

# **SERVICE MANUAL**

# DOMETIC ABSORTION-REFRIGERATOR for LEISURE VEHICLES -

the new 8 series





RM 8XXX



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#### **MODELS Description of models** = with interior light **RM(S)(T) 8400 L** RM 0 = manual ignition (battery Refrigerator Mobile igniter) 1 = Automatic ignition series S = housing with 5 = Automatic ignition and step automatic energy selection T = TecTower 4 =width 486mm 0 = Standard Depth D = large 5 = Depth + 55 mm 5 =width 525mm L = extra Large 6 = Depth + 65 mmO = single-doorfridge with oven

# **Model Description**



- RM(S)8xx1 MES 85-122 I
- RM(S)8xx5 AES 85-122 I
- Width of Housing: 486 mm or 525 mm
- Height: 821 mm
- Depth: 568mm, 623mm or 633mm
- Fridges of the 8-series are only available with curved door



# **Model Description**



- RM(S)8xx0 Battery Igniter 85-122 I
- Width of Housing: 486 mm or 525 mm
- Height: 821 mm,
- Depth: 568 mm, 623 mm or 633 mm
- Fridges of the 8-series with manual ignition are provided with a battery igniter and a Gas-Operation-Indicator (Galvanometer)



# **Special Features RM 8xxx**



The housing of the fridge RM 8xxx consists of absolute plastic material (Polystyrene) and is equipped with carrying handles on the side. Due to this a decrease of weight of ca. 1.5 kg is achieved compared to similar models like RM 7401 or RM 7405.

There is a continuous groove on the outsides and bottom part. A flexible sealing has to be fitted into this groove, in order to enable an airtight assembly.



# **Special Features RM 8xxx**





Building in the fridge, please note, that the feet are not screwed onto the housing anymore, but are injected directly onto it.

Thus, when building in the fridge, it is not possible anymore to save 8mm height by taking off the feet.



# **Special Features RM 8xxx**



The color of the inner liner is not papyrus white anymore, but white. The shelves and the vegetable bin are ice-blue.

An innovative shelf system enables individual usage of the cooling compartment. The shelves and the bin are dishwasher-suitable. The vegetable bin is available with and without lid.

The rubber sealing is exchangeable.

# **Special Features RM 8xxx**



In all single-door RM 8xxx fridges, the freezing compartment can be taken out if needed. This increases the capacity as well as the cooling performance in the cooling compartment.



# **Special Features RM 8xxx**







RM 8xxx with removable freezer compartment

Locking of freezing compartment



# **Special Features RM 8xxx**



All RM 8xxx fridges have a new door lock. By pushing the locking button the door is opened.

Closing the door the locking bar snaps in and the door is locked. For using the locking button, the panel is formed asymmetric (recess on one side). I.e. changing the door rabbet is not possible anymore. The rabbet has to be determined before the fridge is installed.

The product number controls the side of the door rabbet. Please notify this, if the door or the fridge is exchanged!

# **Special Features RM 8xxx**



The locking bar inside the door is fixed with two screws, which are behind a plastic cover. The gear rods inside the door are not exchangeable. The lock in the fridge is exchangeable. It also contains the fridge lighting, which was converted into a long-living LED-lighting. The door is brought into winter position by moving the red hook.

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# **Special Features RM 8xxx**



Purchasing an RM 7xxx or an RM 8xxx, there is the option of an electrical doorlock. When the fridge door is closed, it is kept shut by a magnetic sealing, but not locked. Starting the engine, the electronics will automatically lock the fridge door, due to the recognition of the D+ signal. Also with this kind of door lock, changing the door rabbet is not possible.



## **Special Features RM 8xxx**



All RM 8xxx fridges are equipped with new door hinges made of metal with a plastic casing (polystyrene). This hinges are not screwed onto the housing anymore, but snap in. Thus it is not necessary anymore to adjust the height. Building in the fridge, please note, that the door hinges have to be supported. Minimum requirement for the supporting surface of the lower hinges is the distance from the housing edge to the outer edges of the hinges with 40mm.

#### MODELLE

# **Special Features RM 8xxx**



Changing the decor plate, the door has not to be demounted anymore. It can be changed easily:

Loosen the plastic ledge on the locking side carefully. This ledge is only snapped in, but not screwed onto the housing. Then pull out the decor plate and put in the new one. After this reattach the plastic ledge.



# **Special Features RM 8xxx**



The operation panel can be loosened with two screws, when the door is opened. The electronics at the RM 8xx1 and RM 8xx5 is screwed into the panel from the inside.

If the fridge is demounted, the operation panel including the holding device can be loosened very easily. It is only attached to the housing.

# **Special Features RM 8xxx**



If the fridge is equipped with a battery igniter, as with the 7xxx – generation, a V85 Gas / electro fitting and the known energy-selection switch are used. Also, the RM 8xxx fridges are equipped with a galvanometer, which indicates if the flame is burning. At all single-door fridges of the 8-series, the main connecting block is positioned on the top of the housing. The electronics is screwed into the panel.

# **Special Features RM 8xxx**



On the backside of the 8-series fridges the same components are used as with the 7xxx-Generation. Cooling unit, gas valve GV 100, burner control device P810, burner and heating elements are identical.

The cooling unit and the components are screwed onto a metal sheet plate, which is fixed onto the back side of the plastic housing.



# **Special Features RM 8xxx**



The electronics were completely renewed. Instead of using a semiconductor, as with **AES III** or **MES**, the new generation uses a microprocessor. The AESmodels are equipped with a 7-segment-display. If an error occurs, there is an acoustic signal. There is no acoustic signal for the MES-models. All optical indications are shown with LED.

# **OPERATION**



#### **OPERATION**

#### Interior light

If the door is left opened, the lighting switches off automatically after 2 minutes.

#### Dimming function of the indications on the operation panel

10 seconds after the button has been pushed for the last time, the indication (LED) switches into the dim-mode. The dim-mode is reversed by pushing a button. The desired function is activated by pushing the button again.





**Description of the Display:** 

1. Pushing the button ON/OFF and modeselection-button longer than 2 seconds = ON/OFF Pushing the button <2 Seconds = Selection part Mode (120V, 12V, GAS

Selection next Mode (120V, 12V, GAS, Auto)

- 2. LED Fault indication
- 3. LED Mode-Indication

- 4. 5-step LED-Indication for inner temperature selection (5 LEDs = max. Setting)
- 5. LED-Indication for "Door locked" (only for electrical lock)
- 6. Button for temperature selection
- 7. Button for unlocking the door while driving (only for electrical lock)

## 120V-Operation mode (AC-Mode)

The 120V-operation mode is selected by pushing the button 1 (see TD S23). The button has to be pushed several times, until the **LED** next to the Symbol of the **power plug** lights up.

#### Detection of undervoltage while operating with 120V

The controlling electronics is equipped with a detection of undervoltage.

Conditions:

- limit value: 103 V AC (min. 101 V, max. 105V)
- The 120V-Relais switches off after ca. 5 seconds "observation"
- Switches back from undervoltage mode to normal mode after ca. 20 seconds
- Undervoltage fault indication by flashing of display 2 + 3 (see TD S23)



## 12V-operation mode (DC-Mode)

The 12V-operation mode is selected by pushing the button 1 (see TD S23). The button has to be pushed several times, until the **LED** next to the Symbol of the **battery** lights up.

#### Detection of undervoltage while operating with 12V

The controlling electronics is equipped with a detection of undervoltage. Conditions:

- Limit value: 10.5 V AC (min. 10.2 V, max. 10.8 V)
- The 12V-Relais switches of after ca 10 minutes "observation"
- Switches back from undervoltage mode to normal mode after ca. 25 minutes
- Undervoltage fault indication by flashing of Display 2 + 3 (see TD S23)



#### **OPERATION**

#### Gas-operation mode

The 12V-operation mode is selected by pushing the button 1 (see TD S23). The button has to be pushed several times, until the **LED** next to the Symbol of the **Gas** lights up or the (AES-) display indicates **GAS**.

#### Ignition while operating with gas.

The controlling electronics initiates max. 3 ignition attempts in the following cycle:

25 sec. ignition, if not ok, 2 min. ventilation break

25 sec. ignition, if not ok, 2 min. ventilation break

25 sec. Ignition, if not ok, FAULT INDICATION by flashing of the fault-LED and the gas operation LED (see TD S23).





1.

longer than 2 seconds = ON/OFF Pushing the button <2 Seconds = Selection next mode (120V, 12V, GAS, Auto)

- 2. LED Fault indication
- 3. **Segment Mode-Indication:** 
  - GAS = Gas mode
  - 12 = 12 V DC Mode
  - 120=120 V AC Mode
  - Selecting the automatic mode, the display shows
  - AU alternating Gas, 12 or 120 (AU = automatic mode)

- 4. 5-step LED-Indication for inner temperature selection (5 LEDs =max. Setting)
- LED-Indication for "Door locked" (only for 5. electrical lock)
- 6. Button for temperature selection
- 7. Button for unlocking the door while driving (only for electrical lock)

#### 120V-operation mode (manual)

The 12V-operation mode is selected by pushing the button 1 (see TD S27). The button has to be pushed several times, until the 7-segment-display indicates **120**.

# Detection of undervoltage while operating with 120V The controlling electronics is equipped with a detection of undervoltage.

Conditions:

- Limit value: 103 V AC (min. 101 V, max. 105 V)
- -120V-Relais switches off after ca. 5 seconds "observation"
- Switches back from undervoltage mode to normal mode after ca. 20 seconds
- Undervoltage fault indication by flashing of display 2 + 3 and acoustic signal (see TD S27).



## 12V- operation mode (manual)

The 12V-operation mode is selected by pushing the button 1 (see TD S27). The button has to be pushed several times, until the 7-segment-display indicates 12V. D+ or S+ is not taken into account in the manual mode.

- Detection of undervoltage while operating with 12V
   The controlling electronics is equipped with a detection of undervoltage.
   Conditions:
  - Limit value: 10.5 V AC (min. 10.2 V, max. 10.8 V)
  - 12V-Relais switches off after ca. 10 minutes "observation"
  - Switches back from undervoltage mode to normal mode after ca. 25 minutes
  - undervoltage fault indication by flashing of display 2 + 3 and acoustic signal (see TD S27).



#### Gas-operation mode (manual)

The gas operation mode is selected by pushing the button 1 (see TD S27). The button has to be pushed several times, until the 7-Segment display indicates **GAS**.

#### Ignition while operating with gas

The controlling electronics initiates max. 3 ignition attempts in the following cycle:

25 sec. ignition, if not ok, 2 min. ventilation break,

25 sec. ignition, if not ok, 2 min. ventilation break,

25 sec. ignition, if not ok, FAULT INDICATION by flashing of the Fault-LED and the 7-segment-display (see TD S27).



### **OPERATION**

#### Automatic Mode

The automatic mode is selected by pushing the button 1 (see TD S27). The button has to be pushed several times, until the 7-segment display indicates **AU**. The display switches from AU to the current energy mode every 10 seconds.

- Priority

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\rightarrow 12V-Solar \rightarrow 120V \rightarrow 12V (D+) \rightarrow Gas
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- Refueling stop of 15 minutes while operating in Auto-12V-Mode (i.e. the electronics system switches into gas mode only after 15 minutes). During this time the appliances is in stand-by-operation mode and only the AU-LED lights up.
- Recognition of undervoltage as in 120V-mode (also active while D + signal is available)





#### **COMPONENTS Electronics POWER MODULE MES Contacts** X 105 X 114 X 108 X 110 X 111 X 109 J4 / J5 J1/J2 X 102 X 101 50-052002-G naha X105 = 12 V Supply / - Wiring Recognition of heating element X114 = Reed switch or alt. electr. lock Fuse 1A Connection X108 = Temperature sensor (NTC) (250V) to Display X110 = Connection burner control device (+/-, failure) X111 = alt, 2, electr. Lock or reed switch X109 = Lighting Fuse for J4/J5 = Frame heating burner J1 = +12 V IN for heating element control J2 = +12 V Heating element X102 = Heating element mains power device

X101 = mains power inlet

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TD S33



X105 = 12 V Supply / - Wiring<br/>Recognition of heating elementX106 = D+/Solar<br/>X109 = Interior light<br/>J4/J5 = Frame heatingX114 = Reed switch or alt. electr. lockJ1 = +12 V IN for heating element<br/>J2 = +12 V Heating elementX108 = Temperature sensor (NTC)J2 = +12 V Heating element<br/>X110 = Connection to burner control device (+/-, failure)X111 = alt. 2. electr. Locks or reed switchX106 = D+/Solar<br/>X109 = Interior light<br/>J4/J5 = Frame heating<br/>J1 = +12 V IN for heating element<br/>X102 = Heating element mains power<br/>X101 = Mains power inlet

# **Burner Control Device P810**

#### includes

Igniter (20-30 sec.)

Flame control and

Flame failure device

**Gas valve control** (stops ignition and gas input in case of gas fault)

**Power supply :** approx. 1.3V





# Gas (Safety)-Valve GV100

includes

2 serial mounted gas valves

**Power supply:** approx. 1.3V - 1.5V per valve (if switched on approx. 0,7V -09V)





# **Gas Burner Device**

Already installed **Igniting electrode (1) Ionization electrode (2)** and **ground contact (3)** on burner chassis





# **Temperature sensor (NTC)**

Installed at lower reevaporator

**All** operation modes (DC/AC/GAS) are controlled thermostatically.











# **Electrical Installation**

First of all, please note the **INSTALLATION INSTRUCTIONS**.

Some important points:

Power line connection

protection with a 2A fuse

Battery connection

protection with a 16A fuse

- The electric circuit of the 12V-heating element has to be switched via an appropriate relay, so the heating element is not supplied anymore, after the engine has been turned off.
- The electronics has to be permanently attached to 12V, which is not interrupted, turning off the engine.



# **Electrical Installation**

# **Terminal block AES-Model**

- 1 black: cable 12V-permantent connection for electronics
- 2 violet: + cable 12V-permanent connection for electronics
- 3 bl: D+ cable to contact X106 on the electronics
- 4 wt: S+ cable to contact X106 on the electronics
- 5 white: -cable for 12V heating element
- 6 red: + cable for 12V heating element via starter lock and 16A fuse
  At the terminal strip of the MES-models, the terminals 3 + 4 are not used.





# **Electrical Installation**





# **Electrical Installation**





# **Gas installation**

First of all, please note the information of the **INSTALLATION INSTRUCTIONS**.

![](_page_44_Picture_3.jpeg)

The gas connection to the appliance has to be done with a cutting ring connection L8, DIN 2353-ST acc. to EN 1949 (e.g., Ermeto).

**Burner control device (1)** 

Gas valve (2)

Gas connection (3)

Gas tube to the burner (4)

A (max. torque 10Nm ) and B (max. torque 20 Nm) are preinstalled pipes

![](_page_45_Picture_1.jpeg)

# Some information

Gas Valve GV100

This component includes two serial mounted gas valves (as part of flame failure device).

**Power supply** : approx. 1.3V - 1.5V per valve **Power supply** : approx. 0,7V - 0,9V per valve (switched on gas mode) **Inductive resistance** : per valve ca. 28,5 Ohm

![](_page_46_Picture_5.jpeg)

Measuring points: Voltage and Resistance Valve 1 : Pin 1 - Ground (Housing) Valve 2 : Pin 2 - Ground (Housing)

**Some information** 

Burner Control Device P810

Power Supply: ca. 1.3V

Measuring points: Flat plug connection between Pin 2 and Pin 3.

![](_page_47_Picture_5.jpeg)

# Cable to Ignition plug : 1 Cable to ionization plug : 2

Exchanging the cables is not possible, as they have different dimensions.

![](_page_47_Picture_8.jpeg)

# **Some information**

**Temperature Sensor (NTC)** 

#### Table of resistance

<i>Temperature °C/F</i>	Resistance kOhm
0/32	27.7

	<b></b>
5/41	22.29
10/50	18.07
15/59	14.74
20/68	12.11
25/77	10.00

![](_page_48_Picture_6.jpeg)

Electronics

loosen contact X108 Cable white / brown

When the sensor is defect, the fridge will operate permanently.

Measuring Point:

![](_page_48_Picture_10.jpeg)

# Some information

## Interior light and door lock

The Interior light and the door lock are unit, which is exchanged completely in case of a defect.

The transparent cover is not included, but a separate part.

After removing the cover, the lighting housing can be dismantled.

![](_page_49_Picture_6.jpeg)

![](_page_49_Picture_7.jpeg)

![](_page_49_Picture_8.jpeg)

![](_page_49_Picture_9.jpeg)

![](_page_49_Picture_10.jpeg)

# **Some information**

## **Cleaning of burner**

The burner and the chimney must be cleaned regularly, at least one time a year.

If auto gas is used, Dometic recommends a maintenance every half year, as the contamination risk of the burner is higher, due to the burning of the auto gas.

![](_page_50_Picture_5.jpeg)

![](_page_50_Picture_6.jpeg)

# Service Mode AES

The Service Mode is activated by keeping pressed down the temperature button and switching on the main button.

After this the 7-Segment-Display shows "1". By pushing the temperature button, the different test-steps can be activated:

- 1 = activates 120 V heating element (120V must be available)
- 2 = activates 120V relay (120V has not to be necessarily available)
- 3 = activates 12 V heating element (D+ and 12V supply has to be available)
- 4 = Intern test step (is not indicated)
- 5 = activates burner control device output (Gas operation)
- 6 = activates frame heating
- 7 = activates interior lights (Except for electrical lock)

![](_page_51_Picture_11.jpeg)

# Service Mode AES

- 8 = Intern test step (is not indicated)
- 9 = Recognizing electrical lock or reed switch
- 10 = activates all 7 segment-components one after the other
- 11 = activates all LED's

Exiting the diagnosis mode: Push "mode" button or wait for 10 minutes.

# Controlling the interior light via reed switch

The AES-Electronics uses the X114 and X111 as well for controlling the reed switch as well as the electrical lock.

The electronics will recognize the application of a reed switch, following the below steps:

- 1. Choose step 9 in the service mode
- 2. Open the door
- 3. Close the door (reed switch will be recognized)
- 4. Continue service mode (push button 6)

The interior light will now be controlled via the reed switch.

Basically the electronics are defined with "recognizing Reed switch".

![](_page_53_Picture_10.jpeg)

# **Electrical door lock**

Optionally, 2 electrical door locks can be controlled.

They are connected to X111 and X114 (it does not matter in which order; X111 and X114 are equivalent)

In the service mode the electronics will recognize the locks, following the below steps:

- 1. Open the door(s)
- 2. Choose step 9 in the service mode
- 3. Close door(s) (Door locks will be recognized)
- 4. Activate D+
- 5. Continue Service mode (push button 6)

The locked door is indicated with LED 5 and can be unlocked by pushing the button 7.

If you have 2 electrical door locks, LED 5 will flash, if one lock is not locked.

![](_page_54_Picture_12.jpeg)

No.	Failure	AES
1	No 120V, respective under 195V (AC Mode)	Failure LED 2 and "120" (3) flash Acoustic Signal
2	No 12V, respective under 10,5V (DC Mode)	Failure LED 2 and "12" (3) flash Acoustic Signal
3	Ignition without success (Gas Mode)	Failure LED 2 and "GAS" (3) flash Acoustic Signal
4	NTC sensor defect	Failure LED 2 and TempLEDs (4) flash Acoustic Signal
5	120V heating element defect*	Failure LED 2 and Indicator 4 "HE 1" flash Acoustic Signal
6	12V heating element defect*	Failure LED 2 and Indicator 4 "HE 2" flash Acoustic Signal
7	Door opened (longer than 2min.)	Acoustic Signal

# \*Sequence for recognizing "Heating element defect":

- Conditions: Interior temperature >18/64°C/F, corresponding relay is switched on (120V or 12V), door has to be closed for longer than 5 minutes.
- Temperature of reevaporater (a) is recorded
- After 2 hours, the temperature (b) is recorded again, if the fridge is in the same mode
- If the temperature difference a-b < 3 °K, the corresponding heating element error will be indicated

![](_page_56_Picture_6.jpeg)

# Service Mode MES

The Service Mode is activated by keeping pressed down the temperature button and switching on the main button.

After this all 3 mode-LEDs (3) light up.

By pushing the temperature button (6), the different test-steps can be activated, test steps 1-6 are indicated by the temperature LEDs (4)

- 1 = activates 120 V heating element (120V must be available)
- 2 = activates 120V relay (120V has not to be necessarily available)
- 3 = activates 12 V heating element (12V has to be available)
- 4 = activates burner control device output (Gas operation)
- 5 = activates frame heating
- 6 = activates interior lights (For fridges without electrical lock)

![](_page_57_Picture_11.jpeg)

# **Service Mode MES**

- 7 = Recognition sequence (Reed switch or electrical lock)
- 8 = activates temperature LEDs (4)
- 9 = activates lock and failure LED (2) + (5)

Exiting the diagnosis mode: Push the "mode" button or wait for 10 minutes.

![](_page_58_Picture_6.jpeg)

# Controlling the interior light via reed switch

The MES-Electronics uses the X114 and X111 as well for controlling the reed switch as well as the electrical lock.

In the Service mode, the electronics will recognize the application of a reed switch, following the below steps:

- 1. Choose step 7 in the service mode
- 2. Deactivate D+; open the door
- 3. Push temperature button (6)
- 4. Close the door (reed switch will be recognized)
- 5. Continue service mode (push button 6)

The interior light will now be controlled via the reed switch.

Basically the electronics are defined with "recognizing Reed switch".

![](_page_59_Picture_11.jpeg)

# **Electrical door lock**

Optionally, max. two electrical door locks can be controlled. They are connected to X111 and X114 (Notify, that if there is only one lock this has to be connected to X111). In the service mode the electronics will recognize the locks following the below steps:

- 1. Open the door(s)
- 2. Choose step 7 in the service mode
- 3. Close the door(s)
- 4. Deactivate D+
- 5. Continue Service mode with step 6

The locked door will be indicated via LED 5, and can be unlocked by pushing button 7. If you have 2 electrical door locks, LED 5 will flash, if one lock is not locked.

# **Error messages**

No.	Error	AES
1	No 12V, respective under 10,5V (DC Mode)	Failure LED 2 and LED 3 (DC Mode) flash
2	Ignition without success (Gas Mode)	Failure LED 2 and LED 3 (Gas Mode) flash
3	NTC sensor defect	Failure LED 2 and temperature – LEDs 4 flash
4	120V heating element or cooling unit defect*	Failure LED 2, LED 3 (AC Mode) and temperature – LEDs 4 flash
5	12V heating element or cooling unit defect*	Failure LED 2, LED 3 (DC Mode) and temperature – LEDs 4 flash

![](_page_61_Picture_3.jpeg)

# \*Sequence for recognizing "heating element defect":

- Conditions: Interior temperature >18/64°C/F, corresponding relay is switched on (120V or 12V), door has to be closed for longer than 5 minutes
- Temperature of reevaporator (a) is recorded
- After 2 hours, the temperature (b) is recorded again, if the fridge is in the same mode.
- If the temperature difference a-b < 3 °K, the corresponding heating element error will be indicated.

![](_page_62_Picture_6.jpeg)

# **DOMETIC GMBH**

**TECHNISCHE DOKUMENTATION** 

**IN DER STEINWIESE 16** 

D-57074 SIEGEN

GERMANY

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![](_page_63_Picture_6.jpeg)