Prefect Cleverly simple **control** of energy.

# *irus* LEAK DETECTION & WATER WASTAGE

***irus*** can detect water escape. Whether a leaking pipe or a faulty piece of equipment such as a toilet cistern or dripping tap. A range of ancillary devices communicate with the central control system, and when a leak or wastage is detected, alerts are sent. Valves can be instructed to close, which stops further supply of water from entering the system.

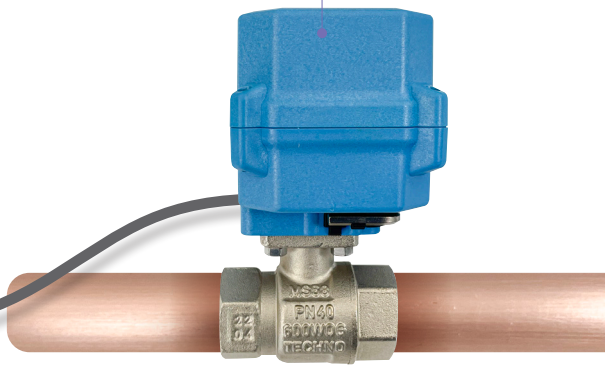
# *irus* keeps buildings safe by monitoring leak detection pads and pipe sensors, and automatically sending alerts while closing off water supply.

**Leak Detection Control Unit**

- The **LEAK DETECTION CONTROL UNIT** is positioned close to the sensors. When a leak is detected it communicates with the Irus Portal using MBS (Mains Borne Signalling).


- Leak detection components are **ROBUST,** capable of withstanding challenging environments.

- The **AUTO SHUT-OFF VALVE** will isolate the supply to the cylinder when a leak is deemed to be over the pre-set leak threshold.



**Auto Shut-Off Valve**

Mains electricity supply

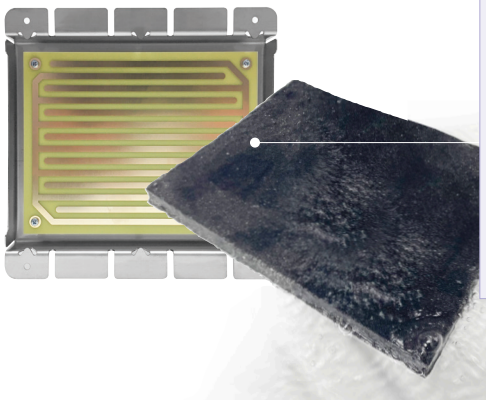
Switched fused spur

- The **IRUS PORTAL** can be accessed from any internet enabled device. The status of each sensor and valve can be checked remotely. Profiles can be altered, and the environmental conditions of a sensors location viewed i.e. humidity, light, sound pressure and temperature.


- The **INTENSITY OF THE LEAK** is calculated and a priority rating given, depending on the severity.

- The **LEAK DETECTION SENSOR** is strategically positioned in areas where leaks are most likely to occur. For example, in cylinder cupboards, under sinks in kitchens or in the vicinity of showers.


**Leak Detection Sensor**



- On the underside of the **LEAK DETECTION SENSOR** there is a low voltage track and a high density open cell foam pad for liquid absorption. Slow uptake of liquid avoids tripping, unless a sustained leak occurs. The controlling node will then send alerts.

- The **IRUS SMART TANK** has integrated leak detection connectivity for the addition of a Leak Detection Sensor.

# There are three levels of action that Irus can take to minimise damage when leaks are detected.

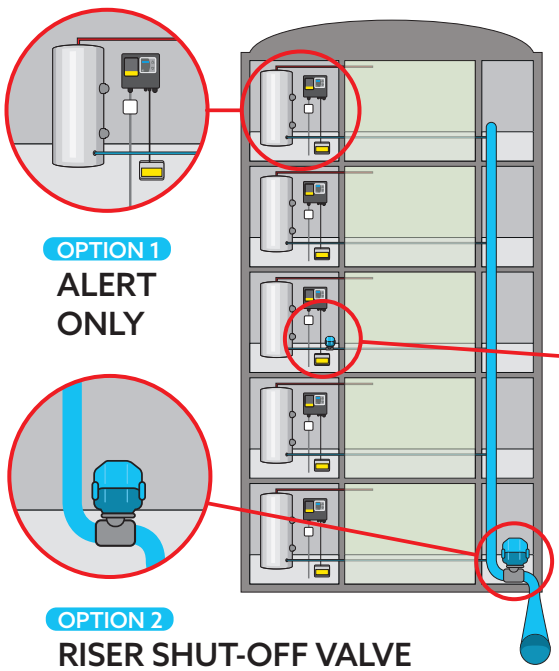
For all options, **LEAK DETECTION SENSORS** (LDS) are positioned where leaks are most likely to occur. They are connected to the **LEAK DETECTION CONTROL UNIT** (LDCU). When a leak occurs, a signal is sent to the LDCU which confirms the leak over a pre-specified verification time (usually 2 minutes). When confirmed, the Irus Portal sends an alert in the form of either email, SMS or both, to designated addresses and numbers detailing location and intensity of the leak.

**OPTION 1**
**ALERT ONLY**

This option simply identifies and verifies a leak, then alerts designated email and SMS contacts.

**OPTION 2**
**RISER SHUT-OFF VALVE**

An Auto Shut-Off valve is installed on the incoming cold water supply for each wet riser core. They have the capability to isolate the riser should a leak be detected by any of the sensors.




- **SMS** or **EMAIL MESSAGES** or both, are sent to designated personnel detailing the location and intensity of the leak.

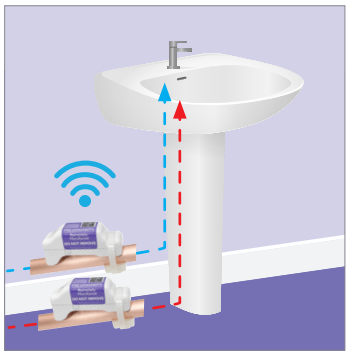
**OPTION 3**
**INDIVIDUAL CYLINDER VALVE SHUT-OFF**

Auto Shut-Off valves are installed on the incoming cold water supply for every cylinder. These are instructed to switch off the supply when leaks are detected.

## **Water wastage** and temperature monitoring

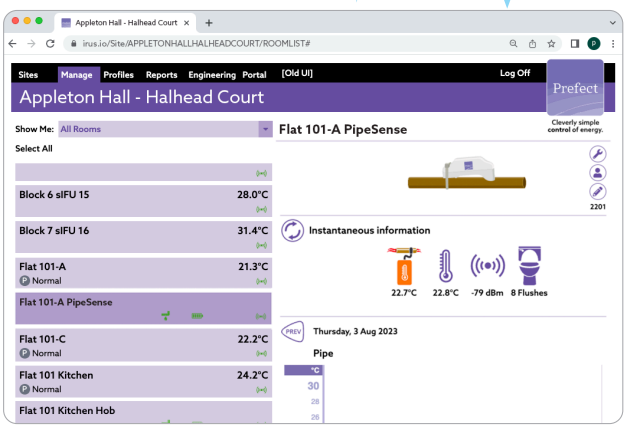
Water scarcity is becoming an issue. Saving unnecessary consumption can have a significant effect on the bottom line of businesses that provide multi-occupancy dwellings. If left unchecked, dripping taps and faulty cisterns are major contributors to significant water wastage. While remote temperature monitoring takes the legwork out of water safety testing.

- **PIPESENSE** attaches to hot and cold water pipes. It has two roles in the Irus system. A **WATER-FLOW SENSOR** and a **THERMOMETER.** Inside PipeSense, two sensors measure the pipe temperature, ***and*** the ambient room temperature. If the pipe is hotter or cooler than the air, this indicates water is flowing through the pipe.




- **PIPESENSE** reads water temperatures in pipes at outlet points i.e. hot or cold taps.

- A Bluetooth transmitter within PipeSense communicates with the **IRUS CONTROL UNIT**, which in turn sends data to the Irus Portal.

# *irus* LEAK DETECTION & WATER WASTAGE

## Equipment


The Prefect Irus **MASTER INTERFACE UNIT** (MIFU) sends and receives data to all nodes on site. The MIFU connects to Secondary Interface Unit (SIFU) which takes the signal and re-transmits the data onto the mains network where it is received by the control units. Data is then sent back through the mains network to the SIFU and transmitted to the MIFU where it is securely stored and uploaded to the web portal. The MIFU can be remotely managed allowing for service work, updates and troubleshooting without the need to visit site.

### SECONDARY INTERFACE UNIT

The **SECONDARY INTERFACE UNIT** (SIFU) is the intermediary between the Control Units (CU) and the Master Interface Unit (MIFU). The SIFU is connected to the MIFU via Category 5 cabling along which data is sent. The SIFU takes this data and injects information in packets into the mains network using mains borne signalling technology (MBS). Data is also received from the room node through MBS, this data is then sent to the MIFU. Multiple SIFUs are used in series to cover all areas of the building where control units are required.

### LEAK DETECTION CONTROL UNIT

The **LEAK DETECTION CONTROL UNIT** (LDCU) works alongside the Leak Detection Sensor and a shut-off water valve, to stop leaks. The LDCU is programmed to close the water valve when a leak is detected either by its own leak detection pad or that of another control unit. The LDCU has a simple 4 wire connection to the automatic shut off valve (ASOV). The LDCU reads the valve position so the system can tell whether the valve is open or closed. The system knows if the valve has been manually overridden.

### LEAK DETECTION SENSOR


The **LEAK DETECTION SENSOR** (LDS) is a simple innovative solution for detecting leaking water tanks and associated plumbing. The sensor is completely low voltage. Water channels on every side of the sensor allows liquid to enter from any orientation. The sensor has a high density open-cell foam pad for liquid absorption. With a slow uptake of moisture the sensor will not trip unless a sustained leak is present. Completely reusable, once the detection area is dry the sensor will automatically reset.

### AUTO SHUT-OFF VALVE

The **AUTO SHUT-OFF VALVE** (ASOV), when used in conjunction with the LDCU and LDS control, removes the risk of severe water damage by cutting the water supply to the hot water cylinder or entire building. This simple and robust actuator offers a compact actuated valve solution with on/off and fail-safe functionality. The valve allows quick and reliable cold-water shut off to protect the buildings infrastructure. A manual override provides building personnel the ability to reinstate flow manually in case of fault or power failure.

### PIPESENSE

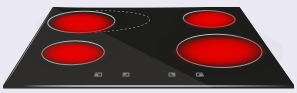
**PIPESENSE** measures the difference between the water pipe temperature and the ambient room temperature. PipeSense can detect as little as 5 litres of wastage per hour. The sensor is designed to work at room temperature (around 20°C/68°F). The temperature of the pipe is lowered as water runs through it. This differential between room and pipe temperature is what generates the alert either by sounding an audible 'beep', or sent via Bluetooth to a connected gateway.

## *irus* overview

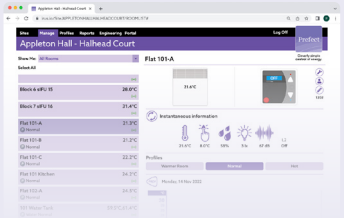
Irus is a building energy management system,
centrally controlled via a dedicated, secure internet portal.

Room Heating Control and Environmental Conditions Monitoring

Hob Safety Control




Central Control




Water Monitoring, Heating, and Control

Leak Detection and Water Wastage

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