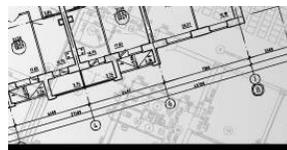




WARDEN

Building Management Systems



MACDONALD
INDUSTRIES LIMITED

ZURN.COM.AU

WARDEN 2

APPLICATION:

Warden 2 is a multi-function electronic water control system that can be pre-programmed to deliver water savings on WC flushing, showers and basins.

Using ultra reliable piezo electric switching, Warden will determine the frequency of use, delays between use and, if necessary, provide long lock outs after use where institutional installations demand this sort of functionality.

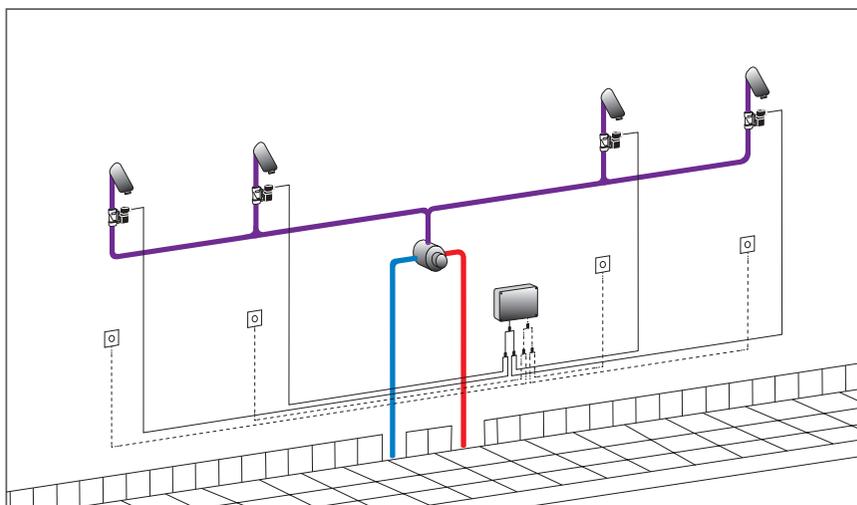
Developed for use in correctional facilities, Warden 2 has now become an accepted method of controlling water in:

- > schools
- > parks
- > public ablutions
- > camping grounds
- > swimming pool complexes

Warden 2 has 4 Inputs/Outputs (I/O) which can be linked to any fixture and pre-programmed to suit the customer's needs. For instance, all 4 I/O can be used to run 4 showers. Alternatively it could be used to control 2 x dual flush flushing valves. The choices are tailored to the customer deciding on what they want to control and how.

Warden's multi-purpose functionality doesn't stop there – Warden 2 has a series of 8 DIP switches which allows on-site adjustments of fixture run times. e.g. showers may be given up to 4 different run times and 2 dead times (delays after use), which can be set on site if the chosen times are not ideal. This means the customer can amend the settings themselves to suit environmental changes that may occur.

Warden 2 controls fixture, timing and use but does not control flow volume or temperature. It is vital to select products that compliment Warden 2 by offering stable water temperature and flow regulation.



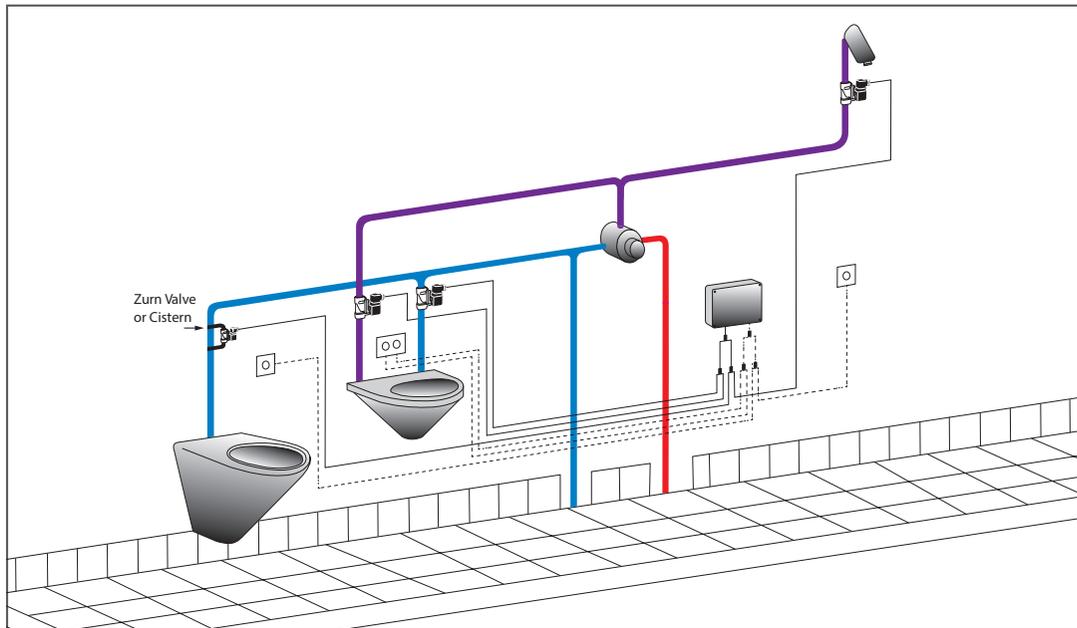
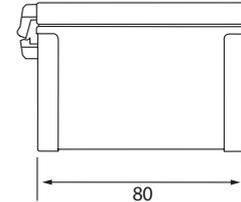
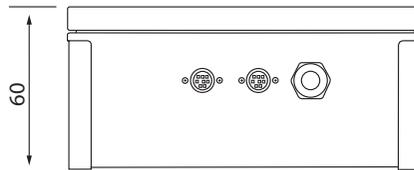
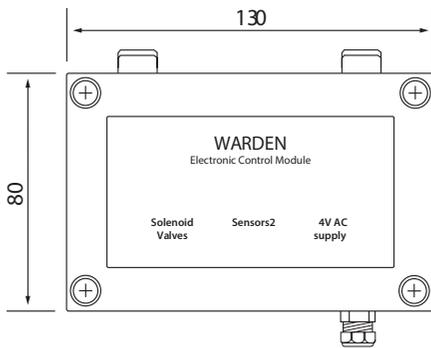
WARDEN 2



PROGRAMMING:

Warden 2 is a stand alone product that can be programmed to suit a customer's needs. Because of its flexibility in programming it requires personal attention between the customer and ourselves. Warden 2 can limit the use of fixtures in many ways. It limits run time and frequency of use and provides maximum number of uses within a specific time period.

The Warden controller and transformer are common to all installations. However, valves, switches and cabling need personal detailing to connect the fixtures that are to be installed. Each Warden installation is custom made and the outcome should be discussed with a Zurn Australia representative to ensure the best choices are made.



To complete the Warden installation, additional fittings may include:

- > shower heads
- > basin bubblers or spouts
- > water hammer arrestors
- > flushing valves or cisterns
- > thermostatic mixing valves
- > line filters and isolating valves

WARDEN 4

Warden 4 is a 5 Inputs/Outputs (I/O) controller that is mostly used for high security applications such as prisons and police stations. Like Warden 2 it can control WC'S, basins and showers.

Most prison cells require control over WC flushing, hot and cold water to basins and time control over the shower. Warden 4 will allow additional features because of the 5th I/O. This means it would be possible, for example, to have a dual flush WC using the additional I/O.

Warden 4 has 5 I/O which can be linked to any fixture and pre-programmed to suit the customer's needs. For instance, all 5 I/O can be used to run 5 showers.

Warden 4 also has the capability of connecting through a Warden network to a PC screen giving management the ability to isolate cell water should the need arise.

MODELS:

WA4-100

Single cell, 5 I/O controller allowing control over water vessel (WV) flushing, mixed water (MW) and cold water (CW) to basin and shower. 5 I/O is a spare option allowing 1/2 flush on WC or other purpose (e.g extract fan switching) if required.

WA4-200

As per WA4-100 but suits two cells. Ideal for two cells that back onto a common duct.

SPECIFICATIONS:

Each control module is specified as above to suit the application. The following items need to be specified separately according to the design criteria:

- > WC flushing valve
- > solenoid valves
- > thermostatic mixer
- > shower head
- > basin bubbler
- > cables from Piezo switch plate to control module
- > cables from solenoid to control module
- > low voltage cables from light switches to control module
- > high level interface control system



WARDEN 5



Model WA5-W2



Model WA5-PLW2
Power, lighting & water to cell
control module

WA5 is a new generation Warden control system, developed from the ground up to have the potential to not only control water usage but also to become a power and lighting distribution system

Whilst it's purpose is still to control water to a prison cell it has additional I/O plus it is generally supplied as a WA5-WTR2 which can serve two adjacent cells thus reducing the footprint within the cell duct.

Like Warden 4, Warden 5 can be connected to a PC to allow remote control of fixtures. This allows the staff to monitor cell water use, determine possible plumbing faults, isolate water to cells or cell blocks or change the pre-set program times.

WA5-PLW2 not only controls water but provides cell lighting and power control. Thus Warden 5 becomes more than just a means of plumbing control, it is now a management tool.

Options include:

- > WA5-W1 - single cell water only control
- > WA5-W2 - two cell water only control
- > WA5-PLW1 - single cell power/lighting/water control
- > WA5-PLW2 - two cell power/lighting/water control

Any of these systems is capable of being connected to either the BMS (MODBUS enabled) or to Warden's standalone High Level Interface (HLI) giving the staff the ability to isolate water, power and lighting separately or as one, to each or all of the cells under their control.

POWER & LIGHTING:

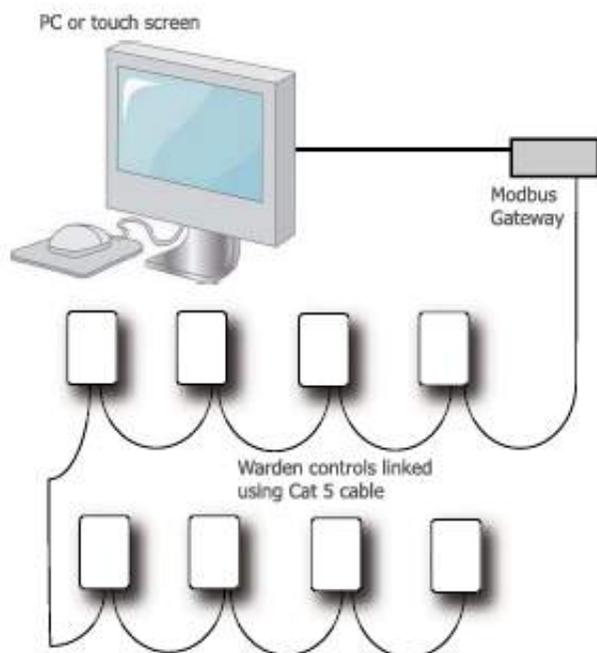
Traditionally power and lighting has had limited control at security level. Often multiple cells are supplied off the same circuit and any fault results in multiple cells being affected. By bringing power and lighting within Warden control, individual cells can be controlled from the Warden High Level Interface screen, giving staff the ability to:

- > isolate cell power and/or lights should dangerous situations occur;
- > isolate power should the inmate refuse to limit cell radio or TV use or noise levels; and/or
- > turn lights off at specific times if required.

Warden WA5-PLW has lighting and power protection (RCBOs) to ensure the most determined inmate will cause only immediate circuit isolation. Although power points have, as standard, 10A circuit breakers, lower current rated MCBs can be fitted on power point supply to prevent misuse of power sockets.

The Warden WA5-PLW control system uses extra low voltage 2 core cables to switch lights, allowing high voltage supply to be taken away from switches. It also enables either piezo or toggle switches to be used, depending on the clients preference. Toggle switches can be rocker or momentary. Priority switching is possible with Warden WA5-PLW enabling exterior cell switches to over-ride interior switches. Check (blue) lights can be timed to ensure they always switch off after the prisoner has been checked.

CONTROL FEATURES



HIGH LEVEL INTERFACE:

Warden 4 and 5 use a high level interface control system that can be linked back to a PC or touch screen computer for ultimate control over all services within a building facility.

The Warden control is a Modbus based control system (see image) using industry standard TCP/IP design principles and 10/100 Base-T Ethernet wiring design. The primary design layout allows up to 34 x Warden controllers to connect together using standard Cat 5 cabling in a “daisy-chain” configuration. These 34 Warden controllers feed back to a Modbus gateway which can then either be connected to a standalone Warden control panel (optional touch screen or PC) or to the BMS if preferred.

Multiple Modbus gateways allow for unlimited Warden controllers to be linked together.

Because every project is different, Warden high level interface is tailored to suit the layout and the clients needs.

SCREEN DESIGN:

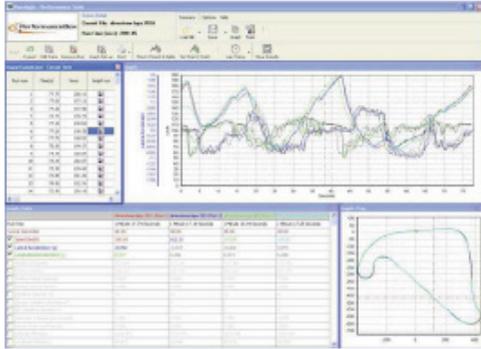
The software used is of industry standard with the high level interface being tailored to suit each project. It allows users to easily navigate through the program with recognisable icons.

It can be password protected in areas where some restrictions are warranted and specific screens can be given priority over others if necessary. For example, maintenance staff want to shut down a cell and need certainty that no other person can over-ride their control.



E.g cell view

FITTING OPTIONS



DATA LOGGING:

When installed as a complete system, Warden control can provide data logging of water use within each cell.

This can provide only approximate water consumption based on expected flow rates of each fitting and known run times. It will however, allow historical comparisons on water savings that could be achieved through management changes to cell water use.

The data collected can be stored and used in Excel spreadsheets or data processing software such as Microsoft Access or similar.

PIEZO SWITCH PLATES:

Each piezo switch plate is made to order depending on the cell layout and clients specification.

In general terms, plates are 120 x 120mm and are rivetted to an inwall mounting box (Clipsal 164/2 or similar by others) once Warden has been commissioned. The plates can have anything from 1 - 4 piezo switches mounted on them and are etched to suit the button layout. 5 or 6 button plates use the Clipsal 164/3 inwall box. All boxes (supplied by others) should be cast into walls with fixings positioned top and bottom of the box.

Piezo switch plates are made from 1.6mm #304 stainless steel and coloured 16mm anodised aluminium buttons to suit application.

All wiring to switch boxes should pass through conduit where passing through a wall.



3 button piezo switch plate



5 button piezo switch plate

FITTING OPTIONS



Toilet Pans



Jafe Safe Dome Basin Outlet



Vandal Resistant Shower Rose



Flush Valves



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