



INSTALLATION AND OPERATING MANUAL

MAS 2.2–2.8 - Coin-operated control for 2 – 8 showers with option of end-use point

BASIC TECHNICAL INFORMATION

Type of coins:	0,1; 0,2; 0,5; 1; Euro tokens ZT 2,
Power supply:	12 V, 50 Hz
Power requirement of automat:	4 VA, 10 VA when inserting a coin
Adjustable time of water flow:	1s – 2,5 hrs. in 1 sec. steps
Adjustable total shower time:	1s – 5 hrs. in 1 sec. steps
Available shower panels:	SA 1.1 – subsurface shower unit for one pre-mixed water SA 1.TV – subsurface shower unit for hot and cold water with thermostatic valve SA 2.1 – wall-mounted shower panel for one pre-mixed water SA 2.TV – wall-mounted shower panel for hot and cold water with thermostatic valve
Water pressure:	0,1 – 1 Mpa (1-10 bar)
Power requirement of the shower unit:	5 VA
Recommended source of power supply:	ZAC MAS for up to 16 shower units – 2 x MAS 2-8
Weblink:	MAS 2

Coin-operated slot machine functions

- The vending machine MAS 2.2-2.8 is used for paid consumption of water in the showers. The operator can set any time of flow of water for any permitted coin. After insertion of more coins the set times are summarised. The user can start and stop flow of water using the button in the shower cabin. Ending delivery of water is indicated by pulsation of water flow.

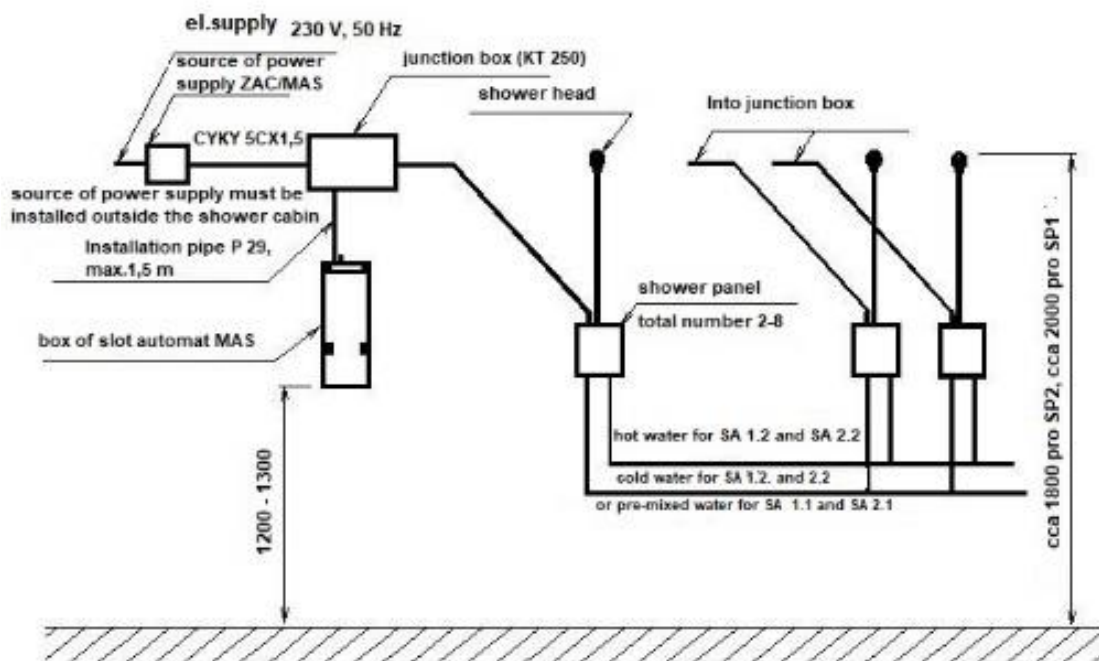
Placing of the slot machine

- Slot machine shall be install on place, where it is protected against splashing water and where access of steam, emerging from showering, is maximally limited (optimally in another room). Installation of slot machine in shower cabin is strictly prohibited.

Installation

Site preparation for assembly

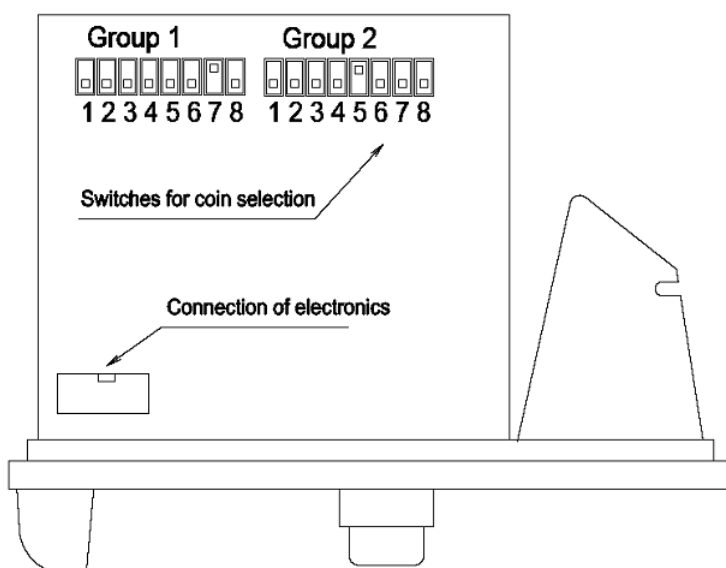
- Installation of pipes for distribution of water according to the fittings (shower mixing taps) used.
- It is advisable to install a filter for removal of dirt from water before the fitting or group of fittings. This increases reliability of function of the electromagnetic valves.
- Interconnection between the source and junction box using the cable CYKY 5C x 1,5 or other suitable cable with 4 wires to enable switching on all showers on the source regardless to the condition and setting of other elements (test of showers).



4. Interconnection between the slot machine and junction box using a flexible wiring conduit P 29 and between the junction box and shower fittings using the cable LiYY 5 x 0,34 of other suitable cable with at least 4 wires.
5. Walled in box of the slot machine flushed (at same level) with wall tiles or max. 20mm under the tiling surface. The input of the box shall be satiated on the top.
6. In case of use of the SA 1.1, SA 1.TV fittings the boxes shall also be installed as above (point 5) and an interconnection between the fitting and the outlet pipe arm shall also be made.
7. All boxes shall be covered with mounting sheets to protect them against penetration of dirt during completion civil works and all tiling shall be completed.

Assembly of coin-operated control

1. Dismount the cover sheet of the box MAS.
2. Unlock the lock, remove the door, screw out 2 cross-slotted screws on the frame cross bar and slide the slot machine including its electronics and supporting sheet up to the cross bar and remove the whole assembly.
3. Using the attached screws fix the frame to the box; use the sunk screws on the upper cross bar.
4. Connect the interconnecting cables between the junction box and slot machine. The flat 8-wire cables shall be connected to the relevant holders; thus connect K1 on the board in the junction box with K1 on the board of electronics in the slot machine box; the same shall be carried out with connectors K2.





- Connect the power supply boards of the electronics. It is necessary to observe polarity. The blue terminal on the board of electronics shall be connected to the blue terminal on the board in the junction box; the same applies with orange terminals.
- Connect the cable between the power supply source and junction box. The wires with 12 V supply shall be connected to the terminals marked 12V/50Hz, polarity is arbitrary. The remaining wires shall be connected to the terminals GND and A/N. Connection of these terminals using a switch on the supply source activates permanently all valves.
- With the switches for coin selection set the value of coins which should be accepted. Switches 1-5 in Group 1 are used for CZK (only for Czech market); switches 6 and 7 in Group 1 set the value of tokens (if tokens are chosen to be accepted). Switch no. 8 must be always in lower position (in operation). Switches 1-5 in Group 2 are used for Euro coins; switches 6-8 are unused.

Group 1											Group 2																								
1		2		3		4		5		6 7		6 7		6 7		6 7		8		1		2		3		4		5		6		7		8	
accepts	blocks	accepts	blocks	accepts	blocks	accepts	blocks	accepts	blocks	accepts	blocks	accepts	blocks	accepts	blocks	accepts	blocks	accepts	blocks	accepts	blocks	accepts	blocks	accepts	blocks	accepts	blocks	accepts	blocks	accepts	blocks	accepts	blocks		
1 CZK		2 CZK		5 CZK		10 CZK		20 CZK		token - 5 CZK		token - 10 CZK		token - 20 CZK		all tokens		in operation all blocked		0,05 €		0,1 €		0,2 €		0,5 €		1 €							

Explanation

- Coins of value of 20 CZK will be accepted if switch no. 5 of Group 1 will be switched on (in lower position). When switch no. 5 of Group 2 will be switched on, automat will accept coins of value of 1,0 €. In this case automat will be accepting coins of value of 20 CZK and 1 €. Other coins not selected will not be accepted and will be returned to the user.

Assembly of the shower panel

- In case of fittings installed under wall surface remove the cover sheets; in case of fittings type SA 1.1 install distance frames using screws M4x40 and large washers. The height should be chosen so that the outlet pipe arm SP2 is 1,8m above floor and the outlet pipe arm approx. 2m above floor.
- In the connecting terminal box of the fitting connect the control pushbutton in the shower and the electromagnetic valve with terminals in the junction box using a 4-wire cable as shown in the schematic diagram. The pushbutton shall be connected to triplet of the terminals S1 to S8 so that the pushbutton is connected to the upper and lower terminal and the middle terminal is not used. The polarity is arbitrary. The valves shall be connected to the terminals V1 to V8. The polarity is arbitrary. The valves are supplied with alternate (AC) voltage.
- Test the function and install covers with electronics. In case of fittings installed under wall surface seal the top and sides to prevent penetration of water into the fitting. Do not seal the bottom.

Warning:

- The operator must ensure that the water in the solenoid or thermostatic valve never freezes, otherwise they will be irreparably damaged. Water can be removed from the fittings, e.g. by blowing them out with pressurized air or by dismantling them and storing them in a non-freezing room.



Setting procedure

Setting of time

1. Switch on and off power supply. After the test procedure (sequential activation of all LEDs) the green LEDs will be lighted up.
2. Press the programming pushbutton that is accessible after removal of the coin magazine. The diode for the first shower starts green flashing.
3. Insert coins of the minimum credit. This means that programming using a coin 10 CZK does not enable take a shower for 5 CZK. Press the white pushbutton in middle of the slot machine and hold it pressed until the green diode of the first shower begins to be lighted up permanently. Total time of use of the shower begins its setting from this moment.
4. Press the pushbutton on the fitting in the **first** shower (other pushbuttons are interlocked during the programming period). Water starts flowing; colour of the lighted diode changes to orange and time of flow of water begins. When the set time expires, press again the same pushbutton. Flow of water stops and the time between the first and second pressing of the pushbutton will be the time for flow of water in all showers. Colour of the LED changes to green.
5. After the time considered as time of taking a shower press again the programming pushbutton. All diodes will be lighted up orange and then sequentially green and red and then remain lighted up green; this confirms that the slot machine is in its operating status.
6. Time between the first and second pressing of the programming pushbutton is time for taking a shower.

Switching off showers

1. Individual showers can be switched off permanently by setting the 8-pole DIP-switch next to the programming pushbutton. In case that the respective switch is in position ON, the corresponding shower is enabled and vice versa. The indicator light is off and when the pushbutton of the shower is pressed, nothing happens. After power supply switching on and off, the selected showers remain disabled.
2. Temporary disabling a shower, e.g. in case of a fault of the shower:
Switch off power supply, press the pushbutton of the respective shower (more pushbuttons may also be pressed at the same time) and switch on power supply. The pushbutton(s) shall be hold pressed for all the test time (flashing of LEDs). After completion of the test, only indicators of enabled showers will be lighted up. After repeated switching power supply on and off the slot machine returns to its original status and all showers are in operation, unless not switched off as in par. 1.

Non-paid operation

1. In case of a fault of the slot machine or requirement for non-paid flow of water the slot machine can be re-programmed for non-paid operation. It is necessary to press the programming pushbutton; the indicator of the first shower starts flashing and the pushbutton shall be hold pressed until all indicators are lighted up.
2. After pressing any pushbutton of a green-indicated shower, this shower is available to the user. Pressing the pushbutton in the shower starts flow of water and repeated pressing it stops. This can be repeated until expiration of the time that was programmed for minimum credit. After full consumption of water the shower is interlocked for the time that was set with programming (time between first and second pressing the programming pushbutton).
3. For change back to the paid operation it is necessary to switch on and off power supply, e.g. using the switch on the power supply source, or press the programming pushbutton; then press the white pushbutton on the slot machine and press again the programming pushbutton.



Counting of coins

- The slot machine can be equipped with a two-line display showing the inserted amount. The first line of the display can be reset to zero and used e.g. when passing on the shift. The second line cannot be reset and shows the total value of the coins inserted into the slot machine from the beginning of its use. Even when the display is disconnected from the connector, this value counting on the board of the slot machine continues and after reconnecting the display this value is shown. The coins used with programming are not displayed by the counter. The display may be connected to the connector only if power supply is off, otherwise the slot machine can be damaged.
- In case the slot machine is equipped with a display, this display is located behind the coin magazine. Removal of the magazine disconnects the micro-switch and re-installation of the magazine and insertion of a coin resets the first display line. Thus if the switch is pressed even repeatedly, the first display line is not reset; it is reset after insertion of the first coin that is naturally counted.

How to use the slot machine

- The user shall press the pushbutton at the free (green-lighting) shower. The indicator starts green flashing. Then the user shall insert one or more coins so that their sum is equal or higher than the preset minimum credit. Other coins that as required by the operator are not accepted and are returned. After inserting the required amount the pushbutton of the respective shower shall be pressed again. The indicator changes to permanent orange lighting and after pressing the pushbutton, water starts flowing and the indicator changes to red. Countdown of time of use of the shower and flow of water begins from this moment. In case that the pushbutton in the shower is not pressed within 4 minutes from pressing the pushbutton on the slot machine, time of use of the shower is also counted down. Water can be stopped whenever by next pressing the pushbutton in the shower. The indicator is still lighting red. Repeated pressing starts and stops flow of water. This procedure may be repeated without any limitation and times of flow of water are summed. In case that the sum of times reaches the time preset with programming or its multiple, if more coins are inserted, water flow stops. The last minute supply of water pulses to warn the user that water supply comes to its end. After pressing the pushbutton of the respective shower on the slot machine there may whenever be inserted other coin(s) to extend supply of water.

Cleaning and maintenance

Cleaning the valve

- Unscrew the three screws holding the coil.
- Take off the coil, remove carefully the plastic core cover, (be careful not to lose the spring).
- Remove the membrane and clean the space under it.
- Check the permeability of both holes in the plastic centre of the diaphragm and assemble the valve.
- When reassembling the valve into the fittings (if the valve has been removed) it is necessary to observe the direction of water flow through the valve. The valve does not close in the reverse direction. The direction of water flow through the valve is indicated by an arrow at the bottom of the valve.

Cleaning

- If the coin-operated machine is not accepting coins, the sensors in the coin path are probably dirty.
- After removing the front panel with coin box, the white button on the front of the coin box must be pressed.
- A door opens on the side of the coin box, which can be opened by hand up to a right angle in relation to the coin box.
- The area behind the door and the inside of the door can be cleaned with a damp - not wet - cloth.
- **Aggressive solvents (acetone, toluene, etc.) must never be used.**
- Clean the coin box only when the power is switched off.



General scheme of MAS 2.2 - 2.8 connection

