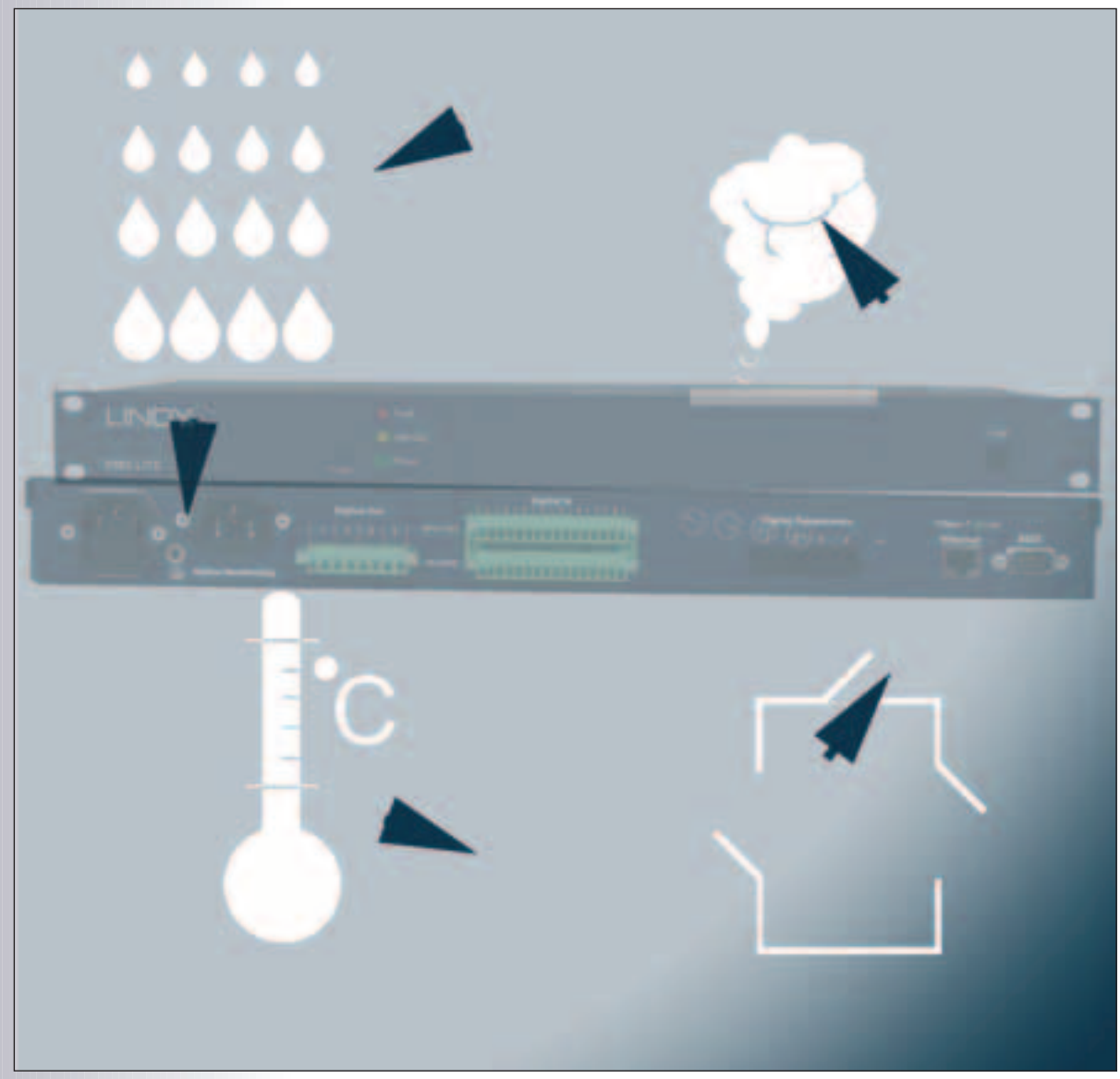
LINDY®
COMPUTER CONNECTION TECHNOLOGY

User Manual for Rack Monitoring System

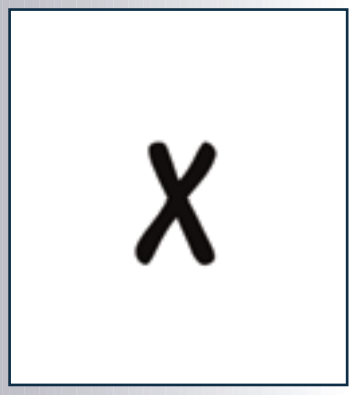


Rack Monitoring System

SAFE WORKING

Important passages which must be observed are highlighted with the following symbols:

Danger
Calls attention to safety measures to prevent personal injury



Note
Recommends actions and provides tips for trouble-free operation

Caution!
Highlights what must be done or not done in order not to damage material assets.

Attention
The Rms LITE will be delivered without LCD-display and front console

Contents

Validity of this manual

This user manual applies exclusively to the RMS Rack Monitoring System.
Software version: 2.0

RMS performance features

– Illuminated LCD display for plain text displays

– 4 keys on the front of the device

– Measurement and monitoring of temperature, humidity, door contact (access), vibration, movement (infrared room surveillance), smoke, mains voltage

– Flexible filter structure for uncomplicated realisation of even complex signal conditions

– Operation and display of alarms via LCD display, serial interface or network (Telnet and SNMP)

Different interfaces for sensors, data transmission, digital inputs and switching outputs

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LINDY Italia S.r.l. • LINDY France Sarl
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LINDY Australia Pty Ltd • LINDY International Ltd.

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Contents

1.1 GENERAL INFORMATION

Normal use

0The RMS is supplied in flawless condition in terms of safety.

LINDY can only guarantee the safety, reliability and performance of the device if:

- modifications, conversions or repairs are carried out only by persons authorised by the manufacturer,
- the electrical installation of the installation room conforms with the general requirements according to IEC,
- the device is operated in an office environment (class 3K2 according to EN 60721). More stringent requirements apply to rooms with a higher degree of pollution.
- the device is operated at a maximum ambient temperature of +35°C.

Copyright

Technical status

Technical status 07/2004
LINDY reserves the right, without prior notice,
– to make changes to the design and components and, instead of the stated components, to use equivalent other components in the pursuit of technical progress,
– to change the performance features of the software,
– to change the information in this manual.

Liability

LINDY accepts no liability for the complete correctness of the information. In particular, no liability whatsoever is accepted for damage or injury caused as a result of the use of the device.

SAFE WORKING

Important passages which must be observed are highlighted as follows in these instructions:

Danger 

Calls attention to safety measures to prevent personal injury.

Caution 

Highlights what must be done or not done in order not to damage material assets.

Note 

Recommends actions and provides tips for trouble-free operation.

Attention 

The RMS LITE will be delivered without display and front console.

1 PLEASE NOTE

1.2.2 General Saftey Information

For safe operation of the RMS please ensure you read all of this user manual and that you observe the instructions and information contained in it. Please also observe other documentation by manufacturers of connected devices.

- Always keep the user manual within reach of the device.
- Ensure the rack monitoring is in perfect technical condition.

Have damage and faults remedied immediately by authorised persons.

- Only use the supplied mains cable.
- When plugging in and unplugging the mains plug,

– never pull the cable

– never touch the plug with wet hands

- When connecting devices to the cable clamps, always observe the VDE regulations!
- Do not convert or repair the device yourself!
- Use only original accessories.
- If liquids are spilled on the device, immediately unplug the mains cable from the mains and contact your dealer.
- Protect from heat.

Heat can damage both parts of the outside of the device and internal circuits and components.

- To clean the device, use only cloths moistened with water or washing-up liquid. Alcohol, thinners or similar chemicals damage the surface of the enclosure.

1.2.3 Disposal

The device contains a lithium battery on the circuit board and toxic substances in the LCD display.

- The device must be disposed of properly

1.3 WARRANTY

LINDY offers a warranty of 2 years for this products.
For further details, please see the General Terms of Business of LINDY.

Lapse of warranty

The warranty is void if improper modifications are made to the device.

1.4 SERVICE

In the event of malfunction, please first follow the instructions in the relevant section (> 5). For all other questions, please do not hesitate to contact LINDY technical support.

HOTLINE

)	DE:	0621 / 47 005 - 0
	UK:	01642 754040
	IT:	031 48 40 11
	FR:	0 825 825 111
	CH:	061 335 97 00
	USA:	(256) 771-0660
	Australia:	07 3262 9033

E-MAIL

support@lindy.com
• To receive a speedy reply, please provide the following information:
– Device type
– Serial number
– Software version
– Configuration file
– Description of problem
• Please also leave your telephone number.
You will receive a qualified reply by e-mail or telephone.

1.5 STANDARDS, REGULATIONS AND LICENCE

The LINDY RMS has been built and tested in accordance with the relevant guidelines. In connection with installation in a terminal (for example, a rack), the additional requirements in accordance with IEC 950 must be observed and complied with.
The RMS conforms to the safety requirements of the EU Directive on electromagnetic compatibility (EMC) (89/33/EEC) and the low voltage Directive (73/23/EEC).

Below is a list of the standards and regulations on which the RMS is based:
EN 55 022/Class B
EN 60 950 (IEC 950)
EN 61 000-4-2
EN 61 000-4-3

LICENCE

All LINUX source codes which were used to produce the product and are subject to the GPL (see GNU Public Licence ä A4) can be obtained for a service charge. This does not include the source codes of the RMS software itself. However, the LINUX sources are freely available, for example at URL: "http://metalab.unc.edu/pub/Linux".

2.1 RACK MONITORING

The RMS monitors, protects and controls all the installations in network, switch cabinet and server racks and their environment.

RMS LITE

RMS ADVANCED

Sensors

Local ambient conditions (for example, temperature or humidity) or operational status (for example fluctuations in mains voltage) can be detected via various sensors and inputs **(> 2.2)**.

Display

RMS LITE

Signals are transmitted and data displayed via an LCD display, serial interface or Ethernet (Telnet or SNMP).

Inputs and outputs

Digital inputs and switching outputs make it possible to continuously monitor the operating status and ambient conditions in the rack, and to react to events.

Operation and configuration

RMS LITE

The RMS is operated locally via 4 keys on the front.

RMS inputs and settings can be made remotely via the serial interface or via Telnet and SNMP.
The entire configuration of the system is permanently saved. Settings are retained even after a power failure or transportation.

Software

The operating software of the RMS is subject to continuous improvement and expansion. Updates can be loaded quickly and easily at any time. The latest version is available on the Internet **(> 1.4).**

2.2

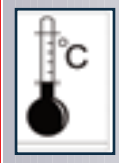
Connection options

The RMS has a wide variety of connection options (**> 3.3.1):**

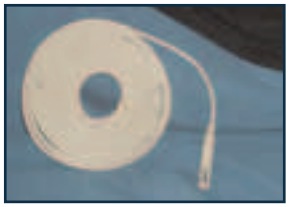
A Three mains monitoring connections (6-pole plug connector)
B Four digital, potential-free switching outputs (8-pole plug connector)
C Eight digital, potential-free inputs with 12 V auxiliary voltage (16-pole plug connector)
D Four digital, potential-free alarm inputs for the connection of differential signal lines (8-pole plug connector))
E Four modular jacks for temperature or humidity sensor (RJ11)
F Two potential-free UPS switching inputs (4-pole plug connector)
G Ethernet network connection (RJ45 – 10 base T)
H AUX serial interface (SUB-D, 9-pole) to control and monitor external devices (for example, chipcard reader, UPS, …)
I COM serial interface (SUB-D, 9-pole) as terminal connection

SENSORS

Temperature (digital)

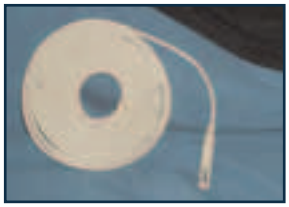


– Temperature range: 0 °C to 60 °C
– Measuring accuracy: ±1 °C
– Recalibration not necessary
– Cable length: 4 m
– Maximum cable length: 20 m
– With mounting hardware

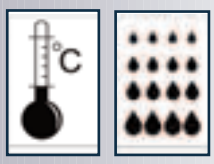


Humidity (digital)

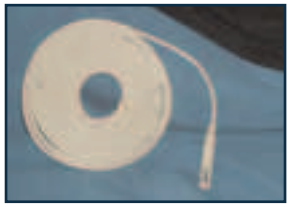
- Humidity range: 10 % to 90 % relative humidity at 0 °C to 60 °C
– Measuring accuracy: ±3 % relative humidity
– Recalibration not necessary
– Cable length: 4 m
– Maximum cable length: 20 m
– With mounting hardware



Combined Humidity and Temperature sensor (digital)



Combination of temperature and humidity sensor, equipment as above.



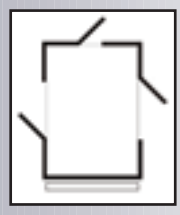
Vibration

Detects movements and vibrations of varying intensity.
– Ajustable sensitivity
– Cable length: 4 m
– Maximum cable length: 20m
– With mounting hardware

Smoke alram

Optical smoke alarm with German insurance accreditation (VdS) for early detection of fires (producing light smoke).
– Temperature range for deployment: -20 °C to 75 °C
– Cable length: 4 m
– Maximum cable length: 20 m
– With mounting hardware

Door Contact



Monitors access using a magnetic bridge sensor which responds to any magnetic material (no contact required).
– Also for monitoring side panels or cover
– Cable length: 4 m
– Maximum cable length: 20 m
– With mounting hardware

Chipcard reader

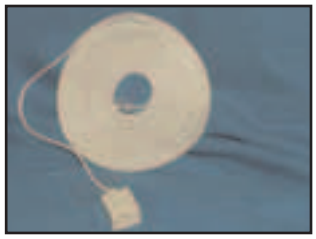
The chipcard reader is integrated in the door frame of the server cabinet.
– It reads chipcards.
– It controls an electrical door opener using DIGITAL OUT 4 if the card is valid.
– It is connected to the AUX serial interface.

Infrared room surveillance

Detects movements in the surveillance area.
– Adjustable sensitivity
– Sabotage protection
– Cable length: 4 m
– Maximum cable length: 20 m
– With mounting hardware

Extension cable

– RJ11 cable for temperature or humidity sensors
Length: 5 m; 10 m; 15 m; 20 m
– 4-core sensor cable (for all other sensors)
Length: 5 m; 10 m; 15 m; 20 m



Water sensor

Watersensor to detect floods / water

Mains Power Strips

Switchable mains power strips can be managed by the RMS
– by RS-232 (IP versions also available)
– 4 out / 1 in (19" 1U)
– 8 out / 2 in (redundant power supply support)

Note

Other sensors can be connected to DIGITAL IN, ALERT IN or UPS IN according to the requirements in 3.3.1.

3.1 PREPARATIONS

Check the supplied items

– RMS
– Power cable
(for the country in question)
– User's Manual
– 6 plug connectors
– Serial communication cable
(RJ11 connector to 9-pole sub-D socket)
– 10 cable links, stripped
– CD-ROM

Transport Damage

Danger

If the device has visible transport damage, it must not be taken into operation as its safety is no longer guaranteed.
• Immediately report transport damage to the carrier and the manufacturer.

3.1.2 Necessary Accessories

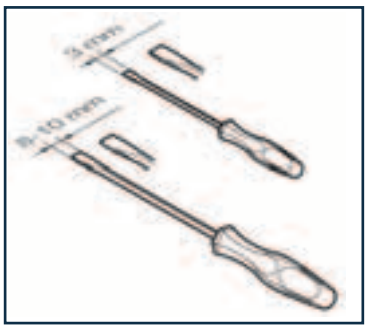
• Only use original accessories.

Note

*If other sensors are used , pay attention to the specification of the inouts and outputs (**> 3.3.1**) !*

3.1.3 Necessary Tools

For 19" installation of the RMS (**> 3.2**):
– 3mm flat-blade screwdriver for fixing the cable
– 4 mounting screws (with washers and nuts) for the 19" rack
– A screwdriver suitable for the mounting screws



3.2 19'' installation

When installing the RMS in a rack, the additional requirements in accordance with IEC 950 must be observed and complied with!

• Determine the position in which the RMS is to be located within the 19" rack. Observe the existing number of blanking plates for a uniform rack appearance.

Caution!

Danger of overheating!
Allow sufficient space from built-in fans or air-conditioners to ensure an unimpeded flow of air in the rack.

Note

• Mount the RMS on sliding rails if possible.
This makes handling the device easier and reduces wear on the rack.

If the RMS is mounted freely suspended, hold the device horizontally when tightening the screws and start with the two bottom screws.

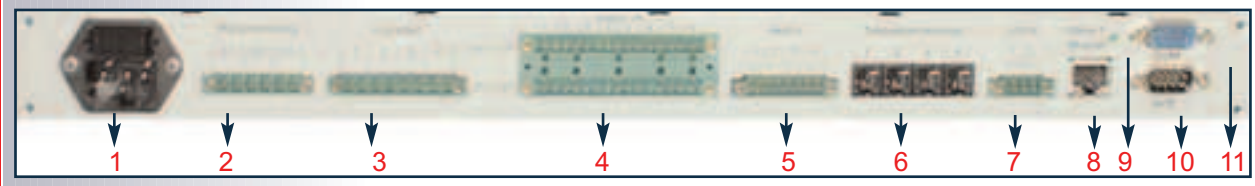
• Mount the RMS in the desired position with 4 mounting screws, washers and nuts.

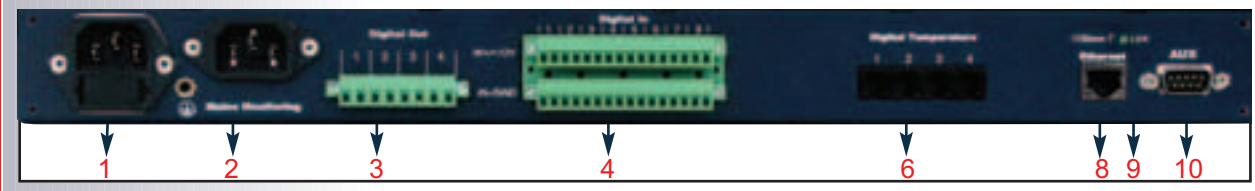
3.3 ELECTRICAL INSTALLATION

3.3.1 Connections and cabling

1 Fuse plug **> *3.3.3***
2 Mains Connections **> 3.3.2**
3 MAINS MONITORING
Mains monitoring connections
4 DIGITAL OUT
Digital switching outputs 1 - 4
5 DIGITAL IN
Digital inputs 1 - 8
6 ALERT IN
Alarm inputs 1 - 4
7 TEMPERATURE/HUMIDITY
temperature or humidty sensor connections 1-4
8 UPS IN
UPS connections 1 - 2
9 10 BASE T
RJ45 Ethernet network connection
10 AUX
Serial interface for the control and monitoring of external devices
11 COM
Serial interface for terminal connection

RMS ADVANCED





RMS LITE

Connection

- Before connecting the RMS to the mains, properly connect all the components to the rear of the device. Observe VDE regulations!
- Only have mains voltages connected by authorised skilled persons.
- Use wire end ferrules when connecting litz cables!
- Observe the information on documentation **(> A2)!**

Cabling

- Avoid tensile loads, serious kinking and damage to the cables as a result of sharp edges or unsuitable tools (optional cable protection available).

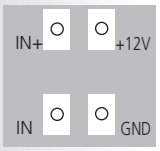
Mains montoring

– 3 terminal pairs L1, L2 and L3 for the connection of 3 mains voltages
– Potential-free, no common earth reference
– U_{IN} 50 … 255 V AC
– Only have mains voltages connected by authorised skilled persons. Observe VDE regulations!

Digital Out

- 4 terminal pairs for the connection of 4 consumers
– Potential-free relay switch contacts
– Relay 108 cycles purely mechanically, 105 cycles at maximum loads-witched
– Maximum load switched 1.5 A at 230 V AC, 2 A at 30 V DC

DIGITAL IN

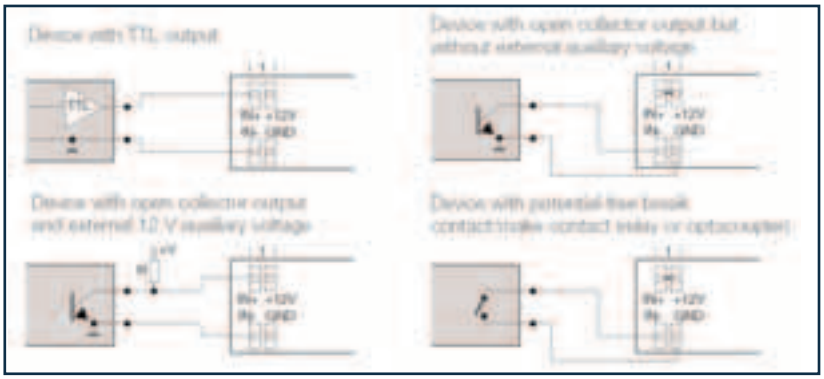


– 8 terminal groups (of 4 terminals) for connecting 'break contact/make contact' type devices, or devices with switching output
– Potential-free, digital
– Left terminal pair "IN+" AND "IN-" digital input
– For the connection of a break contact/make contact, an auxiliary voltage of +12 V (top terminal) and an earth reference GND (bottom terminal) can be connected from the right terminal pair using the enclosed cable links (see connection examples below).
– U_{IN} +5 V...+25 V
– I_{IN} maximum 5 mA
– With auxiliary +12 V supply, maximum current draw of 200 mA
– Auxiliary voltage interruption in connection with overload or short circuit in the sensor cable:

"Fault" LED lights up.
Confirm the "overload" message in the LCD display using the ENTER key, then switch back on in the menu "Aux.Volt." with the ENTER key (> 6).

Note

In the event of interruption of auxiliary voltage, all auxiliary voltages (and thus all sensors) are switched off!



ALERT IN

– 4 terminal pairs for the connection of 4 differential signal lines or break contact/make contact type devices (only connect passive components)
– Maximum drawable alarm current approximately 20 mA
– For differential signal lines, ensure that the closed-circuit current of the entire signal line does not exceed a total of 900 µA.

TEMPERATURE/HUMIDITY

– 4 RJ11 modular jacks for the connection only of the Infratecplus sensors available in the delivery programme (temperature sensor, humidity sensor or combined temperature/humidity sensor)
– digital

UPS IN

– 2 terminal pairs for the connection of UPS switching outputs
– Potential-free, digital
– U_{IN} +5 V...+25 V
– I_{IN} maximum 5 mA

10BASET

– RJ45 modular jack for connection to a 10 Mbit Ethernet

COM

– Serial interface – directly connected to the COM connection on the front of the device.

Never connect both COM interfaces at the same time!

Pin	Signal
1	-
2	RXD
3	TXD
4	-
5	GND

Pin	Signal
6	-
7	-
8	-
9	-
	-

AUX

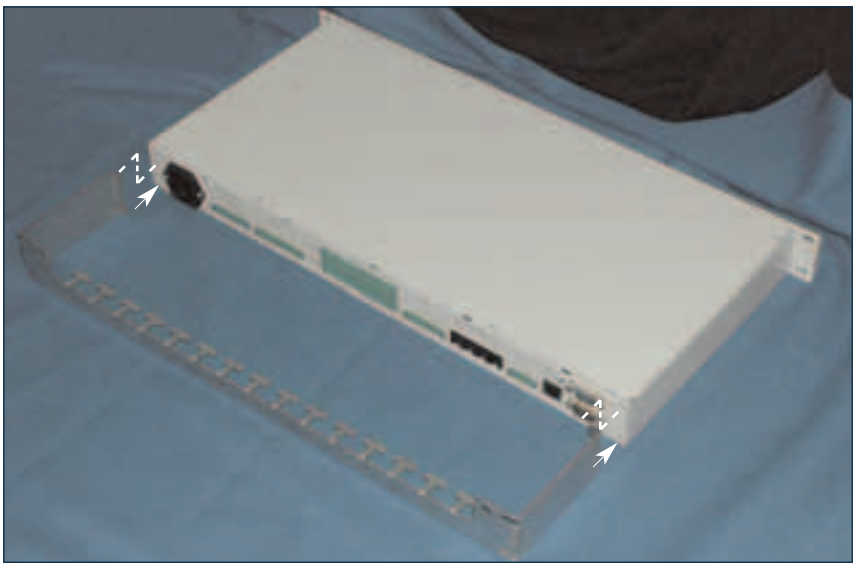
– Serial interface for the connection of external devices (for example, UPS, fans, airconditioners, chipcard reader heating, …)
– Specific protocols on request. Please contact your RMS dealer.

Pin	Signal
1	DCD
2	RXD
3	TXD
4	DTE
5	GND

Pin	Signal
6	DSR
7	RTS
8	CTS
9	-

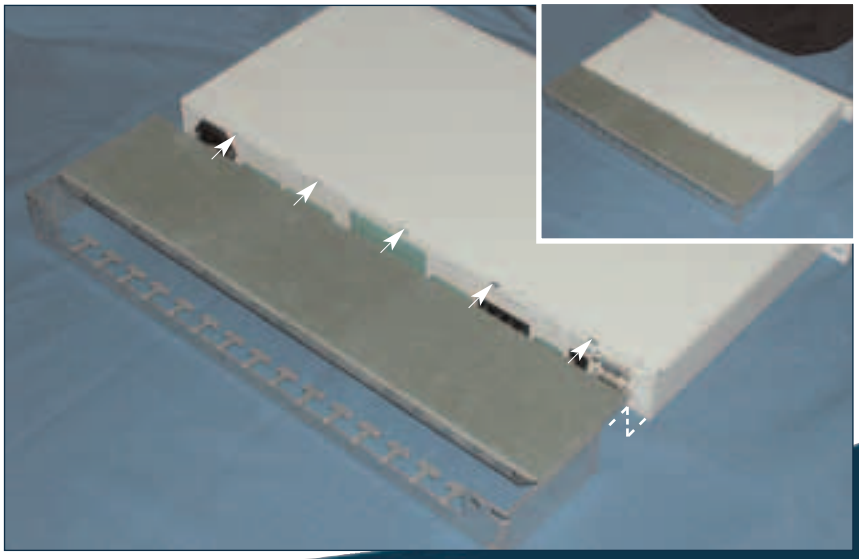
Cable protection (optional)

• Mount the cable clamp bracket



• Fix the cables with suitable aids (cable binders, etc.) to the sheet metal lugs (serves as a cable grip).

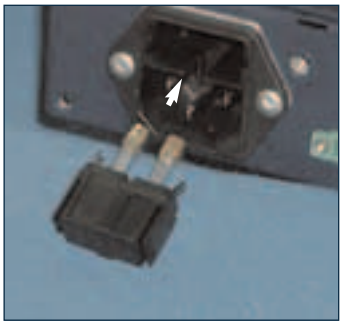
• Insert the cover in the slots on the device, close the cover and snap it into the embossed areas.



3.3.2 Fuses Double -pole fuse / fuse of the neutral wire

Caution!

Fire risk.
Only replace fuses with fuses of the same type (250 V, 1 A, slow-acting, high switching



- Switch off the device and unplug the mains plug.
- Remove the fuse plug and replace the fuse.

Danger!

The device is supplied from several power sources.

- **The device may only be opened by trained personnel. To disconnect the device from the voltage supply before opening:**
- **Disconnect the mains plug.**
- **Disconnect the MAINS MONITORING inputs.**

- Open the cover of the device.
- Replace the fuse and close the device again.

Fuse for the auxiliary voltage supply

Only replace fuse F1 on the +12 V auxiliary voltage supply (marked in the device) with a fuse of the same type (250 V, 400 mA, fast-acting, 5 x 20 mm, UL-listed).

3.4 COMMISSIONING

- Check that the RMS and the connected components are correctly cabled (**> 3.3.1**).

Mains Socket

The mains socket is on the rear of the device.
- Use only the supplied power cable.

RMS ready

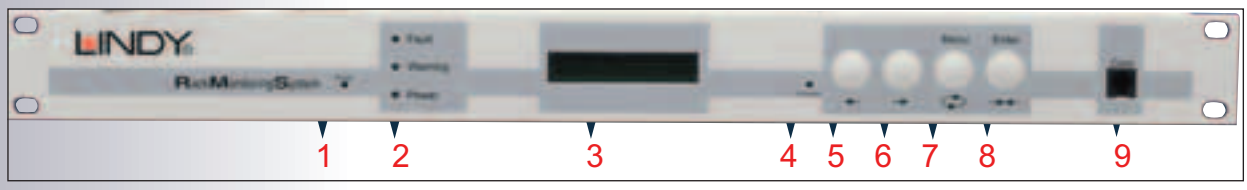
After connection, wait for the message in the LCD display.
- Input the network parameters via Telnet, the COM interface (**> 4.4**) or by hand via the keys (**> 4.3**).

If function problems should arise: **(> 5)**

All functions and displays indicated in the manual depend on the version of the operating software.The latest version is available on the Internet (> **1.4)**.

4.1 OPERATOR CONTROL ELEMENTS

RMS ADVANCED



RMS ADV. & RMS LITE

1 Reset
Resets the RMS to a defined standard state (**> 5**).
2LED
"Fault" (red) lights, up in connection with reset,overload or a serious system fault. "Warning" (yellow) lights up if the conditions of an appropriately configured filter apply (> **4.9**), when booting and in connection with Reset. "Power" (green) lights up when the device is supplied with voltage.
9 "COM" communication socket for connection to a PC or terminal (serial communication cable included).

RMS ADVANCED

3 Illuminated LCD display. Plain text display of inputs, messages and alarms.
4 Contrast controller for the LCD display
5 Left key
Page back in the menu, reduce values
6 Right key
Page forward in the menu, increase values
7 MENU key
Change to menu level
8 ENTER key
Menu selection of confirm values

RMS LITE

Note

Never connect both COM interfaces at the same time!

4.2 INITIAL STATE

In the initial state, various status messages are displayed cyclically in the LCD display. Each message is displayed for approximately 2 seconds.

LINDY RMS

Device name

N: RMS
L:Rechenzentrum
C: Fred Clever

SNMP Information (> **4.5.1**)
– Name (N)
– Location (L)
– Contact (C)

I192.168.018.103
N255.255.255.000
B192.168.018.255
G192.168.018.200

Network Information (> **4.5**)
– IP Address (I)
– Netmask (N)
– Broadcast Address (B)
– Gateway Address (G)

4.3 OPERATION VIA KEYS ON THE FRONT OF THE DEVICE

The functions accessible via the keys are mainly displays, i.e. current statuses are displayed without the possibility of entering data. Exception: menu items under "Network – Interface"."

Selecting a menu item

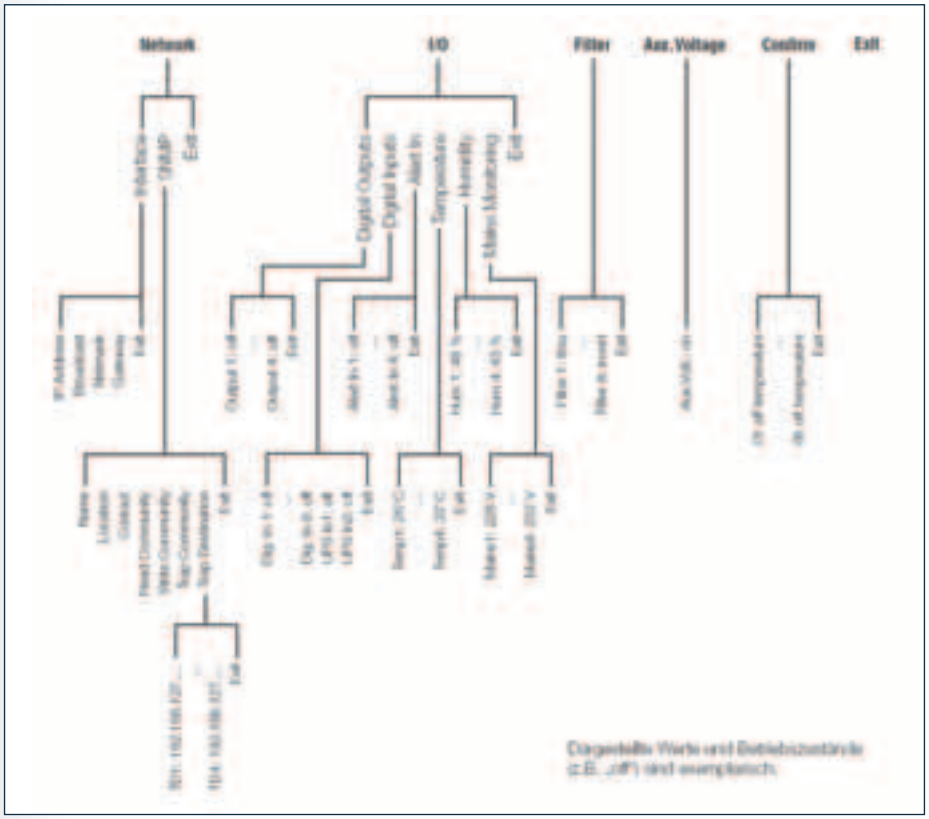
• Change from the initial state to the menu level using the MENU key.

• Change between the menu items using the arrow keys

• Confirm the menu selection with the ENTER key.

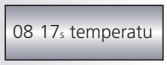
Confirmation of the menu item Exit leads to the previous menu level.

Change to the initial state using the MENU key.



Filter messages

Filter messages are displayed on the LCD display as follows:



<Message number> (2-digit)
blank
<Time> (2-digit)
<Unit of time> (s; m = min; h; d)
Blank
<Filter-designation> (9-digit)

• Confirm filter messages with the ENTER key.
In the "Message Log" (> **4.10**) the message is marked accordingly in the "Ack" column with an "x".
For the filter message to be displayed, it is necessary for the "Message Priority" other than "none" to be assigned in the "Filter Configuration" menu (**> 4.9.2**).

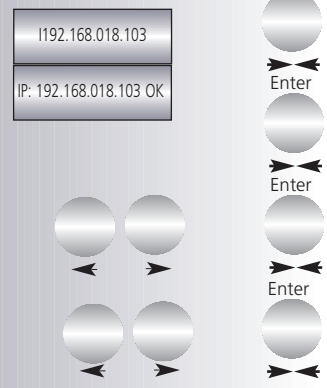
Display in the "Confirm" menu

<Filter-Number> („F"; 2-digit; ":")
* (only with confirmed filter)
<Current filter result > (3-digit: "off" or "on")
Blank
<Filter-designation> (9-digit)

For the display, it is necessary for "Confirmation" "yes" to be assigned in the "Filter Configuration" menu (> 4.9.2). Otherwise, the message "no confirm" appears.

Entering network parameters

If a connection via the COM interface is not possible, the following four network parameters must be entered via the keys before the device can be operated with Telnet:
– IP address
– Netmask
– Broadcast
– Gateway



If one of these menu items is selected in the LCD display, the first position flashes after confirmation.

• Select the desired parameter with the arrow keys (the position selected flashes) and confirm with the ENTER key.

• Change the value of the selected parameter using the arrow keys (the parameter flashes) and confirm with the ENTER key.

Leave the numerical input:
• Select "OK" with the arrow keys and confirm with the ENTER key.

4.4 OPERATION VIA TELNET OR SERIAL INTERFACE COM

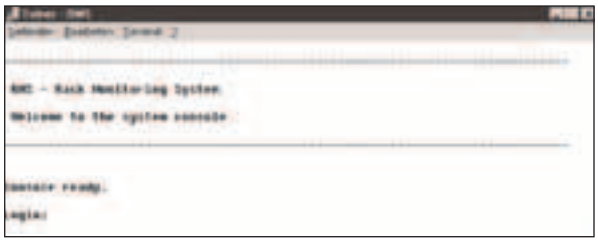
All the settings in the RMS can easily be made via Telnet or via the serial interface (COM).
COM parameters: 9600 baud, 8 data bits, no parity, 1 stop bit, software handshake.

Note

Never connect both COM interfaces at the same time!

Create a Telnet connection on the computer:

• Input:
Example: #telnet 192.168.18.103 <Return>
The Login screen appears

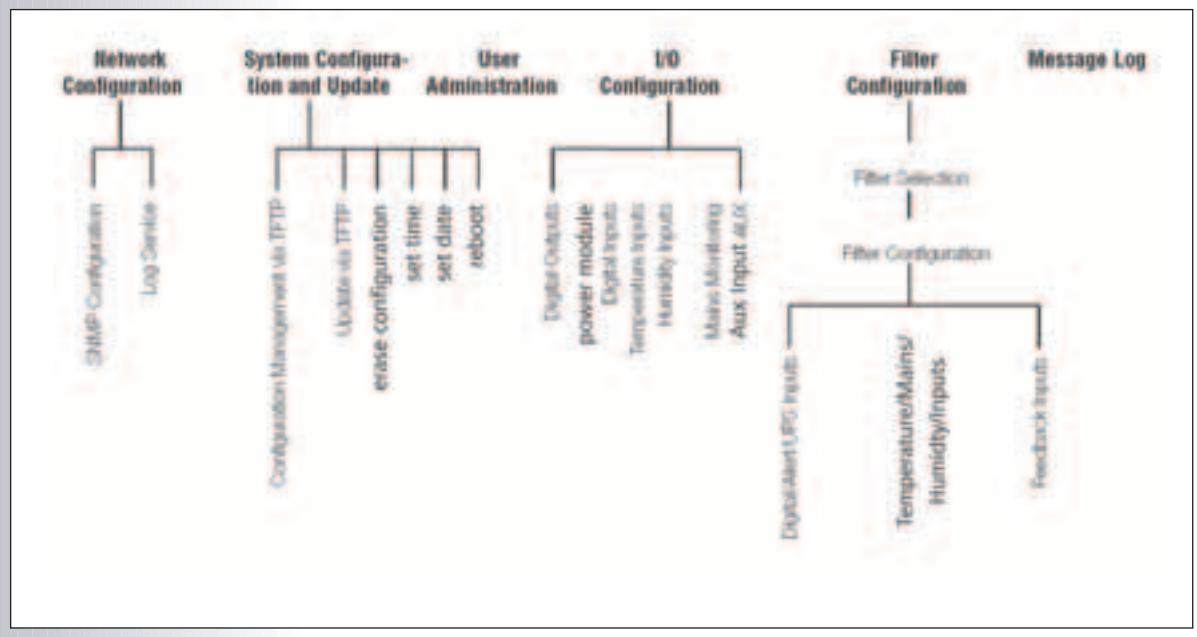


• Log in with an entered user name (**> 4.7**).
On first startup: rms <Return>
• Enter password.
On first startup: rms <Return>

After successfully logging in, the main menu appears (see over).

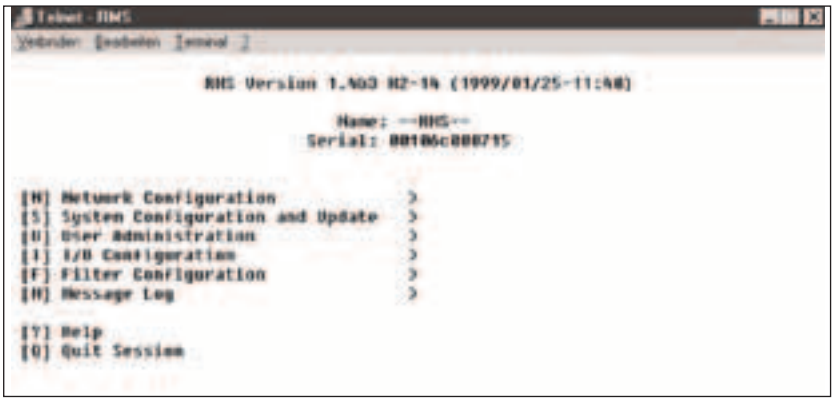
Note

Letters in square brackets designate keys with which individual menu items can be selected.



MAIN MENU

From the main menu it is possible to switch to the various submenus. References to sub-menus are marked with ">"



[N] NETWORK CONFIGURATION
Network and SNMP settings (> **4.5**).

[S] SYSTEM CONFIGURATION ANDUPDATE
Load and save system configuration and update operating software via TFTP (**> 4.6**).

[U] USER ADMINISTRATION
User administration settings and their rights (> **4.7**).

[I] I/O CONFIGURATION
Setting input/output parameters (**> 4.8**).

[F] FILTER CONFIGURATION
Setting filter parameters (> **4.9**).

[M] MESSAGE LOG
Display and confirmation of system messages **(> 4.10).** Unlike the system log **(> 4.5.2)**, only filter messages are logged here.

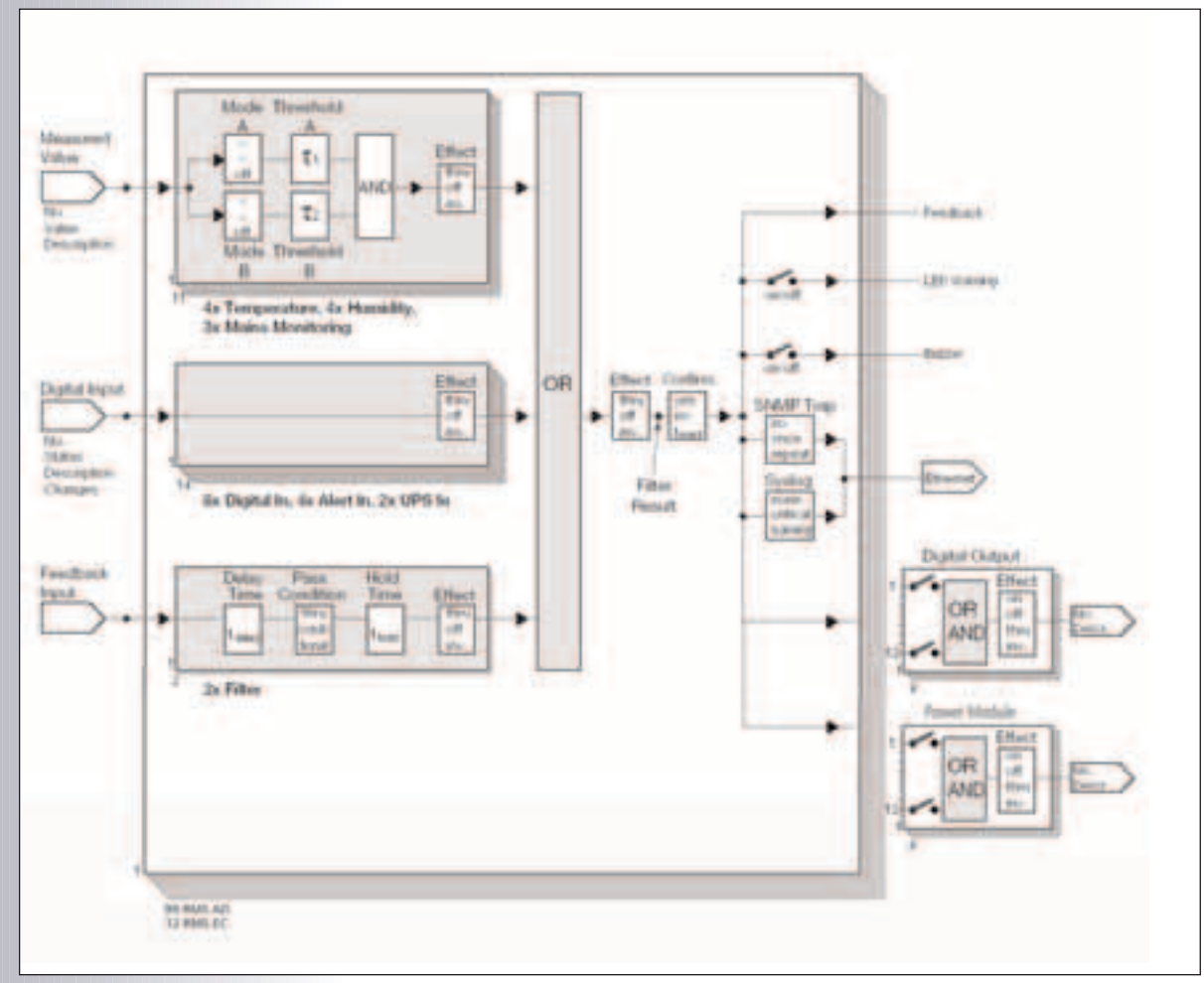
[?] HELP
Explanation of the menu items.

[Q] QUIT SESSION
Quit session.

Block diagram

The signals applied at the physical input terminals (left) are combined in a complex filter structure (centre). The resulting filter result can then be supplied for switching and signalling purposes at physical output terminals (right) or be used to influence other filters (feedback).

Method of operation and configuration options of the filters. (> **4.9**).



4.5 Network Configuration

The Ethernet interface makes it possible to integrate the RMS into a local network (10 Mbit Ethernet), thus making the following functions available:

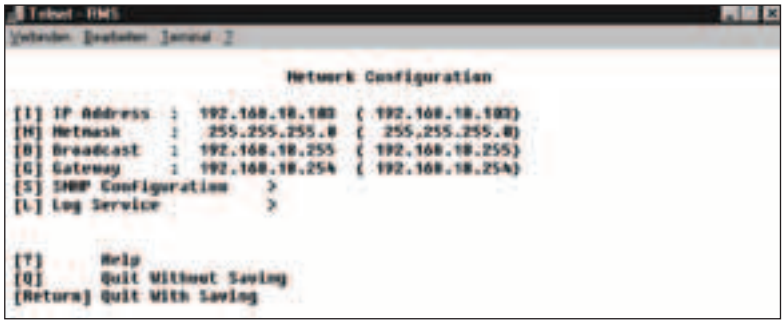
– SNMP support, thus integration into network management platforms
– Log book functional capabilities (syslog service)
– Loading and saving the system configuration (TFTP)
– Updating the system (TFTP)

• If the RMS is not operated in an Ethernet network, the settings described in this chapter can be ignored.

Note

If you are unclear about the conditions of the local network, please ask your network administrator for assistance.
Incorrect settings can have the effect that the device is isolated from the network and/or is no longer capable of sending messages to the desired destination addresses (see also **> 4.5.1**).

Central input mask for settings for the Ethernet interface. References to sub-menus are marked with ">".



[I] IP Address
IP address of the Ethernet interface.

[N] Netmask
Netmask of the Ethernet interface.

[B] Broadcast
Broadcast address of the Ethernet interface.

[G] Gateway
Gateway to adjacent networks of the local network, which may be required.

[S] SNMP Configuration
All SNMP-specific settings of the device (> **4.5.1**).

[L] Log Service
System log settings (**> 4.5.2**).

[?] Help
Explanation of the menu items..

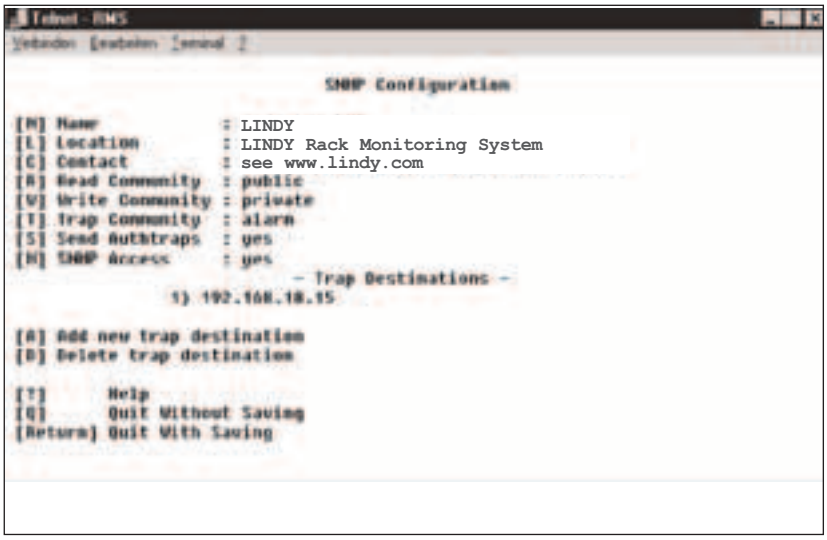
[Q] Quit Without Saving
Jump back to the main menu without saving changes.

[Return] Quit With Saving
Jump back to the main menu and save changes.

4.5.1

(SNMP CONFIGURATION)

Complete control of the RMS via SNMP with alarm (trap function) and support of separate communities for read and write operations.
SNMP V1 in accordance with RFC 1213 is implemented. MIB-II including RMS private MIB is supported.
The complete MIB file of the RMS is on the supplied CD-ROM.
Explanation of the MIB variables **> A3**.



Visualised integration in management platforms on request.

[N] NAME
Administrative name of the device. For example: "RMS"

[L] LOCATION
Description of the location of the device.

[C] CONTACT
Name of the person responsible for this device and contact information. For example:
"LINDY support,
Tel. +49 (0) 621 / 47 005 - 0"

[R] READ COMMUNITY
Name of the community with the right to read SNMP variables.
For example: "public"

[W] WRITE COMMUNITY
Name of the SNMP community with the right to write SNMP variables.
For example: "private"

[T] TRAP COMMUNITY
Name of the SNMP community with the right to receive traps from this device.
For example: "alarm"

[S] SEND AUTHTRAPS
Send trap with unauthorised access with invalid or incorrect Community String (authority trap)..

[M] SNMP ACCESS
Enable or disable access via SNMP.

– Trap Destinations –
List of a maximum of 8 IP addresses to which SNMP traps are sent.

[A] ADD NEW TRAP DESTINATION
Add an IP address to the list of trap receivers..

[D] DELETE TRAP DESTINATION
Delete IP address from the list of trap receivers.

[?] HELP
Explanation of the menu items.

[Q] QUIT WITHOUT SAVING
Jump back to the "Network Configuration" menu without saving changes..

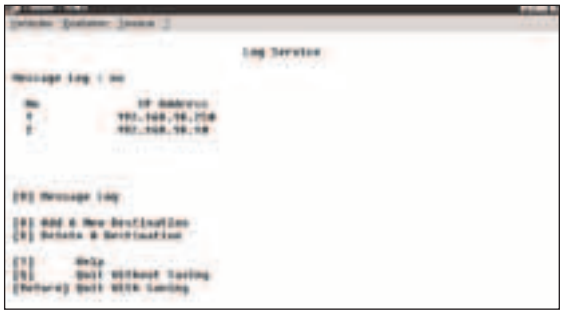
[RETURN] QUIT WITH SAVING
Jump back to the "Network Configuration" menu and save changes

4.5.2 LOG SERVICE

Specify receivers of log messages in the network which support the standardised syslog service (UNIXServer).
Two types of messages can be logged via the syslog service:

– Filter results similar to the displays under [M] Message Log in the main menu (> **4.10**).

– Debug messages in the event of error analysis (please contact technical support).



[M] MESSAGE LOG
Switch on/off display of filter messages.

[A] ADD A NEW DESTINATION
Add the IP address of a computer to receive log data.

[D] DELETE A DESTINATION
Delete a computer from the list.

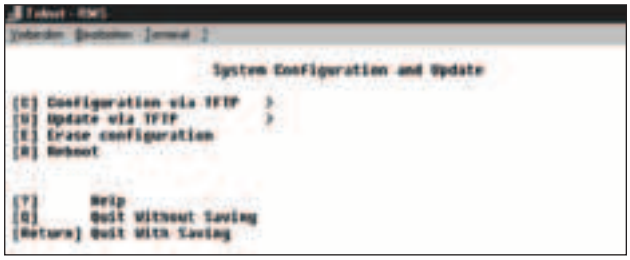
[?] HELP
Explanation of the menu items.

[Q] QUIT WITHOUT SAVING
Jump back to the "Network Configuration" menu without saving changes.

[RETURN] QUIT WITH SAVING
Jump back to the "Network Configuration" menu and save changes.

4.6 SYSYTEM CONFIGURATION UPDATE

Reference to sub-menus are marked with ">".



[C] CONFIGURATION VIA TFTP
Save and load device configuration on other computers via TFTP (**>4.6.1**)

[U] UPDATE VIA TFTP
Update system software via TFTP (**>4.6.2**).

[E] ERASE CONFIGURATION
Reset all settings to the standard settings.

[R] Reboot
Warm restart of the device, session is interrupted.

[?] Help
Explanation of the menu items.

[Q] QUIT WITHOUT SAVING
Jump back to the main menu without saving changes.

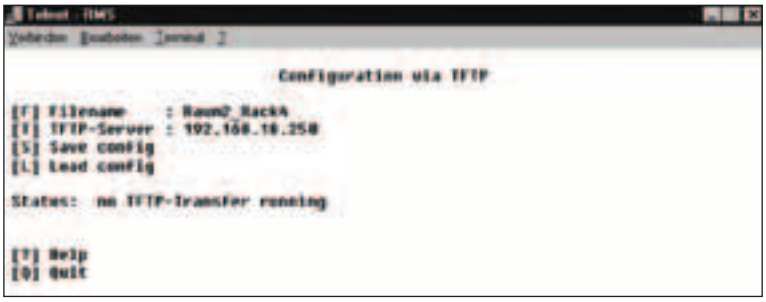
[RETURN] QUIT WITH SAVING
Jump back to the main menu and save changes.

4.6.1 CONFIGURATION VIA TFTP

Tool for saving the system configuration in the network and thus capturing it in a central data backup.

The loading allows rapid startup without reparameterisation, for example after a system failure. This requires that the TFTP service is running on the computer stated (TFTP server).

• Please contact your network administrator.



F] FILENAME
Complete file name related to the exported TFTP directory

[T] TFTP-SERVER
IP address of the TFTP server.

[S] SAVE CONFIG
Save the system configuration. The configuration can only be saved in an existing file! This prevents overflow on the server hard disk as a result of the uncontrolled saving of configurations.

[L] LOAD CONFIG
Load the system configuration.

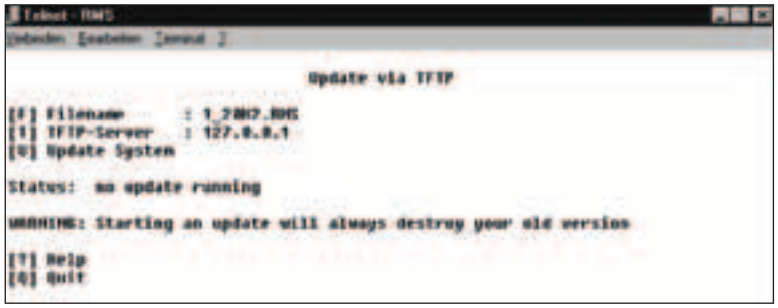
Status:
Display of the current or last TFTP process.

[?] HELP
Explanation of the menu items.

[Q] QUIT
Jump back to the previous menu

4.6.2 UPDATE VIA TFTP

Tool for simple updating of the operating software via the network. This requires that the TFTP service is running on the computer stated (TFTP server)..



[F] FILENAME
File name of the operating software.

[T] TFTP-SERVER
IP address of the TFTP server.

[U] UPDATE SYSTEM
Update system software.

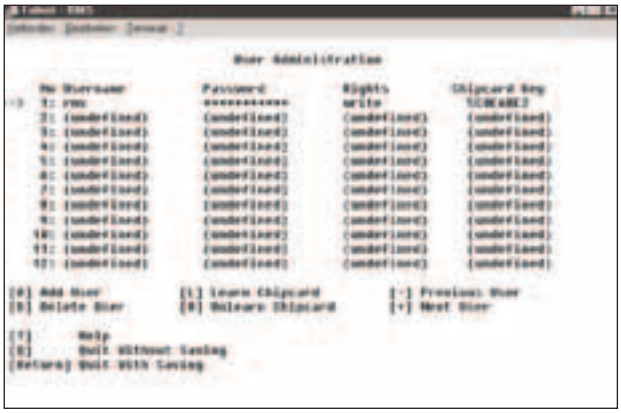
Status:
Display of the last or current TFTP update.

[?] HELP
Explanation of the menu items.

[Q] QUIT
Jump back to the previous menu.

4.7 User Administration

Input mask to set up users with access rights.
All users are displayed with their user names, passwords and rights as well as their chipcard code, if applicable.



[A] ADD USER
Add new user.

[D] DELETE USER
Delete selected user (-->)

[-] PREVIOUS USER
Selection pointer to previous user.

[+] NEXT USER
Selection pointer to next user.

[L] LEARN CHIPCARD
Assign a chipcard to the selected user.

[U] UNLEARN CHIPCARD
Withdraw the chipcard from the selected user.

[?] HELP
Explanation of the menu items..

[Q] QUIT WITHOUT SAVING
Jump back to the main menu without saving changes.

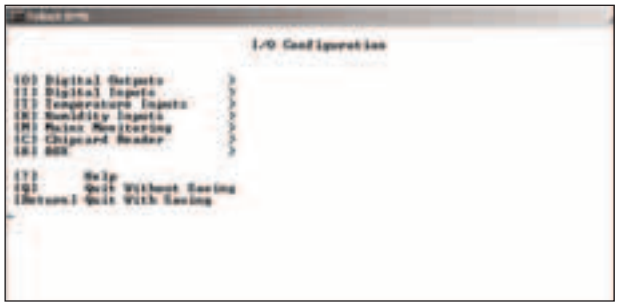
[RETURN] QUIT WITH SAVING
Jump back to the main menu and save changes..

Note

A maximum of 12 users (RMS Advanced 99) can be created.
Reading or writing/reading rights can be assigned to each user. Users with reading rights cannot save changes and do not have access to user administration.
*The name and password are case-sensitive. If the chipcard reader has been activated (> **4.8.7**), the DIGITAL OUT 4 output is assigned exclusively to the door opener, in other words it is not possible to influence this output with the filters.*

4.8 I/O CONFIGURATION

Input mask for the digital input and output settings.
References to sub-menus are marked with ">".



[O] DIGITAL OUTPUTS
Configure digital outputs.

[I] DIGITAL INPUTS
Configure digital inputs.

[T] TEMPERATURE INPUTS
Configure temperature (sensor) inputs.

[H] HUMIDITY INPUTS
Configure humidity (sensor) inputs.

[M] MAINS MONITORING
Configure mains monitoring input.

[A] AUX
Configure serial interface AUX.

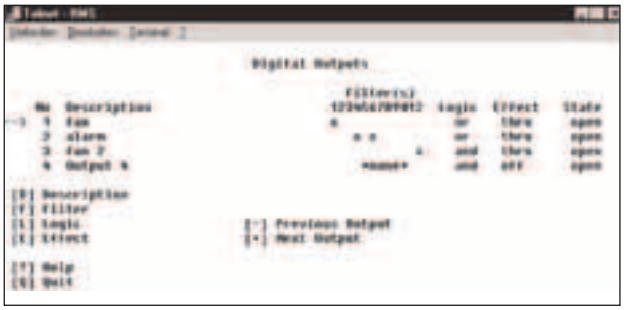
[?] HELP
Explanation of the menu items.

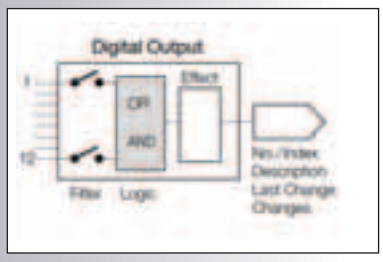
[Q] QUIT WITHOUT SAVING
Jump back to the main menu without saving changes.

[RETURN] QUIT WITH SAVING
Jump back to the main menu and save changes.

4.8.1 DIGITAL OUTPUTS

Input mask for the DIGITAL OUT digital outputs settings.
Digital outputs are displayed with the number, description, combined filters, logic operation and effect.





[D] DESCRIPTION
Description of the digital output.

[F] FILTER
Specify the filter(s) (**> 4.9**) which act(s) on a digital output.

[L] LOGIC
Specify the logic operation with which the filters are combined.

[E] EFFECT
State how the logic result acts on the digital output.

ON	*permanently switched on (independent of settings in Filter and Logic)*
OFF	switched off (independent of settings in Filter and Logic)
THRU	switched through
INVERT	switched through in inverted fashion

[-] PREVIOUS OUTPUT
Selection pointer to previous output.

[+] NEXT OUTPUT
Selection pointer to next output.

[?] HELP
Explanation of the menu items.

[Q] QUIT
Jump back to the previous menu.

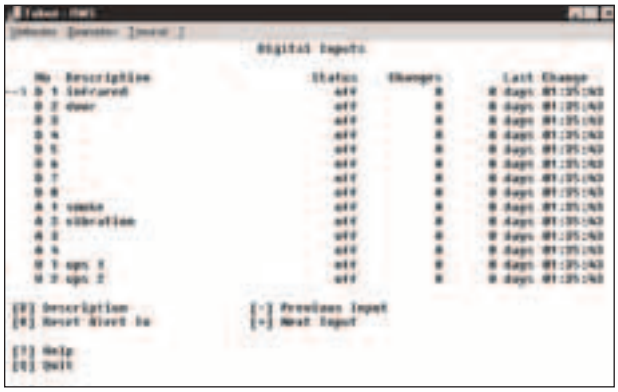
FOR CONFIGURATION WITH THE CHIPCARD READER ONLY

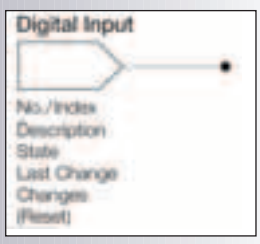
If the chipcard reader has been activated (**> 4.8.7**), the DIGITAL OUT 4 output is assigned exclusively to the door opener, in other words it is not possible to influence this output with the filters.

The menu points **[D], [F], [L]** and **[E]** are disabled for DIGITAL OUT 4 whilst, the current status of the output is displayed in the column headed "State".

4.8.2 DIGITAL INPUTS

Displays the DIGITAL IN, ALERT IN and UPS IN digital inputs with the number, description, status (on/off), number of status changes and time of the last change.





[D] DESCRIPTION
Description of the digital input.

[R] RESET ALERT IN
Reset the sensors connected to the ALERT IN inputs (deletes the alarm status in the sensor).

[-] PREVIOUS INPUT
Selection pointer to the previous input.

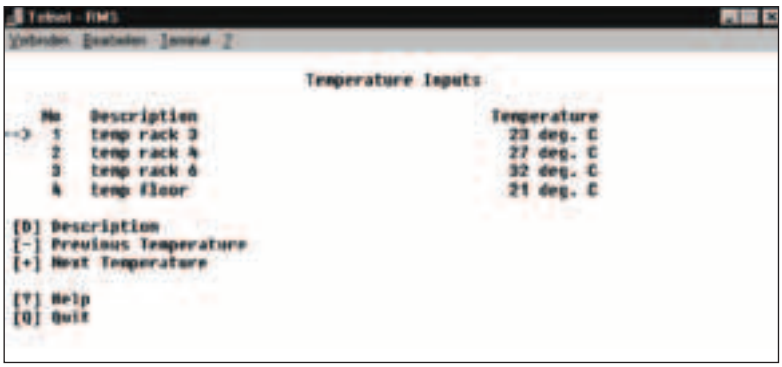
[+] NEXT INPUT
Selection pointer to the next input.

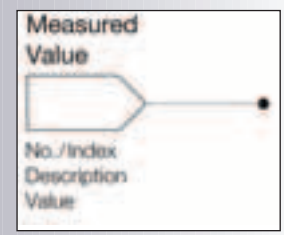
[?] HELP
Explanation of the menu items.

[Q] QUIT
Jump back to the previous menu..

4.8.3 TEMPERATURE INPUTS

Displays the TEMPERATURE/HUMIDITY digital temperature inputs with the number, description and current value.





[D] DESCRIPTION
Description of the temperature input.

[-] PREVIOUS TEMPERATURE
Selection pointer to the previous input.

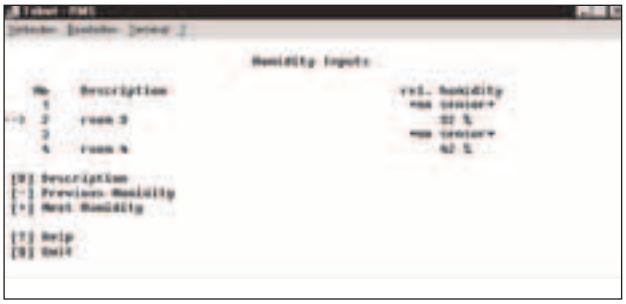
[+] NEXT TEMPERATURE
Selection pointer to the next input.

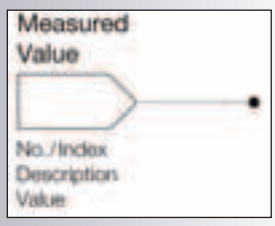
[?] HELP
Explanation of the menu items.

[Q] Quit
Jump back to the previous menu.

4.8.4 HUMIDITY INPUTS

Displays the TEMPERATURE/ HUMIDITY digital humidity inputs with the description and current value.





[D] DESCRIPTION
Description of the humidity sensor.

[-] PREVIOUS HUMIDITY
Selection pointer to the previous input.

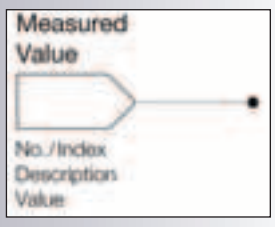
[+] NEXT HUMIDITY
Selection pointer to the next input

[?] HELP
Explanation of the menu items.

[Q] QUIT
Jump back to the previous menu.

4.8.5 MAINS MONITORING

Displays the MAINS MONITORING digital inputs with the number, description and current value.



[D] DESCRIPTION
Description of the mains.

[+] NEXT MAINS
Selection pointer to the next mains.

[-] PREVIOUS MAINS
Selection pointer to the previous mains.

[?] HELP
Explanation of the menu items.

[Q] QUIT
Jump back to the previous menu.

4.8.6 CONNECT EXTERNAL DEVICES VIA SERIAL INTERFACE (AUX)

Devices with a serial interface (for example chipcard reader, UPS, etc.) can be connected to the AUX port on the rear of the RMS.

Software version 1.4 can support a chipcard reader to implement an access control system.

[U] UPDATE SCREEN
Update the screen..

[D] AUX DEVICE SELECTION
Select a different device.

[L] LOGIC
Set the logic for the door opener contact.

make The contact is made if successful (default status open)
break The contact is broken if successful (default status closed)

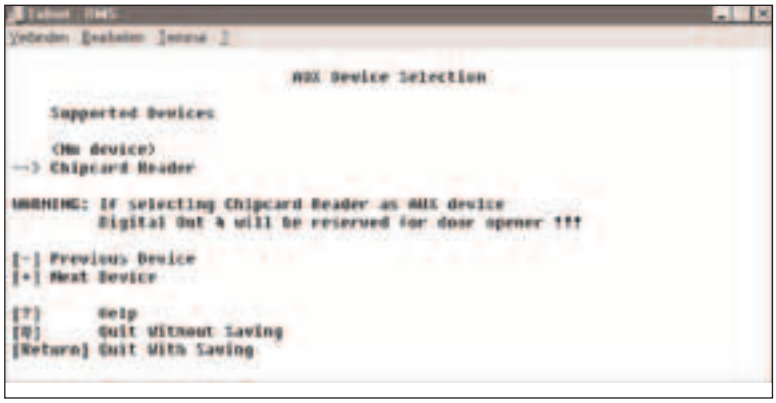
[T] OPEN TIME
Set the open time.

[O] OPEN DOOR MANUALLY
Open the door.

[?] HELP
Explanation of the menu points.

[Q] QUIT
Return to the previous menu.

4.8.7 AUX DEVICE SELECTION



[-] Previous Device
Set the selection pointer to the previous device.

[+] Next Device
Set the selection pointer to the next device.

[?] Help
Explanation of the menu points.

[Q] Quit
Return to the previous menu.

[Return] Quit With Saving
Save the changes and return to the previous menu.

Note

*These settings affect the display and function in the menus "User Configuration" (> **4.7**), "Digital Outputs" (**> 4.8.1**) and "AUX Configuration" (**> 4.8.6**).*

4.9 FILTER

The filters are the central elements of the RMS. They make it it possible to logically combine the results recorded at the inputs, and to supply the result to the digital outputs or to generate various signals.

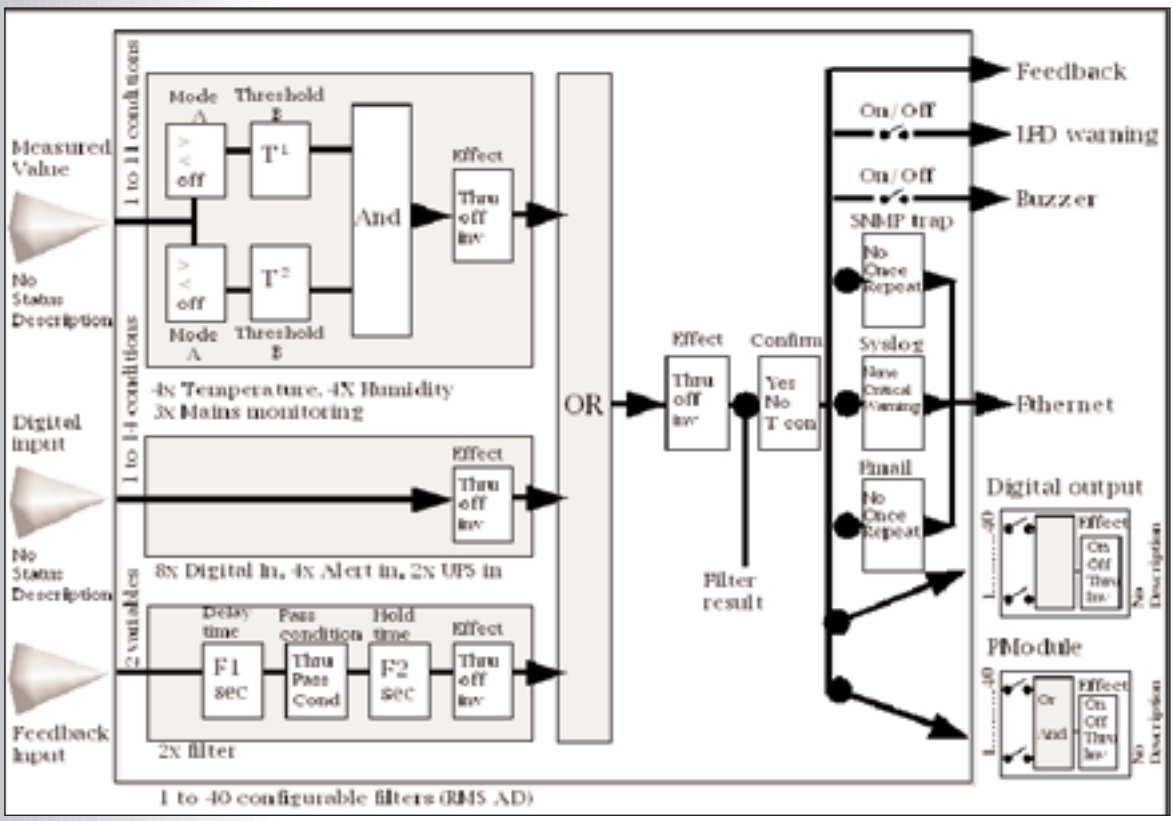
It is possible to configure a total of 12 filters (RMS Advanced 40) with an identical structure. In this case, all inputs are available to each filter.

Depending on the type of input signal (measured value, status, filter feedback), in principle there are three different function blocks for processing the results.

Mode of operation

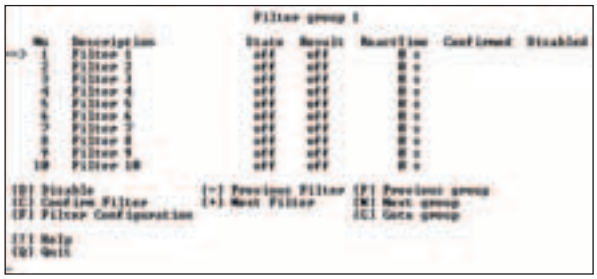
The results of all the function blocks are combined via a common, logical OR element to form the filter result.

This filter result can then, depending on requirements, be used to generate alarm messages (SNMP Trap, LED Warning, Buzzer), to control digital outputs, or for feedback to other filters.



4.9.1 FILTER SELECTION

All filters are displayed with the number, description, status, result, reactivation time and confirmation status.



[D] DISABLE
Deactivate the selected filter without changing the filter settings.

[C] CONFIRM FILTER
Confirm selected filter. The confirmation deactivates the filter for the duration of the reactivation time (> **4.9.2**).

[F] FILTER CONFIGURATION
Configure selected filter.

[-] PREVIOUS FILTER
Selection pointer to the previous filter.

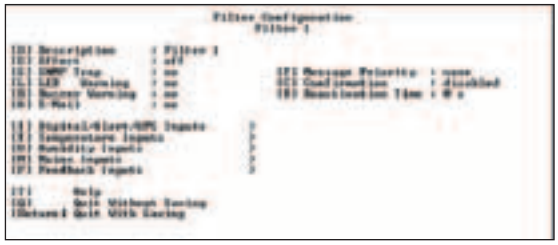
[+] NEXT FILTER
Selection pointer to the next filter.

[?] HELP
Explanation of the menu items.

[Q] QUIT
Jump back to the main menu without saving changes.

4.9.2 FILTER CONFIGURATION

References to sub-menus are marked with ">".
A "(*)" before the ">" indicates that at least one of the inputs is applied to this filter.



[D] DESCRIPTION
Description of the filter.

[E] EFFECT
Effect of the filter result after the OR element.

thru	switched through
off	switched off
invert	switched through in inverted fashion

[S] SNMP TRAP
In connection with an event, send traps to all entered trap receivers **(> 4.5.1).**

no	No trap
once	Trap if the filter event occurs repeat Repeated traps (every 60 seconds) until the filter event occurs

[L] LED WARNING
In connection with an event switch the LED on "Warning"

[B] BUZZER WARNING
In connection with an event, switch on the buzzer.

[M] MESSAGE PRIORITY
Characterises the priority of the filter event.
none no entry in the message
critical
warning

[C] CONFIRMATION
Enable or disable confirmation of a filter result.

[R] REACTIVATION TIME
Specify the time after which a confirmed filter is reactivated.

[I] DIGITAL/ALERT/UPS INPUTS
Configure general digital inputs..

[T] TEMPERATURE INPUTS
Configure temperature inputs.

[H] HUMIDITY INPUTS
Configure humidity inputs.

[M] MAINS INPUTS
Configure mains monitoring inputs

[F] FEEDBACK INPUTS
Configure feedback inputs.

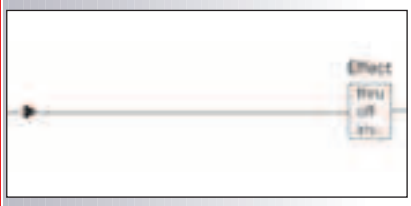
[?] HELP
Explanation of the menu items.

[Q] QUIT WITHOUT SAVING
Jump back to the previous menu without saving changes.

[RETURN] QUIT WITH SAVING
Jump back to the previous menu and save changes.

4.9.3 DIGITAL/ALERT/UPS INPUTS

The inputs are displayed with the type, number, description and effect.



[-] PREVIOUS DIGITAL/ALERT/UPS INPUT
Input
Selection pointer to the previous input.

[+] NEXT DIGITAL/ALERT/UPS INPUT
Selection pointer to the next input.

[E] EFFECT
Effect of the input signal on the OR element.
thru switched through
off switched off
invert switched through in inverted fashion

[?] Help
Explanation of the menu items.

[Q] QUIT
Jump back to the previous menu.

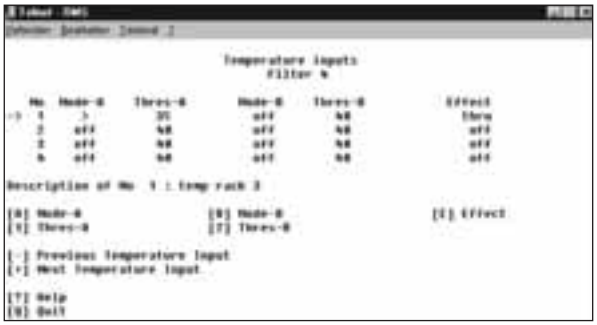
4.9.4

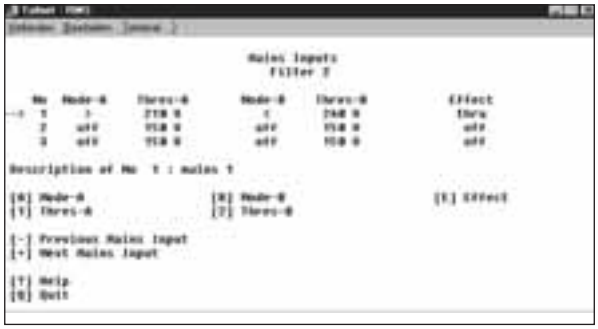
TEMPERATURE/MAINS/HUMIDITY INPUTS

The filter inputs for measured values are displayed with the threshold, mode and effect. They have a flexible structure for the creation of larger/smaller comparisons or window comparisons.

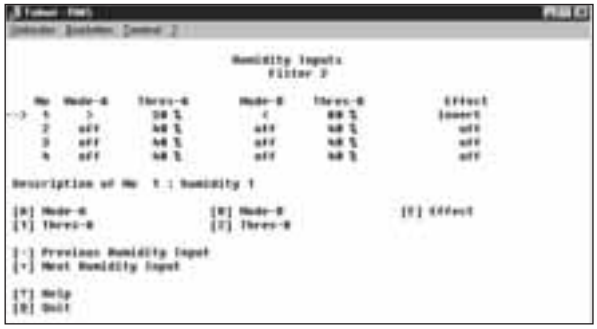
Thus the following filter conditions can easily be realised:

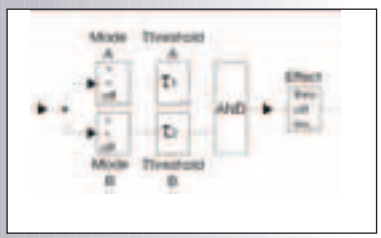
1) Simple larger/smaller comparison (switch if the input variable is smaller/larger than the threshold). Example 1 – Switch if temperature 1 > 35 °C: mode A ">"; threshold A 35; mode B "off"; threshold B any value; effect "thru".





2) "Window comparison" (switch if the input variable is inside/outside a defined range) Example 2 – Switch if voltage 1 is between 210 V and 240 V: Mode A ">"; threshold A 210; Mode B "<"; threshold B 240; effect "thru" Example 3 – Switch if humidity 1 is less than 30 % or greater than 80 %: Mode A ">"; threshold A 30; Mode B "<"; threshold B 80; effect "invert"





[A] MODE-A [B] MODE-B
Set comparison module..

[1] THRES-A [2] THRES-B
Set threshold.

[E] EFFECT
State how the input acts on the OR element.

thru	switched through
off	switched off
invert	switched through in inverted fashion

[-] PREVIOUS INPUT
Selection pointer to previous input.

[+] NEXT INPUT
Selection pointer to next input.

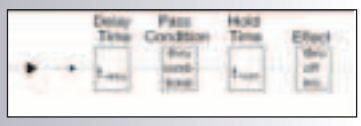
[?] HELP
Explanation of the menu items.

[Q] QUIT
Jump back to the previous menu..

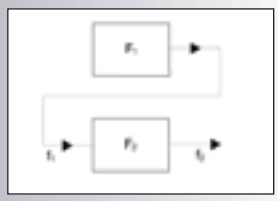
4.9.5

FEEDBACK INPUTS

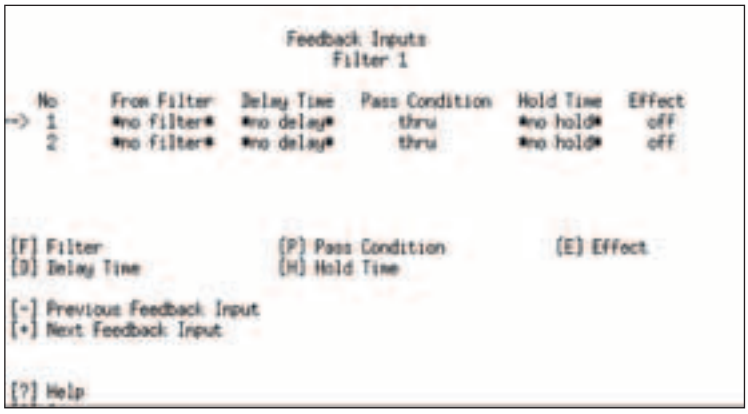
To realise complex filter conditions, each filter has two feedback inputs where filter events can be further processed.
The special feature here is the possibility of delay (delay time), conditional evaluation (pass condition) and hold time.



F_1: Filter 1
F_2: Feedback input of filter 2.
f_1: F_1 output event, input event of F_2
f_2: Output of the feedback input of F_2



With a pass condition = thru, the effective hold time of f_2 can be extended by any time by subsequent events of f_1 (retriggering). f_2 in this case is not released until thold after the last falling edge of f_1.



[-] Previous Feedback Input
Selection pointer to previous input.

[+] NEXT FEEDBACK INPUT
Selection pointer to next input.

[F] FILTER
Origin of the feedback.

[D] DELAY TIME
Set the delay time after the operation of the input event f_1 in s.

[H] HOLD TIME
Set the hold time of f_2 after the release of f_1 in s.

[P] PASS CONDITION
Set the pass mode.

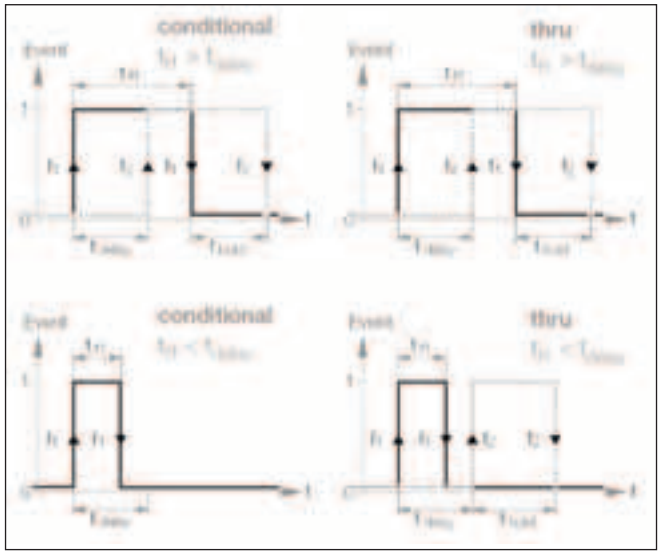
thru	pass
conditional	pass if input condition is still met

[E] EFFECT
State how the input acts on the OR element.

thru	switched through
off	switched off
invert	switched through in inverted fashion

[?] HELP
Explanation of the menu items.

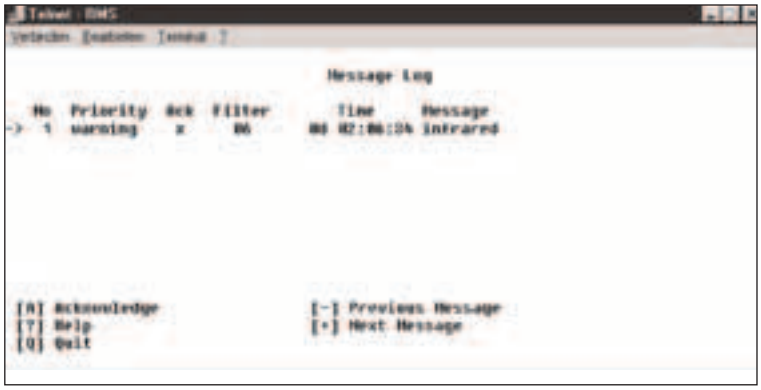
[Q] QUIT
Jump back to the previous menu.



4.10 MESSAGE LOG

The messages are displayed with the number, priority, acknowledgement, spent time and filter description.

A maximum of the 15 last messages can be displayed.



[A] ACKNOWLEDGE
Select message acknowledged (mark with x).

[-] PREVIOUS MESSAGE
Selection pointer to previous message.

[+] NEXT MESSAGE
Selection pointer to next message.

[?] HELP
Explanation of the menu items.

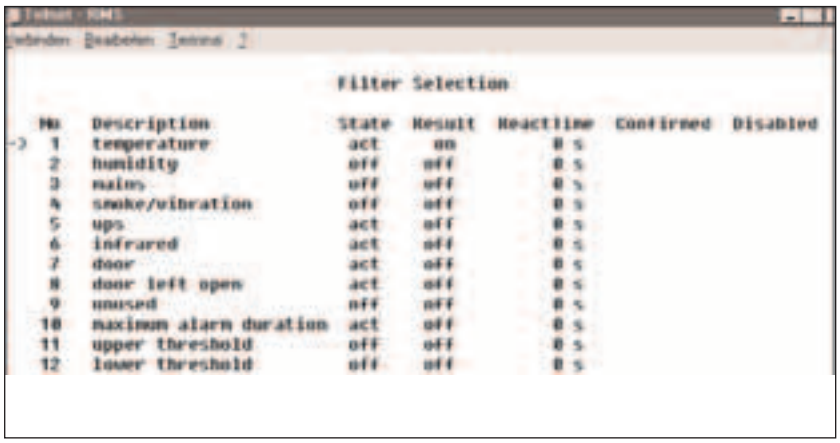
[Q] QUIT
Jump back to the previous menu.

5 EXAMPLE CONFIGURATION

Preconfigured filters with an example of terminal assignment.

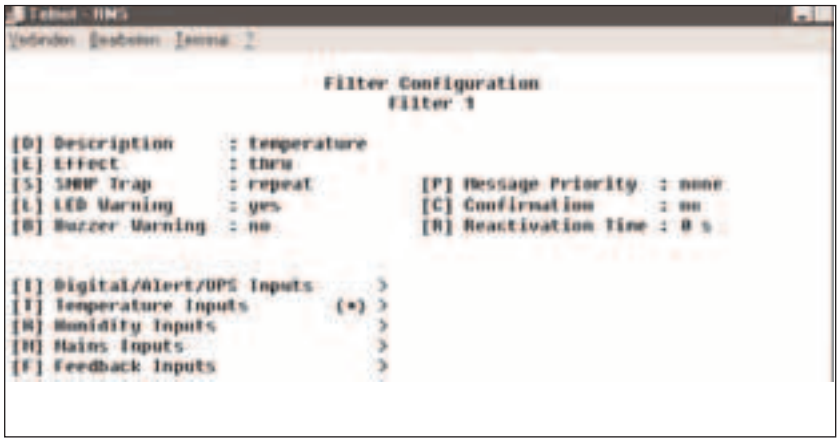
When the RMS is delivered, the most common applications (described in part in the following) have been preconfigured so that commissioning involves setting fewer parameters.

• Connect sensors to the suggested terminals.



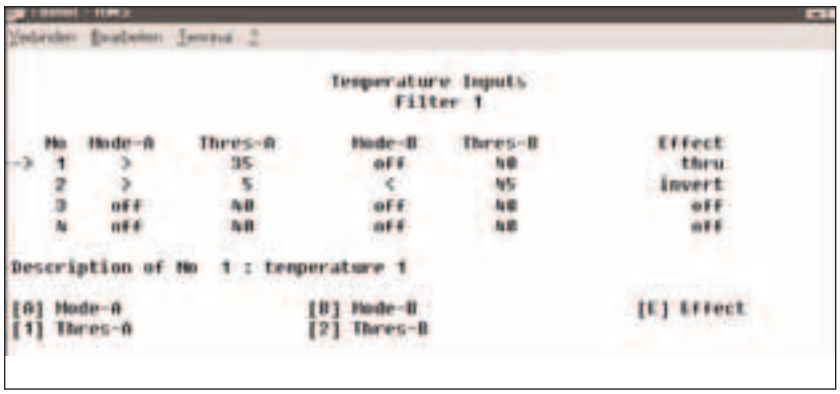
Example of filter configuration using filter 1 (temperature).

• Activate the filter by setting the respective effect to “thru” or “invert” (preset: “off”).
• Make individual settings (effect, warnings, …) for each filter required. See also > **4.9.2.**

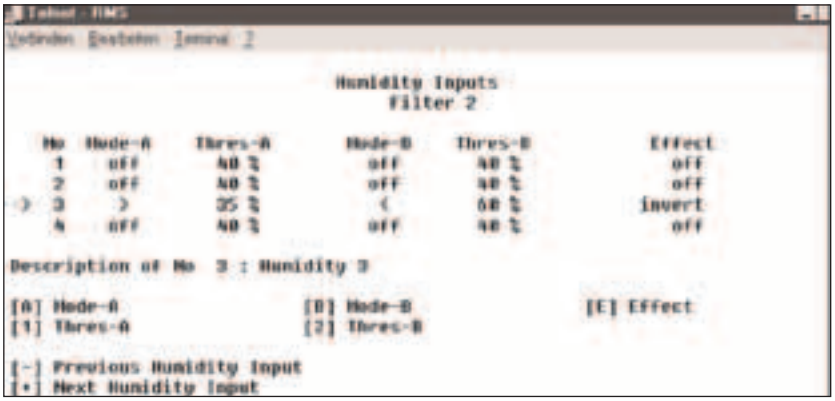


Examples of filter settings

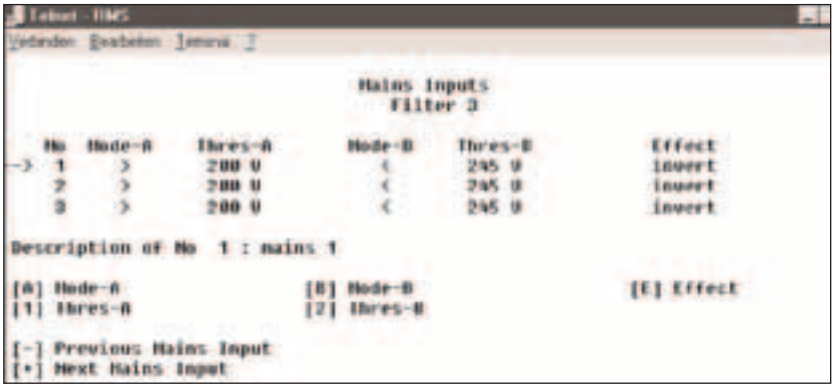
TEMPERATURE/HUMIDITY input 1 with simple comparison:
Alarm if temperature > 35 °C.
TEMPERATURE/HUMIDITY input 2 with window comparison:
Alarm if temperature < 5 °C or > 45 °C. See also > **4.9.4**.



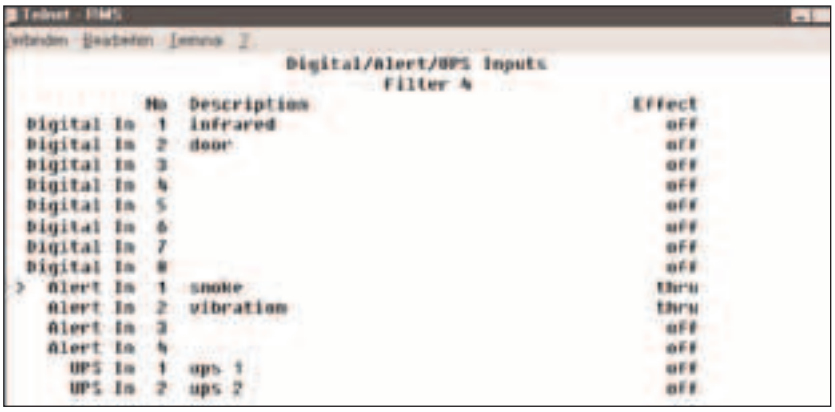
TEMPERATURE/HUMIDITY input 3 with window comparison:
Alarm if humidity < 35 % or > 60% relative humidity.
See also **> 4.9.4**.



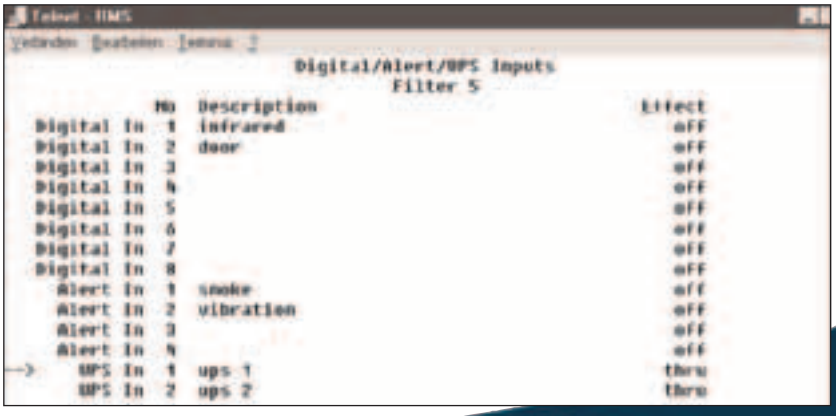
MAINS inputs 1 to 3 with window comparison: Alarm if U < 200 V or U > 245 V.See also > **4.9.4.**



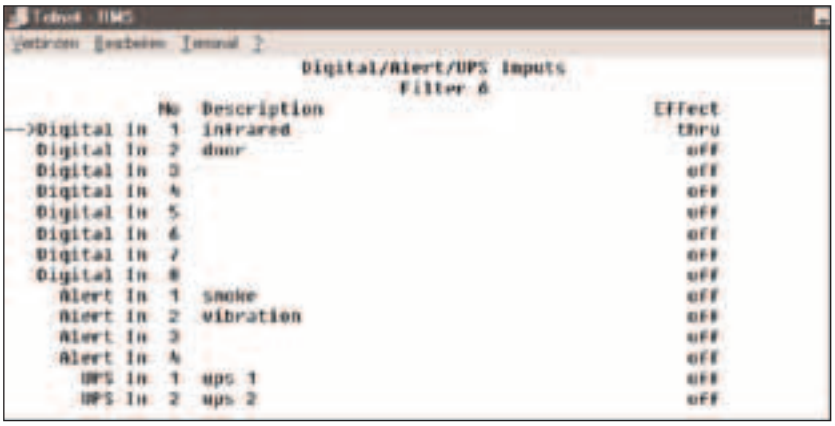
ALERT IN inputs 1 and 2:
Alarm if smoke detector or vibration sensor operate.
See also > **4.9.3**.



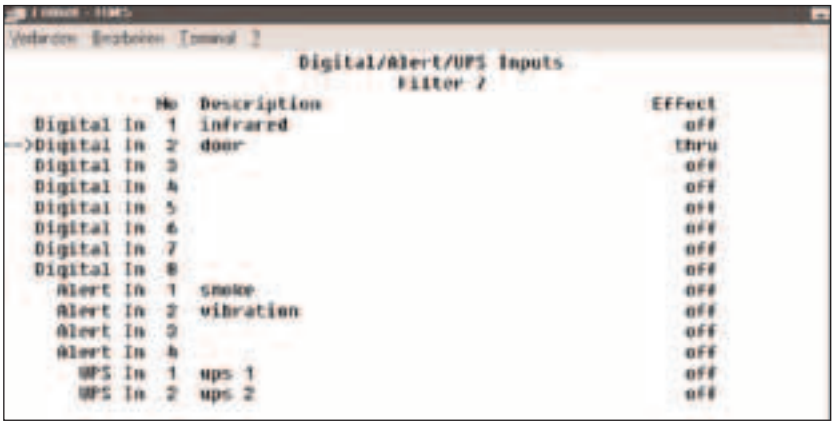
UPS IN inputs 1 and 2:
Alarm if UPS 1 or 2 reports power failure. See also **> 4.9.3.**

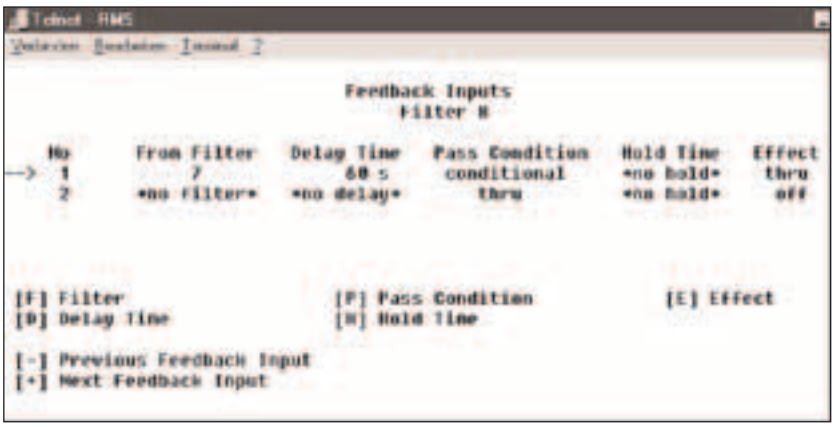


DIGITAL IN input 1:
Alarm if passive infrared sensor operates. See also > **4.9.3.**



DIGITAL IN input 2:
Alarm if door is open for longer than 60 s.
In the Filter Configuration menu, set effect to “thru” for filter 7.
In the Feedback Input menu, set effect to “thru” for filter 8.
See also > **4.9.5**.





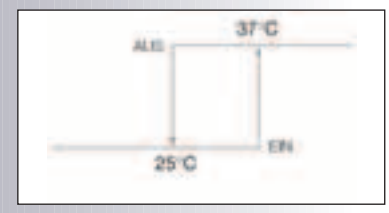
Limited alarm duration for filter 4:
Internal buzzer active for 5 seconds if filter 4 (smoke and shock sensor) is active
Set input for filter 10 Effect to "thru" in the Feedback menu..

```
                              Filter Configuration
                                   Filter 10

[D] Description      : limited alarm duration
[E] Effect           : invert
[S] SNMP Trap        : no              [P] Message Priority  : none
[L] LED   Warning    : no              [C] Confirmation      : disabled
[B] Buzzer Warning   : yes             [R] Reactivation time : 0 s


[I] Digital/Alert/UPS Inputs       >
[I] Temperature Inputs             >
[H] Humidity Inputs                >
[M] Mains Inputs                   >
[F] Feedback Inputs              (*) >
```

```
                              Feedback Inputs
                                   Filter 10

   No      From Filter   Delay Time   Pass Condition   Hold Time   Effect
--> 1            4       *no delay*    conditional     *no hold*   invert
    2            4          5 s        conditional     *no hold*    thru




[F] Filter                       [P] Pass Condition          [E] Effect
[D] Delay Time                   [H] Hold Time

[-] Previous Feedback Input
[+] Next Feedback Input
```

Specimen output configuration

Additional fan on DIGITAL OUT 1: activated if filter 1 trips (temperature).
Signal horn on DIGITAL OUT 2: activated if filter 4 (smoke or shock) or filter 6 (passive infra red) trip. Second fan on DIGITAL OUT 3 with hysteresis for temperature 1: switch on fan if temperature 1 > 37 °C and do not switch off until temperature 1 < 25 °C.




```
                              Feedback Inputs
                                   Filter 12

   No      From Filter   Delay Time   Pass Condition   Hold Time   Effect
--> 1           11        *no delay*       thru        *no hold*    thru
    2       *no filter*   *no delay*       thru        *no hold*    off


                            Temperature Inputs
                                 Filter 12

   No  Mode-A    Thres-A      Mode-B    Thres-B          Effect
--> 1     <       25 C         off       40 C             thru
    2    off      40 C         off       40 C             off
    3    off      40 C         off       40 C             off
    4    off      40 C         off       40 C             off

Description of No  1 : temperature 1


                            Filter Configuration
                                 Filter 12

[D] Description      : lower threshold
[E] Effect           : invert
[S] SNMP Trap        : no              [P] Message Priority  : none
[L] LED   Warning    : no              [C] Confirmation      : disabled
[B] Buzzer Warning   : no              [R] Reactivation Time : 0 s
```

5 EXAMPLE CONFIGURATION

Two filters are required for this (copy of an RS flip-flop using NOR gate array).


```
                          Feedback Inputs
                            Filter 11

   No      From Filter   Delay Time   Pass Condition   Hold Time   Effect
--> 1          12         *no delay*    conditional    *no hold*    thru
    2       *no filter*   *no delay*       thru        *no hold*    off


                         Temperature Inputs
                            Filter 11

   No  Mode-A    Thres-A     Mode-B    Thres-B          Effect
--> 1    >       37 C        off       40 C             thru
    2   off      40 C        off       40 C              off
    3   off      40 C        off       40 C              off
    4   off      40 C        off       40 C              off

Description of No  1 : temperature 1


                          Filter Configuration
                            Filter 11

[D] Description     : upper threshold
[E] Effect          : invert
[S] SNMP Trap       : no              [P] Message Priority  : none
[L] LED   Warning   : no              [C] Confirmation      : disabled
[B] Buzzer Warning  : no              [R] Reactivation Time : 0 s
```

```
                          Digital Outputs

                                  Filter(s)
   No  Description                123456789012  Logic  Effect   State
    1  fan                        x              or    thru     open
    2  alarm                        x x          or    thru     open
--> 3  fan 7                              x      and   thru     open
    4  Output 4                    *none*       and   off      open

[D] Description
[F] Filter
[L] Logic                  [-] Previous Output
[E] Effect                 [+] Next Output
```

Caution

If, during operation, the "Power" LED goes out or smoke or an abnormal smell is ascertained,
- Unplug the power cable.
- Please contact your dealer.

In the event of malfunctions

- Check whether your system is properly set up (> **3**).

System no longer starts.

Cause: Current operating software faulty.

Remedy:
- Ensure that a correctly configured (> 4.1.2) terminal is connected to the COM interface on the front of the device or on the back.
- Press the Reset key on the front of the device with a pointed object. The device will reboot.

The following boot messages appear on the terminal screen:

```
RMS-BIOS version 1.0.03
(c) LINDY-Elektronik GmbH 1998
Memory Test : 00004096k Ok
Status of IDE : Ok
Drive 0 : MZX023157, (C/H/S) : 123/2/32
Drive 1 : Not detected.
Probing...[ NE*000]
NE*000 base 0x0300, addr 00:10:6C:00:04:41
LILO
-------------------------------------------------
RMS - Rack Monitoring System
System is ready to boot. You may choose your old image
by pressing 'o'.
-------------------------------------------------
boot: <TAB>
r      RMS-Boot o RMS-Old
boot: o <ENTER>
Loading o
Linux version 2.1.97 (root@PC14) (gcc version 2.7.2.1) #7
SMP Tue May 5 10:26:58
Calibrating delay loop... 3.70 BogoMIPS
```

- If, during the boot: display, the keys o and Return on the terminal keyboard are pressed, the system boots with the last valid operating software (otherwise it boots again with the current version, which is faulty here).
- Load the current operating software from the Internet and update the system(> **4.4.3**).

The "Fault" LED lights up, the sensors do not work, "Overload" is displayed in the LCD display.

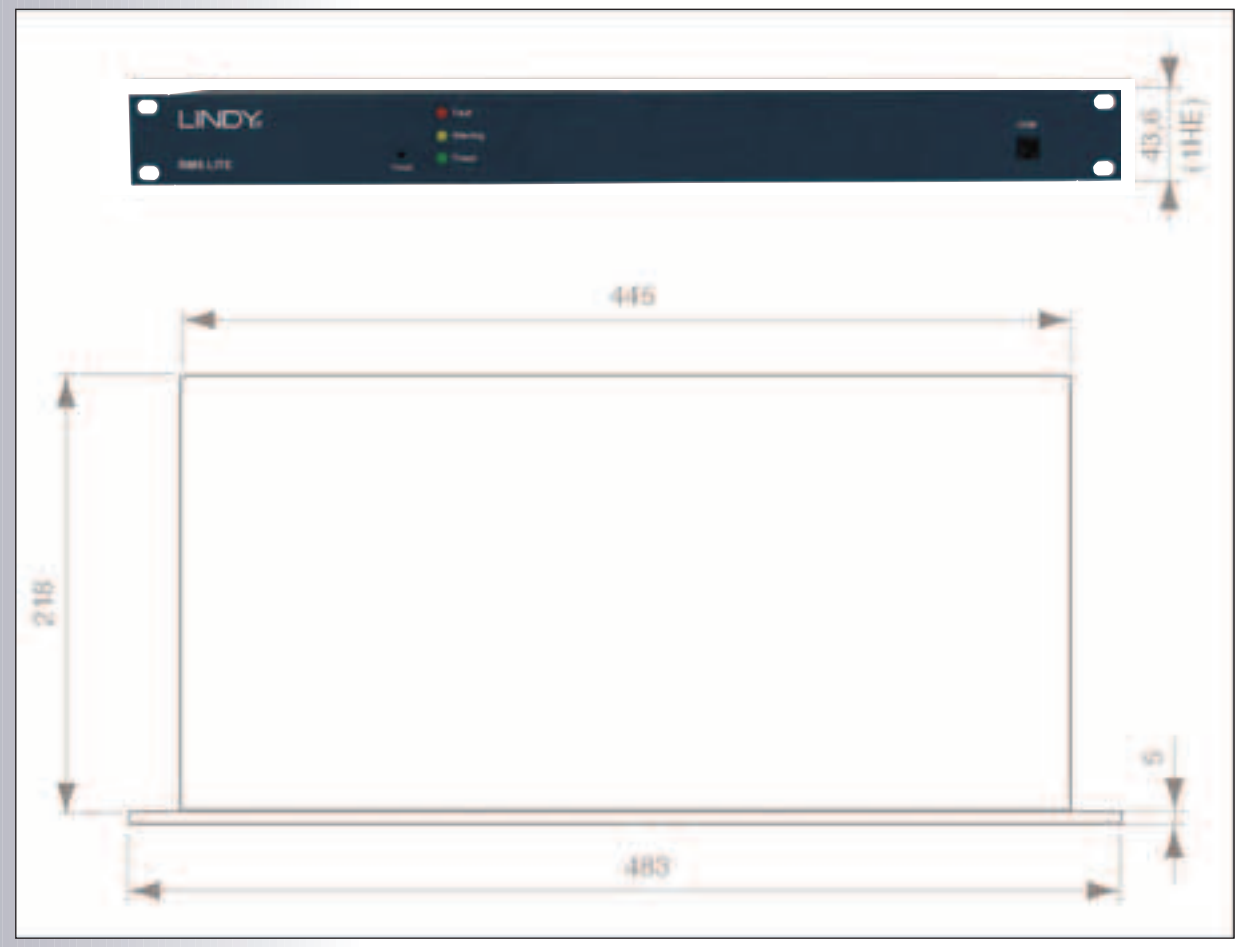
Cause: Auxiliary voltage interruption in connection with overload or short circuit in the sensor cable.

Remedy:
- Confirm the "Overload" message in the LCD display with the ENTER key.
- Remove the overload or short circuit.
- Switch the auxiliary voltage back on in the "Aux.Volt."(>**4.3**) menu with the ENTER key.

If the malfunction still occurs after performing the remedial measures

- Please contact technical support (**> 1.4)** or your dealer.

7 TECHNICAL DATA



RMS dimensions	External (WxDxH): 483 x 223 x 43.6mm Mounting dimensions (WxDxH): 445 x 218 x 43.6mm
Weight	3.5 kg
Rated voltage	AC 110 – 230 V
Rated frequency	50/60 Hz
Rated current	200 mA
Protection class	I
Rated ambient temperature	5 . . . 35 °

19" Construction	19-inch construction is the common name for a standardised modular system for electronic devices and system parts. It specifies the width of the front panel of plug-in units and subracks.
Broadcast	General, network-wide information.
EMC	Abbreviation for Electromagnetic Compatibility.
FAQ	Abbreviation for Frequently Asked Questions. The most frequent questions and problems on a subject are listed under FAQ on the Internet.
Gateway	Junction between network segments or networks, also with different protocols.
HE	Height classification dimension of 44.45 mm = 1 HE (1 U). From 19" technology.
IP	Abbreviation for Internet Protocol. Standardised protocol for data transmission and on the Internet for addressing computers. An IP address consists of a combination of 4 Bytes written as follows: A.B.C.D (for example, 192.168.0.88). For more information, see RFC.
MIB	Abbreviation for Management Information Base. Data structure which contains information on the SNMP agent.
Netmask	Used to divide the IP address into network address and interface address.
RFC	Abbreviation for Request For Comment. RFCs are the official form of publication of Internet standards and other technical documents on the Internet. Rules for formatting and publishing RFCs themselves are laid down in RFC 1543.
SNMP	Abbreviation for Simple Network Management Protocol. Established protocol for the exchange of management information. Standard RFCs on SNMP are RFC 1155, RFC 1157 and RFC 1213.
TFTP	Trivial File Transfer Protocol Simple protocol in IP-based networks for sending and receiving files.
Trap	(Alarm) message from an SNMP agent to the management environment.
URL	Abbreviation for Universal Resource Locator. Full Internet address.
VDE	Abbreviation for Verband Deutscher Elektrotechniker (Association of German Electrotechnical Engineers).

A1

Conformity

CE

Manufacturer	LINDY-Elektronik GmbH Markircher Str. 20 D-68229 Mannheim, Germany
Product designation	Data Terminal Equipment
Model	Remote Managment System

The product conforms to the regulations of the following EU Directive: 73/23/EEC.

The conformity of the product to the requirements of Directive 89/336/EEC was tested using the following standards: EN 55022/Kl. B; EN 55024; EN 61000-4-2; EN 61000-3; EN 61000-4; EN 61000-6.

Tested to Comply With FCC Standards For Commercial Use Only

FCC Compliance Statement (United States)
This equipment generates, uses and can radiate radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio communication. It has been tested and found to comply with the limits for a class A computing device in accordance with the specifications in Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when the equipment is operated in a commercial environment. Operation of this equipment in a residential area may cause interference, in which case the user at his own expense will be required to take whatever measures may be necessary to correct the interference. If this equipment causes interference, what can be determined by turning the equipment on and off, the user is encouraged to try to correct the interference by one or more of the following measures:

a) Reorient or relocate the receiving antenna.
b) Increase the separation between the equipment and receiver.
c) Connect the equipmment to an outlet on a circuit different from that to which the receiver is connected.
d) Consult the dealer or an experienced radi/TV technician

FCC WARNING
Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment under FCC Rules.

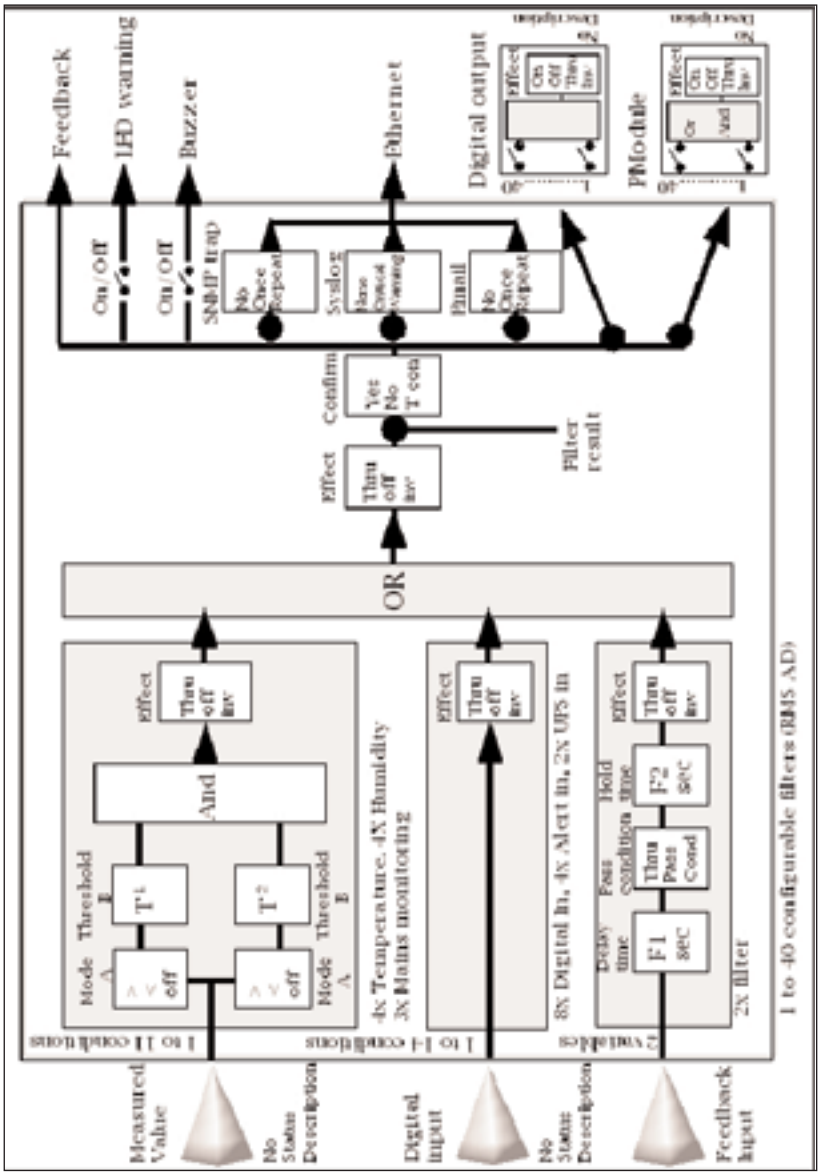
Canadian Department of Communications RFI statement
This equipment does not exceed the class A limits for radio noise emissions from digital apparatus set out in the radio interference regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le règlement sur le brouillage radioélectriques publié par le ministère des Communications du Canada

A 2 DOCUMENTATION OF THE SYSTEM CONFIGURATION

• Mark the cables of your RMS at both ends clearly with meaningful markings.

Use cable binders with marking areas or labels with sealing film.
• The following block diagram (master) can be used for documentation of the filter configuration



A3

EXPLANATION OF THE MIB FOR RMS

The RMS can be accessed under the OID 1.3.6.1.4.1.1909.10 (iso.org.dod.internet.private.enterprises.infratec.rms)

Structure of the MIB

10 rms

```
1 rmssystem
2 input
   1 digitalInTable
   2 alertInTable
   3 upsInTable
3 output
   1 outputTable
   2 outputLogicTable
4 temp
   1 tempTable
5 humid
   1 humidTable
6 mains
   1 mainsTable
7 filter
   1 filterTable
   2 filterDigitalInTable
   3 filterAlertInTable
   4 filterUPSINTable
   5 filterTempTable
   6 filterHumidityTable
   7 filterMainsTable
   8 filterFeedbackTable
8 message
   1 messageTable
9 user
   1 userTable
20 aux
21 icc
```

The complete MIB in ASN.1-Notation is on the enclosed CDROM as the file "RMS MIB"

Key to the following Tables:

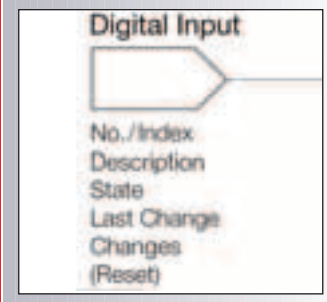
INT	Integer
CNT	Counter
DS	Display String
OS	Octet String
TT	TimeTicks
RO	Read Only
RW	Read Write

Objects under RMS system
(1.3.6.1.4.1.1909.10.1)

for example
Reset RMS
1.3.6.1.4.1.1909.10.1.4.0 := 1

Variable	Type	Value	Access
1 systemVersion	DS		RO
2 systemSNMPsave	INT	{ default (1), save (2) }	RW
3 systemMsgToSyslog	INT	{ msglog-off (1) msglog-on (2) }	RO
4 systemReset	INT	{ default (1), reset (2) }	RW
5 systemSNMPaccess	INT	{ readonly (1), readwrite (2) }	RO

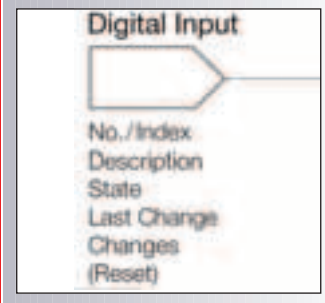
Objects under `digitalInTable`
(1.3.6.1.4.1.1909.10.2.1)



Variable	Type	Value	Access
1 digitalInEntry			
1 digitalInIndex	INT		RO
2 digitalInDescr	DS		RW
3 digitalInState	INT	{ off (1), on (2)}	RO
4 digitalInLastChange	TT		RO
5 digitalInChanges	CNT		RO

for example:
number of changes of input 9:
1.3.6.1.4.1.1909.10.2.1.1.5.9

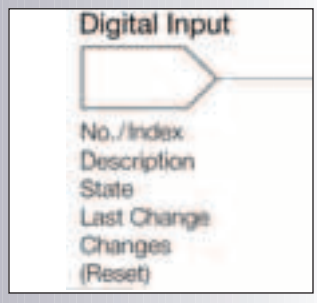
Objects under `alertInTable`
(1.3.6.1.4.1.1909.10.2.2)



Variable	Type	Value	Access
1 alertInEntry			
1 alertInIndex	INT		RO
2 alertInDescr	DS		RW
3 alertInState	INT	{off (1), on (2)}	RO
4 alertInLastChange	TT		RO
5 alertInChanges	CNT		RO
6 alertInReset	INT	{default (1) alertIn-reset (2)}	RW

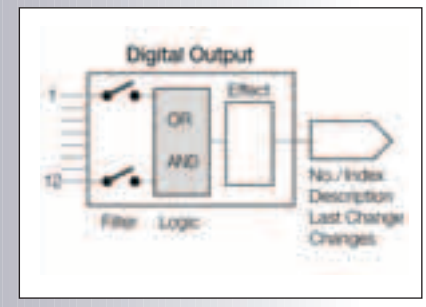
for example :
Reset sensors on Alert In 2
1.3.6.1.4.1.1909.10.2.2.1.3.2 := 1

Object under ups InTable
(1.3.6.1.4.1.1909.10.2.3)



Variable	Type	Value	Access
1 upsInEntry			
1 upsInIndex	INT		RO
2 upsInDescr	DS		RW
3 upsInState	INT	{off (1), on (2)}	RO
4 upsInLastChange	TT		RO
5 upsInChanges	CNT		RO

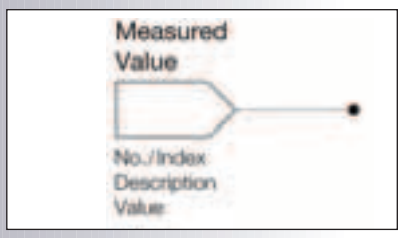
Objects under `outputTable`
(1.3.6.1.4.1.1909.10.3.1)



Variable	Type	Value	Access
1 outputEntry			
1 outputIndex	INT		RO
2 outputDescr	DS		RW
3 outputEffect	INT	{off (1), on (2), thru (3), invert (4)}	RW
4 outputLastChange	TT		RO
5 outputChanges	CNT		RO
6 outputLogic	INT	{and (1), or (2)}	RW
7 outputState	INT	{open (1), short(2)}	RO

for example:
Read put description DIGITAL OUT 4:
1.3.6.1.4.1.1909.10.3.1.1.2.4

Objects under `outputLogicTable`
(1.3.6.1.4.1.1909.10.3.2)



Variable	Type	Value	Access
1 outputLogicEntry			
1 outputLogicOutputIndex	INT		RO
2 outputLogicFilterIndex	INT		RO
3 outputLogicFilter	INT	{off(1),on(2)}	RW

Objects under `tempTable`
(1.3.6.1.4.1.1909.10.4.1)

for example:
Read out current temperture of temperature sensor 1:
1.3.6.1.4.1.1909.10.4.1.1.3.1

Variable	Type	Value	Access
1 tempEntry			
1 tempIndex	INT		RO
2 tempDescr	DS		RW
3 tempValue	INT	{no-sensor (665)}	RO

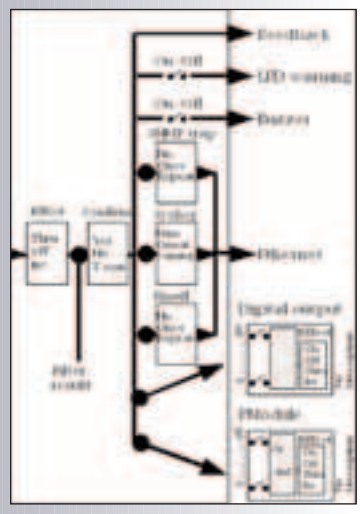
Objects under `humidTable`
(1.3.6.1.4.1.1909.10.5.1)

Variable	Type	Value	Access
1 humidEntry			
1 humidIndex	INT		RO
2 humidDescr	DS		RW
3 humidValue	INT	{ no-sensor (255) }	RO

Objects under `mainsTable`
(1.3.6.1.4.1.1909.10.6.1)

Variable	Type	Value	Access
1 mainsEntry			
1 mainsIndex	INT		RO
2 mainsDescr	DS		RW
3 mainsValue	INT		RO

Objects under `filterTable`
(1.3.6.1.4.1.1909.10.7.1)



for example:
allow confirmation for filter 4
1.3.6.1.4.1.1909.10.7.1.1.9.4 := 1

Variable	Type	Value	Access
1 filterEntry			
1 filterIndex	INT		RO
2 filterDescr	DS		RW
3 filterResult	INT	{false (1), true (2)}	RO
4 filterEffect	INT	{off (1), thru (2), invert (3)}	RW
5 filterTrap	INT	{no (1), once (2), repeat (3) }	RW
6 filterLED	INT	{no (1), yes (2)}	RW
7 filterBuzzer	INT	{no (1), yes (2)}	RW
8 filterMessagePriority	INT	{no-message (1), priority-warning (2), priority-critical (3)}	RW
9 filterConfirmation	INT	{disabled (1), enabled (2) }	RW
10 filterReactivationTime	INT	{no-timeout (1)}	RW
11 filterConfirm	INT	{not-confirmed (1), confirmed (2) }	RW

Objects under `filterDigitalInTable`
(1.3.6.1.4.1.1909.10.7.2)

for examle :
Make DIGTIAL INPUT 2 act on filter 6:
1.3.6.1.4.1.1909.10.7.2.1.3.6.2

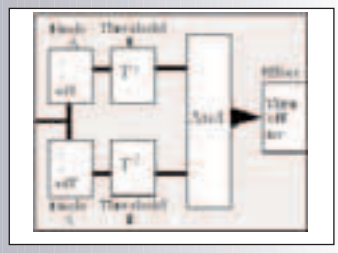
Variable	Type	Value	Access
1 filterDigitalInEntry			
1 filterDigitalInIndex	INT		RO
2 filterDigitalInPort	INT		RO
3 filterDigitalInEffect	INT	{off (1), thru (2), invert (3) }	RW

Objects under
filterAlertInTable
(1.3.6.1.4.1.1909.10.7.3)

Variable	Type	Value	Access
1 filterAlertInEntry			
1 filterAlertInIndex	INT		RO
2 filterAlertInPort	INT		RO
3 filterAlertInEffect	INT	{off (1), thru (2), invert (3) }	RW

Objects under
filterUPSInTable
(1.3.6.1.4.1.1909.10.7.4)

Variable	Type	Value	Access
1 filterUPSInEntry			
1 filterUPSInIndex	INT		RO
2 filterUPSInPort	INT		RO
3 filterUPSInEffect	INT	{off (1), thru (2), invert (3) }	RW



Objects under
filterTempTable
(1.3.6.1.4.1.1909.10.7.5)

for example:
Exclude TEMPERATURE/HUMIDITY
input from Filter 1
1.3.6.1.4.1.1909.10.7.5.1.3.1.2 := 0

Variable	Type	Value	Access
1 filterTempEntry			
1 filterTempIndex	INT		RO
2 filterTempSensor	INT		RO
3 filterTempEffect	INT	{off (1), thru (2), invert (3) }	RW
4 filterTempAThres	INT		RW
5 filterTempAMode	INT	{off (1), greater (2), less (3) }	RW
6 filterTempBThres	INT		RW
7 filterTempBMode	INT	{off (1), greater (2), less (3) }	RW

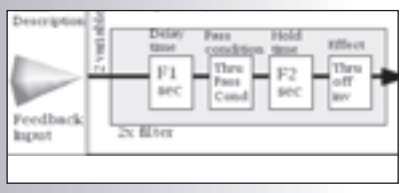
Objects under
filterHumidityTable
(1.3.6.1.4.1.1909.10.7.6)

Variable	Type	Value	Access
1 filterHumidityEntry			
1 filterHumidityIndex	INT		RO
2 filterHumiditySensor	INT		RO
3 filterHumidityEffect	INT	{off (1), thru (2), invert (3) }	RW
4 filterHumidityAThres	INT		RW
5 filterHumidityAMode	INT	{off (1), greater (2), less (3) }	RW
6 filterHumidityBThres	INT		RW
7 filterHumidityBMode	INT	{off (1), greater (2), less (3) }	RW

Objects under `filterMainsTable`
(1.3.6.1.4.1.1909.10.7.7)

Variable	Type	Value	Access
1 filterMainsEntry			
1 filterMainsIndex	INT		RO
2 filterMainsSensor	INT		RO
3 filterMainsEffect	INT	{off (1), thru (2), invert (3) }	RW
4 filterMainsAThres	INT		RW
5 filterMainsAMode	INT	{off (1), greater (2), less (3) }	RW
6 filterMainsBThres	INT		RW
7 filterMainsBMode	INT	{off (1), greater (2), less (3) }	RW

Objects under `filterFeedbackTable`
(1.3.6.1.4.1.1909.10.7.8)



Variable	Type	Value	Access
1 filterFeedbackEntry			
1 filterFeedbackIndex	INT		RO
2 filterFeedbackInput	INT		RO
3 filterFeedbackInFilter	INT		RW
4 filterFeedbackDelay	INT		RW
5 filterFeedbackPassCond	INT	{ thru (1), conditional (2) }	RW
6 filterFeedbackHold	INT		RW
7 filterFeedbackEffect	INT	{ off (1), on (2), invert (3) }	RW

For example:
Feedback input 1 of filter 8 is only to operate if the event is still applied:
1.3.6.1.4.1.1909.10.7.8.1.5.8.1 := 1

Objects under `messageTable`
(1.3.6.1.4.1.1909.10.8.1)

For example:
Read out filter description from message 5:
1.3.6.1.4.1.1909.10.8.1.1.3.5

Variable	Type	Value	Access
1 messageEntry			
1 messageIndex	INT		RO
2 messageFilter	INT		RO
3 messageFilterDescr	DS		RO
4 messageTime	TT		RO
5 messagePriority	INT	{no-message (1), warning (2), critical (3) }	RO
6 messageAcknowledged	INT	{not-acknowledged (1), acknowledged (2) }	RW

Objects under `userTable`
(1.3.6.1.4.1.1909.10.9.1)

Variable	Type	Value	Access
1 userEntry			
1 userIndex	INT		RO
2 userName	DS		RO
3 userRight	INT	{ readonly (1), read-write (2)}	RO
4 userChipcardKey	DS		RO
5 userChipcardAccess	INT	{ denied (1), granted (2) }	RO

Objects under `aux`
(1.3.6.1.4.1.1909.10.20)

Variable	Type	Value	Access
1 auxDevice	INT	{ no-device (1), chipcardreader (2) }	RO
2 auxDeviceName	DS		RO

Objects under `icc`
(1.3.6.1.4.1.1909.10.21)

Variable	Type	Value	Access
1 readerConnected	INT	{ no (1), yes (2) }	RO
2 readerCardInside	INT	{ no (1), yes (2) }	RO
3 readerCardKey	DS		RO
4 readerLEDcolor	INT	{ red (1), green (2) yellow (3) }	RO
5 openerLogic	INT	{ break (1), make (2) }	RO
6 openerOpenTime	INT		RO
7 openerState	INT	{ closed (1), open (2) }	RO

A4

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Feature		
Speed	25 mhz	33 mhz
Flash	8mb	32mb
Housing	19” IHE	19” IHE
Front LCD Display	no	yes
Front Keypad	no	yes
Status LED’s	yes	yes
Buzzer	yes	yes
Power supply range	110/230 V AC	110/230 V AC
DC, optional	48 V DC	48 V DC
Internal voltage supply for all sensors	yes	yes
Ethernet-Port	10 Mbit	10 Mbit
DHCP	no	yes
Telnet	yes	yes
SSH	no	no
HTTP	yes	yes
HTTPS	no	no
SNMP (get , set, trap)	yes	yes
TFTP	yes	yes
Mains Voltage measurement	1	3
Digital Out	4	4
Digital In	8	8
Alert In	-	4
Temperature / humidity	4	4
UPS In / Digital In 9 & 10	-	2
Com port Front	1	1
Com port Rear	-	1
VT 100	yes	yes
AUX port	1	1
Free programmable filters	12	40
Number of users	12	99
Email function	no	yes
Time server function	no	yes
Syslog function	yes	yes
Chipcard function	yes	yes
Proximity reader	no	yes
USV support	no	yes
activation of external power socket outlets	yes	yes

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