FMS3000
Operating Instructions
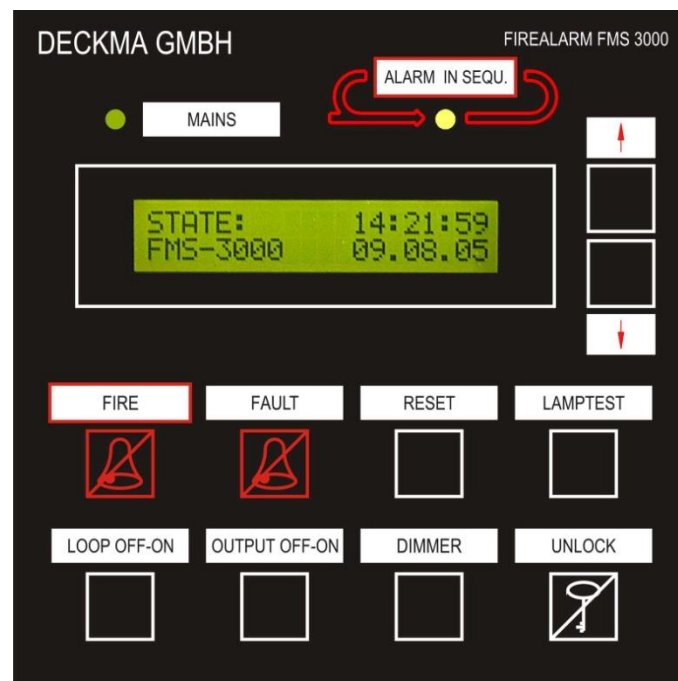
Version history

Version	Date	Author	Checked	Note
0.5.10	23/09/09	STO	FWU	Commissioning
0.5.11	28/06/11	TF	TM	Revised
0.6	16/09/13	JB	TK	Layout revised; terms adapted

Checked by   ES Elektronik Service; Jan Broockmann   23/09/2013
                      Name – Firma   Date

Approved by   Thomas Kruse DECKMA-GmbH   23/09/2013
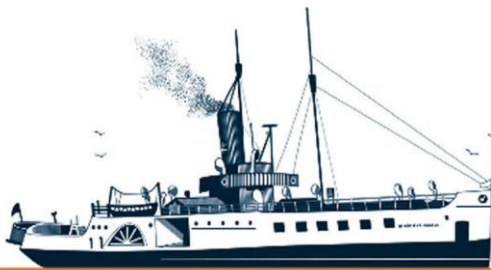   Name – Firma   Date

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General

The FMS3000 is for the detection and reporting of fires and can also warn of faults.

The FMS3000 is constructed as modules. The individual modules are connected to each other by an internal BUS (FMS-BUS) and a common power supply (24V DC). All modules, with the exception of the main panel (HT), are intended for mounting on a support rail and are installed together in a metal switch cabinet. The main panel (HT) is constructed as a built-in front panel device. The FMS3000 can either be wall mounted or installed in a console.
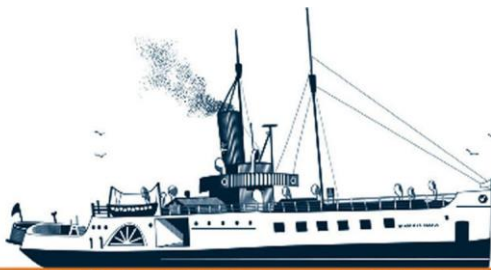
1. Description of the modules

The FMS3000 consists of several modules in separate housings. All modules are connected to each other on an internal BUS. If a fire detector registers a fire, the fire loop module (FM) recognises this. The main module (Bus Master) cyclically queries the status of all modules and thus receives the fire alarm from the fire loop module. Depending on the configuration, the main module transmits to the output module which outputs it should switch. In addition, it transmits the fire alarm to the VDR module and printer module (if present). The VDR and printer modules output the fire alarm through a VDR output to the printer. In addition, the main module informs the main panel (HT) of the fire alarm, and it then alarms the user acoustically and optically of the fire.

1.1. Power supply TR01-E

The power supply supplies a voltage of 24V DC to the entire FMS. For this purpose the module has a toroidal core transformer, which can be powered with a mains voltage of 230V AC or 115V AC as required. The mains voltage is selected by turning a knob and changing a relay.

The module is connected to a mains supply and an emergency power supply. It switches automatically to the emergency power supply when the mains supply fails. The inputs of the power supply are protected by fuses.

1.2.　Main module NM01-E
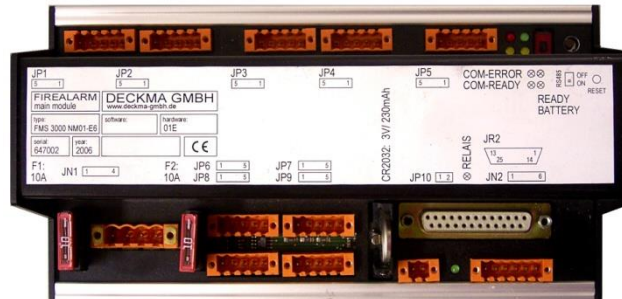
The main module is the communications master in the FMS BUS (rotary switch setting = 0).

The power supply is directly connected to the main module. The main module distributes the power supply to the other modules through the FMS BUS. If the mains and the emergency power supplies both fail, the main module switches the power supply to an external accumulator. The main module has a charging circuit for the accumulator, an accumulator monitoring system, a safety circuit and an energy management system. The main module also has a real time clock and a data module can also be optionally connected to it. The data module has a slot for an SD card, which enables a configuration file to be read into the FMS.
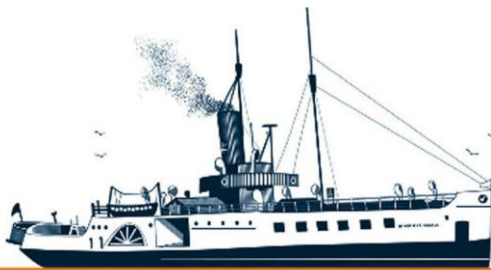
The main module has nine possible connections for various modules, for which altogether about 4A of current can be delivered.

1.3.　Output module AM01-E

The output module contains eight relays, three switched 24 V outputs and an input for an external push-button. Devices such as, for example, machine alarm system, VDR, fault and common status displays, sirens, general alarms, fire doors and/or blinking lights can be connected to the outputs. A maximum of 2 output modules can be connected to the FMS. The BUS address is set using a rotary switch on the device. The configuration must conform to the number of output modules.

A microcontroller controls the relays, the 24 V outputs, the key input and communicates with the master (main module). The output module switches its outputs on command from the master, the rules for the switching of the outputs being specified in the configuration.

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1.4.   Fire loop module FM01-E

The fire detectors are connected to the fire loop module (FM). Up to 16 conventional detectors can be connected in parallel as a loop and up to eight loops can be connected to one module. Up to four fire loop modules (FM) can be used in an FMS (16*8*4 = 512). The BUS address is set using a rotary switch on the device. The configuration must comply with the number of fire loop modules (FM).

The official regulations regarding the maximum number of fire detectors in a loop must be observed!

In normal operation, a close circuit current runs through each individual loop. In order that this is possible, the last detector is fitted with an EOL termination resistor (3kOhm). If a fault occurs (e.g. due to the removal of a detector or a broken wire), no current flows. The fire loop module (FM) monitors the current and informs the main module that there is a fault. The main module reacts to the report in accordance with the configuration.

In case of a fire alarm, a resistance (390Ohm to 560Ohm) is introduced into the circuit by the affected detector. The increased current is detected by the fire loop module (FM) and the main module is informed of a fire in the relevant loop. The main module reacts to the fire in accordance with the configuration.

The fire loop module (FM) also monitors the individual loops for short circuits. If a short circuit occurs, the relevant loop is switched off and the fault is reported to the main module. The maximum loop current in a loop is 400mA. The sum of all loop currents (after the activation of several loops) cannot exceed 1.6A. If the total current exceeds 1.6A, the microcontroller switches off the loop with the highest current.

The module contains, in addition to the connections for 8 loops, 8 potential-free outputs, which can be configured as required for fault, fire or both. Two microcontrollers control and monitor the loops, their outputs and communicate with the main module.
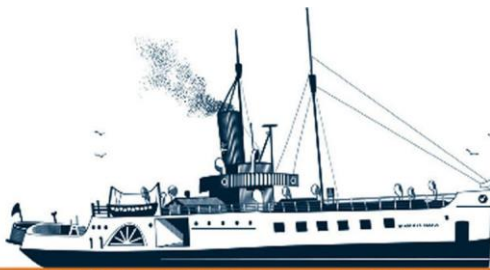
1.5. Printer module DM01-E

The printer module serves as the interface card to connect a "Centronics" or compatible printer. All important reports (fire alarm or fault), as they are shown in the display of the main panel (HT), are automatically outputted to the printer. The module receives the data from the main module.

Example printout:
Date	Time	Text
30.12.06	15:33:02	AN loop 13
30.12.06	15:34:12	AR loop 13

1.6. VDR module VM01-E

The VDR module sends data, which it filters out of the FMS BUS transmission, via RS485 or RS232 to a VDR (Voyage Data Recorder). The communication profile of the VDR interface is based on the specifications:

IEC 61162-1	Part 1 Single talker and multiple listeners
IEC 61162-100	Extra requirements for the UAIS
IEC 61162-102	Extra requirements for the Voyage Data Recorder

Example:

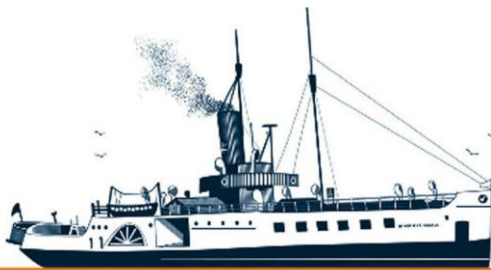|		
$--FIR,E,083945.00,FD,11,005,000,A,V,AN Schleife 5	*08	- Fire alarm in loop 5 ,FM01
$--FIR,E,084030.00,FD,11,005,000,A,A,AA Schleife 5	*1C	- Fire has been accepted
$--FIR,E,084035.00,FD,11,005,000,A,A,AR Schleife 5	*0A	- fire has been reset
$--ALA,084225.00,FR,OT,11,910,H,V,FN Schleife 16	*56	- fault with cable breakage (open loop)
$--ALA,084410.00,FR,OT,11,910,H,V,FN power batt	*36	- fault with battery failure
$--ALA,084720.00,FR,OT,11,910,H,V,FN modul FM 4	*2A	- fault with a missing module (FM01)

1.7. Main panel HT01-E
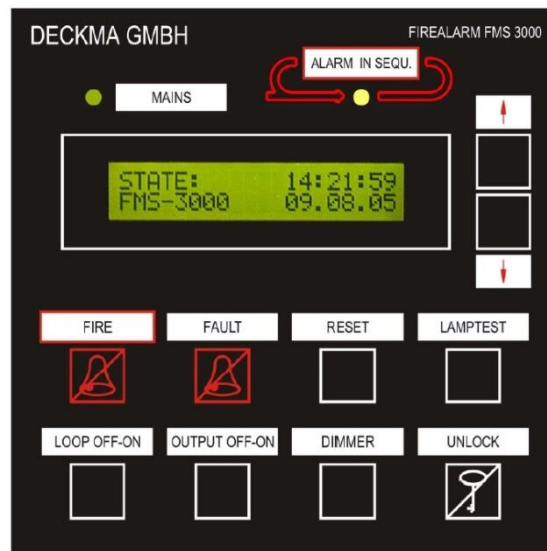
The main panel (HT) provides an alarm function and is used to operate the FMS and display the status. It is usually installed in the safety console on the command bridge in the immediate vicinity of the other modules of the FMS.

The main panel (HT) has a display (2 rows each with 20 characters), 10 keys with associated multi-coloured illuminated display fields and 2 LEDs with illuminated fields and an acoustic 75dB(A) sounder. In order to be able to adapt the illuminated fields and the LEDs optimally to the prevailing lighting conditions, the light intensity can be adjusted. The contrast and the background lighting of the display can also be flexibly adjusted.

In addition to one main panel (as principal), two further main panels (HT) can be connected at a distance of up to 500 m. The additional main panels (HT) then run in parallel operation, which restricts their functions. There must always be one main panel (HT) running as principal in an FMS. An internal switch in the plug is used to determine whether the main panel (HT) runs in parallel operation or as principal.

2.   Operation of the FMS

2.1.   Overview

The component of the FMS that is visible to the user is the main panel (HT). Operation of the FMS by the user is performed exclusively at the main panel (HT). The main panel (HT) has a display and keys with illuminated fields, LEDs and an acoustic sounder. It is connected to the FMS through a BUS cable.

In addition to the display on the main panel (HT) itself, the outputs of the fire loop module (FM) and the output module provide further signalling elements. These outputs can be used to connect additional devices such as, for example, machine alarm systems, VDR, fault and common status fault displays, sirens, an automated general alarm system, fired doors and/or blinking lights.
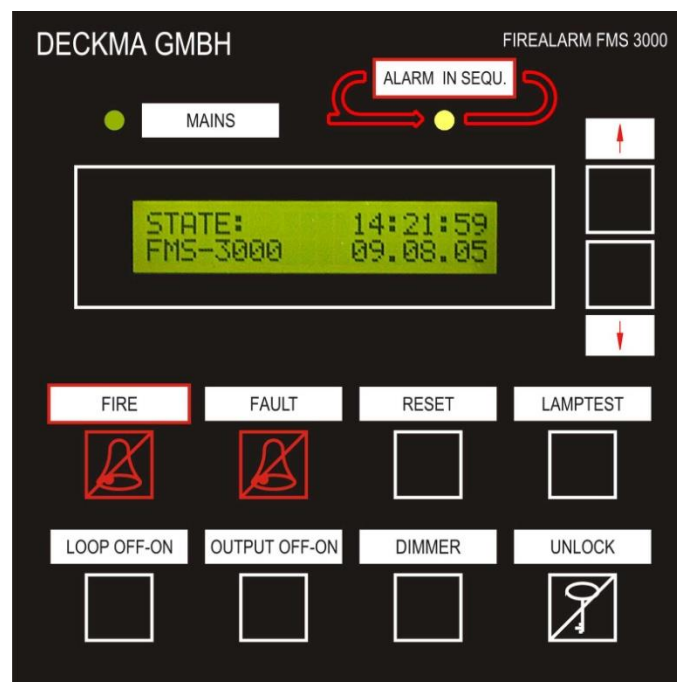
Illustration: the front foil of the main panel (HT)

2.2.   Access levels

The main panel (HT) has 4 access levels. Certain displays, operating elements and functions can only be accessed at the appropriate level.

2.2.1.   Access level 1

No further keys have to be pressed for access level 1 and it can be operated directly.

The functions in access level 1 are: display of fire alarms and faults, deactivation of the acoustic sounder, display of deactivated/activated outputs and loops, dimming of the display and the lamp test.

2.2.2.　Access level 2

Access level 2 is activated by pressing the "UNLOCK" key. The activation applies for 30 seconds after the last pressing of the key, after which it is automatically deactivated. If the "UNLOCK" key is pressed again, this manually deactivates the approval before the expiry of the 30 seconds.

The activation of access level 2 is signalled by the "UNLOCK" field lighting yellow.

Functions in Access level 2 are: resetting of a fire alarm and fault, menu call-up, deactivation and activation of outputs and loops.

2.2.3.　Access level 3

Access level 3 is reached by entering a password or by the loading a configuration through the data module.

Functions in Access level 3 are: configuration of the systems or activation of "One Man Testing".

2.2.4.　Access level 4

Access level 4 can be reached by opening the switch cabinet or by changing the source code.

Functions in Access level 4 are: changing of the power supply voltage and changing of basic functions.

2.3.　Operating states of the FMS

The FMS can be in various operating states: initiation state, normal state, fire alarm and fault. The FMS can be in fire alarm and fault states simultaneously. The display of the states is identical on all main panels (HT) (principal/parallel operation).

2.3.1.　Initiation state

The main panel (HT) shows for a few seconds after being switched on the text:

```
STATE:          00:00:00
system init     00.00.00
```
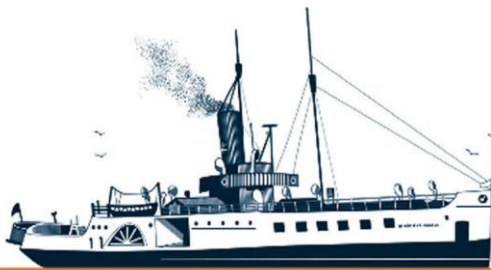
2.3.2.　Normal state

When there is neither a fire alarm nor a fault, then the FMS is in the normal state. In normal state, all illuminated fields light green and the display reports "STATUS" and shows the current date and time.

```
STATE:          14:33:06
FMS-3000HIT   16.12.04
```
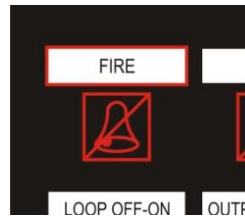Parallel operation

```
STATE:          14:33:06
FMS-3000      16.12.04
```
Principal operation

2.3.3.   Fire alarm

If a fire alarm occurs, the acoustic sounder sounds on all main panels (HT) (constant tone) and the "FIRE" field blinks red.

The display reports "NEW FIRE" with date and time of the fire alarm and the name of the loop.

NEW FIRE   22.12/14:35
loop 10

Should more than one loop detect a fire simultaneously, the "ALARM IN SEQU." LED also blinks red. The last fire alarm is always displayed.

If a fire has not been accepted within two minutes, the general alarm is automatically activated.

The text "FIRE DLY > 2min GENERAL-ALARM!" in the display denotes the activation of the general alarm.

FIRE DLY > 2
GENERAL-ALARM!

Pressing the "FIRE" key silences the acoustic sounder.
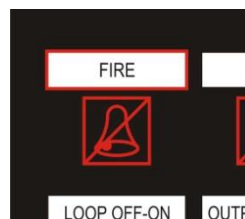
"FIRE" key to accept and display a fire alarm and to switch off the acoustic sounder

First pressing the "UNLOCK" key (access level 2) and then pressing the "FIRE" key accepts the fires being displayed at that moment. By accepting a fire, the user signals that he has acknowledged a fire

alarm and has introduced appropriate measures. "ACK FIRE" shows in the display with date and time of the acceptance and the name of the loop.

```
ACK FIRE     22.12/14:44
loop 10
```

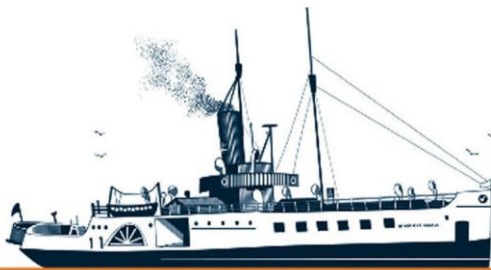Should there be more than one fire alarm, then the "FIRE" key has to be pressed in access level 2 to accept each fire alarm individually. Until all fire alarms have been accepted, the "FIRE" field continues to blink red. Only when all fire alarms have been accepted does the "FIRE" field light permanently.

If the fire has been dealt with, the fire alarm has to be reset. Only then is the loop live again and can activate in case of a renewed fire. A fire can only be reset if it has first been accepted.

In order to reset a fire alarm automatically ("cleared"), the "RESET" key must be pressed in access level 2 while an accepted fire alarm is being displayed. The fire detectors are then automatically reset through the loop being switched off briefly. Each fire alarm has to be reset individually. Simultaneous resetting of a number of fire alarms is not possible. If all fire alarms have been reset, the "FIRE" field once again lights green. If a renewed fire alarm occurs after the resetting of a fire alarm, a fire detector is still active or again active.
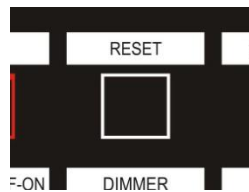
"RESET" key to reset a fire alarm

In order to show the fire alarms that have not yet been reset in the display, it is possible to change between the fire alarms in the display after pressing the "FIRE" key by using an arrow or the "FIRE" key. The display is changed between fire alarms and faults by pressing the "FIRE" or "FAULT" key. The display always jumps back to the last fire alarm to have occurred 30 seconds after the last interaction.

2.3.4.   Faults

If a fault occurs, the acoustic sounder beeps (interval), the "FAULT" field blinks yellow and the display shows the fault:

```
LOOP OPEN 22.12/14:45
loop 10
```

Pressing the "FAULT" key in access level 1 switches off the acoustic sounder.

By pressing the "FAULT" key in access level 2 ("UNLOCK" key), the user confirms that the fault has been acknowledged. After this, the "FAULT" field lights permanently.
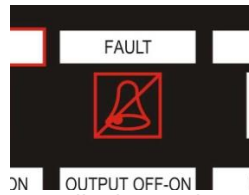
"FAULT" key to display and accept the fault
and to switch off the acoustic sounder

A further fault that has not been accepted is signalled by constant yellow blinking of the "FAULT" field. The blinking turns to steady yellow after all faults have been accepted.

After acceptance, the display shows:

```
ACK ERR.      22.12/14:45
loop 10
```

When a fault has been rectified, it has to be reset. Only then does the function affected by the fault work again. Pressing the "RESET" key in access level 2 resets the currently displayed fault. Each fault has to be reset individually. The "FAULT" field lights green again when all faults have been reset. If the cause of a fault has not been rectified, the fault is activated again.

In order to display individual faults, it is possible to change between faults in the display after pressing the "FAULT" key by pressing an arrow or the "FAULT" key. Change between the display of fire alarms and faults by pressing the "FIRE" or "FAULT" keys. The display always jumps back to the last fire alarm to have occurred 30 seconds after the last interaction.
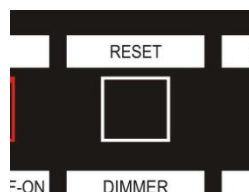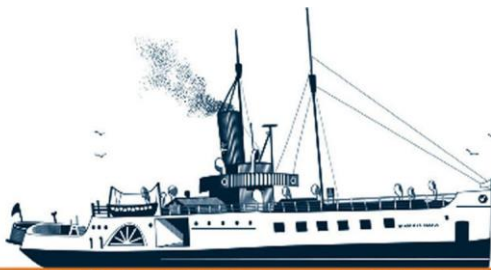

"RESET" key to reset faults

If the power supply (emergency and/or mains) fails, the "MAINS" LED goes out. After a configured time, a fault occurs (shown in the display + blinking "FAULT" field). If the power supply is restored, the "MAINS" LED lights permanently again.

An overview of the possible fire alarms and faults of the FMS is provided in Section **Fehler! Verweisquelle konnte nicht gefunden werden.**.

2.4. Operator functions

2.4.1. Deactivation/activation of loops

Deactivated loops do not report fires!

Loops can be deactivated/activated in the configuration (access level 3) and also in access level 2. This section only describes the deactivation/activation of loops in access level 2.

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Email: info@deckma-gmbh.de   *   Internet: www.deckma-gmbh.de
Operating Instructions   Version 0.6   16/09/2013   Page 13 of 22
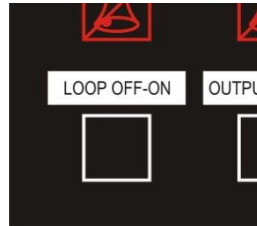
"LOOP OFF-ON" key to deactivate/activate loops.

After the "LOOP OFF-ON" key has been pressed, a request shows in the display to select the loops to be deactivated/activated. Depending to the activation state, the text shows:

loop active	01
loop 1	

loop 1 is active

loop not act	01
loop 1	

loop 1 is deactivated

The loop to be deactivated/activated is selected with the arrow keys to the right of the display. The currently displayed loop can be deactivated/activated by pressing the "LOOP OFF-ON" key again.

After the deactivation of a loop, the "LOOP OFF-ON" field changes from green to yellow. When all loops have been reactivated, the "LOOP OFF-ON" field changes back to green. This menu point can be exited by pressing the "UNLOCK" key.

Pressing the "LOOP OFF-ON" key without active "UNLOCK" key (access level 1) displays the activation state of loops. When the "LOOP OFF-ON" key is first pressed, the activation state of loops 1-8 is shown in the display; after it is pressed again the activation state of loops 9–16 is shown (if 16 loops are provided); after it is pressed again the activation state of loops 17–24 is shown (if 24 loops are provided); and after it is pressed again the activation state of loops 25–32 is shown (if 32 loops are provided). After showing the last existing loops, the display jumps back to the start, and the list can be switched through again.

LOOP	SetYYYYYYYY
1-8	ActYNYYNYYY

Status display for loops 1-8
"Set": Activation state configuration;
"Act": Activation state access level 2.
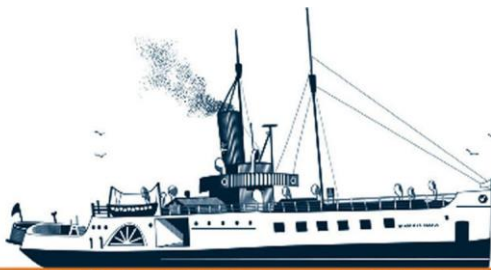The example shows that all loops are configured (active); Loops 2 and 5 are deactivated.

Pressing the "UNLOCK" key ends the display of activation states.
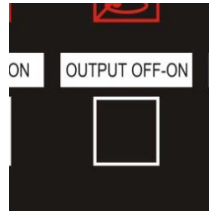
2.4.2.   Deactivation/activation of outputs

There are 8 relays and 3 x 24V outputs on the output module. Events (fire alarm or fault) can be configured, for which the outputs should be switched on or switched over.

The outputs can be deactivated/activated in the configuration (access level 3) or also in access level 2. This section only describes the deactivation/activation of loops in Access level 2.

Deactivated outputs are not reactivated by renewed activation of the relevant fire alarm!

"OUTPUT OFF-ON" key to deactivate/activate outputs

After the "OUTPUT OFF-ON" key has been pressed, the display shows a request to select the outputs to be deactivated/activated.

Depending on the activation state of the outputs, the text shows:

output active	01
output 1	

Output 1 is active

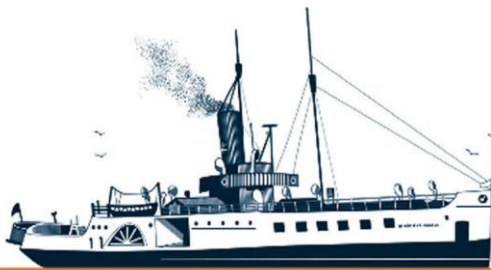|	
output not active	01
output 1	

Output 1 is deactivated

The output to be deactivated/activated is selected by pressing the arrow keys to the right next to the display. Pressing the "OUTPUT OFF-ON" key again deactivates/activates the output.

After the deactivation of an output, the "OUTPUT OFF-ON" field remains yellow. This menu point can be exited by pressing the "UNLOCK" key again.

Pressing the "OUTPUT OFF-ON" key without active "UNLOCK" key (access level 1) displays the activation state of outputs.

After the "OUTPUT OFF-ON" key has been pressed, the display of the 8 potential-free relay outputs (outputs 1-8) is shown for 30 s; after the key is pressed again the 3 24V DC voltage outputs (outputs 9-11) are shown; after the key is pressed again the 8 potential-free relay outputs (outputs 12-19).are shown (if a second output module is present); and after the key is pressed again the 3 24V DC voltage outputs (outputs 20-22) are shown (if a second output module is present). When the end of the existing outputs is reached and the key is pressed again, the display jumps back to the first 8 relay outputs (outputs 1-8) and the list can be switched through again.

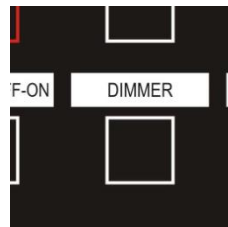|	
Output	SetYYYYYYYY
1-8	ActYNYYNYYY

Status display for relays 1-8
"Set": activation state configuration;
"Act": activation state access level 2.
In the example, all outputs are configured (active); outputs 2 and 5 are deactivated.

Pressing the "UNLOCK" key ends the status display.

2.4.3.   DIMMER

The "DIMMER" key serves to adjust the lighting. After the key has been pressed once, the brightness of the selected background lighting can be adjusted using the arrow keys. The arrow keys can either be pressed briefly many times or once for a longer time in order to quickly dim the lighting. Pressing the "DIMMER" key again selects the next dimming function. The following lightning features can now be dimmed:

- Green illuminated fields.
- Red/yellow "FIRE"-/"FAULT" fields.
- Contrast of the display.
- Background lighting of the display.

When a fire alarm or fault occurs, the appropriate fields always blink with full brightness!

> **As soon as a fire alarm or a fault message has been accepted, this function is only available with the "UNLOCK" key! This menu point can be exited by pressing the "UNLOCK" key.**

2.4.4.   LAMP TEST
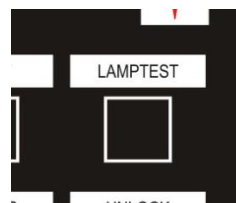
After the "LAMPTEST" key has been pressed once, the lamp test controls all illuminated fields and LEDs of the main panel (HT) for 5 seconds.

Status display of lamp test
The number shows the remaining time of the lamp test.

> **As soon as a fire alarm or a fault message has been accepted, this function is only available with the "UNLOCK" key! This menu point can be exited by pressing the "UNLOCK" key .**
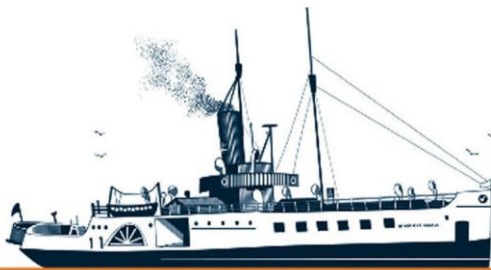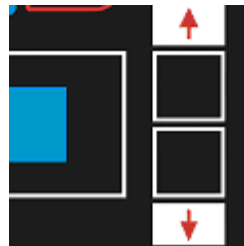
2.5.   Menu

Starting from the standard display, the menu can be called up using the arrow keys after the "UNLOCK" key has been pressed.

Arrow keys

The following menu points are available:

- Project   displays the project name.
- History   displays reported fire alarms / faults; see 2.5.2.
- Info/Control   extended settings; see 2.5.5.
- Adjust Time   sets the time; see 2.5.1.
- System Reset   restarts the FMS; see 2.5.3.
- Firmware   displays the current firmware version; see 2.5.4.

> **On a main panel (HT) in parallel operation, menu functions cannot be called up if a fire alarm or fault has not been accepted!**

2.5.1.   Adjust Time

The FMS is fitted with a real time clock to display the time and date (in 24-hour format). The time can only be set manually.

The menu point "Adjust Time" is selected with the "UNLOCK" key. The settings can be scrolled through using the "UNLOCK" key and altered with the arrow keys. The following sub-points are available:

- hour   set hours 0…23.
- minute   set minutes 0…59.
- day   set day of month 1…31 (based on the previously set month).
- month   set month 1…12.
- year   set year 00…99.
- save with key up save the settings.

- exit   returns to standard display.

– In order to save the settings, the "↑" (up) arrow key is pressed in the menu point "save with key up".
– In order to exit without saving settings, the "UNLOCK" key is pressed in the menu point "save with key up".

2.5.2.   History (scroll through old messages/history)

The history saves the last 100 faults/fire alarms recorded by the FMS.

Under the menu point "History", the user can call up the history using the "UNLOCK" key. The history can then be scrolled through using the arrow keys.

The history is scrolled through cyclically. After the last history entry, the text: "end of history!" shows. If the "↑" key (up) is pressed again, the first entry is shown again. If the first entry is shown and the "↓" key (down) is pressed after the text "end of history!", the last entry is shown again. If there are no entries, only the text: "end of history!" is shown in the display.

The history can be exited by pressing the "UNLOCK" key.

2.5.3.   System Reset (restart of the FMS)

In some situations, it can be necessary to restart the FMS.

This can be done with the menu point "System Reset" (the functioning of this menu points is deactivated on a main panel (HT) in parallel operation).

After the "UNLOCK" key has been pressed, all modules of the FMS are automatically restarted.

2.5.4.   Firmware (display the firmware version)

The menu point "Firmware" shows the currently running firmware version of the individual modules. The list can be scrolled through using the arrow keys.

```
Version: 4.0.5
NM01 (Master)
```

Example for the main module
Firmware-Version 4.0.5 is being used in the main module (NM01),
which is the master of the FMS.

2.5.5.   Info/Control

The menu point "Info/Control" contains three sub-points. The list can be scrolled through by repeatedly pressing the "UNLOCK" key.

– Clear History   Pressing the "↑" arrow key (up) deletes all entries in the
  press up-key   history.

– One Man Testing   One-man test function (see also 2.5.5.1.).

    press up-key

  − Set New Password   Sets a new password for the one-man test function.
    press up-key

2.5.5.1. One Man Testing (one man test function)

A "one man test" function is provided in order to enable the FMS to be tested by one person.

During "One Man Testing", the outputs are not switched and remain in their normal state independent of any fire alarm.

All fire alarms and faults are saved in the history during "One Man Testing".

"One Man Testing" is indicated by yellow blinking of the "LOOP OFF-ON" field and the display text:

```
STATUS          14:33:08
ONE-MEN-TEST06.12.04
```

If a fire alarm is activated, the acoustic sounder sounds (steady tone) on all main panels (HT). The display shows "NEW FIRE" and the loop name. After 10s, this 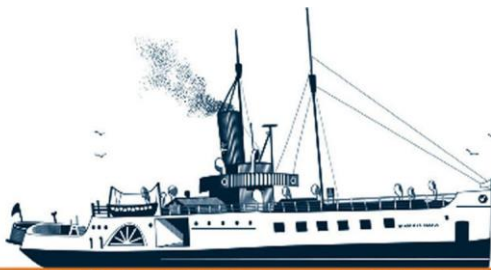alarm is automatically reset, the acoustic sounder stops and the display once again shows the status "ONE-MEN-TEST", unless a new fire alarm has been activated.

In order to end the "One Man Testing" function, a restart of the FMS has to be carried out. See 2.5.3.

3. Fault and fire alarm messages

When a fault or a fire alarm occurs, then it is shown in the display. The first line of the display shows the message text and the message time. The second line shows either the loop name or an additional explanation. The following messages are possible:

Display line 1	Display line 2	Description
NEW FIRE	loop name	a fire alarm has been reported by the fire loop module (FM)
FIRE DLY > 2 min	GENERAL-ALARM!	at least one fire alarm has not been accepted within two minutes
ACK FIRE	loop name	an accepted fire alarm
SHORT LP	loop name	short circuit in a loop
LOOP OPEN	loop name	break in a loop
MAINS ERR	error battery	the accumulator has not been recognised
MAINS ERR	error mains	the mains supply has failed
MAINS ERR	error emgcy	the emergency power supply has failed
ACK ERR	fault text or fault location	an accepted fault message
SHORT OUT	output short No.	short circuit on a monitored 24V output; No. stands for the number of the output
OPEN OUT	output open No.	open loop on a monitored 24V output; No. stands for the number of the output

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SYSTEM ER	see 3.1	an interruption of communications to a module has been detected
EARTH LP.	fault location	earth contact in a loop (+ or -)
EARTH MD.	earth error Mod	earth contact of the chassis or 24V potential of the FMS

Table: overview of fault and fire alarm messages

3.1.   Module definition

The texts for the individual modules are defined as follows:

NM01-E	main module
AM01-E 1, AM01-E 2	output module
FM01-E 1, FM01-E 2, FM01-E 3, FM01-E 4	fire loop modules (FM) 1 to 4
VM01-E	VDR module
DM01-E	printer module
HT01-E 1	main panel (HT) (principal operation)
HT01-E 2, HT01-E 3	main panels (HT) 1 und 2 (parallel operation)

4.   Glossary

4.1.   Acoustic sounder

The acoustic sounder emits a loud tone. It is located on the back of the main panel and serves to provide an acoustic alarm in case of a fire or a fault.

4.2.   Data module

The data module is an optional module for the configuration of the FMS. An SD card with the stored configuration is inserted into the module (see installation instructions).
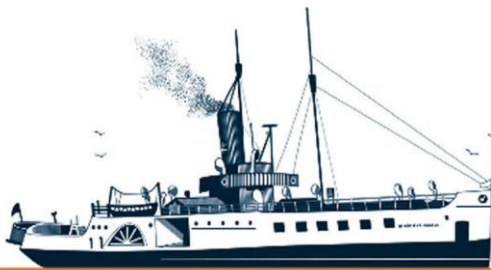
4.3.   Fire detector

Only non-addressable fire detectors can be used in the FMS3000. Manual call points are also considered as fire detectors. For addressable detectors, an AFMS3000 must be used. The alarm resistance should be between 390Ohm and 560Ohm.

4.4.   Configuration

This is where the basic settings of the FMS are made. The configuration is entered into a pre-prepared Excel file and Excel creates a txt file from the entries, which is copied onto an SD card. The SD card is inserted into the optional data module. From the data module, the data is read into the main module. The following can be configured:

- Which modules are being used.
- The number of output and fire loop modules.
- The events to switch the outputs of fire loop and output module.
- The names of the loops.
- Fault delay when the mains or emergency power fails.

4.5.   LED

Light emitting diodes (LED) produce light.

4.6.   Illuminated fields

The illuminated fields are located above the keys or next to the LEDs and are assigned to them. They have a symbol or are labelled. Illuminated fields can be lit in various colours or blink according to the circumstances. Their brightness can be adapted to the environment (daytime/night-time operation).

4.7.   Power supply

There are a mains and an emergency power supply. If one fails, then the FMS reports a fault. If the mains supply fails, the FMS switches automatically to the emergency power supply. If both supplies fail, then the FMS switches to accumulator operation.

4.8.   Loop

Up to 16 fire detectors can be connected in parallel to a loop. In the last fire detector of a loop, a termination resistance of 3kΩ (+/-10%) must be installed. Non-addressable fire detectors, which are used exclusively on the FMS3000, can only detect a fire in a loop and not in an individual fire detector.

4.9.   Loop name

A loop can be given a name in the configuration. This can describe the location where the detectors in the loop are mounted, e.g. galley, engine room...

4.10.   Fault

A fault is a defect, which can disrupt the correct operation of the system. Parts that are not affected by the fault continue to function. A fault should be rectified as soon as possible in order to ensure error-free operation. If the FMS detects a fault, it reports it (see also **Fehler! Verweisquelle konnte nicht gefunden werden.**.).

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FMS3000 HT01 Menüstruktur

ES Elektronik Service GmbH

JB, 26.08.2013

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