URINAL FLUSHING SYSTEM WITH MICROWAVE SENSOR

Installation & Maintenance Instructions

EMF303M
Enware's electronic urinal flushing systems provides a neat and reliable flushing solution using concealed microwave activation particularly suited for public access applications.

The sensor works through low density building materials allowing for a fully concealed installation.

**FEATURES**
- Microwave sensor control
- Mains power 24V
- Shut off valve, filter and airbreak included.
- 3 Star water efficiency rating
- 1-year warranty

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**Technical Information**

<table>
<thead>
<tr>
<th>Water Supply</th>
<th>350 kPa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connection</td>
<td>Inlet - ½&quot; BSP (15mm)</td>
</tr>
<tr>
<td>Minimum Water Supply Line Size</td>
<td>½&quot; (20mm)</td>
</tr>
<tr>
<td>Mains Powered</td>
<td>24V AC transformer</td>
</tr>
</tbody>
</table>

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To ensure the unit works correctly, it is important to ensure that the site and location of installation meets the requirements of AS/NZS 3500.1 & AS/NZS 3500.2.

In addition there must also be:
- Minimum 20mm copper supply line for 1 stall or up to 450mm wall space. 450mm of wall space may require 25mm supply.
- Minimum 220kPa for valve to operate. NOTE: WELS Flush Volume only achieved at 950kPa.
- No more than 1 valve per urinal OR 600mm wall space.
- Flush valve must be no more than 2.5m above ground level.
- Flush valve should be installed min 300mm above wall hung urinals and 450mm above continuous wall urinals

**Solenoid has ATS 5200.030 certification. To achieve ATS 5200.020 certification (EMF101) must be used.**

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**Product Codes**

**EMF303M-3**  WELS 3 Star rated*
1.2 INSTALLATION INSTRUCTIONS

Before proceeding with installation ensure all operating & dimensional specifications are suitable for the intended installation.

1.1 INSTALLATION COMPLIANCE REQUIREMENTS

Enware product’s must be installed in accordance with AS/NZS 3500.1 & AS/NZS3500.2 – Plumbing and Drainage, the Plumbing Code of Australia as well as imposed Local and State / Territory Legislative requirements and the manufacturers instructions.

The following clauses must be observed for a compliant installation and correct operation of Enware tapware:

**Water Services**

- Plumbing Code of Australia: Part B1 Cold Water Services
- AS / NZS 3500.1-2003 Water Services;
  - Section 3.3.2 Pressure at outlets (min 200kPa is required for valve to operate)
  - Section 3.3.4 Max. pressure within buildings (500kPa operating)
  - Section 3.4 Velocity Requirement (Max 3.0m/s)
  - Section 16 Testing and Commissioning: Flushing, Hydrostatic testing, cleaning & disinfection of water services.

**IMPORTANT TECHNICAL REQUIREMENTS**

To ensure that the unit works correctly, it is important to ensure that the site and location of installation meets the hydraulic requirements of AS/NZS 3500.1. Also there must be:

- No more than 1 valve per urinal OR 600mm wall space
- Minimum 20mm copper supply line for 1 stall or up to 450mm wall space. 600mm of wall space may require 25mm supply
- Minimum 200kPa for valve to operate
  - NO: WELS Flush Volume only achieved at 350kPa
- Flush valve must be no more than 2m above ground level
- Flush valve should be installed min 300mm above wall hung urinal and 450mm above continuous wall urinals

Pipe work to the valve fixture must be sized according to water service rule calculations and simultaneous demand requirements. To ensure that the pipeline reticulation system for the valve is designed correctly for the satisfactory performance of the valve a Hydraulic services Consultant and/or Engineer (or other personnel appropriately qualified in hydraulic services design) must be engaged.

1.2 INSTALLATION INSTRUCTIONS

1. Separate parts from packaging & check each part (figure 2.1). Parts will separate as shown in figure 1.3. Pay attention to the different models variations. Make sure all parts are accounted for before discarding any packaging material. If any parts are missing, do not attempt to install your flushing system until missing parts are obtained.

2. Flush water supply lines thoroughly before installing the flush valve. Do not allow dirt, Teflon tape or metal particles to enter the unit.

3. Shut off water supply and ensure shut off valve is closed on flushing system.

4. Decide on appropriate position for the sensor. It should be installed directly above the waste channel of the urinal. It is set to suit a ceiling height of between 2.4-2.6m. (Figure 1.1)
   - **Note:** sensor position can be moved when install is tested to ensure correct positioning. Activation should not occur at approx 300mm past the edge of the urinal
   - **Note:** power point must be close enough for transformer lead to reach sensor.
   - **Note:** sensor must be placed directly on plaster board, tile or similar. Metal will interfere with the sensor. No hole in ceiling required.
   - **Note:** sensor must be installed with LED facing upwards. Take note of installation information on the sensor.

**FIGURE 1.1**
5. Prepare the inlet pipe for installation. (FIGURE 1.2)
   Note: 20mm (min) inlet pipe with 1/2” BSP (male) adaptor required for install.

6. Connect the shut off valve and upper section of the union (as shown) (FIGURE 1.3 & 1.4)
   Note: If using EMFS10-Air Gap refer to image 1.7 on page 4.

7. Connect lower half of flush valve to union and spreader pipe (connection to sparge to suit urinal) (FIGURE 1.3 & 1.4)

8. Place the transformer near to electrical outlet and thread its lead to the sensor. Fit the leads from the transformer to the blue plug on the sensor. Hand tighten screws to complete connection, ensure screws are not over tightened. (Figure 1.5)
   Note: transformer MUST be accessible after installation.

10. Turn on water supply and check that there are no leaks. Ensure shut off valve is off again after test.

12. Plug microwave sensor spade connectors onto solenoid (FIGURE 1.6)

13. Plug in transformer. Turn on to test the operation of the valve. Sensor LED will glow yellow when sensor is triggered. If the valve clicks and resets, it is working. Ensure the transformer is turned off until after final connection.

14. Turn on water supply and test.
   Note: sensor will operate 50 seconds after being triggered. It will not re-trigger until 20 seconds after the start of each flush.
   Note: ensure unit does not trigger more than 300mm away from the edge of the urinal. Reposition if required.
   Note: sensor angle can be adjusted if required, see sticker on unit for details.
Figure 1.7: INSTALLATION OF AIR GAP EMFS10

- Air gap must be installed vertically to prevent leakage
- Fit air gap to solenoid (use thread tape or similar to seal)
- Fit sparge 25mm pipe to air gap.
2.1 EXPLODED VIEW

FIGURE 2.1

2.2 SPARE PARTS

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMS804</td>
<td>Solenoid 3/8&quot; 24V AC</td>
</tr>
<tr>
<td>ENMS123</td>
<td>1/2&quot; Strainer</td>
</tr>
<tr>
<td>EMFS304</td>
<td>Shut off valve</td>
</tr>
<tr>
<td>EMFS10</td>
<td>1/2&quot; Air Gap</td>
</tr>
</tbody>
</table>
3.1 SERVICE INSTRUCTIONS
Refer to trouble shooting chart to help determine specific problems. Spare part kits should be on hand before servicing the unit.

3.2 TROUBLE SHOOTING
Refer to the following trouble shooting chart for specific problems and solutions. Service instructions are supplied with spare part kits.

<table>
<thead>
<tr>
<th>FAULT / SYMPTOM</th>
<th>CAUSE</th>
<th>RECTIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensor Activates - water does not flow</td>
<td>Loose connection on leads</td>
<td>Reconnect electrical connections</td>
</tr>
<tr>
<td>Water supply not turned on</td>
<td></td>
<td>Ensure water supply is on and shut off valve is open</td>
</tr>
<tr>
<td>Dirty Filter</td>
<td></td>
<td>Turn off shut off valve. Open union and remove lower section of valve. Clean or replace filter.</td>
</tr>
<tr>
<td>Supply pressure issue</td>
<td></td>
<td>Ensure pressure delivered to unit is above 200kpa and below 500kPa (dynamic)</td>
</tr>
<tr>
<td>Water does not stop flowing</td>
<td>Debris or scale in the solenoid</td>
<td>Remove solenoid, pull out plunger and spring &amp; clean them. Use scale remover if required. When replacing plunger, ensure spring is in vertical position</td>
</tr>
<tr>
<td>Dirty Filter</td>
<td></td>
<td>Turn off shut off valve. Open union and remove lower section of valve. Clean or replace filter.</td>
</tr>
<tr>
<td>Supply pressure issue</td>
<td></td>
<td>Ensure pressure delivered to unit is above 200kpa and below 500kPa (dynamic)</td>
</tr>
<tr>
<td>Flush pattern not fully covering bowl</td>
<td>Supply pressure issue</td>
<td>Ensure pressure delivered to unit is above 200kpa and below 500kPa (dynamic)</td>
</tr>
<tr>
<td></td>
<td>Supply pipe inadequate size</td>
<td>Ensure supply is 20mm (minimum)</td>
</tr>
<tr>
<td>Too little water delivered</td>
<td>Supply pressure issue</td>
<td>Ensure pressure delivered to unit is above 200kpa and below 500kPa (dynamic)</td>
</tr>
<tr>
<td></td>
<td>Supply pipe inadequate size</td>
<td>Ensure supply is 20mm (minimum)</td>
</tr>
<tr>
<td></td>
<td>Trying to flush too large an area</td>
<td>Ensure no more than 450 wall space or 1 stall is being serviced by valve (25mm supply if covering 600mm of wall space)</td>
</tr>
</tbody>
</table>

3.3 FILTER CLEANING
This flush valve is provided with a stainless steel filter preventing foreign particles from entering the lines. If the water flow has decreased, this may be because the filter is clogged. They can be cleaned as follows:

1. Turn-off the water shut off valve
2. Disconnect flush valve at union and separate from spreader pipe
3. Remove the filter & wash it under running water. It may be necessary to replace the filter (spare parts can be ordered from Enware)
4. Reinsert the filter and refit the flush valve
6. Turn on the water shut off valve
7. Make sure that there is no water leakage