

Coin box

EMS-8x / EMS-8x-TE

User manual

Basic version and version with door unlocking

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1 Equipment features

General features of EMS-8x series:

- 16 Bit processor controlled
- electronic coin selector for five different types of coins + one free adjustable token
- 3-digit LED-display
- programming via keyboard
- programmable minimum insertion
- programmable maximum time
- additional coin insertion during operation possible
- several electronic cash counters
- two electronic hour meters (one erasable)
- simple software update via optional SD-Card adapter

Special features of EMS-8x-TE:

- door opener for washing machines or dryers

2 Safety precautions

The coin operated timers of the EMS-8x series are built by the state of technology and the generally accepted safety-related rules. Nevertheless there may occur risks for the user or other persons as well as impairments of the device or other values. Use the device only under faultless conditions, as well as due, safety- and risk-conscious regarding the user manual! Especially eliminate faults, that may impair safety, immediately! Keep the user manual always on site of the device! Pay attention - additional to the user manual- to the general valid legal and other obligatory rules such as accident prevention and environmental protection! Do not make any changes and / or modifications without the authorization of the manufacturer. Spare parts have to correspond to the manufacturer-defined standards. This is only guaranteed, if original spare parts are used. Maintain the required or within this manual stated deadlines for repeating maintenance intervals! Provide a safe and non-polluting disposal of plastic or electrical replacement parts!

This coin operated timers are exclusive designed for managing different electric devices in rooms. Any other or further use is not provided. The manufacturer is not liable for losses, that result from misuse. A due use contains to heed the user guide and to observe the terms of service and maintenance as well.

3 Installation and maintenance

3.1 Mounting

The unit is provided for fixed wiring and assembly in rooms. For fixing the device there are three drillings with a diameter of 6 mm at the back side. It must be taken care that the case is mounted vertically, because otherwise the functioning of the coin selector may be reduced. The EMS 8x should be mounted at a solid wall in order to avoid heavy vibrations.

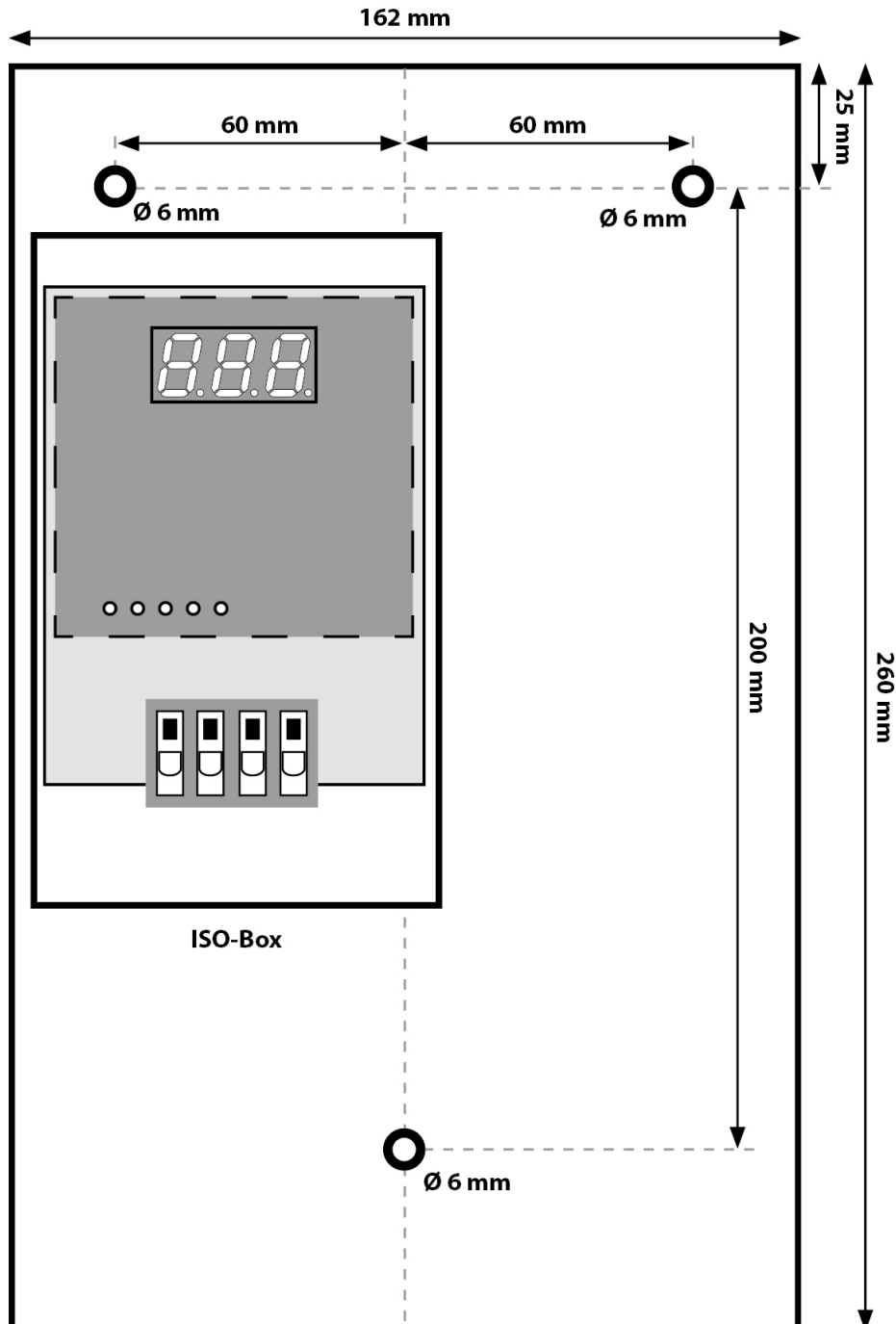


Figure 1: Dimensions

3.2 Electrical installation

The installation of the EMS-8x is limited to the connection of the main power supply and the switched outputs according to the connection survey:

CAUTION :

Arrange that the mounting is accomplished by an authorized electric company. The electrical connection must be performed by an electrically skilled person !
Electrically skilled and qualified personnel must be able to read and understand electric circuit diagrams, to commission and maintain electrical systems, to wire switch and control cabinets, to install controlling software, to ensure proper functioning of electrical components and to identify possible hazards in the work with electric and electronic systems.
Since this is a stationary device with a fixed main power supply, an RCBO must be installed on the installation side!

Requirements:

- main power supply is power-less
- RCBO is switched off

Technical data connection terminal:

Connection principle	Eccentric-top
Insulation stripping length	9,00 mm
Connection data Single wire (solid)	2,50 mm ²
Connection data Stranded wire (flexible)	2,50 mm ²
Connection data Stranded wire (with ferrules)	2,50 mm ²
Rated torque/Screw size	0,5 Nm/M2,5

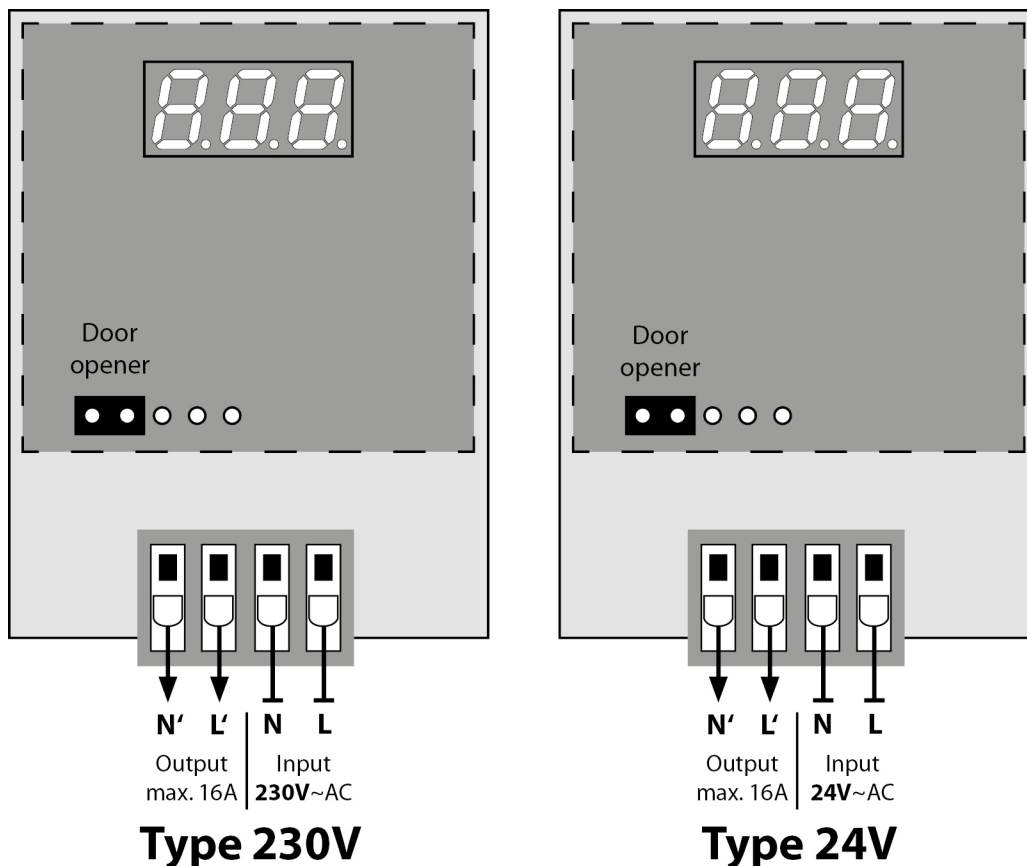


Figure 2: Connection diagram "Regular version with Output"

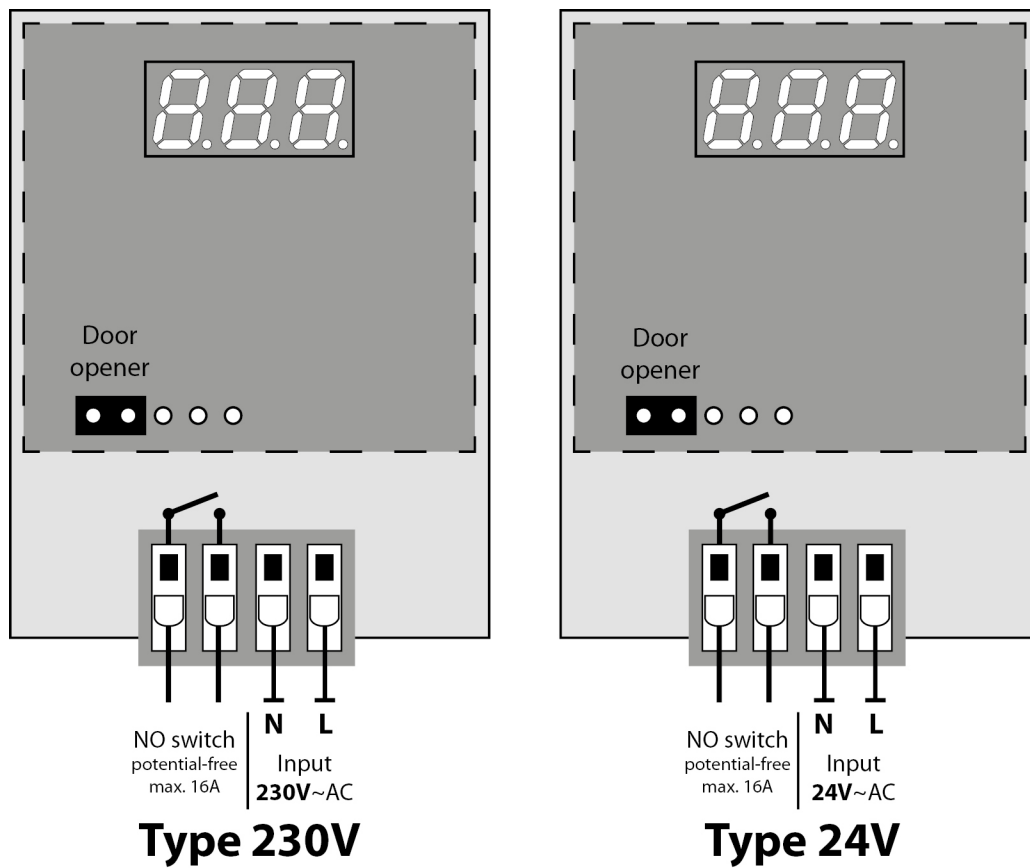


Figure 3: Connection diagram version "Potential-free"

3.3 Maintenance

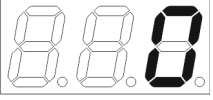
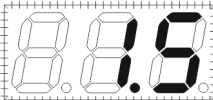

The devices of the EMS 8x series are nearly maintenance-free. Only the coin selector has to be cleaned sometimes, in order to guarantee a proper operation.

4 Operation

After final programming a time sale can be effected with the EMS-8x. The following description refers to factory default programming of the EMS-8x.

4.1 Time selling

The EMS-8x has a 3-digit LED-Display, that shows the customer the current state of the device. A survey you can find in the following figure.

	<p>Display shows „0“: The connected device is free. Coins can be inserted.</p>
	<p>Time is flashing : Coins have been inserted an the minimum insertion has not be achieved yet. Further coins must be inserted.</p>
	<p>Time is displayed : Coins have been inserted. The device is running. Further coins can be inserted.</p>

Special display messages for EMS-8x-TE:


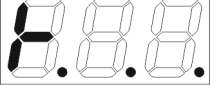
	<p>Display shows "t 0.5" : The output is released for 0.5 minutes in order to open the door of the washing machine or the dryer.</p>
	<p>Display shows "t..." : The door is looked for the time which is setup in P37.</p>

Figure 4: Overview display messages

Before starting the payment, the device must be free, i.e. the display must show "0". After insertion of the first coin, the EMS-8x indicates the released time. As far as the minimum insertion is not achieved, the time is indicated flashing. When the min. insertion is achieved by inserting a further coin, the display does not flash any more and the device starts. If further coins are inserted, the currently released time is indicated. If the maximum time is achieved, the coin selector will be blocked and additional coins can not be inserted anymore.

While the time runs down, the decimal point will blink and the displayed time will decrease by one every minute that expires. During the last minute the display changes and the remaining seconds are displayed. After the time has run out completely the display shows „0“ and the output shuts off.

4.2 Door opener EMS-8x-TE

This feature is mainly provided for washing machines and dryers. As some washing machines or dryers need power in order to open the door, the EMS-8x-TE owns a push button at the front, that can be used for switching the output for a moment. The duration can be determined by parameter P36 within the programming area. During this time the door of the device may be opened. This procedure may be repeated as often as programmed at parameter P35. If the key was pressed too often, the door opener will be blocked for a certain time. This time can be programmed with parameter P37. After the blocking time has run out the output can be switched again as described before.

5 Programming

5.1 Procedure

For the programming of the EMS-8x, the device has to be opened. At the control board inside of the ISO box there are three buttons available.

By pressing the "P" button you will enter the programming mode which is indicated in the display by "Pro". This state can be left by pushing the "+" button. During runtime an emergency stop can be performed by pushing the "-" button. An emergency stop will reset the device to "free" state

By pressing the "P" button another time you are in the parameter edit mode. The display shows alternating a "P", followed by the parameter number and the value of the respective parameter. Press the "P" button several times until you reach the required parameter. You can find a listing of all parameters in Table 1, section 5.5. By pressing the "P" button another time if the last parameter is reached, all settings are stored and the EMS-8x is in "free" state again. All parameters are stored electronically and do not lose their values even if the device is switched off. If no button is pressed for a period of at least 30 seconds, all settings are stored automatically and the EMS-8x changes over to "free" state. In the following sections the 3 types of parameters, counter, operating values and switches, are described.

5.2 Counter editing

Counters are cash counters, customer counters or hour meters. There are erasable and non-erasable counters. The erasable counters can be erased by pressing the "+" or "-" button.

Some counters have a range higher than 999. As the display has only 3-digits, the notation is segmented on values higher than 999. The display changes between the parameter-number, the high level digits (digits 4 - 5) and the low level digits (digits 1 - 3). The high level digits are indicated by the flashing decimal point at the right side. In Figure 4 you can see an example for the counter operating hours 1 with a counter value of 21 740 hours. If the value is lower than 1.000 the display changes only between the parameter number and the low level digit display.

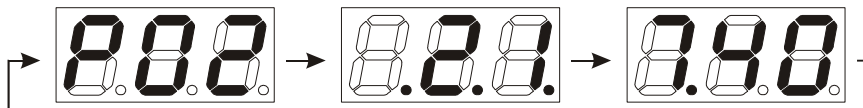


Figure 5: Counter display for larger values

5.3 Adjusting operating parameters

Operating parameters are values, you can adjust the prices or the maximum time with. These values can be increased by pressing the button "+" and decreased by pressing the button "-". The rate is either 1 or 0,1 depending on the parameter. On pressing the "+" resp. "-" button for a longer time, the value can be changed faster.

5.4 Switch-parameter

By means of the switches a function can be switched on or off. These parameters have two options only, which can be changed by pressing the "+" or "-" button.

5.5 Parameter overview EMS-8x /EMS-8x-TE

No		Parameter name/Parameter explanation	Typ	Range
P01	EMS-81	Cash Counter 1 Counter is increased with each Coin (amount of coins).	Counter	0 to 99.999
	EMS-82	Cash Counter 1 Counter is increased with the value of each Coin (and value of Token if P28 is ON)	Counter	0 to 99.999,99
P02	EMS-81	Cash Counter 2 (not erasable) counts as P01	Counter	0 to 99.999
	EMS-82	Cash Counter 2 (not erasable) counts as P01	Counter	0 to 99.999,99
P03	EMS-82	Token Counter 1 Counter is increased with each Token.	Counter	0 to 99.999
P04	EMS-82	Token Counter 2 (not erasable) counts as P03	Counter	0 to 99.999
P05		Customer Counter 1 Counter is increased on each device start.	Counter	0 to 49.999
P06		Customer Counter 2 (not erasable) counts as P05	Counter	0 to 49.999
P10		Operating Hours 1 Operation Hours in hours and minutes	Counter	0 to 99.999:59
P11		Operating Hours 2 (not erasable) as P10	Counter	0 to 99.999:59
P20	EMS-81	Minimum Insertion Indicates the amount of coins, that has to be inserted at least.	Operat.	1 to 100
	EMS-82	Minimum Insertion Indicates the amount of money, that has to be inserted at least.	Operat.	0,01 to 599,99
P21		Time release Indicates, how many minutes the device permits on minimum insertion.	Operat.	0:01 to 999:59
P22		Maximum Time Indicates the maximum time, that can be sold per operation in minutes and seconds (EMS-81 does not count coins after max. time is reached; EMS-82 will block coins).	Operat.	0:01 to 999:59
P27		Pay additionally If ON, additional payment is allowed during runtime until max time is reached.	Switch	On / Off
P28		Count Token as Cash If ON, the Token Value (P29) is added to cash counter P01 and P02	Switch	On / Off
P29		Token Value Determines the value of one single token.	Operat.	0,01 to 599,99

No		Parameter name/Parameter explanation	Typ	Range
P30		Test Mode Test Mode of device can be started.	Switch	Start/Stop
P31		In Operation If OFF, the device can be switched out of service (in case of failure).	Switch	On / Off
P32		Time Storage If ON, the remaining time will be saved in case of power failure, so that the time is continued after the power failure. If OFF, the device is free after a power failure.	Switch	On / Off
P33		Show Amount instead of Time If ON, the remaining amount of money is displayed instead of the remaining time.	Switch	On / Off
P35	<i>only -TE</i>	Number of door opening Determines how often the door opener may be used before the blocking time starts.	Operat.	1 to 99
P36	<i>only -TE</i>	Time of door opening Determines the duration of the door opener feature in minutes and seconds.	Operat.	0:01 to 4:00
P37	<i>only -TE</i>	Door blocking time Determines the door opener blocking time in case the door opener was used too often.	Operat.	0:01 to 10:00
P99		Software version see chapter 6.3		

6 Other

6.1 Switching on

After switching on the machine, the letters "StA" (StArt) appear in the display for a few seconds which indicates the initialization of the machine. Then "LDP" appears, which means loading parameter list. Then the machine is ready for operation.

If "FLr" (Flash error) is displayed, an internal memory error of the machine occurred.

If the machine was turned off during a lapse of time and the P32 parameter was set to "on", the last saved full minute running time is restarted.

6.2 Factory default settings

To reset the machine with factory default settings, turn it off at first. Then keep the buttons "+" and "-" pressed simultaneously while switching on the machine.

"dFL" (default = basic settings) appears in the display.

6.3 Software version

With parameter P99 details about the software version can be read out. Press + / - to switch between the subparameters P99-1 to P99-6.

P99-1	Software version
P99-2	Language/coin table 1 = German 2 = English 3 = German_Switzerland 4 = Denmark 5 = Latvia 6 = Norway 7 = Czechia
P99-3	Feature 1
P99-4	Feature 2
P99-5	Feature 3
P99-6	Feature 4

6.4 Readout serial number

For service purposes or software updates, it is important to know the serial number of the device. The serial number is either visible on a sticker which is attached on the electronics or it can be readout by the software: Press and hold the "P" key during power up of the machine, then the 8-digit serial number will appear in couples (from left to right). The first digit of the couple indicates the position and the last the individual value.

Example:

Nr.: 00001564 The display shows in sequences:

„1-0“ -> „2-0“ -> „3-0“ -> „4-0“ -> „5-1“ -> „6-5“ -> „7-6“ -> „8-4“ -> Start

7 Electronic coin validator (only EMS-82)

The electronic coin validator is programmed to specified coins in different tolerances. Each of these coins can be locked separately by setting a lock switch. Lock switch to ON (up) disables the corresponding channel, lock switch to OFF (down) activates the corresponding channel.

The diagram shows two views of the coin validator. The left view shows the coin path with a red box highlighting the lock switch panel area. The right view shows the lock switch panel with a red box highlighting the switches. Below the diagrams is a legend and a table.

Legend:

- = Cointype
- = Normal-Validation
- = Strict-Validation
- = Very strict Validation
- = Blocking switch

WM 22 mL	1				13
WM 26 mL	2				13
0,10 EUR	4			14	14
0,20 EUR	5			12	12
0,50 EUR	6			11	11
1,00 EUR	7			9	9
2,00 EUR	15			10	10
WM 28 mL	3				13

Lock switches 1 to 16

on DIP on DIP

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

9 10 11 12 13 14 15 16

↓

IMPORTANT:
Lock switch 8 has to be OFF

Normal-Validation	Coins are analyzed in normal tolerance ranges. This is the default factory setting.
Strict-Validation	Coins are analyzed in strict tolerance ranges. Improved detection of counterfeits. The acceptance of the set coin type has been slightly decreasing. The lock switch "normal" must be set to ON.
Very strict Validation	Coins are analyzed in very strict tolerance ranges. Improved detection of counterfeit coins. The acceptance of the coin type continues to decline. The lock switch "normal" and "strict" must be set to ON.
Blocking switch	If the coin should not be accepted at all, all validation channels for this coin must be blocked.

8 Software update with SD-card adapter

For an update of the software the optional SD-card adapter can be used.

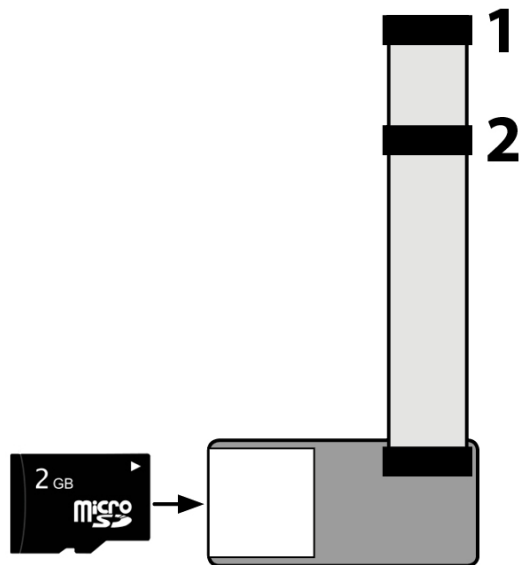


Figure 6: SD-card adapter with numbered connectors

Before plugging in the adapter, the hardware version of the circuit board must be identified.

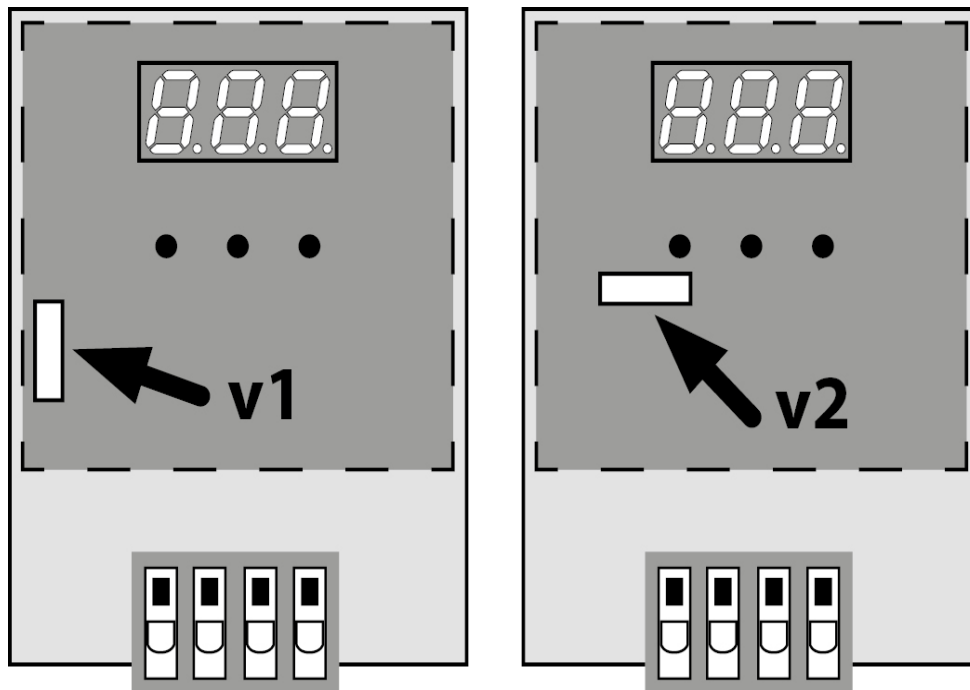


Figure 7: Identification hardware version

In version 1 (v1), the red socket is located on the left side: Please use plug no. 1.

In version 2 (v2) the red socket is located below the three push-buttons: Please use plug no. 2.

To start the update, the device must be switched on. Please wait until the process is complete.

9 EC-Declaration of Conformity



EG-Konformitätserklärung

im Sinne der EG-Richtlinie Niederspannung 2006/95/EG, Anhang III Abschnitt B

Hiermit bestätigen und erklären wir in alleiniger Verantwortung, dass das nachfolgend bezeichnete Gerät in seiner Konzeption und Bauart sowie in der von uns in Verkehr gebrachten Ausführung allen Bestimmungen der EG-Richtlinie Niederspannung i.d.F. 2006/95/EG entspricht.

Beschreibung d. elektr. Betriebsmittel	Münzautomat EMS-81 Münzautomat EMS-82
Einschlägige EG-Richtlinien	Richtlinie Niederspannung 2006/95/EG in der Fassung vom 12.12.2006 Richtlinie 2004/108/EG über die elektromagnetische Verträglichkeit in der Fassung vom 15.12.2004
Sonstige angewandte technische Normen und Spezifikationen	Sicherheitsstandards: DIN EN 61010-1 in der Fassung vom Juli 2011 EMV-Standards: DIN EN 61326-1 in der Fassung vom Juli 2013
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Jürgen Beckmann, Geschäftsführer

Hövelhof, 29.07.2014

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(rechtsverbindliche Unterschrift)

10 Technical data

	Standard version 230 V	Special version 24 V
Energy supply	230 VAC	24 VAC
Contact Ratings		
Load	Resistive load ($\cos \varphi=1$)	
Rated load	16 A at 250 VAC	
Rated carry current	16 A	
Max. switching current	16A	
Max. switching voltage	440 VAC	
Max. switching power	4.000 VA	
General data		
Power consumption	3 W	
Operating temperature	0 to 40 °C	
Operating humidity	30 to 70 %	
Weight	3,5 kg	
Dimensions (W x H x D)	162 x 260 x 110 mm	