

Coin Box

# EMS-8x-DU

## User manual

for showers with start/stop mode and flow control



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# 1 Equipment features

## General features of EMS-8x series

- 16 Bit processor controlled
- 3-digit LED-display
- EMS-81: mechanical coin selector for coins/token
- EMS-82: electronic coin selector for five different types of coins + one free adjustable token
- 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-DU

- Start-/Stop operation mode
- flow-controlled operation mode
- automatic hygiene flush
- automatic stop time in Start/Stop mode can be set
- adjustable maximum timeout specifies the maximum shower time
- unpaid cold water dispensing adjustable

# 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.



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## 3 Installation and maintenance

### 3.1 Mounting

The unit is provided for fixed wiring and assembly in rooms. For fixing the device there are 3 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.

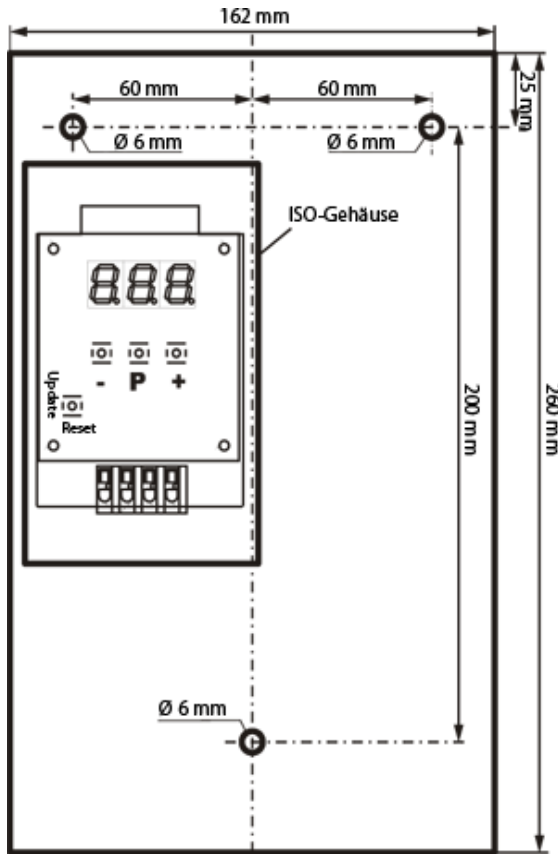


Figure 1 : Dimensions



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### 3.2 Electrical installation

**CAUTION:**

**The installation has to be effected by authorized staff only! Please arrange that the assembly is carried out by a specialist electronic company. Since this is a stationary device with line-side fixed connection, a circuit breaker must be installed on the installation side!**

The installation of the EMS-8x-DU is limited to the connection of the power supply 24V AC and the switching outputs for the hot water valve (Lw ') and optionally the cold water valve (Lk'). For start/stop operation mode an additional button can be connected. The cable for this switch must be separated from the power supply.

#### 3.2.1 Start/Stop operation mode

For Start/Stop operation mode a button (closer) has to be connected the provided input. In this mode, the hot and cold water pipe are controlled by solenoid valves. Additionally cold water can delivery free-of-charge by setting P29.

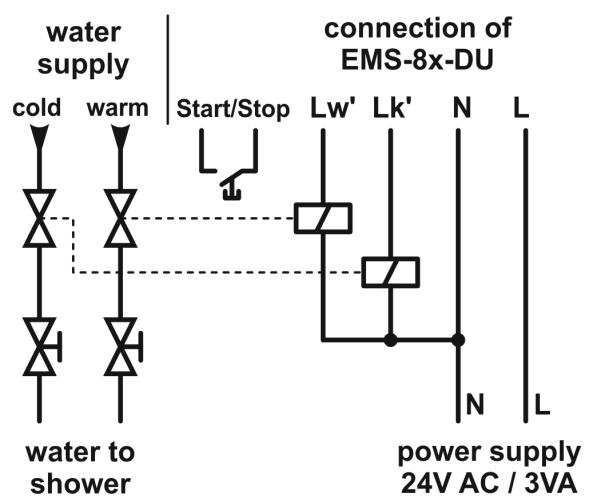


Figure 2 : Installation for Start/Stop mode

#### 3.2.2 Flow control operation mode

For flow control operation mode the contact of the flow control unit is connected to the start/stop input of the EMS-8x-DU. In this mode, only the hot water pipe is controlled. The time period begins with the removal of hot water.

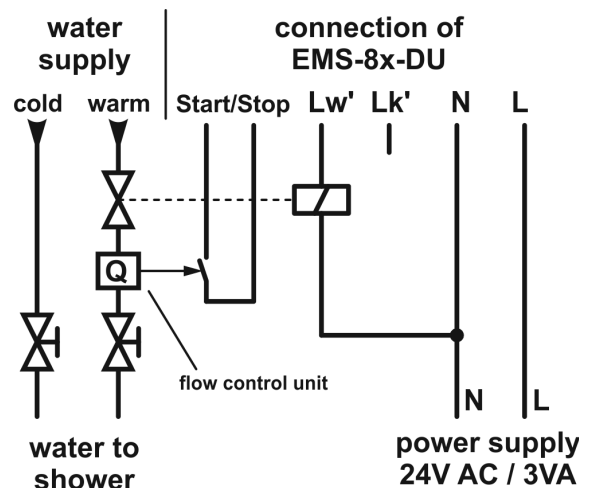


Figure 3 : Installation for flow control mode

### 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

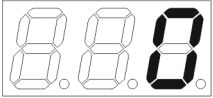





The following description refers to factory default programming of the EMS-8x.

### 4.1 Cold water delivery free of charge (Start/Stop operation mode)

Cold water can be delivered free of charge by pressing the button, if this function is enabled in the settings (P29).

### 4.2 Start/Stop operation mode

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.

	<b>Display shows „0“:</b> The connected device is free. Coins can be inserted.
	<b>Time is flashing :</b> Coins have been inserted and the minimum insertion has not been achieved yet. Further coins must be inserted.
	<b>Time is displayed (point is flashing):</b> Water output is active. Additional coins can be inserted.
	<b>Zeit wird angezeigt (Punkt blinkt nicht):</b> Water delivery is stopped and can be started by pressing the button again. Additional coins can be inserted.
	<b>Display shows „COL“ (Cold):</b> Cold water is delivered.
	<b>Display shows „HyG“ (Hygiene)</b> The hygiene flushing is active. Please wait until the process is completed.

**Figure 4 :** Display overview

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 water delivery can be started. If further coins are inserted, the currently released time is indicated.

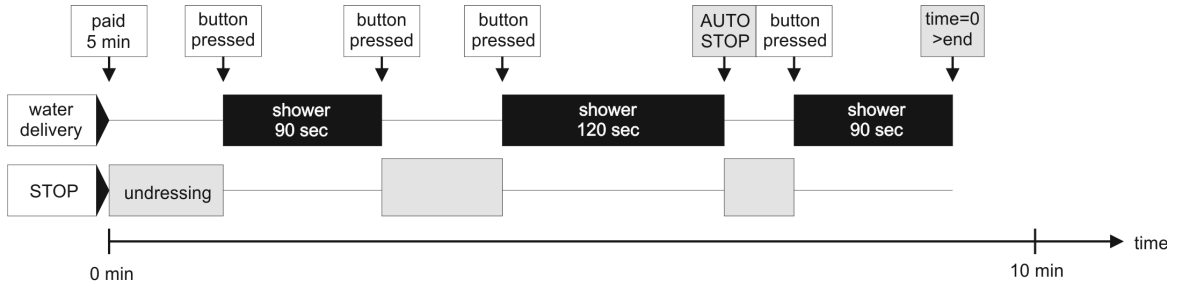
If the Start button is enabled (P26), the water delivery starts after pushing the button, if not water delivery starts after the minimum insertion has been reached. While the time runs down, the decimal point is flashing and the displayed remaining time is decreased. After the time has run out completely the display shows „0“ and the delivery is stopped.

The water delivery can be interrupted at any time by pressing the Start/Stop button. If Autostop time (P25) is set, the delivery will be stopped after this time. Press the button to restart the delivery for the remaining time.

An additional adjustable session time-out (P24) can be set to avoid an excessively long use. Should the delivery time and several stop times together exceed the set session time-out (P24), the remaining time will be deleted and the delivery is stopped.

Initial situation: Time = 5 min, Auto-stop = 120 sec, Session time-out = 10 min

Example 1: Normal operation without session time-out



Example 2: Operation with session time-out

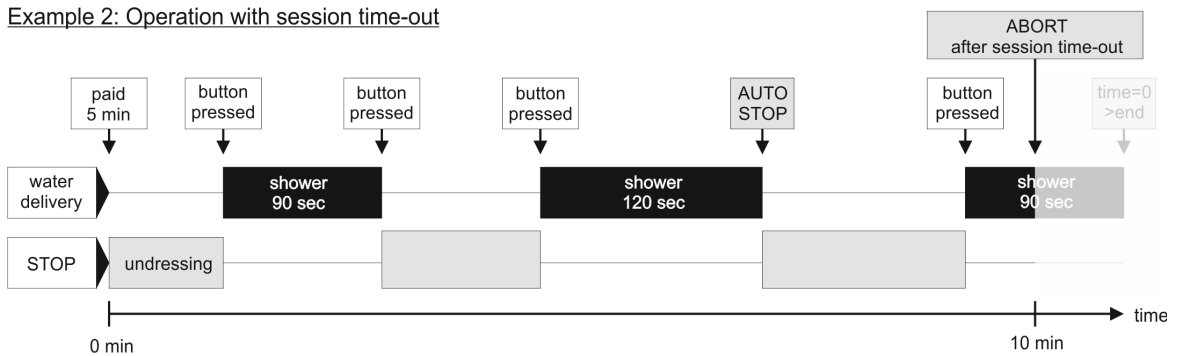


Figure 5: Example of the parameters "auto-stop" and "session time-out"

### 4.3 Flow control operation mode

In this operation mode, the time starts with the delivery of hot water. Once the delivery is interrupted, the time is stopped.

Session time-out (P24) is also available in this mode, see 4.2 for detailed description and examples.

### 4.4 Automatic hygiene flush

This function is used to automatically flush the lines. The automatic hygiene flush is activated when the unit has not been used for a specified time (P27). The duration of flushing is can be setup in P28.



## 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 run time 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.

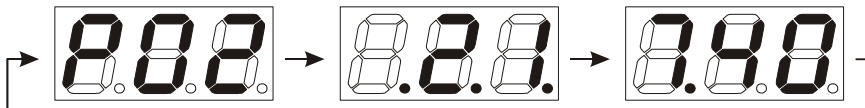


Figure 6 : Counter display for larger values

### 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 list EMS-8x-DU

No		Parameter name/Parameter explanation	Typ	Range
P01	EMS-81	<b>Cash counter 1</b> Counter is increased with each Coin (amount of coins).	Counter	0 to 99.999
	EMS-82	<b>Cash counter 1</b> 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	<b>Cash counter 2</b> (not erasable) counts as P01	Counter	0 to 99.999
	EMS-82	<b>Cash counter 2</b> (not erasable) counts as P01	Counter	0 to 99.999,99
P03	EMS-82	<b>Token counter 1</b> Counter is increased with each Token.	Counter	0 to 99.999
P04	EMS-82	<b>Token counter 2</b> (not erasable) counts as P03	Counter	0 to 99.999
P05		<b>Customer counter 1</b> Counter is increased on each device start.	Counter	0 to 49.999
P06		<b>Customer counter 2</b> (not erasable) counts as P05	Counter	0 to 49.999
P07	EMS-82	<b>Count token value</b> If ON, the token value (P08) is added to the cash counter P01 and P02	Switch	On/Off
P08	EMS-82	<b>Token value</b> Cash value of a single token	Operat.	0,01 to 599,99
P10		<b>Operating hours 1</b> Operation Hours in hours and minutes	Counter	0 to 99.999:59
P11		<b>Operating hours 2</b> (not erasable) as P10	Counter	0 to 99.999:59
P20	EMS-81	<b>Minimum insertion</b> Specifies the amount of coins, that has to be inserted at least.	Operat.	1 to 100
	EMS-82	<b>Minimum insertion</b> Specifies the amount of money, that has to be inserted at least.	Operat.	0,01 to 599,99
P21		<b>Time release</b> Specifies the time release on minimum insertion (P20).	Operat.	0:01 to 999:59
P22		<b>Maximum time</b> Specifies 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
P24		<b>Session time-out</b> Specifies the max. time of a single session including all stop times (for example see figure 5)	Operat.	0:01 to 999:59

No	Parameter name/Parameter explanation	Typ	Range
P25	<b>Auto-stop time</b> Specifies the seconds after which a water discharge is automatically stopped. After an auto-stop the unit can be restarted for the remaining time (for example see figure 5)	Operat.	0 to 240
P26	<b>Start button enabled</b> If ON, the input for the Start/Stop-Button is enabled.	Switch	On / Off
P27	<b>Hygiene flushing after non-use</b> Specifies the time after last use in hours when a hygiene flushing is started. 0 = no flushing	Operat.	0 to 23
P28	<b>Hygiene flushing duration</b> Specifies the hygiene flushing time in seconds. 0 = no flushing	Operat.	0 to 240
P29	<b>Cold water delivery time</b> Specifies the time of a free cold water delivery free of charge (not in flow control mode) 0 = no cold water delivery	Operat.	0 to 600s
P30	<b>Test mode</b> Test Mode of device can be started.	Switch	Start/Stop
P31	<b>In operation</b> If OFF, the device can be switched out of service (in case of failure).	Switch	On / Off
P32	<b>Storage</b> If ON, the remaining time will be saved in case of power failure, so that the operation is continued after the power failure. If OFF, the device is free after a power failure.	Switch	On / Off
P38	<b>Flow control operation mode</b> If ON, the time period begins with the removal of hot water.	Switch	On / Off



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## 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 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 Technical data

<b>Power source</b>	24 V AC - AC/50Hz
<b>Power consumption</b>	5W
<b>Max. switched power</b>	max. 16A /24V
<b>Operating temperature</b>	0 to 40 °C
<b>Operating humidity</b>	30 to 70 %
<b>Weight</b>	3,5kg
<b>Dimensions (B x H x T)</b>	162 x 260 x 110 mm
<b>Data retention in "off"-state</b>	20 years



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