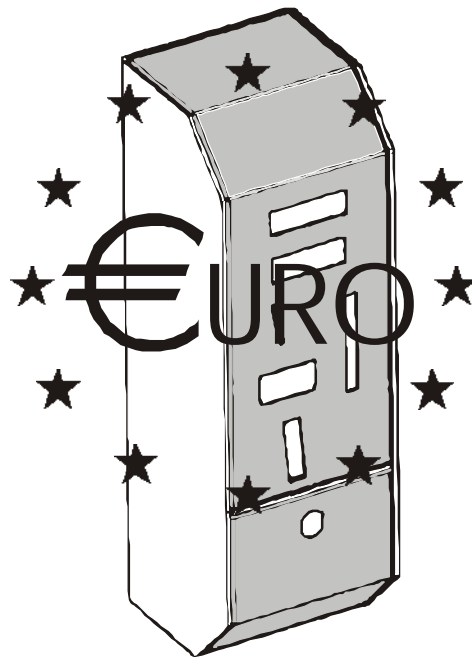# BECKMANN GmbH

MANAGEMENTSYSTEME

€URO

The Programmable and Network-capable Coin and Card-operated Timers EMS   13x / 23x /33x

Product Description & Operating Manual

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Table of Contents

Table of Illustrations

List of Tables

1 EMS Coin-operated timer product description

1.1 General overview

EMS coin-operated timers are available in several different versions
1. EMS 135 – Coin timer
2. EMS 235 - Chipcard timer
3. EMS 335 – Coin and chipcard integrated unit

Furthermore, two different construction models are available:
1. Free-standing module - housing (see Illustration 1: Network hookup) (M)
2. Built-in module (E)

Family	130		230		330	
Type / Model	133 E	135 M	233 E	235 M	333 E	335 M
EMSBUS Capable	Yes					
Coin validator Euro or other currencies by request.	Electronic, 0.1, 0.2, 0.5, 1, 2 € Token		-		Electronic, 0.1, 0.2, 0.5, 1, 2 € Token	
Counterfeit money protection	Yes		-		Yes	
Chipcard reader	-		Yes		Yes	
Display	Matrix Display 2*16 Characters					
Programming	Menu-driven over display					
Happy – Hour	Yes					
Rebate settings	Yes (instead of Happy-Hour) / fixed price (optional)					
Delayed start	1 – 60 Min. adjustable					
Remote start	Yes					
Prolonged ventilation	1 – 60 Min. adjustable					
Maximum time	1 – 60 Min. adjustable					
Cool-down deactivate period	Yes					
Cleaning mode	Yes					
Coin counter	Yes					
Customer counter	Yes					
Chipcard recharging With coins	-		-		Yes	
Operating time counter	Yes					
Remote display	Optional					
Modem box (for data query over modem)	Optional					
Recharging terminal with banknote validator	Optional					
Chipcard Hand terminal	Optional					

Table 1: EMS timer features

1.1.1 Features

1. The EMS timer can be flexibly integrated and is based on modern microprocessor technology.
2. Equipped with electronic coin validator for highest security. Validator is pre-programmed for the following currencies:
   0.1€, 0.2€, 0.5€, 1€ and 2€ Coins as well as various tokens. Coin validator for other currencies on request.
3. Attractive pricing strategy with Happy-Hour – switch or three stage rebate system.
4. Optional fixed price system. Buy time within a limited range for a constant price.
5. Freely programmable service parameters for:
   - Minimum amount
   - Maximum time
   - Time period for three stage rebate system
   - Time period for Happy-Hour for cash and card payment
   - Remote start
   - Delayed start
   - Prolonged ventilation
   - Cool-down deactivate period
   - Token price
   - Cleaning mode
6. Five Happy-Hour timers for attractive pricing strategy
7. Save and output all relevant register data for accounting, no additional equipment needed
8. 2-Minute test run
9. Simple operation and programming, no additional equipment needed
10. Operating system in replaceable controller chip, so always updateable to current version.
11. Modular construction allows for fast and inexpensive replacement if necessary.
12. Up to 31 timers networkable over EMSBUS with following advantages:
    - Simultaneous switch-over of all networked timers between normal and Happy – Hour operation.
    - Remote data query and remote programming through optional modem box possible.
    - Studio overview on TV screen with optional TV-Interface possible.
    - Remote display shows current tanning device status.
12. Card recharging from customer with coins possible. (only EMS 333/335)
13. Solid modular housing with improved protection against break-in.
14. Separate recharging terminal as built-in front or steel housing with integrated banknote validator for four different banknotes including integrated rebate function

!!! Attention !!!
This timer complies to the DIN EN 60335-2-27 security standards as long as the software version V2.31 is installed, and as long as the timer is equipped with a NT130-3 power supply manufactured after August 2001.

1.1.2 Technical Data

The data in table 2 refer to a fully-equipped standard model. The technical data for special models can differ from the below significantly.

	Modular housing	Built-in version
Dimensions (H * W * D)	420mm * 135mm * 156mm	by request
Weight	8 kg	by request
Coin validator	Electronic, 5 coin values + different Token types	
Chipcard reader	PIN Card reader with card lock and discharge	
Display classic	LCD 2 lines @ 16 characters	
Plus	Vacuum – Fluorescence – VFD 2 lines @ 16 characters	
Power supply	230V~ 50 / 60 Hz, 5 VA	
Circuit Output	max. 230V, 8A AC1	
Environmental conditions		
Operating temperature	+10 to +40°C	
Storage temperature	-20 to +60°C	
Humidity in operation	10 to 85 % condensation free	
Humidity in storage	10 to 90 % condensation free	

Table 2: Technical Data

1.1.3 Using EMS timers in a network

The EMS timers can be networked through the integrated intelligent EMS bus system. Up to 31 timers can be connected with one another using this bus system without having to connect a central control unit, or making any changes to the timers themselves. The bus system works practically fully automatic, one need only make sure that the network node number for each timer is uniquely assigned. (see "General guidelines for networking EMS timers" p.10).
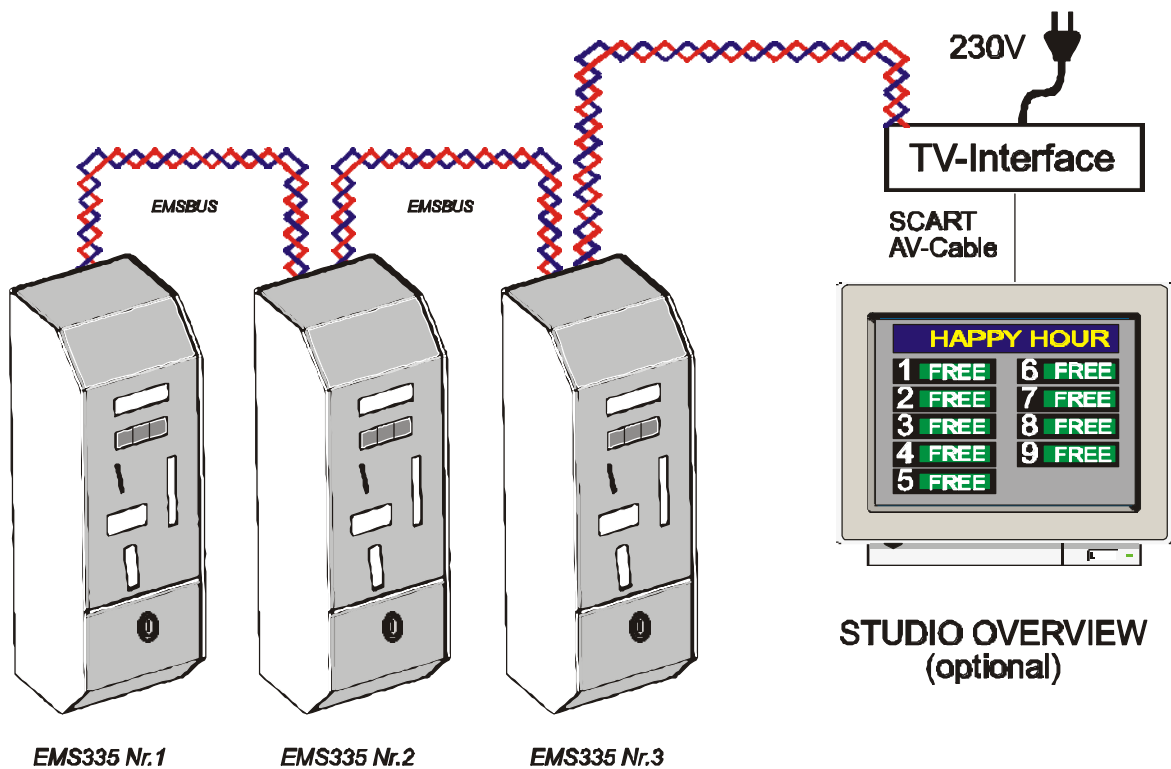
Illustration 1: EMS timer network hook-up

Every EMSBUS – compatible product can be directly connected to a network such as that above. This can range from a single remote display to a complete TV studio overview.

1.2 Installation and Maintenance

All devices in the EMS product line are constructed to conform to the usual safety standards to ensure safe operation of these devices. It is nevertheless important to ensure correct mounting and correct electrical wiring installation.
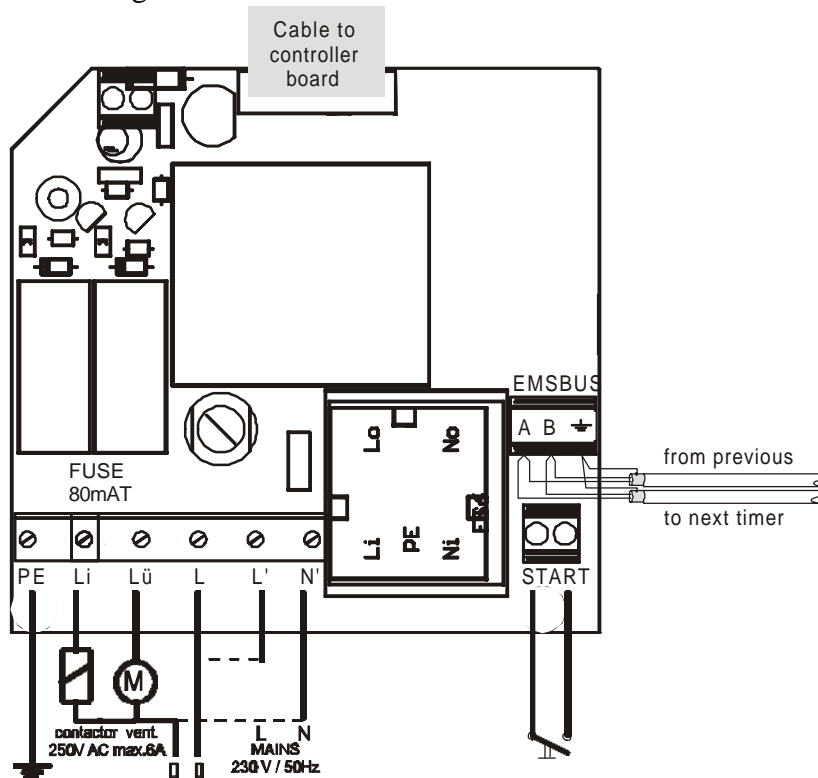
Illustration 2: Power supply mainboard
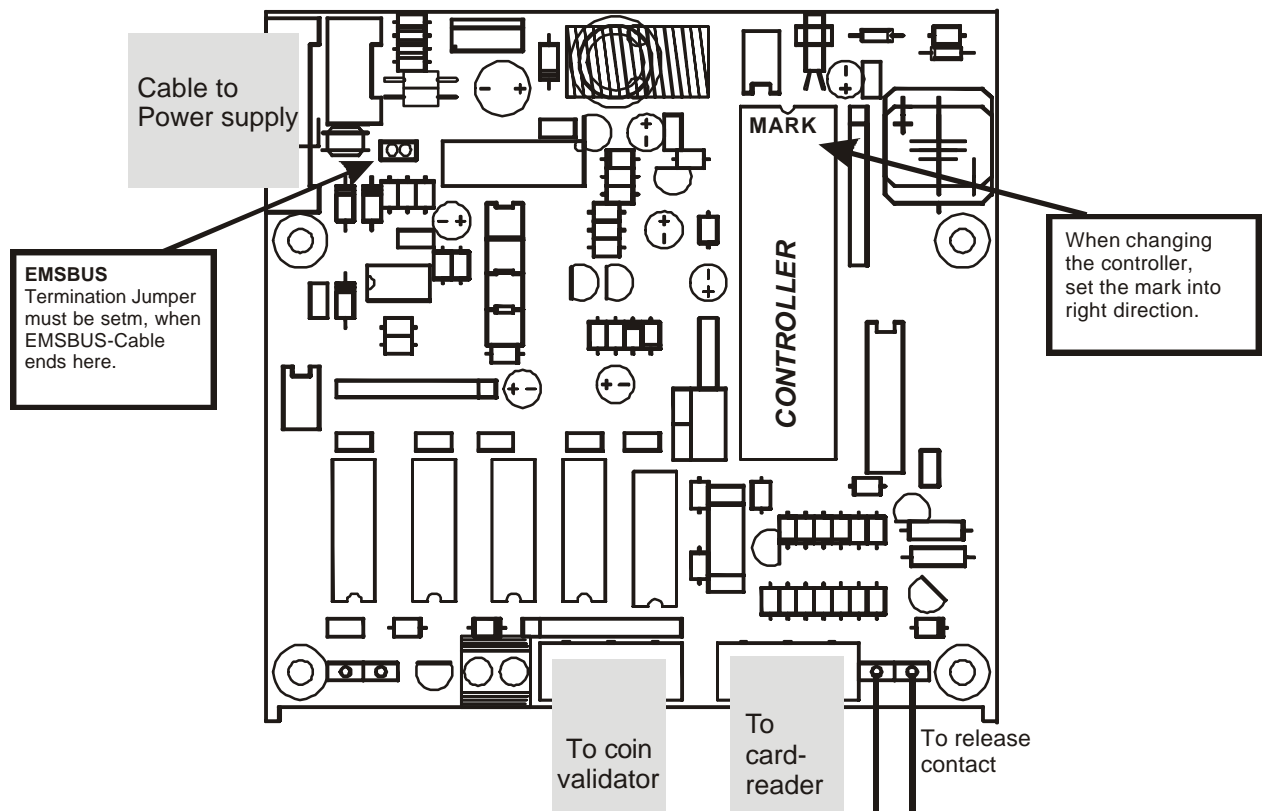
Illustration 3: Control mainboard

Please note:
Installation should only take place under the care of
an authorized electronics professional

Because this is a stationary device with a hardwired mains power connection, a
disconnection switch (fuse) must be installed

Installing an EMS timer is limited to mains power supply hook-up as well as both switched outputs for contactor and ventilation as per the provided connection diagram. When using the timer in a network, the EMSBUS must also be connected. Please refer to "General guidelines for networking EMS timers".

1.2.1 Connecting a remote start button

A potential-free switch can be connected to a remote start button's connection clamp. Use a separate, shielded, and twisted 2-wire cord (i.e. Belden 9501) for this purpose. Use a separate cable for the remote start wiring.

1.2.2 General guidelines for networking EMS timers

- Use a separate, shielded, and twisted bipolar cord (i.e. Belden 9501) for bus wiring.
- Pay attention to correct polarity (A - A and B - B)
- The bus must loop through each device.
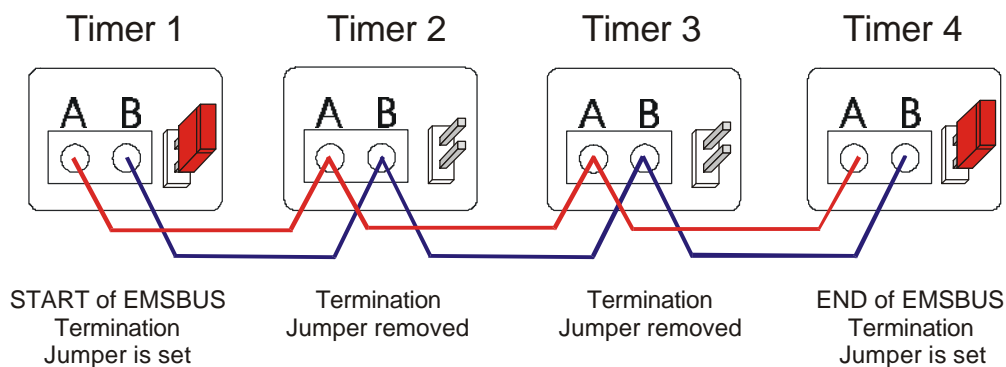
Illustration 4: Correct bus wiring

Forked or "star" wiring is forbidden! This leads to signal corruption and unstable operation.
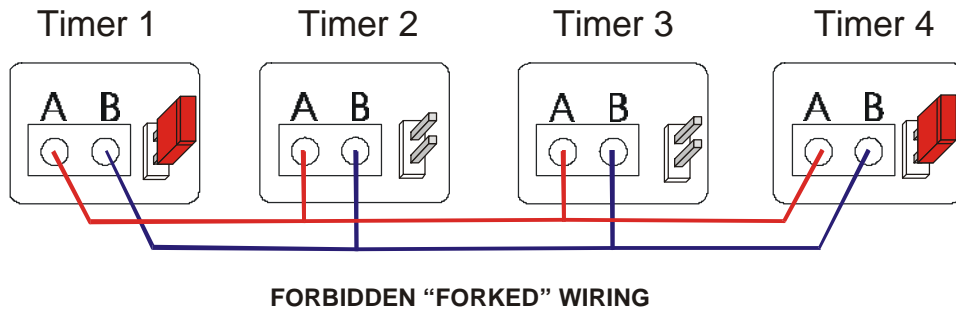
Illustration 5: Incorrect bus wiring (fork)
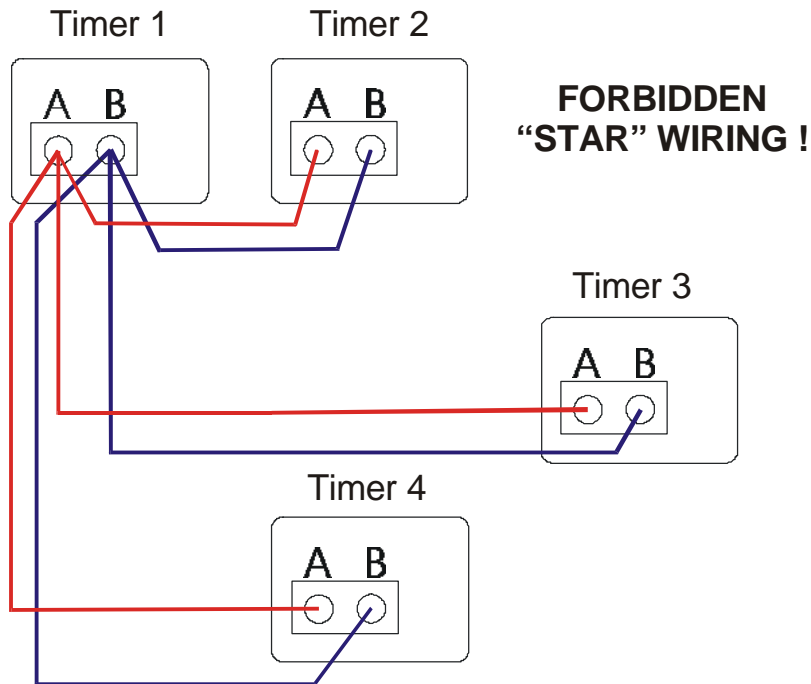
Illustration 6: Incorrect bus wiring (star)

- EMSBUS wiring shielding must be connected to one another on every timer.
- EMSBUS wiring shielding must be connected on only one point on PE (Earth).
- The EMSBUS termination must be plugged on both ends of the bus wiring for the timers. The termination jumper must be pulled for all other devices.
  Modem boxes and TV interfaces are factory-terminated and must be hooked up or reconfigured at the beginning or the end of the bus wiring.
- Do not lay the bus wiring in the immediate vicinity from electromagnetic fields such as is created by current compensated choke for fluorescent lamps or transformers for halogen lighting.
- Allocate a unique net node number to each timer.
- The timer can be disconnected from the bus using the tripolar bus connection clamp if needed.

1.3 Resetting the EMS Timers

To delete the timer data or set the default values, press and hold all three keys and turn the power on. You will see the following display:

```
┌─────────────────────────┐
│     ERASE MEMORY ?      │
│  CrdNr    Par.    No    │
└─────────────────────────┘
```

- You may delete the card numbers by pressing the green key. The timer will not accept any card numbers and can be reset to a new card number with the number card. (see section 5.1.1 "Setting the card number with the number card" on page 32).
- The white key deletes all parameters. All master cards, operating time counters, time settings, prices, Happy-Hour times etc. are reset to null or to the factory defaults. The card numbers remain saved.
- The red key exits the reset menu without deleting any data.

1.3.1 Servicing the EMS Timers

The EMS timers are largely maintenance free. High-quality components ensure a long life span.

In order to conform to the DIN EN 60335-2-27 and DIN V VDE 0801 safety regulations, all components affecting the safety of the devices must be tested regularly, at least every 12 months. There is a special test program in the program environment for this purpose which is accessed manually. The regular activation of the test program is the responsibility of the operator. For information concerning the test program please refer to section 3 "Programming the EMS timers", Sub-menu 6 Miscellaneous – Safety test.

Dirt and grime can collect in the coin validator and the chip card unit during normal timer operation. If too much dirt has collected, normal operation can be disrupted. Cleaning the affected components can solve the problem.

- We can provide you with a special cleaning set for the chip card unit which allows you to remove dirt and grime from the contact points. You can also help keep the chip card unit clean by checking customer cards when charging and cleaning them if needed.
- The coin validator can be removed and cleaned from an authorized specialist.

2 Time-vending with the EMS Timers

After programming is complete, (see section "Programming the EMS timers" p.15) the timer can be used in normal operation. Depending on the timer's configuration, time can be vended with coins, with a chip card, or with both.

> **Please note:**
> **The following description assumes default factory**
> **Programming parameters**

If you have already programmed the timer with values other than the factory defaults, i.e. delayed start time, minimum amount, or remote start, then the timer may behave differently than described here.

2.1 Time-vending with coins

The EMS timers have a two-line display which provides the customer with information.
At the start of the vending process the device is free and the display shows the following:

```
***   FREE   ***
5.00 €= 5.0 Min
```

After inserting the first coin, the display shows the amount of time vended:

```
2.00 €= 2.0 Min
5.00 € MINIMUM
```

As long as the minimum amount has not been inserted, the second display line continues to show the minimum amount. Inserting additional coins increases the amount of vended time. As soon as the minimum amount has been reached, the display shows the following:

```
5.00 €= 5.0 Min
MAX. TIME=30m
```

Inserting additional coins increases the amount of vended time. The delayed start time restarts with each coin insertion which means the customer has the full delayed start time after inserting the last coin. As soon as the amount of vended time approaches the maximum time, inserting additional coins can result in overbooking. The timer displays the following warning in this case:

```
27.00 €= 27.0 Min
DO NOT OVERPAY !
```

If the customer has overbooked, the display has the following format:

```
31.00 €= 30.0 Min
MAXIMUM REACHED
```

The delayed start time begins after inserting the last coin. As soon as the customer is ready, the device can be started through a connected remote start switch.

If the device is not remotely started, the device is automatically started after the delayed start time and the tanning period time starts.

```
┌─────────────────────────┐
│        TANNING          │
│        29.9 Min         │
└─────────────────────────┘
```

After tanning, the cool down time starts.

```
┌─────────────────────────┐
│        COOLING          │
│        0.9 Min          │
└─────────────────────────┘
```

2.2 Vending using a PIN-CARD

At the start of the vending process the device is free and the display shows the following:

```
┌─────────────────────────┐
│   ***   FREE   ***       │
│   5.00 €= 5.0 Min        │
└─────────────────────────┘
```

When the customer inserts his card, the following appears:

```
┌─────────────────────────┐
│   CREDIT    100.00€      │
│ OK↓    5.00+↓   STOP↓    │
└─────────────────────────┘
```

The first line shows the amount of credit remaining on the customer's card. The timer's minimum amount is displayed in the middle of the second line. The white key can be used to book the minimum time from the customer's card. The red key cancels the purchase. The card is ejected in this case, and no credit will have been booked from the card.

```
┌─────────────────────────┐
│   5.00 € = 5.0 Min       │
│ OK↓    1.00+↓   STOP↓    │
└─────────────────────────┘
```

The top line shows the value and amount of time vended from the card. The vending interval is shown in the middle of the second line. Pressing the white key increases the vended amount by this interval.

```
┌─────────────────────────┐
│   15.00 € = 15.0 Min     │
│ OK↓    1.00+↓   STOP↓    │
└─────────────────────────┘
```

As soon as the desired amount of time has been reached, payment is completed by pressing the green key. The card is ejected and the device starts the delayed start time.

```
┌─────────────────────────┐
│   15.00 € = 15.0 Min     │
│   MAX. TIME = 30 m       │
└─────────────────────────┘
```

As long as the maximum time has not yet been reached, additional time can be vended during the delayed start phase with coins or with an additional card. As soon as the maximum time has been reached, the vending interval display disappears from the middle of the second display line.

```
30.00 € = 30.0 Min
OK↓            STOP↓
```

If the purchase has been confirmed by pressing the green key, the display shows the following:

```
30.00 € = 30.0 Min
MAXIMUM REACHED
```

The device is now in the delayed start phase. The tanning starts as soon as the customer presses the remote start switch, or as soon as the delayed start time is over.

```
TANNING
29.9 Min
```

The display shows the remaining tanning time. As soon as the tanning is over with, the cool down phase starts. The display shows the following:

```
COOLING
0.9 Min
```

2.3 PIN-CARD recharge with coins

If you have set the card recharge parameter (M3N13) (see section 3.2 p.18) to a value other than zero (i.e. 100 €), and a customer inserts a card with a remaining credit less than this parameter (i.e. 50 €), then the customer can charge his card with coins. The display shows the following:

```
CHARGE    50.00€
      5+↓    STOP↓
```

The customer can
• charge his card by inserting coins or,
• start purchasing time for the device by pressing the white key. This then happens exactly as described in chapter 2 „Time vending with the EMS timers".

3 Programming the EMS timers

As soon as an EMS timer has been correctly installed, certain operating parameters can be set to meet individual needs. Programming is made easy through the intuitive menu structure and user initiated steps with the two-line display.

3.1 Menu structure

EMS 135 only	EMS 235 / 335 only	EMS 135 / 235 / 335

Programming level	1 – Cash counters	2 – Operating hours	3 – Prices	4 – Parameters	5 - Clock / Happy-Hour	6 – Special	7 – fixed price
↓01↓	Cash daily	Hours 1	Minimum amount normal	Max. time	Hour	Test / Stop Master flag	fixed price active
↓02↓	Token daily	Hours 2	Time normal	Delayed start	Minute	Clear Day Cash	+ Time max.
↓03↓	Card daily / Overpay	Hours 3	Min. amount Happy-Hour	Prolonged ventilation	Day of week	Operational	Timer 1 fixed price ?
↓04↓	Overpay / Customer daily	Preset. 2	Happy-Hour cash time	Cleaning mode	Day	Automatic clear	Timer 2 fixed price ?
↓05↓	Customer daily / Cash Total	Preset . 3	Happy-Hour card time	Remote start	Month	EMSBUS node number	Timer 3 fixed price ?
↓06↓	Cash Total / Token total	Test Count	Discount mode	Enable Coin release	HH-Timer 1 Start time	BIG TIME Display	Timer 4 fixed price ?
↓07↓	Token total / Customer total	Master card Recharge	Level 2 at xx €	Ventilation lock	HH-Timer 1 End time	Display contrast	Timer 5 fixed price ?
↓08↓	Card total	Variety card recharge	Time level 2	Powerfail Store	HH-Timer 1 Monday	Second display	
↓09↓	Customer total		Level 3 at xx €	Add tokens	HH-Timer1 Tuesday	Master code	
↓10↓	Charge daily		Time level 3	Hours 2 warning	HH-Timer1 Wednesday	Cash register query	
↓11↓	Charge total		Token value	Pay Time	HH-Timer1 Thursday	SECURITY TEST	
↓12↓	Personnel Card		Charge off interval		HH-Timer1 Friday		
↓13↓			Happy Hour card		HH-Timer1 Saturday		
↓14↓			Max. card recharge		HH-Timer1 Sunday		
					HH-Timer 2-5 continue		

Table 3: Parameter overview

The programming level is divided into 6 or 7 logical sub-menus, cash counters, operating hours, prices, parameters, clock / Happy - Hour , special and fixed price (optional).
Within these sub-menus you find the appropriate parameter and counters.

3.1.1 Choosing program parameters

The programming environment is reached by inserting the master card. The display shows:

```
┌─────────────────────────────┐
│       PROGRAMMING           │
│   <        END        >     │
└─────────────────────────────┘
```

Choose the sub-menu with the red or green keys.

```
┌─────────────────────────────┐
│   1 – CASH COUNTERS         │
│   <        ⇓        >       │
└─────────────────────────────┘
```

Pressing the red key takes you to the next sub-menu. The green key selects the previous sub-menu. Table 3 shows a programming parameter overview. If you have reached the desired sub-menu, you reach the desired parameters by pressing the white key.

3.1.2 Editing program parameters

The red and green keys are used to edit program parameters. There are 5 different types of parameters. Table 4 shows how each may be edited.

Parameter type	Editing possibilities
A – Free counter	Delete with red key
B – Fixed counter	Increase with green key, decrease with red key
C – Operating param.1	Increase with green key, decrease with red key
D – Operating param.2	Switch between YES and NO with the green and red keys
E – Operating param. 3	Reset to default by simultaneously pressing green and red.

Table 4: Parameter types

3.1.3 Programming example: programming the maximum time

```
┌─────────────────────────────────────────────────────────┐
│        Please read the following section carefully:      │
│     The programming process will be carefully described using │
│        The example of programming the maximum time.      │
└─────────────────────────────────────────────────────────┘
```

The maximum time parameter is the first parameter in sub-menu 4 settings. Insert your master card. The display shows:

```
┌─────────────────────────────┐
│       PROGRAMMING           │
│   <        END        >     │
└─────────────────────────────┘
```

2. Press the red key 4 times to access sub-menu 4 (or press the green key 3 times).

```
┌─────────────────────────────┐
│       4-PARAMETERS          │
│   <         ⇓        >       │
└─────────────────────────────┘
```

3. Now press the white key once. You have accessed the first parameter in sub-menu 4

```
┌─────────────────────────────┐
│       MAX. TIME 30m         │
│   (+)     ↓01↓     (-)       │
└─────────────────────────────┘
```

4. With the green(+) and red(-) keys, you can adjust the maximum time. The changed value is automatically saved.
5. You may change to the next parameter as soon as the desired value is displayed.

3.1.4 Exiting the programming environment

Exiting the programming environment is demonstrated from the maximum time parameter

```
┌─────────────────────────────┐
│       MAX. TIME 30m         │
│   (+)     ↓01↓     (-)       │
└─────────────────────────────┘
```

1. Keep pressing the white key until you have reached the first entry in the sub-menu.

```
┌─────────────────────────────┐
│       4 – PARAMETERS        │
│   <         ⇓        >       │
└─────────────────────────────┘
```

2. Use the green and red keys to access the entry point for the programming environment.

```
┌─────────────────────────────┐
│       PROGRAMMING           │
│   <       END       >        │
└─────────────────────────────┘
```

3. Press the white key to eject the card. The standard display is shown, if the device is free.

```
┌─────────────────────────────┐
│   ***    FREE    ***         │
│     5.00 €= 5.0 Min          │
└─────────────────────────────┘
```

3.2 The EMS timer programming parameters

Programming additional parameters happens in the same way as described above. A list of all programming parameters sorted according to parameter level is shown below. References to other parameters within a parameter description is shown by sub-menu (s M) and parameter number (N). For example, the maximum time is found in sub-menu 4 parameter 1, or abbreviated as M4N1. Parameter values are shown in brackets. The letter [x] in front of the arrow shows the parameter type as described in table 4.

3.2.1 Sub-menu 1 – Master card

1. **Cash daily[A]** This parameter sums the total of cash tanning purchases for the timer per day. [0,00..167.772,15 €] If the automatic clear parameter (M6N4) is set to YES, the counter is deleted every day at midnight. This applies to all daily counters. All daily counters can be deleted together with the Clear day cash parameter (M6N2).
2. **Tokens daily [A]** Sums the value of daily token purchases [0 .. 65535 tokens]. To calculate the € value of this parameter, this value needs to be multiplied with the token value parameter (M3N10).
3. **Card daily [A]** Sums daily value of card purchases.
4. **Overpay [A]** Sums overbookings [0,00..655,35 €]. An overbooking occurs if the customer inserts a valuable coin shortly before the maximum time is reached. If, for example, 29 € have been inserted and the maximum value is 30 €, inserting a 2 € coin results in an overbooking of 1 €.
5. **Customers daily [A]** Number of customers per day [0..65535]. Delete with red key.
6. **Cash total [A]** Total cash payments for tanning on the timer [0,00..167.772,15 €].
7. **Tokens total[A]** Number of inserted tokens [0..65535 tokens].
8. **Card total [A]** Sum of all card purchases [0,00..167.772,15 €].
9. **Customers total [A]** Number of customers[0..65535].
10. **Charge daily [A]** Daily amount of card recharged with coins from customers or personnel.
11. **Charge total [A]** Total amount of card recharged with coins from customers or personnel.
12. **Personnel card [A]** Purchased tanning from personnel cards

3.2.2 Sub-menu 2 – Operating hours

1. **Operating hours 1 [A]** Total device operating time [0..65535,59 h].
2. **Operating hours 2 [C/E]** Counts backward to 0 starting at preset 2 (M2N4) [65535,59..0 h]. You can increase and decrease the preset value in 1 hour intervals with the green and red keys respectively. If the B2 warning parameter (M4N10) is set to YES, a red dot will be displayed in the upper left as soon as this parameter reaches zero (and the device is free). Pressing the green and red keys simultaneously resets the parameter to the preset 2 value.
3. **Operating hours 3 [C/E]** see Operating times 2
4. **Preset 2 [B]** [0..65535 h]. You can increase and decrease this value in 1 hour intervals with the green and red keys respectively.
5. **Preset 3 [B]** see Preset 2
6. **Test run [A]** Counts the amount of test runs [0..65535].
7. **Master card recharge [A]** Shows the amount recharged with the master card. Only amounts recharged with the master card are reflected in this parameter. Debits from customer cards are not reflected in this parameter.
8. **Variety card charging [A]** This parameter shows the amount recharged onto customer cards with an appropriately programmed variety card.

3.2.3 Sub-menu 3 Prices

1. **Minimum amount normal [C]**   Minimum amount for the normal rate [0,01..655,35 €]. This value can be increased and decreased in 1 Cent intervals. Standard: 5 €
2. **Time normal [C]**   Amount of vended time for minimum amount normal [1Sec..1092min15sec]. This value can be increased and decreased in 1 second intervals. Standard: 5 minutes.
3. **Minimum amount Happy-Hour [C]**   Minimum amount for the Happy-Hour rate [0,01..655,35 €]. This value can be increased and decreased in 1 Cent intervals. Standard: 5 €
4. **Happy-Hour cash time [C]**   Amount of vended time for the Happy-Hour minimum amount when paying cash [1Sek..1092min15sek]. This value can be increased and decreased in 1 second intervals. Standard: 6 minutes.
5. **Happy-Hour card time [C]**   Amount of vended time for the Happy-Hour minimum amount when paying with Happy-Hour card [1Sek..1092min15sek]. This value can be increased and decreased in 1 second intervals. Standard: 5 minutes.
6. **Discount mode [D]**   When set to YES, the discount system is activated. The Happy-Hour mode is turned off. Additional information can be found in " The EMS three-stage rate system" p.24 Standard = NO
7. **Level 2 at xx [C]**   This parameter defines the amount at which a rebate at level 2 is valid [0,01..655,35 €]. Standard: 10 €
8. **Time level 2 [C]**   Vended time for level 2 rebate [1Sek..1092min15sek]. Standard 12 min.
9. **Level 3 at xx [C]**   This parameter defines the amount at which a rebate at level 3 is valid [0,01..655,35 €]. Standard: 20 €
10. **Time level 3 [C]**   Vended time for level 2 rebate [1Sek..1092min15sek]. Standard 25 min.
11. **Token value[C]**   Defines token value [0..99 €]. Standard: 5 €
12. **Charge off interval [C]** Vending interval for customer and personnel cards. Standard: 1 €
13. **Happy-Hour card [D]** If set to YES, customers paying with card receive Happy-Hour rates. Standard NO. This parameter cannot be used if the Dicount mode is activated (M3N5).
14. **Maximum card charge [C]**   Customers and staff can continue to recharge their cards with coins as long as this value has not been reached. For example, if a maximum value of 100€ has been set and the customer has a credit of 99€, inserting 5€ will result in a credit of 104€, at which point continued charging is no longer allowed. If this value is set to zero, the customer charging function is disabled.

3.2.4 Sub-menu 4 Parameters

1. **Maximum time [C]**   Maximum tanning time [0..60 min]. Standard: 30 min.
2. **Delayed start [C]**   Device start pause time [0..99 min].The device can be started with a remote start switch before the start pause time is over, if the remote start parameter (M4N5) is set to YES. Standard: 1 min.
3. **Prolonged ventilation [C]**   device cool down time [0..99 min]. Standard: 1 min.
4. **Cleaning mode [D]**   Cleaning mode active; Cleaning mode set to YES means that the device is locked until the cleaning phase is confirmed to be over. After tanning and cool down the display shows the following:

```
┌─────────────────────────────┐
│                             │
│        CLEANING             │
│                             │
└─────────────────────────────┘
```

    The device lock is released by pressing the remote start switch. Standard NO. Cleaning mode is only possible when the ventilation lock mode parameter is set to YES (M4N7).
5. **Remote start [D]**   If set to YES, the device can be started with a remote start switch before the delayed start phase is over. Standard YES.
6. **Coin release [D]**   When set to YES, coins may continue to be inserted after cabin start until the maximum time is reached. Standard NO.
7. **Ventilation lock [D]**   cool down phase. When set to YES, coins may not be inserted during the ventilation cool down phase. Standard YES. If set to NO, cleaning mode (M4N4) is not possible.
9. **Powerfail store [D]**   Saves settings and remaining time in event of power outage when set to YES. Standard YES.
10. **Count tokens [D]**   Add token value to daily and total balance. Standard YES.
11. **Operating time 2 warning [D]**   If set to YES and the device is free, a point will appear in the upper left as soon as this counter has reached zero.

```
┌─────────────────────────────┐
│  •***    FREE    ***         │
│  5.00 €= 5.0 Min             │
└─────────────────────────────┘
```

11. **Vending lock [C]**   This parameter determines the time in seconds after the last coin has been inserted at which continued vending is prohibited (until tanning is over). For example, if the vending lock is set to 20, no coins will be accepted starting at 20 seconds after insertion of the last coin. The vending lock is released after tanning is over. To deactivate the vending lock, this parameter must be set to '0'. In this case, vending can continue until the end of the warm up period.

3.2.5 Sub-menu 5 Clock / Happy-Hour

1. **Hour [C]**   Set the clock hour. Hour display will flash.

```
┌─────────────────────────────┐
│      Time: 13:49:24          │
│      (+)   ↓01↓   (-)        │
└─────────────────────────────┘
```

2. **Minutes [C]**   Set the clock minutes.
3. **Day of week [C]**   Set the day of the week .

```
┌─────────────────────────────┐
│      Date: MI.21.05          │
│      (+)   ↓03↓   (-)        │
└─────────────────────────────┘
```

4. **Day [C]**   Set the day of the month.

5. **Month [C]**   Set the month.

6. **HH timer 1 start time[C]**   Start time for Happy-Hour timer 1 (HHT1) [0:00..23:45 h]. Set in 15 min intervals. Standard: 0:00 h.

7. **HH timer 1 end time [C]**   End time for HHT1 [0:00..23:45 h]. Standard: 0:00h.

8. **Timer 1 Monday [C]**   Determines if HHT1 should be activated on Mondays. Standard: NO.

09. - 14. Determines if HHT1 should be activated on Tuesday through Sunday respectively.

15. - 23. Settings for HHT2.

24. - 32. Settings for HHT3.

33. - 41. Settings for HHT4.

42. - 50. Settings for HHT5.

3.2.6 Sub-menu 6 Miscellaneous

1. **Test run / emergency stop [D]** (Master display)   If the device is free, a test run of 2 min in length can be started with this point. The display shows:

```
┌──────────────────────────────┐
│     Test/Stop        m        │
│  START    ↓01↓                │
└──────────────────────────────┘
```

The test run can be started with the green key. The device starts immediately (without warm up phase).

```
┌──────────────────────────────┐
│     Test/Stop        m        │
│           ↓01↓    STOP        │
└──────────────────────────────┘
```

The red key stops the device in operation. The ventilation continues for the prolonged ventilation time (M4N3), but can be stopped ahead of time by pressing the red key once more. If the timer is a master timer, a flashing 'm' will be shown on the display.
A timer is a master timer if:
- It is the only timer
- It has the lowest network node number (M6N5) in the network.. The master timer switches the rest of the timers in the network (slaves) between normal and Happy-Hour mode if the Happy-Hour timers are programmed appropriately.

This parameter allows one to discover disruptions in the EMSBUS network. If, for example, 8 timers are connected to the network, and timer number 5 reports itself as master, then there is a disruption in the EMSBUS between timer 4 and 5.

2. **Clear daily cash [D]**   Pressing the red key deletes the following parameter values: Cash daily (M1N1), Token daily (M1N2), Card daily (M1N3), Customers daily (M1N5) and recharging daily (M1N10). After deletion, the display shows the following:

```
┌──────────────────────────────┐
│      Daily cleared            │
│       ↓02↓    CLEAR           │
└──────────────────────────────┘
```

3. **In operation [D]** This parameter allows one to put a timer out of operation if needed. After exiting the programming environment, the display shows the following..

```
┌─────────────────────────────┐
│                             │
│        OUT OF SERVICE       │
│                             │
└─────────────────────────────┘
```

and coins and customer cards are not accepted. Standard: YES.

4. **Automatic clear [D]** If set to YES, the daily cash register parameters Cash daily (M1N1), Tokens daily (M1N2), Card daily (M1N3), Customers daily (M1N5) and Charging daily (M1N10) are automatically deleted at midnight. Please ensure that the clock is correctly set! Standard: NO.

5. **Network node number [C]** When using timers in a EMSBUS network, each timer must have it' own unique network node number. Standard: 1. The timer with the lowest network node number is the master timer (M6N1) and as such, automatically switches additional timers into Happy-Hour mode and back to normal mode.

6. **Big Time display [D]** when set to YES, the remaining time in minutes display shows large numbers. Standard: NO. Set to whichever you prefer.

7. **Display contrast [C]** Determines the display contrast. Please note that the display requires a few seconds to update after setting a new contrast value.

8. **Second display [D]** Allows you to set if the remaining time should be displayed to the second, or to the tenth of the minute.

9. **Mastercode (EMS135 only) [C]** Programming environment access code– **see section „EMS135 features"**

10. **Cash register query (EMS135 only) [D]** Determines whether pressing the key to the right on the cash drawer will result in register data being shown on the display. Standard: NO.

11. **Safety test** Pressing the green key starts a safety test as per DIN 60335-2-27/A11. After pressing, follow the instructions on the display. To ensure problem-free timer operation, this test must be done ***at least every 12 months***. The timer will be automatically locked and put out of service if an error occurs during the test or if the test fails. In this case, call the authorized service specialists for your timer. ***In case of a negative test result, the timer may not be used further!***

3.3 Using the EMS discount-system

There are two different ways of offering your customers rebates and discounts available, which helps you win customer loyalty.

The Happy-Hour system provides your customers with lower rates during the Happy-Hour times you have set for your timers. The Happy-Hour system can help you more evenly balance the load over the day for your studio.

The rebate system gives lower rates to customers that buy longer tanning times.

3.3.1 The EMS Happy-Hour system

The Happy-Hour system allows you to offer lower rates at certain times of day. It is also possible to offer separate cash and card rates for your customers. If cash and card customers should receive the same HH-rates, the parameters Happy-Hour cash time and Happy-Hour card time need to be set identically.

Identifier		bonus	Parameter
Minimum amount normal	5 €		M3N1
Time normal	5 Min	0 %	M3N2
Minimum amount Happy-Hour	5 €		M3N3
Happy-Hour cash time	6 Min	20 %	M3N4
Happy-Hour card time	7 Min	40 %	M3N5

Table 5: Happy-Hour system example

The example above shows a time bonus of 20 % for cash customers and 40 % for card customers during Happy-Hour. These settings result in the following timetable.

Purchase amount	5 €	10 €	15 €	20 €	25 €	30 €	35 €
Time normal	5 Min	10 Min	15 Min	20 Min	25 Min	30 Min	35 Min
HH cash time	6 Min	12 Min	18 Min	24 Min	30 Min	36 Min	42 Min
HH card time	7 Min	14 Min	21 Min	28 Min	35 Min	42 Min	49 Min

Table 6: Happy-Hour system timetable

If the purchase is made part cash and part card, the cash portion is calculated with HH time cash, and the card portion with HH time card.

The parameter Happy-Hour card can be activated so that all card customers receive Happy-Hour rates. In this case mixed payment results in the cash portion being calculated depending on the timer's Happy-Hour settings, either HH time cash or time normal. The card portion is calculated according to the HH time card settings.

In addition to Happy-Hour for all cards, it is possible to switch on Happy-Hour mode for individual cards. A handheld Cardterminal is necessary to set the card accordingly. For this option to work, the parameter Happy-Hour time card must be deactivated.

3.3.2 The EMS three-stage discount system

The integrated EMS rate system makes it possible to set 3 different rates. There are 3 different freely programmable discount parameters available for this purpose.

Please note:
To activate the rate system, the parameter discount mode (M3N6) must be set to YES. The rebate system does not work together with the Happy-Hour system.

All discount levels follow the schema: for x €, y minutes tanning time can be purchased. For clarification, the following table shows a typical example.

Desired function	€	Minutes	Min/€	Results in bonus of:
Level 1 : 5 €-> 5 Min.	5	5	1	0 %
Level 2 : 10 €-> 11 Min.	10	11	1,1	10 %
Level 3 : 20 €-> 25 Min.	20	25	1,25	25 %

Table 7: Discount system example

This should be set up in such a way that larger purchases result in more bonus time. The time should be calculated so that the time bonus is consistently awarded to purchases within a certain range.

Purchase in €	5	7	10	15	20	25	30	35	40
Time in minutes	5	7	11	16,5	25	31,25	37,5	43,75	50
Min/€	1	1	1,1	1,1	1,25	1,25	1,25	1,25	1,25

Table 8: Discount system time query

In the example above, 10 € buys 1.1 minutes per €. Accordingly, 15 € results in 16.5 min. (15 x 1.1 = 16.5).
The maximum time should be programmed so that it can be reached with a full € value, because otherwise overbookings will be too common.

3.3.3 Fixed price (optional Software "Fixed price" only)

The fixed price system allows you to offer a variable time for a constant price. The fixed price mode can be permanently enabled with the mastercard. The fixed price mode can also be enabled Timer controlled.

To enable the fixed price, set the parameter 01 in the „fixed price" submenu to YES. A second parameter „+ Time max." defines the time interval and must be set to a value <> 0. This time is manully added by the customer to the time he already bought

    1. Fixed price active (YES/NO)
    2. +Time max. (max. change of Time (minutes))

The fixed price is equal to the minimum amount normal or minimum amount happy hour (when in Happy Hour mode)

Example:
    1. +Time max. = 10 minutes
    2. fixed price active = YES
    3. minimum amount normal = 5.00 €
    4. time normal = 5:00 minutes

Time-vending with coins:

After insertion of the minimum amount, further coin acceptance will be disabled. The lower line of the display shows the function of the buttons „Time+ OK Time-".
The time for the inserted money (Time normal) can now be increased or decreased up to additionally 5 minutes in steps of 1 minute. A maximum time of $10 + 5 = 15$ minutes can be set. The time can not be set to a value lower than the minimum time. After setting the desired time the payment has to be confirmed with the white button.

```
5.00 €= 10.0 Min
TIME+  OK  TIME -
```

Time-vending with PIN-CARD:

After booking the minimum amount from the customers card, and confirmation with the green key, you are able to select the desired time. It is not possible to book more than the minimum amount from the card.

ATTENTION !! The parameter „+Time max." defines the additional time which can be added to the time normal. It is not the maximum tanning time.

3.3.4 Timer controlled fixed price (optional Software "Fixed price" only)

Each of the 5 Happy Hour Timers can be configured as fixed price Timer by setting the parameter „Timer X fixed price" ,located in submenu 7, to YES. The Timers configured as fixed price can not be used to control Happy-Hour mode. To set fixed price and Happy Hour at the same time, two timers must be programmed to the same times, one for fixed price and the other for Happy Hour.

When using the Timers to control the fixed price, the parameter „fixed price active" must set to NO, because this parameter would otherwise overrides the Timers.

The combination of timer controlled Happy Hour and fixed price offers the possibility to set the fixed price at selected times and having different minimum amounts and times in Happy Hour mode.

Example 1 lower minimum amount

Mo-Fr.   normal rate
Sa   fixed price   eg. minimum amount (fixed): 5 € == 10 min + Time max.
Su   fixed price HH   eg.. min. amount HH (Fixed): 4 € == 10 Min + Time max.

Example 2 more time

Mo-Fr.   normal rate
Sa   fixed price   eg. minimum amount (fixed): 5 € == 10 min + Time max.
Su   fixed price HH   eg.. min. amount HH (Fixed): 5 € == 12 Min + Time max.

3.4 Using the EMS timers in a network

3.4.1 General Information

An EMS timer can be used in a network as either a master or a slave device. One need only ensure that each device receive a unique network node number. To do this, set a number between 1-31 in the parameter network node number (M6N5).

Please note:
Each timer must have a unique network node number.

As a matter of convenience, it makes sense to assign the network node number to the tanning device number.

Using EMS timers in a network

Illustration 1: An example of a EMS-bus network with several EMS timers is shown on page 8.

In this configuration, the timer with the lowest network node number generates the EMSBUS signal and tells the other timers to feed their information over status, operating mode etc. to the EMSBUS. Furthermore, the timer with the lowest network node number switches all other timers between Happy-Hour and normal mode.

If the EMSBUS connection to the master is broken, the timer with the next-highest network node number takes over the master function. The same principle applies for interruptions to the power supply. If, for example, the power cable between timer 4 an 5 is interrupted, the timer with network number 5 takes over the master function for all timers with a network node number higher than 5. The timer with network node number 1 continues to generate the EMSBUS signal for timers 1 to 4.

The information passed to EMSBUS from the timers can be evaluated and displayed by passive EMSBUS participants such as LED, remote display, TV overview etc.

If a modem box is hooked up to the network, all operating parameters as well as the register and counter status of individual timers can be remotely queried. No changes need to be made to the network electronics or software, the network node numbers need only be correctly assigned.

The modem box is always the master in a network. The behavior described above with regard to network or power interruption applies also to a network with modem box.

If an EMSCASH box is hooked up to the network, purchases can be made through a connected PC, and operating parameters can be queried and evaluated. Please note that only EMS 335 with software version 2.13 or higher works together with the EMSCASH box. Older devices require that the program processor be changed. The network node numbers need to be newly assigned. The EMSCASH box is always the master, and cannot be in operation together with a modem box.

4 Programming the coin channels in the electronic coin validator

Depending on the timer model, an electronic coin validator from NRI or WH can be used with the timer. A coin validator for the Euro version must be from NRI.

4.1 The EMP from NRI

The electronic coin validator from NRI (the EMP) is factory programmed for the coins in table 9 in varying tolerances. Each of these coins can be blocked individually by using a separate blocking switch.

Table 9 shows the coin channel assignment for the DM/EURO EMP version.

Coin DM (8. right = off)	Coin EURO (8. right = on)	Identifier	Blocking switch
1 DM normal	1 Euro normal	01	1 left
2 DM normal	2 Euro normal	02	2 left
5 DM normal	50 Cent normal	03	3 left
5 DM strict	50 Cent strict	04	4 left
22mm token with hole	22mm token with hole	05	5 left
26mm token with hole	26mm token with hole	06	6 left
1 DM strict	1 Euro strict	07	1 right
1 DM very strict	-	08	2 right
WM Solitec	WM Solitec	09	3 right
2 DM strict	2 Euro strict	10	4 right
	10 Cent normal	11	5 right
	20 Cent normal	12	6 right

Table 9: EMP from NRI coin channel allocation

Please note the following regarding the EMP settings:
- Blocking switch ON (up) blocks the appropriate coin channel, Blocking switch OFF (down) opens the coin channel.
- The coins can be opened in the following tolerance levels:
    - **norma**l = Normal EMP coin checking. This is the standard setting.
    - **Strict** = Strict tolerance. Better rejection of counterfeits. Valid coin acceptance percentage slightly reduced. Strict validation requires that the blocking switch "normal" is set to ON for this coin.
    - **Very strict** = Even better rejection of counterfeits. Valid coin acceptance percentage further reduced. The blocking switch "normal" and "strict" must be set to ON.

Please note that a coin must freely fall out of the coinselectors bottom side. If a coin stucks due to a full cash drawer, coins will not be counted and not be returned to the customer.

Electronic coin selector *NRI*

NRI	D	STND	STRICT	V.STR		EU	STND	STRICT	V.STR	
	1,-	01	07	08	1	1,-	01	07		1
	2,-	02	10		2	2,-	02	10		2
	5,-	03	04		3	-,50	03	04		3
	WM22mL	05			5	WM22mL	05			5
	WM26mL	06			5	WM26mL	06			5
	WMSolitec	09			5	WMSolitec	09			5
D EU						-,10	11			6
						-,20	12			4

- Coin
- Normal-Validation
- Strict-Validation
- Very strict Validation
- Channel output

on	on		
1 2 3 4 5 6	1 2 3 4 5 6 7 8		

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | Currency
off = DM
on = EURO |

Blockingswitch 1 bis 12

Blocking switch

To block a certain coin, switch the appropiate blocking switch to ON !

Please note that a stricter validation can be used with problems with foreign currencies. In this case, normal validation channel must be blocked. For very strict validation, the strict validation channel must also be blocked.

If the coin should not be accepted at all, all validation channels for this coin must be blocked.

A currency Switch-over to Euro can only occur if the EMP has the currency identifier 'EU'.

Illustration 7: The electronic coin-validator EMP from NRI

4.2 EMS135 features

Because the EMS135, in contrast to other models, does not provide for master access with a PIN card, there are some special factors to take into consideration when working with timers of this model.

4.2.1 The EMS135 keyboard

The EMS135 keyboard is not integrated in the front below the display as it is in the EMS335, but rather in the separation plate between the electronics and the currency cartridge.

To access the keys, open the cash drawer and remove it completely. Reach into the empty cartridge slot. In the rear are three keys, which function just as those of the EMS335. In this way, it is ensured that only individuals with a register key can undertake programming changes. The timer mastercode must also be known.

4.2.2 Access per Mastercode

Mastercode access assumes that the timer status is FREE. Access to the programming environment is achieved through pressing the middle key and entering the mastercode using the other two keys. Pressing the middle key again will result in access to the programming environment, provided that the mastercode was correctly entered. If an incorrect code was entered, the timer locks for 10 seconds. Each following incorrect code entry lengthens the resulting lock time by 10 seconds.
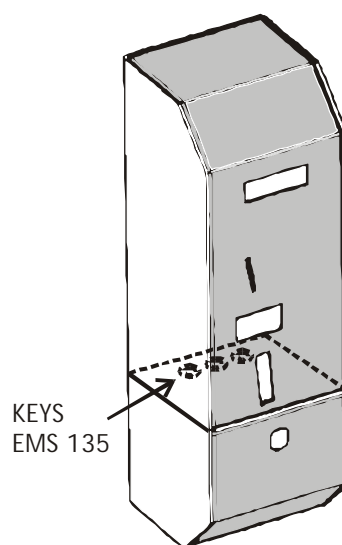
KEYS
EMS 135

Illustration 8: EMS135 keys

Please note:
On delivery or after initial setting the mastercode is 1. Please change this as soon as the timer is put in operation to avoid unauthorized access.

4.2.3 Cash register query

The timer status must be FREE.
If the register query parameter (M6N10) in menu 6, miscellaneous is activated, the current register balances can be queried by pressing the right and left keys.

4.2.4 Emergency stop/cancel function

If the timer status is not FREE, pressing any key results in timer reset. This means that if the timer is in tanning mode, the timer is reset to ventilation mode. Pressing any key once more results in ventilation being cancelled.

5 The system cards and their use

There are several different types of chip cards that can be used in conjunction with the EMS timers. The actions which can be taken with each card are described below:

1. **Number card:** Set the timer card number
2. **Master card:** Program the timer, recharge customer and personnel cards, initiate an emergency stop
3. **Register card:** Display or delete daily balances
4. **Variety card :** Has freely definable access privileges
5. **Personnel card:** Initiate emergency stops, time vending
6. **Customer cards:** Time vending

5.1 The number card

Every card which can be used with your timers are pre-programmed with a vendor-specific card number. This card number is newly assigned with every new timer purchase. This number ensures that no customer can use a card that they have purchased from another vendor with your timers.

Accordingly, each timer ordered by a vendor is pre-programmed with the same number so that only cards bearing the identical number will be accepted by the timer.

You may set the same card number for an unlimited number of timers, so that your customers can use each new timer you acquire. Please ensure that you specify the correct card number when ordering new customer cards.

5.1.1 Setting the card number with the number card

The number card allows you to set and delete a timer's card number. If no card number has been assigned to the timer, customer cards won't be accepted and the following error message appears:

```
Card error:
Card number?
```

A timer can have a maximum of 3 different card numbers assigned to it. This is only necessary if customers from other vendors should be allowed to use your timers.

On delivery, only the first card number is assigned. Additional card numbers must be specially ordered.

5.1.2 Using the number card

Insert the primary number card with card number BE.xxxxxx in the timer. The display shows the following:

```
┌─────────────────────────┐
│    a.------b.------      │
│    c.------             │
└─────────────────────────┘
```

The fields a, b, and c, indicate with the dashes, ------ , that no card number has been assigned. Use the green key to set the card number from the number card. The card number is then immediately displayed:

```
┌─────────────────────────┐
│    a.xxxxxxb.------      │
│    c.------             │
└─────────────────────────┘
```

Pressing the green key again deletes the card number! Pressing the red key when the card number is displayed ejects the number card. The number is now saved to the timer.

If the main number (a) should be replaced, the existing number should first be deleted. You will need the number card with the old number.

```
┌────────────────────────────────────────────────────────┐
│                      ATTENTION!                         │
│            Deleting the primary card number also         │
│        deletes the secondary and tertiary card numbers   │
└────────────────────────────────────────────────────────┘
```

Every card whose number coincides with the primary timer number will be accepted. The secondary and tertiary numbers are reserved for customer cards.

5.1.3 Querying saved card numbers

Each saved card number can be queried simply by inserting the appropriate number card. Careful! Press only the red key to eject the number card, otherwise you might delete the card number!

5.1.4 Resetting saved card numbers

Saved card numbers can be deleted without a number card by resetting the timer. Resetting has already been covered in "**Resetting the EMS Timers**", on page 12.

5.2 The master card

The master card is needed to program the timers as was described in "Programming the EMS timers" on page 16.

5.2.1 Recharge cards with the master card

All chip card timers allow time vending with customer and personnel cards. When the card balance reaches zero, the cards can be charged using the master card.

1. To recharge, hold the red key down and insert the master card. The display shows:

```
INSERT CARD
TO CHARGE
```

2. After the master card has been ejected automatically , insert the customer or personnel card. The current balance is shown on the display.

```
CREDIT:         xx.xx €
OK↓        1+↓        =0↓
```

3. The red key sets the credit to zero.
4. The white key adds value to the card. Pressing the white key once increases the value balance with the interval set in M3N11 "Vending interval" (see section 3.2.3 Sub-menu 3 pp. 20). If you want to valorize the card with larger amounts, hold the white key down. The value will continue increasing as long as the white key is pressed down.
5. When the desired amount has been reached, press the green key to eject the card. The display shows again:

```
INSERT CARD
TO CHARGE
```

Insert the next card which should be charged.
6. As soon as you have charged the last card and ejected it by pressing the green key, press the green key once more (with no card inserted) to end the valorizing process. The timer then shows the standard display.

```
*** FREE ***
5.00 €= 5.0 Min
```

5.2.2 Device emergency stop with the master card

An emergency stop for a running device is initiated with the master card as follows:
1. Insert the master card. The display shows the following:

```
PROGRAMMING
<       END       >
```

2. Press the green key twice. The display shows:

```
┌─────────────────────────┐
│      6 – SPECIAL        │
│   <        ⇓        >   │
└─────────────────────────┘
```

3. Press the white key once. The display shows:

```
┌─────────────────────────┐
│   Test/Stop             │
│   STOP   ↓01↓           │
└─────────────────────────┘
```

4. Press the red key once. The light relay switches off and the device enters the ventilation phase.
5. Press the red key once more to stop ventilation, if desired. Devices which have their own ventilation control switch off by themselves after ventilation is over, and are not influenced by the timer in this regard.
6. Now you exit the programming environment. Keep pressing the white key until the display shows:

```
┌─────────────────────────┐
│      6 – SPECIAL        │
│   <        ⇓        >   │
└─────────────────────────┘
```

7. Press the red key once, and the display shows:

```
┌─────────────────────────┐
│     PROGRAMMING         │
│   <      END      >     │
└─────────────────────────┘
```

8. Press the white key to exit the programming environment. The master card will be ejected.

Using the master card requires knowledge of the programming environment's menu structure. Emergency stops can be more easily initiated with personnel cards.

5.3 The register card

Use the register card to query and delete cash payments and card purchases.

Programming level	1 – Cash counters	6 – SPECIAL
↓01↓	Cash daily	
↓02↓	Token daily	Clear day cash
↓03↓	Card daily	
↓05↓	Customer daily	
↓10↓	Charging daily	

Table 10 : The register card parameter menu

To query the daily registers, insert the register card. The display shows:

```
┌─────────────────────────┐
│     PROGRAMMING         │
│   <      END      >     │
└─────────────────────────┘
```

Press the red key to enter sub menu 1.

```
┌─────────────────────────────┐
│    1 – CASH COUNTERS        │
│    <        ⇓        >      │
└─────────────────────────────┘
```

Pressing the red key again changes to sub menu 6. Press the green key to navigate to the left (lower) in the menu structure. Table 10 shows a programming parameter overview. As soon as you have reached the desired sub menu, use the white key to navigate to the desired programming parameter within that sub menu.

5.4 The variety card

The variety card can be used very flexibly. Every master card function can be assigned to a variety card with:
- Read and write privileges
- Read privileges only
- locked

This allows you to give each employee clearly defined privileges according to their needs. A technician could, for example, reset the operating times after servicing, while other system parameters would remain inaccessible to him.

5.5 The personnel card

The personnel card can be used for time vending just as customer cards, initiating emergency stops or starting a test run.

5.5.1 Time vending using personnel cards

Time vending with a personnel card is exactly the same as with a customer card. See "Vending using a PIN-CARD" on page 14.

5.5.2 Starting a tanning device test-run with the personnel card

Start a test run on a tanning device with a personnel card as follows:
Hold the green key pressed and insert the personnel card. A test run 3 minutes in length will be started.

5.5.3 Initiating a tanning device emergency stop with the personnel card

Initiate an emergency stop with a personnel card as follows:
1. Hold the red key pressed and insert the personnel card. Tanning is interrupted. The device enters the prolonged ventilation phase. The display shows:

```
┌─────────────────────────────┐
│        Cool down            │
│        0.9 Min              │
└─────────────────────────────┘
```

2. Repeat the above to halt the ventilation phase, if desired.

5.6 The customer cards

Customer cards can only be used for time vending. (see "Vending using a PIN-CARD" on page 14).

6 EMS timer accessories

The following accessories are available from your dealer for your EMS timers.

6.1 Solid wood side panel

Free–standing EMS timers receive an exclusive look through our solid wood side panel. When several timers are mounted next to each other, panel the outer sides of the first and last timers to give the entire installation a finished look. The side panels are simply glued onto the sides of the timers. The following types of wood are available:

- Beech
- Oak
- Walnut
- Cherry

Additional wood types are available on request.

6.2 TV interface

The TV interface allows you to display the tanning device status overview (free, in use, tanning xx min., cool down, cleaning etc.) on any TV with a RGB scart port. A display for 6,8,10,12 or 14 devices can be shown. The TV interface is connected to the timers through the EMSBUS (see Illustration 1: on page 8).

6.3 Individual remote displays

A device's operating status can be shown over an individual remote display, showing, for example, a customer's remaining time in the device. The display is connected to the timers through the EMSBUS.

6.4 Modembox

A modembox can be integrated into a network of EMS timers, allowing remote data query as well as remote timer programming. Furthermore, using a modem in conjunction with Beckmann's EMSCOM software allows you to manage and query data of up to 100 studios from a remote office.

6.5 Handheld chipcard terminal

The handheld chipcard terminal is available in several models and features the following:

- Convenient charging and editing of customer cards. Manage individual Happy-Hour settings, serial numbers, purchases etc.
- Monitored customer card charging through authorized employee
- Receipt printer port for documenting card charging and purchases (requires version with printer port)
- Battery operation

6.6 Charging terminal with banknote validator

The charging terminal allows your customers to charge their cards independently.

- Banknote validator (BNP) for 5, 10, 20, 50 €notes, foreign currencies on request. The BNP can be programmed for other currencies, such as the Euro.
- Three separate rebate levels for charging are possible, the higher the purchase, the higher the rebate.

6.7 Cleaning set for the Chip card contact unit

We offer a special cleaning set for the chip card contact unit which allows you to easily and thoroughly remove dirt and grime from the contact unit.

6.8 EMSCASH Box

The EMSCASH box is for hooking up EMS 3xx timers to a PC with EMSCASH software installed. Communication between EMSCASH and the EMSCASH box occurs over your PC's serial port.

EMSCASH software and the EMSCASH box provide you with a modern and fully modular tanning studio control center with integrated register, customer, article, personnel and turnover management. EMSCASH's flexibility means that it can be efficiently used in tanning studios with self-service areas. Using individual timers and EMSCASH in conjunction provides the security and convenience of self-service without having to sacrifice the all-important register and database functions of PC-based studio control. EMSCASH closes the gap between self-service and customer service in the modern tanning studio.

7 Currency changeover

The changeover from one to another currency (eg. DM to Euro) consists of two phases.

7.1 EMP conversion

In general, the EMP must be disconnected from a power source when converting, otherwise the saved EMP Euro data can not be accepted. Provided your EMP is already pre-programmed for the Euro, simply turn over the last DIP-switch under the cover (NRI only). See Illustration 7. The device now accepts only Euro coins. Turn the blocking switch for 10 and 20 Cent coins on if these coins should not be accepted.

7.2 Timer conversion

Turn the timer off, keep the two outer keys pressed and turn the timer back on. The following menu appears.

```
CURRENCY ?
 (old)↓    INFO↓    EURO↓
```

Press the white key to read information over the Euro, or choose the currency. The current currency settings can be seen next to the minimum amount in the timer's free status display.

Please note that the price and evaluation settings must be reset after conversion to the Euro, because these parameter values are **not** automatically converted. It is recommendable to delete all balances to ensure that new Euro amounts are not added to old DM amounts.

7.3 Automatic PIN-card conversion

If a timer has been converted to the Euro and a customer inserts an old currency customer card, the timer shows the card balance in Euro as well as in the old currency.

The display then shows the following upon card insertion:

```
┌─────────────────────────────┐
│ CARD        100.00 DM       │
│ EURO=        51.13 €        │
└─────────────────────────────┘
```

This display is show for approx. 5 seconds, until the payment display is shown.

```
┌─────────────────────────────┐
│ Credit       51.13 €        │
│ OK↓    5.00+↓   STOP↓       │
└─────────────────────────────┘
```

The currency display is now shown in Euros. As soon as a purchase is made and confirmed with the green key, the Euro amount of remaining credit is written to the card. The conversion display will then no longer be shown with additional purchases using this card. If the purchase is cancelled with the red key, however, the original currency amount remains on the card, and the conversion display will be shown the next time the card is used.

Attention! Euro cards can no longer be read after reverting the coinbox+ to DM operation after Euro conversion. These cards must be deleted and reset to DM cards through a master card