The Enviro-Fresh 7 day Universal Timer provides a new level of flexible control for automated urinal flushing applications. Designed and built in Australia, the product has been developed with the help of user feedback and for easy field programming and incorporates innovations that deliver flexible install configurations and more water savings for your customers.

**Features include:**

- **Versatile solenoid control**
  - AC, DC or mixed operation for common solenoids plus purpose built matching AC and DC solenoids designed to minimise power consumption.

- **Versatile power supply options**
  - Mains AC 24 Volts or DC 12 Volts or 9 Volt Battery.
  - Battery Backup for mains operation

- **Input Controls**
  - Holiday mode via remote switch
  - Local and Remote activated manual flush controls
  - Motion detector input for program override, default 1 flush per day.
  - Battery back up of user settings
  - Power up default program
  - 1 year battery life alkaline, 2 years lithium

- **Construction**
  - Waterproof IP55 rated enclosure

- **Software**
  - Simple to operate- software designed with a minimum of keystrokes suitable for non expert programming
  - Flexible operation-purpose built to support urinal flushing applications.
  - 7 day programable timer
  - Day of week, flushes per day, duration of flush programable.
  - Flush duration adjustable in 1 second intervals.
  - Preprogrammed user selectable flush cycle schedule matched to biological applications.
  - Default 1 flush per day
  - Display shows mode status for field maintenance.

- **Options**
  - PIR sensor- removes need for any programing except flush duration. Sensor detects person and then will flush 3 hours later. Detection is not re-enabled until timing period is finished. If no one is detected the system will revert to one flush per day.
  - Wireless Remote control to enable holiday mode or flush override
  - Concealed switching with magnetic key, to enable holiday mode or flush override
  - Solar Charging
  - External high capacity battery
CONFIGURATION INFORMATION

OVERVIEW

The 7 day universal timer provides a new level of versatility in control of automated urinal flushing. Designed from field experience and user feedback, this new generation Australian timer is easy to program but provides sophisticated features to save more water. The default programming is designed to support biological urinal systems.

The timer can be configured with a 9 volt battery for non mains operation or with either an AC or DC plug pack for operation when mains is available.

If running in battery only mode, full timer functionality is provided but advanced features like external Infrared detection are disabled to conserve battery life.

In battery or external 12 Volt mode, 1 DC 6 volt latching solenoid can be driven either the new EF-5.4 1” solenoid, EF 5.5 1/2” solenoid or ASCO type solenoids are suitable.

When configured as AC, a 24 Volt AC plug pack provides power for both the timer and operation of up to 3 24 Volt AC solenoids. An extra feature of this mode is the ability to also control 1 latching 6 volt DC solenoid for a total of 4 solenoids.

When running on mains power the extra optional timer features are available like remote and local test flush and holiday mode with remote sensor override.

The ability to flush the system remotely is great for cleaners or maintenance staff so that it is not necessary to provide a bucket to wash the urinal down. Various switch’s including wireless operation can be employed so that only authorised persons can flush the system.

Holiday mode can be enabled for businesses and especially schools so that the system will override the normal program and flush just once per day to keep biological systems active and save additional flushes.

The holiday mode can be enhanced by the addition of a PIR (passive infra Red) sensor similar to what you would see on a normal burglar alarm system. This will detect urinal use and override the programing for that day which means optimum water savings but no chance of the system under performing well when un-planned usage occurs.

For maximum water savings the timer can be set up to only respond to the PIR. This means it will flush at 3 hour intervals as long as people are detected. So for normal office hours of 7AM to 6PM the system will flush 4 times during the day and not at night.

9 VOLT BATTERY OPERATION FOR STANDALONE APPLICATIONS

The timer can be configured with a 9 volt battery for standalone, non mains operation, alkaline and Lithium batteries are supported for an operational life of 1-2 years.

If running in battery only mode, full timer functionality is provided but advanced features like external switches and Infrared detection are disabled to conserve battery life. 1 DC 6 volt latching solenoid can be driven either the new EF-5.4 1” solenoid, EF 5.5 1/2” solenoid or compatible ASCO type solenoids are suitable.

MAINS 24 VOLT OPERATION FOR AC SOLENOIDS

When configured as AC, a 24 Volt AC plug pack provides power for both the timer and operation of up to 3 AC solenoids or 1 DC latching solenoid or a combination of both.

Either solenoid only operation or full remote operation with optional PIR sensor is available.

MAINS 12 VOLT OPERATION FOR RETROFIT OF EXISTING 6 VOLT DC SOLENOIDS

For versatility the timer can also be powered from a 12 volt DC source, either mains plug pack or battery can be used and this mode is also intended for solar power applications.

CONNECTION AND PROGRAMING.

Programing instructions are shown on the following pages and are simple to follow. Out of the box the timer defaults to flushing 4 times per day Monday to Friday and once per day for Saturday and Sunday. All that is required is to set the time and day, connect the solenoid and the system is ready to go.

Connections are simple and each mode is clearly shown in the accompanying wiring diagrams.

Connection of a 240 volt AC power point must only be done by a licensed electrician but connection of the AC 24 volt wiring or 12 Volt DC wiring is safe and can be done by the plumber at time of installation.

Please note: When using 12 Volt DC plug packs as a power source, polarity of the connection must be observed or damage will result.
# 7 Day Universal Timer

## Ordering Information

### 7 Day Universal Timer Options

<table>
<thead>
<tr>
<th>Description</th>
<th>Part #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Universal 7-Day timer 9V DC – Battery (Alkaline) Single Valve (No Mains Power)</td>
<td>EF-4.6</td>
</tr>
<tr>
<td>Universal 7-Day timer 240 Volt AC – 24V AC Power pack and DC Battery Back Up – Single Valve, (Mains Power) - will run 1, 2 or 3 valves.</td>
<td>EF-4.7</td>
</tr>
<tr>
<td>(NEW) 1&quot; BSP Solenoid Valve Latching Male to Female 24V AC OR 6 - 40V DC - 100 litre per min * - Specify AC or DC</td>
<td>EF-5.4</td>
</tr>
<tr>
<td>(NEW) 1/2 BSP Solenoid Valve Latching 20 - 1200 KPA c/w strainer *</td>
<td>EF-5.5</td>
</tr>
<tr>
<td>1/2&quot; BSP Solenoid Valve Male to Female 24V AC 20 - 1,000 KPA c/w strainer *</td>
<td>EF-5.2</td>
</tr>
<tr>
<td>3/4&quot; BSP Solenoid Valve Male to Male 24V AC 20 - 1,000 KPA c/w strainer *</td>
<td>EF-5.3</td>
</tr>
<tr>
<td>Power pack - 240/24AC (1 AMP)</td>
<td>EF-4.17</td>
</tr>
<tr>
<td>5m - Twin Cable Figure 8 Red/Black cable</td>
<td>EF-4.14</td>
</tr>
<tr>
<td>10m - Twin Cable Figure 8 Red/Black cable</td>
<td>EF-4.15</td>
</tr>
<tr>
<td>Cable Kit - inc 2m cable and 1 x EnviroLok</td>
<td>EF-4.18</td>
</tr>
<tr>
<td>Test Button (Switch)</td>
<td>EF-4.10</td>
</tr>
<tr>
<td>Sensor PIR</td>
<td>EF-4.11</td>
</tr>
</tbody>
</table>

* All equipment is Watermarked and approved for Australian installation

Available From:
**FLUSH VALVE CONTROLLER OPERATING INSTRUCTIONS**

This controller has been preprogrammed to cater for the most common office and school applications. Once the time and weekday has been set the controller will automatically operate on a default schedule. To cater for different applications the flush cycle and duration may be adjusted accordingly.

To conserve battery life the controller will enter sleep mode 30 seconds from the last key pressed. You must press the “S” key first to wake the controller up before you can view or adjust the settings.

### 1: Time and Weekday

**To View**

Press and RELEASE to view the hours. Repeat for minutes and week day.

The dot on the bottom RH corner is used to identify the step you are viewing.

**To Edit**

1. Hours: 08 = 8am No Display
2. Minutes: Dot on RHS
3. Weekday: 1 = Monday

Step 1: To edit press and hold until the display flashes.

Step 2: Adjust if required using the “-” or “+” keys.

(Or advance to the next step using the “S” key)

Step 3: Advance through the steps using the “S” key: the last step will exit edit mode.

### 2: Flush Cycle

**To View**

Press and RELEASE to view day. Repeat for days 1 - 7.

The RHIS shows the weekday (1 = Monday - Sun) The LHIS shows the flush cycle 1 - 9 = Programs available; see table 1.

The dot on the bottom LH corner is used to separate the week day from the program number.

**To Edit**

1. Program: 1 = Monday
2. To edit press and hold until the display flashes.
3. Adjust if required using the “-” or “+” keys.

(Or advance to the next step using the “S” key)

Advance through the steps using the “S” key: the last step will exit edit mode.

**Table 1: Flush Cycle Schedule**

Default M - F = 4
Sat & Sun = 1

<table>
<thead>
<tr>
<th>Program</th>
<th>1st Flush</th>
<th>2nd Flush</th>
<th>3rd Flush</th>
<th>4th Flush</th>
<th>5th Flush</th>
<th>6th Flush</th>
<th>7th Flush</th>
<th>8th Flush</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>2</td>
<td>7am</td>
<td>7pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>7am</td>
<td>2pm</td>
<td>9pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>7am</td>
<td>11am</td>
<td>3pm</td>
<td>7pm</td>
<td></td>
<td></td>
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<tr>
<td>5</td>
<td>7am</td>
<td>11am</td>
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<td>7pm</td>
<td>11pm</td>
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<tr>
<td>6</td>
<td>7am</td>
<td>10am</td>
<td>1pm</td>
<td>4pm</td>
<td>7pm</td>
<td>10pm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>6am</td>
<td>9am</td>
<td>12pm</td>
<td>3pm</td>
<td>6pm</td>
<td>9pm</td>
<td>11.59pm</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>3am</td>
<td>6am</td>
<td>9am</td>
<td>11am</td>
<td>2pm</td>
<td>5pm</td>
<td>8pm</td>
<td>11pm</td>
</tr>
</tbody>
</table>

### 3: Flush Duration

**To View**

Press and RELEASE to view the flush duration.

**To Edit**

1. To edit press and hold until the display flashes.
2. Adjust if required using the “-” or “+” keys.

(Or save and exit using the “S” key)

Save and exit using the “S” key.

### 4: Program Override

Press and hold together until the display flashes. The display will count down to zero. Then return back to the flush duration setting.

**Program Example**

<table>
<thead>
<tr>
<th>Flush Cycle</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>08</td>
</tr>
<tr>
<td>2</td>
<td>24</td>
</tr>
<tr>
<td>3</td>
<td>34</td>
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<td>44</td>
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<td>5</td>
<td>54</td>
</tr>
<tr>
<td>6</td>
<td>61</td>
</tr>
<tr>
<td>7</td>
<td>71</td>
</tr>
</tbody>
</table>

Mon to Fri: 4 Flushes 7am - 7pm (As per table 1)
Sat: 1 Flush at 1:00pm (As per table 1)
Sun: 1 Flush at 1:00pm (As per table 1)
Duration: 8 seconds.
**FLUSH VALVE CONTROLLER OPERATING INSTRUCTIONS “ADVANCED”**

This controller has Three distinctive modes of operation, BASIC, HOLIDAY and MOTION.
The dip switch setting and wiring of the external inputs will determine the operation.

**NOTE: ADJUSTMENT TO THE DIP SWITCH SETTINGS MUST ONLY BE DONE WITH ALL POWER DISCONNECTED (BATTERY INCLUDED) THE POWER MUST REMAIN OFF FOR AT LEAST 2 MINUTES FOR THE CHANGES TO REGISTER.**

**BASIC MODE** (Switch Setting 1 = Off, 2 = Off)
1. Follows the programed time schedule.
2. Enters Sleep mode after 30 seconds of inactivity.
3. Relay output disabled.
   **Intended for applications requiring maximum battery life.**
5. No display after 30 seconds.

**Note:**
For a simple time schedule function using an external power supply and the relay output, use the HOLIDAY MODE setting.

**HOLIDAY MODE** (Switch Setting 1 = On, 2 = Off)
1. Follows the programed time schedule.
2. If the circuit across external Input “1” and “-” is closed, program 1 of the time schedule is followed.
3. Sleep mode is disabled.
4. Relay output enabled.
5. External manual flush enabled.

**External Power Supply Required.**
**Intended to provide one only flush operation per day (program 1) when the occupants are on holidays.**
After 60 Secs. “E” will initially be displayed to signify the controller is selected to follow an external input.
“H” will be displayed to signify the circuit across external Input “1” and “-” is closed and controller is in holiday mode.

**MOTION MODE** (Switch Setting 1 = Off, 2 = On)
1. If the circuit across external Input “1” and “-” is closed program 1 of the time schedule is followed. (Holiday Mode).
2. If the circuit across external Input “1” and “-” is opened, for a period greater than one second, a timer is set for 3 hours (Approx).
   At the end of the 3 hour period a flush operation will occur and the 3 hour timer will be reset.
3. Sleep mode is disabled.
4. Relay output enabled.
5. External manual flush enabled.

**External Power Supply Required.**
**Intended to provide one only flush operation 3 hours after motion is detected.**
Where no motion is detected, one only flush operation will occur for that day. (program 1)
After 60 Secs. “H” will initially be displayed to signify the controller is in holiday mode.
“d” will be displayed to signify the motion detector has triggered the 3 hour delay timer.

**External Manual Flush** (Disabled in BASIC MODE)
1. If the circuit across external Input “2” and “-” is closed, a flush operation will occur.
   **Note:** The switch for "External Manual Flush" must be a momentary action e.g. Press and release.

**Battery Link**
The 9VDC battery may be used to supply the controller and 1 x DC latching solenoid, or as a battery support to an external power source e.g. Plug Pack.

To operate standalone (Battery Only) set the battery link across the center pin and the pin labeled BAT.

**BAT/AUX**

To use the battery as a backup to an external supply e.g. Plug Pack set the battery link across the center pin and the pin labeled AUX.

**BAT/AUX**
9VDC Battery Only

Connection of DC Latching Valves
These valves MUST be connected with the correct polarity. Failure to observe this will result in incorrect operation. Normally the timer will be pre configured but if not simply make sure that Plus (+) and Minus (-) connections on the timer board match the corresponding solenoid + and -. If a moulded connector is supplied it will be wired so that the black trace wire is always minus (-).

9 Volt DC Battery only
1. Connect the prewired moulded connector to the solenoid body making sure the connector is orientated correctly as shown in the diagram. Automotive crimp connectors can be used as an alternative making sure polarity is observed.
2. Run the wire through the cable gland, depress the white lever connector and insert the wires into the “+” and “-” holes as shown in the photo making sure that wire with the black trace is connected to the minus (-) connector as printed on the board.
3. Confirm switch and jumper settings are correct for this mode as shown in the diagram. NOTE: if switch settings need to be changed after the battery is connected, the battery needs to be removed for a period of at least 2 minutes to allow the system to reset. When the battery is reconnected, the switch settings will be read correctly.
4. Connect a fresh 9 volt battery to the battery connector. Alkaline or lithium batteries can be used but be ware that lithium batteries often have a larger body and may not sit beside the board. In this case just wrap some tape or plastic around the battery to prevent the metal body from coming in contact with the board components.
5. Wake the timer up by pushing the “S” button and follow procedure to set time and day as shown on page 4 of this manual.
6. If the default program (4 flushes Monday to Friday, 1 flush Saturday and Sunday) is sufficient, no further programing is necessary except to check flush duration.
7. Initiate a test flush by pushing the “S” and “-” buttons for 5 seconds.
8. The timer is now set up, reinstall case cover and secure enclosure on to flat surface or cable tie to a suitable support.