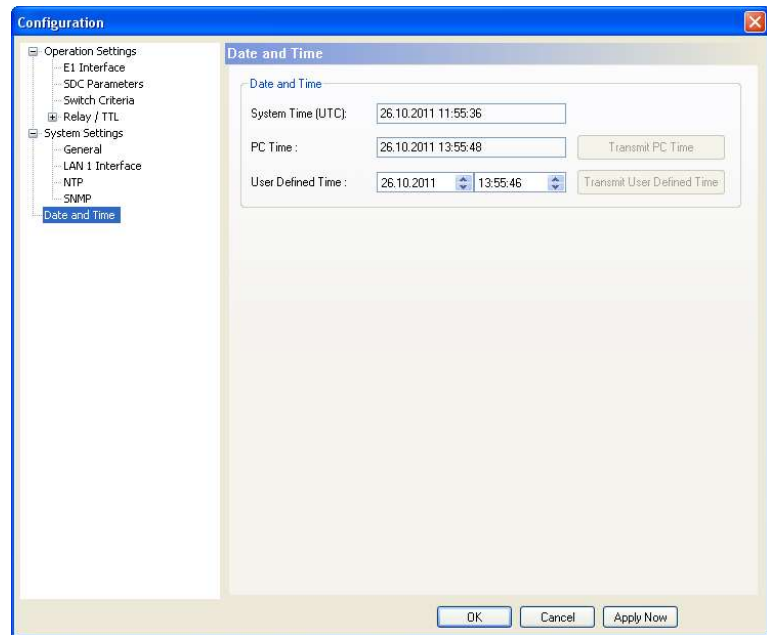
### 4.7.2.3 Date and Time

Via the dialogue **Date and Time** you can program the system date and time.

Via the button **Transmit PC Time** you can synchronise the system time with the PC time.

The button **Transmit User Defined Time** allows you to set a different time. This function is helpful, if you want to use the system later on e.g in a different time zone.

FIG. 16 DATE AND TIME



**ATTENTION** During a power breakdown the integrated system clock is buffered by an internal battery<sup>a</sup>. The life time of a battery is typical ca. 7 years. The replacement should only be done by the AVT Service.



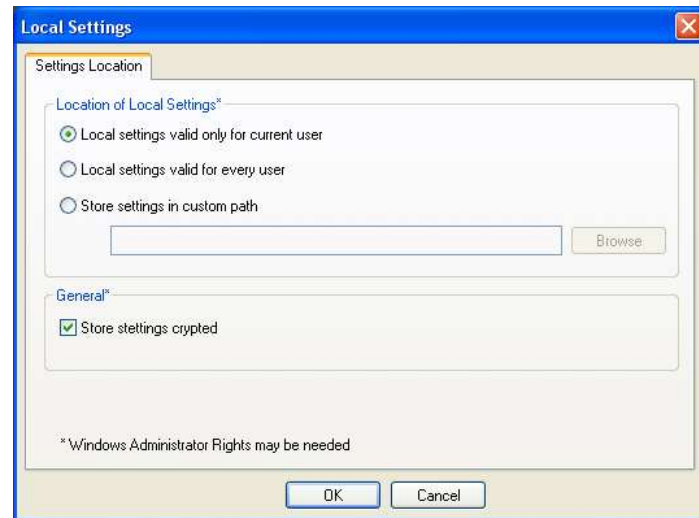
<sup>a</sup> Type: 3V Lithium Battery Renata CR1220

**NOTE** If the FIG 0/10 is transmitted by the Ensemble Multiplexer, the time will be adjusted automatically.

### 4.7.3 Submenu Local Settings

Under **Local Settings** you can decide if you want to store the settings of your configuration only for the current user or globally for all users.

FIG. 17 LOCAL SETTINGS



#### Location of Local Settings

- To store your settings only for the current user, select the option **Local settings valid only for current user**.
- To store the settings globally for all users, select the option **Local settings valid for every user**.
- Alternatively, you can select the option **Store settings in custom path** to define a specific folder in which your settings are stored.

#### General

- To store your settings encrypted, you can activate the option **Store settings crypted**.

## 4.8 Menu Administration

### 4.8.1 Submenu Registration

Via the submenu **Registration** you can check the activated Firmware options.

FIG. 18 REGISTRATION

Under **Hardware** the system type (here: **MAGIC SDC ETI DAB Switch**) is displayed. On the tab **Main** all relevant features for identification like **Subject Number**, **Factory Number**, **Year**, **Hardware Version** as well as the **MAC Addresses** are displayed.

Under the **E1 Module 1/2** tabs you find the identification features for the E1 modules.

Under **Features** all available software options are listed.

### Upgrade of Firmware Options

#### NOTE

We need the serial number (**Factory Number**) of the system for an upgrade. Please read out the serial number **always** from the **Registration**, since the serial number on the system label could be different.

To activate further **Firmware options** later, please enter the password, which you received from us, in the dialogue which opens when you click on the button **Enter Password**.

FIG. 19 PASSWORD ENTRY

#### 4.8.2 Submenu File System

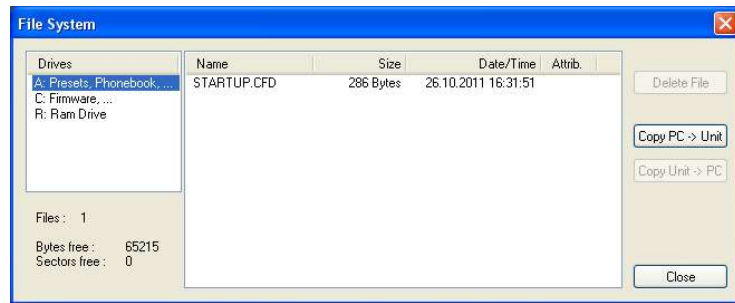
By selecting the submenu **File System** the file directory of the system (similar to the harddisk of a PC) is displayed.

#### ATTENTION



Please do not carry out any actions under **File System** unless our support asked you to. All user import/export functions can be found under the menu **File** (see CHAPTER 4.6).

FIG. 20 SUBMENU FILE SYSTEM



Via the button **Delete File** the currently selected file is deleted from the system.

#### ATTENTION



Do not delete a file unless our service told you to delete the file. Otherwise a malfunction of the system can occur.

The button **Copy PC -> Unit** allows you to copy a file from a PC to the system.

#### ATTENTION



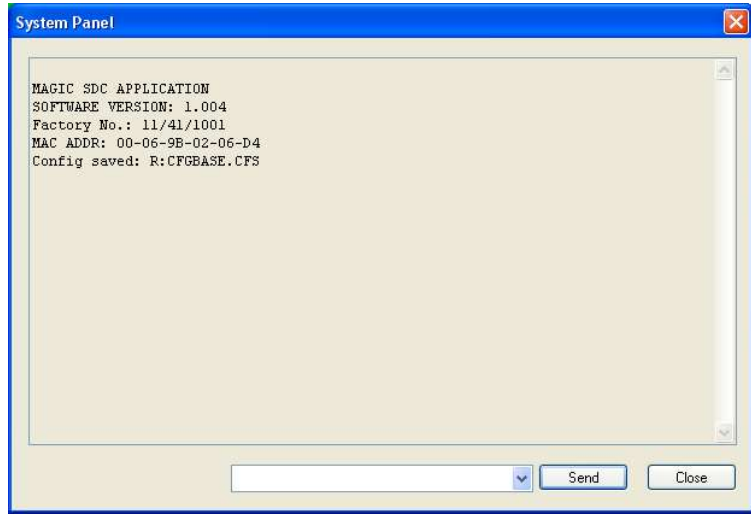
Please use only the function **Firmware Download** (see CHAPTER 4.8.4) respectively the import functions in the menu **File** (see CHAPTER 4.6) to copy files to the system.

The button **Copy Unit -> PC** allows you to copy a file from the system to the connected PC

### 4.8.3 Submenu System Panel

The **System Panel** is only for service purposes. Please only enter commands in the prompt, if our support ask you to do so.

FIG. 21 SUBMENU SYSTEM PANEL





#### 4.8.4 Submenu Firmware Download

The firmware required for the *MAGIC SDC* Switch is always included in the PC software. Via the **Firmware Download** the firmware can be comfortably loaded on the system.

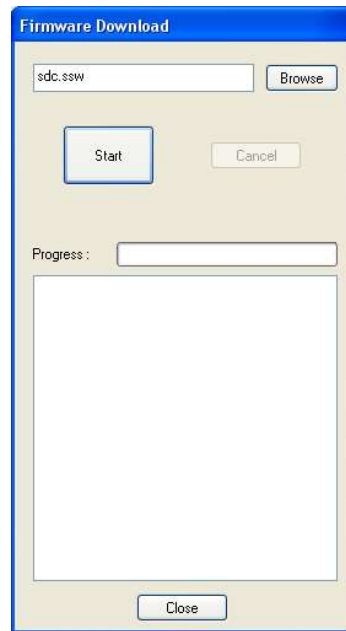
With the **Browse** button you select the firmware file. The file is always stored in the directory in which you installed the *MAGIC SDC* application. The standard installation directory is:

**C:\Programme\MAGIC SDC**

The name of the firmware file is „**sdc.ssw**“.

---

FIG. 22 FIRMWARE DOWNLOAD



Please press the **Start** button to load the firmware on your system. The **Progress** bar shows the status of the download. After about three minutes the download will be finished. If the download had been successful, a message is displayed. After a confirmation the system executes a reset.

---

#### NOTE

If a download had been faulty, you can simply switch off the unit and then switch it on again. The new software is only written in the flash memory, if a download had been successful. Otherwise the old firmware is maintained.

---

#### 4.8.5 Submenu Set Factory Settings

Via the submenu **Factory Settings** all settings are reset to the factory settings.

For safety reasons a confirmation is required.

---

FIG. 23 CONFIRMATION TO SET FACTORY SETTINGS

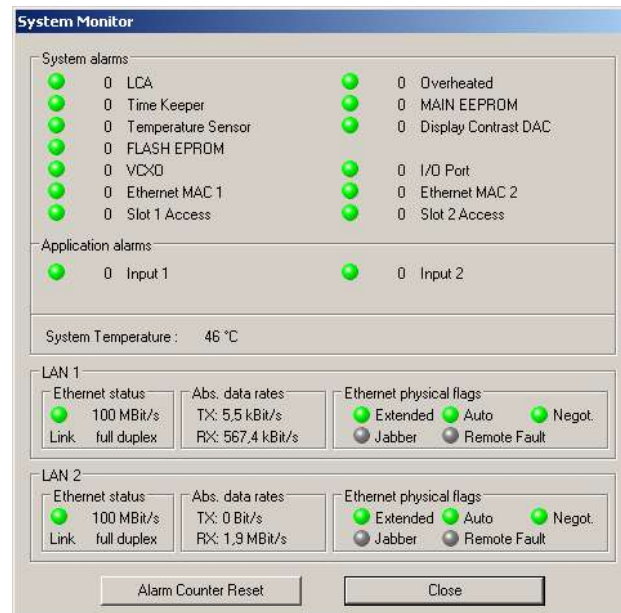


## 4.9 Menu Extras

### 4.9.1 Submenu System Monitor

Via the menu **System Monitor** you receive all information about the status of the system.

FIG. 24 SUBMENU SYSTEM MONITOR



- Under **System alarms** all possible system alarms are displayed. A red LED signals a currently existing alarm. It is also displayed how often the alarm occurred since the unit has been switched on. You can reset the alarm counter by pressing the **Alarm Counter Reset** button.

#### NOTE

If an alarm occurs several times or for a longer period of time, please disconnect the system from electricity. If you switch on the unit and the alarm occurs again, there is probably a hardware defect.

The following alarms are signalled:

- **LCA (Logic Cell Array):** FPGA error; the communication with a programmed component is faulty.
- **Overheated:** The system sets this alarm, if the system temperature is higher than 57°C. Please disconnect the system from electricity or cool down the ambient air temperature.
- **TIME KEEPER:** The communication with the integrated clock module is faulty.
- **MAIN EPROM:** The communication with the permanent memory is faulty. Configurations cannot be stored or read anymore.
- **Temperature Sensor:** The communication with the temperature sensor is faulty.
- **Display Contrast DAC:** The communication with the display contrast DAC is faulty.

- **FLASH EPROM:** The communication with the permanent memory is faulty. Configurations cannot be stored or read anymore.
- **VCXO:** The communication with the voltage-controlled oscillator is faulty.
- **I/O Port:** Currently not in use (Audio).
- **Ethernet MAC 1:** The initialization of the ethernet module 1 has failed.
- **Ethernet MAC 2:** The initialization of the ethernet module 2 has failed.
- **Slot 1 Access:** The communication with the E1 interface 1 is faulty.
- **Slot 2 Access:** The communication with the E1 interface 2 is faulty.

## TIP

You can also configure a system alarm as relay output (see PAGE 37).

- Under **Application alarms** all possible application alarms are displayed. A red LED signals a currently existing alarm. It is also displayed how often the alarm occurs since the unit has been switched on. You can reset the alarm counter by pressing the **Alarm Counter Reset** button .
  - **Input 1:** The E1 or EDI input signal fulfils a switching criteria (see CHAPTER 4.7.2.1.2, Page 34)
  - **Input 2:** The E1 or EDI input signal fulfils a switching criteria (see CHAPTER 4.7.2.1.2, Page 34)
- The actual system temperature can be found under **System Temperature**. The temperature is measured in °C. A normal system temperature lies around 30...45°C.
- Under **Ethernet status** you can find information about your ethernet connection.
- Under **Abs. data rates** the absolute data rates of your ethernet connections are displayed. TX stands for transmit direction and RX for receive direction.
- Under **Ethernet physical flags** the following ethernet flags are displayed:
  - **Extended**
  - **Auto**
  - **Negot.**
  - **Jabber**
  - **Remote Fault**

## 4.9.2 Submenu Protocol File Viewer

Via the menu **Protocol File Viewer** you can display the Protocol File.

FIG. 25 PROTOCOL FILE VIEWER



In the window the alarms are listed with the following information:

- **Date**
- **LocalTime**
- **Duration**
- **Name**
- **Status**
- **Info**

Under **Filter Options** you can select which alarms and errors are to be displayed in the window. To apply your selection, please press the **Set Filter** button.

With the button **Export (using Filter)** you can export the protocol file with your selected Filter options.

With the button **Delete Logfile File** you can delete the protocol file of the system.

With the button **Reload Logfile File** you can reload the protocol file and in this way update the displayed list.

With the button **Close** the window will be closed.

---

## 4.10 Menu Help

### 4.10.1 Submenu About MAGIC SDC

In the **About MAGIC SDC** dialogue, you can find the software versions of the PC software (**PC Version**) and of the system (**Firmware Version**). Furthermore you can find our contact information.

---

FIG. 26 SUBMENU ABOUT MAGIC SDC





In this chapter all basic configurations for the operation of the *MAGIC SDC* Switch via the front keypad and display are explained.

A few settings are not adjustable on the unit. All settings can also be made comfortably via the *MAGIC SDC* Windows PC Software included in delivery.

## NOTE

For the details of most functions please see the PC Software description from CHAPTER 4.

### 5.1

#### Basic configuration

In the following some basic configuration of *MAGIC SDC* are described in detail.

Menu reference number



## NOTE


All menus can be reached directly via a *QuickMenu key* sequence. For this purpose each menu item is marked with a number in the upper left corner (in the example on the left it is e. g. 2). To reach a certain menu directly please enter from the main menu the key sequence *MENU <DIGIT> <DIGIT>* whereby <digit> marks the respective menu reference number. Please note that the menu reference number can change depending on the configuration.






### 5.1.1

#### Setting the menu language


In delivery status *ENGLISH* is selected as standard menu language. In order to select *GERMAN* as menu language, please follow the instructions below:

## NOTE

If you are not in the main menu, please press the  key first.

First press the softkey  *MENU* and select *SYSTEM SETTINGS* using the softkey  *SELECT*. Press the cursor key  once until the option *LANGUAGE* is displayed in the menu. Via the *SELECT* softkey you directly reach the options for the desired language. With the help of the cursor keys  and  please choose the language and press again *SELECT*.

Please confirm your entry by pressing the *OK* button or the *OK* softkey.

To get back to the main menu, please press the  key. Now you are asked if you want to *SAVE SETTINGS?* Via the *YES* softkey the settings are stored permanently in the system.

## NOTE

If you press *NO*, all settings that you have made are lost when the unit is switched off.

### 5.1.2 Configuration of the LAN interface

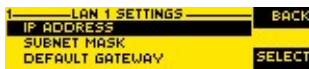
To configure the LAN interface follow the instructions below:



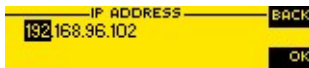
- Press the **MENU** softkey.



- Please mark the option **SYSTEM SETTINGS** via the cursor keys  $\wedge$  and  $\vee$  and press the **SELECT** softkey.



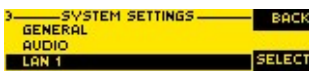
- Use the cursor keys  $\wedge$  and  $\vee$  to get to the option **LAN 1** or **LAN 2** and press the **SELECT** softkey.



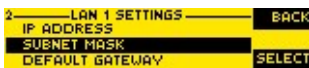
- To enter or change the IP Address of the system, mark the option **IP ADDRESS** and press the **SELECT** softkey.

- Now you can enter the correct IP Address via the numerical keypad.

- Confirm your entry by pressing the **OK** button or the softkey **OK**.



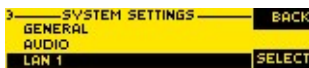
- Now press the cursor key **BACK** to get back to the menu **LAN 1** or **LAN 2**.



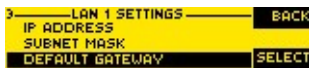
- Please mark the option **SUBNET MASK** via the cursor keys  $\wedge$  and  $\vee$  and press the **SELECT** softkey.

- Now you can enter your Subnet Mask via the numerical keypad. The default value is **255.255.255.0**.

- Confirm your entry by pressing the **OK** button or the softkey **OK**.



- Now press the cursor key **BACK** to get back to the menu **LAN 1**.



- Please mark the option **DEFAULT GATEWAY** via the cursor keys  $\wedge$  and  $\vee$  and press the **SELECT** softkey.

- Now you can enter the IP Address of your Default Gateway via the numerical keypad.

- Confirm your entry by pressing the **OK** button or the softkey **OK**.



- Now press the cursor key **BACK** to get back to the menu **LAN 1** or **LAN 2**.



- Please mark the option **UDP CTRL PORT** via the cursor keys  $\wedge$  and  $\vee$  and press the **SELECT** softkey.

- Now you can enter the UDP Control Port via the numerical keypad.

- Confirm your entry by pressing the **OK** button or the softkey **OK**.

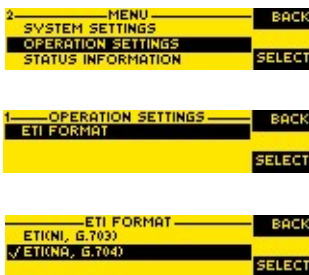


- Press the **MENU** key to get back to the main menu. Now you are asked if you want to **SAVE SETTINGS?** Via the **YES** softkey, the configuration is stored in the system



### 5.1.3 Setting the ETI format

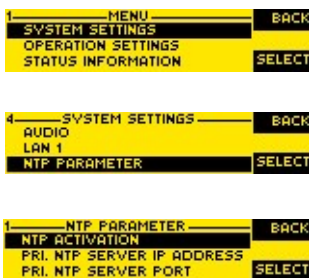
To select the ETI format please follow the instructions below:



- First press the softkey **MENU** and select **OPERATION SETTINGS** by using the cursor keys **▲** and **▼**. Confirm your selection by pressing the softkey **SELECT**.
- Now select the submenu **ETI FORMAT**. To view the available options, please press the softkey **SELECT**.
- Select the desired format (**ETINI, G.703** or **ETINA, G.704**) with the cursor keys **▲** and **▼** and confirm it by pressing the softkey **SELECT**.
- Confirm your entry by pressing the **OK** button or the softkey **OK**.
- To get back to the main menu please press the **BACK** button. Now you are asked if you want to **SAVE SETTINGS?** Via the softkey **YES** the setting is stored permanently in the system.

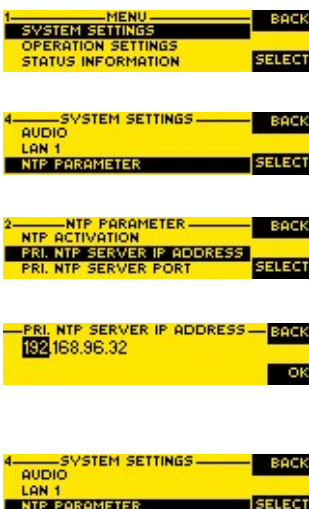
### 5.1.4 Configuration of the NTP Server

First you need to activate NTP:



- Press the **MENU** softkey.
- Please mark the option **SYSTEM SETTINGS** via the cursor keys **▲** and **▼** and press the **SELECT** softkey.
- Use the cursor keys **▲** and **▼** to get to the option **NTP PARAMETERS** and press the **SELECT** softkey.
- Please mark the option **NTP ACTIVATION** via the cursor keys **▲** and **▼** and press the **SELECT** softkey.
- Confirm your entry by pressing the **OK** button or the softkey **OK**.
- Press the **BACK** key to get back to the main menu. Now you are asked if you want to **SAVE SETTINGS?** Via the **YES** softkey, the configuration is stored in the system.

Now you can enter the IP address and the port for the primary NTP Server:



- Press the **MENU** softkey.
- Please mark the option **SYSTEM SETTINGS** via the cursor keys **▲** and **▼** and press the **SELECT** softkey.
- Use the cursor keys **▲** and **▼** to get to the option **NTP PARAMETER** and press the **SELECT** softkey.
- Please mark the option **PRI. NTP SERVER IP ADDRESS** via the cursor keys **▲** and **▼** and press the **SELECT** softkey.
- Now you can enter the IP Address of your primary NTP Server via the numerical keypad.
- Confirm your entry by pressing the **OK** button or the softkey **OK**.
- Now press the cursor key **BACK** to get back to the menu **NTP PARAMETER**.

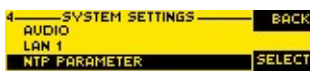


- Please mark the option *PRI. NTP SERVER PORT* via the cursor keys  $\wedge$  and  $\vee$  and press the *SELECT* softkey.
- Now you can enter the Port Address of your primary NTP Server via the numerical keypad.
- Confirm your entry by pressing the *OK* button or the softkey *OK*.
- Press the  $\leftarrow$  key to get back to the main menu. Now you are asked if you want to *SAVE SETTINGS?* Via the *YES* softkey, the configuration is stored in the system.

Additionally, you can also enter an alternative NTP Server in case the first one cannot be reached:



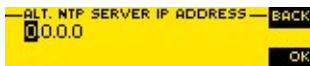
- Press the *MENU* softkey.
- Please mark the option *SYSTEM SETTINGS* via the cursor keys  $\wedge$  and  $\vee$  and press the *SELECT* softkey.



- Use the cursor keys  $\wedge$  and  $\vee$  to get to the option *NTP PARAMETER* and press the *SELECT* softkey.



- Please mark the option *ALT. NTP SERVER IP ADDRESS* via the cursor keys  $\wedge$  and  $\vee$  and press the *SELECT* softkey.



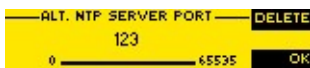
- Now you can enter the IP Address of your primary NTP Server via the numerical keypad.

- Confirm your entry by pressing the *OK* button or the softkey *OK*.

- Now press the cursor key *BACK* to get back to the menu *NTP PARAMETER*.



- Please mark the option *ALT. NTP SERVER PORT* via the cursor keys  $\wedge$  and  $\vee$  and press the *SELECT* softkey.



- Now you can enter the Port Address of your primary NTP Server via the numerical keypad.

- Confirm your entry by pressing the *OK* button or the softkey *OK*.

- Press the  $\leftarrow$  key to get back to the main menu. Now you are asked if you want to *SAVE SETTINGS?* Via the *YES* softkey, the configuration is stored in the system.

A1 MENU STRUCTURE

tbd



## A 2 INTERFACES

### A2.1 MAGIC SDC

The interfaces of the system are shown in Fig. 27.

FIG. 27 REAR VIEW OF THE MAGIC SDC



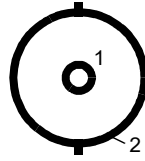
All interfaces are described below.

A2.2

Network interfaces

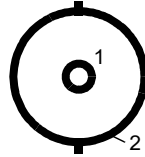
A2.2.1

E1 (2-Mbit/s) interface (Module Slot 1)



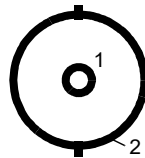
TAB. 1 PIN ASSIGNMENT: UNBALANCED CLOCK INTERFACE

Socket: Clock in / Clock out (BNC) - NOT USED		
Pin	Signal	Electrical characteristics
1	Data - T3 in / T3 out	Amplitude: 0.5 ... 1.9 V <sub>0p</sub> (Input) 1.5 V <sub>0p</sub> (Output)
2	Ground	Impedance: 75 Ω unbalanced Range: 100 m



TAB. 2 PIN ASSIGNMENT: E1 IN

Socket: E1 in (BNC)		
Pin	Signal	Electrical characteristics
1	Data - F1 in	Amplitude: 3 V <sub>pp</sub> Impedance: 75 Ω unbalanced
2	Ground	Range: 100 m

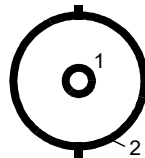


TAB. 3 PIN ASSIGNMENT: E1 OUT

Socket: E1 out (BNC)		
Pin	Signal	Electrical characteristics
1	Data - F1 out	Amplitude: 3 V <sub>pp</sub> Impedance: 75 Ω unbalanced
2	Ground	Range: 100 m

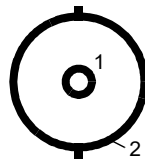
A2.2.2

E1 (2-Mbit/s) interface (Module Slot 2)



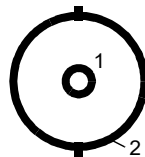
TAB. 4 PIN ASSIGNMENT: UNBALANCED CLOCK INTERFACE

Socket: Clock in / Clock out (BNC) - NOT USED		
Pin	Signal	Electrical characteristics
1	Data - T3 in / T3 out	Amplitude: 0.5 ... 1.9 V <sub>0p</sub> (Input) 1.5 V <sub>0p</sub> (Output)
2	Ground	Impedance: 75 Ω unbalanced Range: 100 m



TAB. 5 PIN ASSIGNMENT: E1 IN

Socket: E1 in (BNC)		
Pin	Signal	Electrical characteristics
1	Data - F1 in	Amplitude: 3 V <sub>pp</sub> Impedance: 75 Ω unbalanced
2	Ground	Range: 100 m

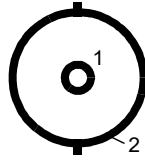


TAB. 6 PIN ASSIGNMENT: E1 OUT (ETI MONITORING OUTPUT)

Socket: E1 out (BNC)		
Pin	Signal	Electrical characteristics
1	Data - F1 out	Amplitude: 3 V <sub>pp</sub> Impedance: 75 Ω unbalanced
2	Ground	Range: 100 m

A2.3 Clock interfaces

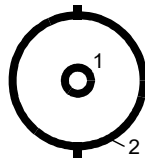
A2.3.1 Clock 1 interface (1 pps clock)



TAB. 7 PIN ASSIGNMENT: 1 PPS CLOCK INTERFACE

Socket: Clock in (BNC)		
Pin	Signal	Electrical characteristics
1	CLK	Amplitude: 0.5 ... 1.9 V <sub>0p</sub> (Input)
2	GND	Impedance: 75 Ω unbalanced

A2.3.2 Clock 2 interface (10 MHz clock)



TAB. 8 PIN ASSIGNMENT: 10 MHZ CLOCK INTERFACE

Socket: Clock in (BNC)		
Pin	Signal	Electrical characteristics
1	CLK	Amplitude: 0.5 ... 1.9 V <sub>0p</sub> (Input)
2	GND	Impedance: 75 Ω unbalanced

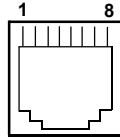
A2.4

Control and data interfaces

A2.4.1

LAN 1 interface

Via this interface you have the possibility to control the system and/or connect it to an NTP Server. Additionally you can use it as EDI input.



TAB. 9 PIN ASSIGNMENT: LAN INTERFACE

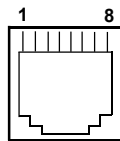
Socket: Western (8 pole) RJ45

Pin	Signal	Electrical characteristics
1	TX+ Data out +	Recommendation: IEEE 802.3/Ethernet
2	TX- Data out -	Data rrate (automatical): 10BaseT (10-Mbit/s) 100BaseTX (100-MBit/s)
3	RX+ Data in +	
4	not used	Recommended: CAT5
5	not used	Maximum cable length: 100m
6	RX- Data in -	
7	not used	
8	not used	

A2.4.2

LAN 2 interface

Via this interface you have the possibility to control the system and/or connect it to an NTP Server. Additionally you can use it as EDI input.



TAB. 10 PIN ASSIGNMENT: LAN INTERFACE

Socket: Western (8 pole) RJ45

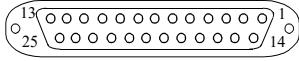
Pin	Signal	Electrical characteristics
1	TX+ Data out +	Recommendation: IEEE 802.3/Ethernet
2	TX- Data out -	Data rrate (automatical): 10BaseT (10-Mbit/s) 100BaseTX (100-MBit/s)
3	RX+ Data in +	
4	not used	Recommended: CAT5
5	not used	Maximum cable length: 100m
6	RX- Data in -	
7	not used	
8	not used	



**A2.4.3 TTL/RELAY interface**

This interface can be used for external signalling of alarms. The programming of the available functions is possible via the Windows PC Software:

- 8x TTL output, programmable
- 8 x relay output, programmable



**TAB. 11 PIN ASSIGNMENT: TTL/RELAY INTERFACE**

Socket: SUB-D 25 pole			
Pin	Signal	Direction	Electrical characteristics
1	TTL 1	output	<b>TTL interface:</b> Capacity of the TTL outputs: Maximum voltage: 3.3V Maximum current: 10mA
2	TTL 2	output	
3	TTL 3	output	
4	TTL 4	output	
5	TTL 5	output	
6	TTL 6	output	
7	TTL 7	output	<b>Relay interface:</b> Capacity of the relays: Maximum voltage: 48V Maximum current: 200mA
8	TTL 8	output	
9	RELAY 4 (B)	output, NO	
10	RELAY 5 (B)	output, NC	
11	RELAY 6 (B)	output, NC	
12	RELAY 7 (B)	output, NO	
13	RELAY 8 (B)	output, NO	
14	RELAY 1 (A)	output, NC	
15	RELAY 1 (B)	output, NC	
16	GND		
17	RELAY 2 (A)	output, NC	
18	RELAY 2 (B)	output, NC	
19	RELAY 3 (A)	output, NO	
20	RELAY 3 (B)	output, NO	
21	RELAY 4 (A)	output, NO	
22	RELAY 5 (A)	output, NC	
23	RELAY 6 (A)	output, NC	
24	RELAY 7 (A)	output, NO	
25	RELAY 8 (A)	output, NO	

NO = Normally Open

NC = Normally Closed

**A2.4.4 RS232/Keypad 1 interface**

Currently not in use.

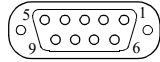
**A2.4.5 RS232/Keypad 2 interface**

The RS232/Keypad 2 interface can be used to connect a PC via RS232 to the MAGIC SDC.

**NOTE**

Please note that the function - input or output - of the Pins RXD and TXD are determined by the interface type DCE or DTE. The pin assignment is always RXD for Pin 2 and TXD for Pin 3.

RXD serves always as receive path and TDX serves always as transmit path.



**TAB. 12 PIN ASSIGNMENT: RS232/KEYPAD2 (PC) INTERFACE**

Socket: SUB-D 9 pole

Pin	Signal	Electrical characteristics
1	not used	<b>RS232 interface:</b> Type (Pin 2, 3): DCE <sup>a</sup> Level: V.24 (RS232) Data rate: max. 115200 Baud Range: max 15m Protocol: programmable
2	RXD <sup>b</sup> Receive Data	
3	TXD <sup>c</sup> Transmit Data	
4	not used	
5	GND	
6	not used	
7	not used	
8	not used	
9	not used	

<sup>a</sup> DCE = Data Communication Equipment

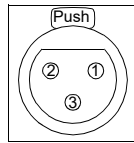
<sup>b</sup> ATTENTION: on this Pin the MAGIC SDC **transmits** data

<sup>c</sup> ATTENTION: on this Pin the MAGIC SDC **receives** data

**A2.5 Audio interfaces**

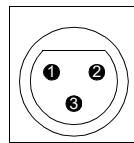
Currently not in use.

**A2.5.1 Analogue Audio interfaces**



**TAB. 13 PIN ASSIGNMENT: ANALOGUE INPUT (AUDIO 1/2 IN)**

Socket: 3 pole XLR		
Pin	Signal	Electrical characteristics
1	GND	Input level: adjustable -3 ... +9 dBu
2	AUDIO IN a	Impedance: > 25 kΩ
3	AUDIO IN b	Headroom: 6 dB



**TAB. 14 PIN ASSIGNMENT: ANALOGUE OUTPUT (AUDIO 1/2 OUT)**

Socket: 3 pole XLR		
Pin	Signal	Electrical characteristics
1	GND	Output level: adjustable -3 ... +9 dBu
2	AUDIO OUT a	Impedance: < 50 Ω
3	AUDIO OUT b	Headroom: 6 dB

**A2.5.2 Digital AES/EBU Audio interfaces**

Tbd.



6 TECHNICAL DATA MAGIC SDC

LINE INTERFACES

- E1 2.048-MHz, G.703/G.704  
Time slot 16 is not used  
Signal is bridged during power failure

SYNCHRONISATION

- ETI EN 300797  
Ensemble Transport Interface
- ETI (NA, G.704) 5592
- ETI (NA, G.704) 5376
- ETI (NI, G.703)
- DAB-Modes: I, II, III, IV

CONTROL INTERFACES

- LAN RJ45
- TTL/RELAY 25 pole SUB-D socket
  - 8x relays programmable  
max. switching capacity:  
48V/200mA
  - 8x TTL output programmable  
max. switching capacity:  
3.3V/10mA

DISPLAY

- graphical, resolution 160 x 32 pixel
- with backlight (can be switched off)

POWER SUPPLY

- Integrated power supply
  - alternating voltage (AC) 90...253V
  - current max. 15W

**DIMENSIONS (H x W x D)**

- 44mm (1U) x 19" x 250 mm

**WEIGHT**

- ca. 2,4 kg

**ADDITIONAL INFORMATION**

**EMC**

- EN 55103

**Electrical safety**

- EN 60950

**Range of temperature**

- +5 °C to 45 °C

**Relative humidity**

- 5% to 85%

**A 3            G E N E R A L**

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**A3.1            Order numbers**

MAGIC SDC ETI/EDI Switch & Converter	800990
--------------------------------------	--------

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**A3.2            Scope of delivery**

- MAGIC SDC ETI/EDI Switch & Converter
  - CD Windows PC Software
  - Mains power supply cable
  - 19" Mounting brackets
  - Manual

---

**A3.3            Declaration of conformity**

You will find the declaration of conformity at the end of this manual.





## A 4 SERVICE INFORMATION

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### A4.1 Software Updates

Free Software updates you will find on our homepage under

**<http://www.avt-nbg.de>**

Before you can access the **Download** area, you need to register on our homepage. Go to **Create an account** under the **Log In** section and enter your name and email address. Define a user name and click on **Register**. You will receive a confirmation email that includes a link which allows you to activate your account. Now you can download the latest software updates under **Download - Software**.

---

### A4.2 Support

You can contact our support hotline during the normal office hours between 09.00h - 17.00h under the following telephone number:

**+49 911 5271 160**

or via email:

**[support@avt-nbg.de](mailto:support@avt-nbg.de)**

To deal with your problem efficiently please note the factory number of the unit as well as the software version that you are using.

---

### A4.3 Repairs

If, contrary to expectations, your unit is defective please fill in the attached status report and send the unit to the following address:

**AVT Audio Video Technologies GmbH  
- Repairs -  
Nordostpark 12  
D-90411 Nürnberg  
Germany**



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# CE-Konformität

## Declaration of Conformity

**Name des Anbieters:** AVT Audio Video Technologies GmbH  
Supplier's name:

**Anschrift des Anbieters:** Nordostpark 91  
Supplier's address  
D-90411 Nürnberg

**erklärt, dass das Produkt**  
declares, that the product

**Produktname(n):** MAGIC SDC System Family  
Product name(s): MAGIC SDC System Family  
Ident no. 800022, 800898, 800990, ,804110, 804111, 804112

**mit den Vorschriften folgender Europäischer Richtlinien übereinstimmt:**  
conforms to the standards of the following European directives:

**Nummer/Text:** EN 60950 A4 Gerätesicherheit  
Number/title:

**Die Übereinstimmung wird nachgewiesen durch vollständige Einhaltung folgender Normen:**  
The conformity is evidenced by strictly meeting the following standards:

**Harmonisierte Normen:** EN 55022, EN 55024,  
Harmonized Standards: EN 300386,  
FCC Part 15 B

**Ort, Datum:** Nürnberg, 21.10.2011  
Place, date:

**Name(n):** Wilfried Hecht  
Name:

**Rechtsverbindliche Unterschrift(en):**  
Legally binding signatures:



**Telefon:** +49 911 5271-0  
Phone:

**Diese Erklärung beinhaltet keine Zusicherung von Eigenschaften.**  
This declaration includes no warranty of properties.

**Die Sicherheitshinweise der mitgelieferten Produktdokumentation sind zu beachten.**  
The safety instructions specified in the product documentation delivered must be observed.

