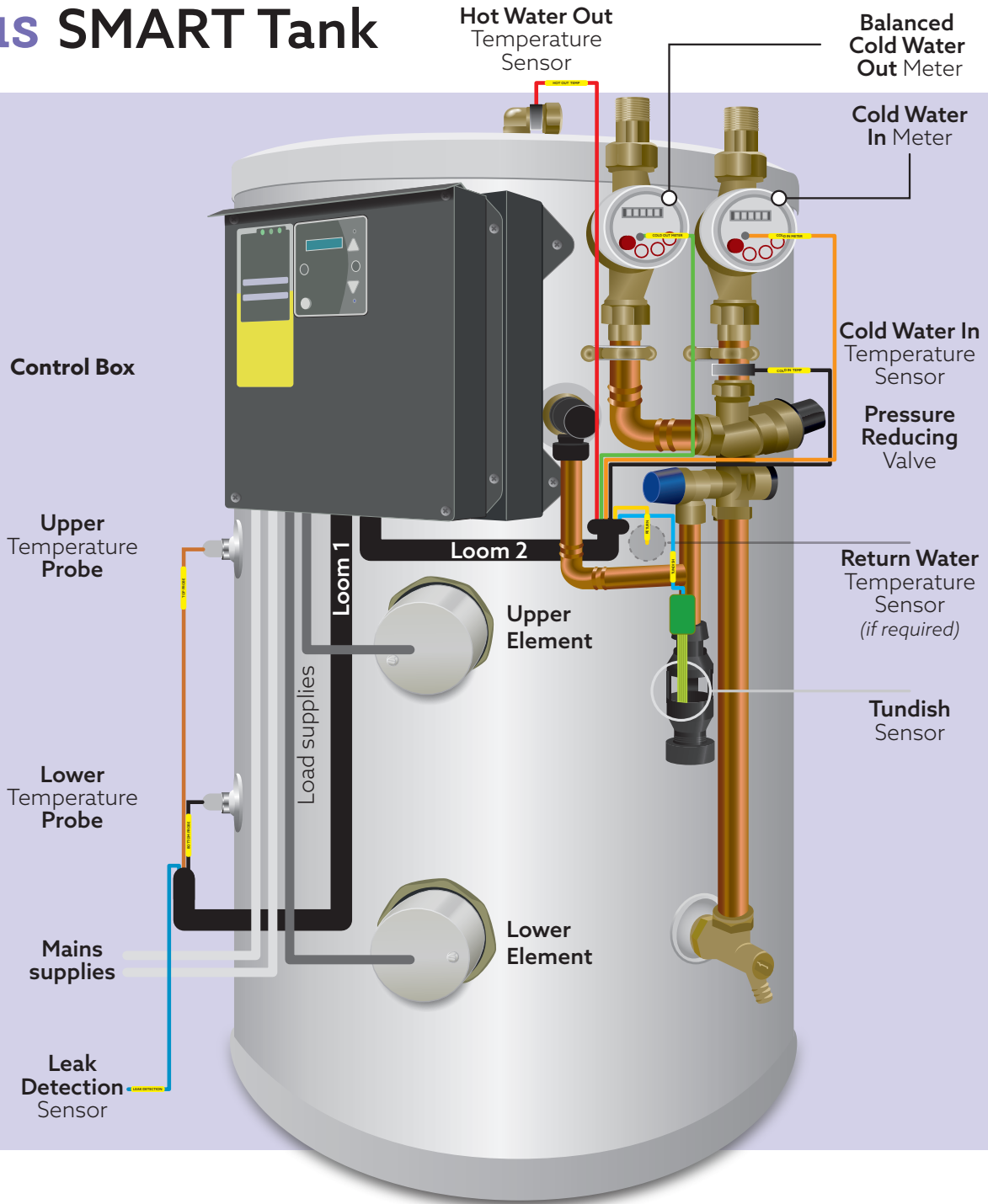




Cleverly simple  
**control** of energy.

# irus SMART Tank



**irus SMART Tank** is the only pre-wired, pre-plumbed hot water cylinder with factory fitted controls. It has been developed specifically for student accommodation and provides unrivalled, accurate monitoring and control of both energy and water consumption.

# SMART Tank monitors and measures energy and water use, automating control, management and reporting.

Pipework, wiring looms, meters and elements are factory fitted.

Mechanical installation is just connection to the mains water supply, and cold/hot water-out pipes.

Electrical wiring requires connection to the incoming mains supply and cylinder elements.

• **THE CONTROLLER** is factory fitted and contains the Control Unit which communicates with the Irus Portal. Temperature, humidity, light, and sound pressure sensors within the Control Unit monitor the tank housing environment and report any unusual levels.

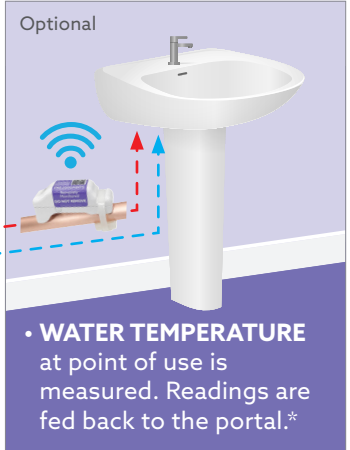
• The two state-of-the-art **WATER TEMPERATURE SENSORS** are housed in purpose built pockets positioned at optimum depth and distance from the elements for accurate temperature readings.

• **LEAK DETECTION SENSORS** identify water escape and inform the portal of the location and intensity of a leak.



• The **TEMPERATURE OF HOT WATER** leaving the cylinder is measured by a sensor on the hot water-out pipe.

Hot water out    Balanced cold water out    Cold water in



• **WATER TEMPERATURE** at point of use is measured. Readings are fed back to the portal.\*

• Two **WATER METERS** measure the flow of water into the tank. One from the cold supply - the other, the balanced cold-out to the water system. Irus calculates the differential and this is the volume of hot water produced by the cylinder.

• The **TEMPERATURE OF COLD WATER** entering the system from the mains is measured by a sensor on the cold water-in pipe.

• If Secondary Circulation is in operation, the temperature of return water is measured by a sensor on the **RETURN WATER** pipe.

• Should the pressure in the tank become so great that water is expelled, the **TUNDISH SENSOR** monitors any flow of water to waste.



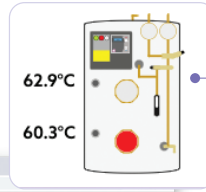
• **WATER WASTAGE** from a faulty cistern or leaking tap is detected and reported back to the portal.\*

• The **TWIN ELEMENTS** are top specification and made from titanium with a life expectancy of 10 years.

\* The Water Pipe Sensor sends data to the portal via the Irus room Control Unit using Bluetooth.

**NOTE:** The Water Pipe Sensor is not a standard component of SMART Tank.

Data is transferred to the dedicated, secure, Irus Portal where settings can be adjusted and reports produced. Alerts are sent from the portal regarding maintenance issues or unusual consumption.

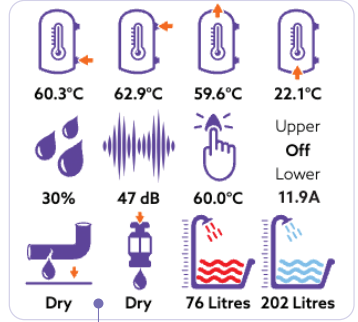
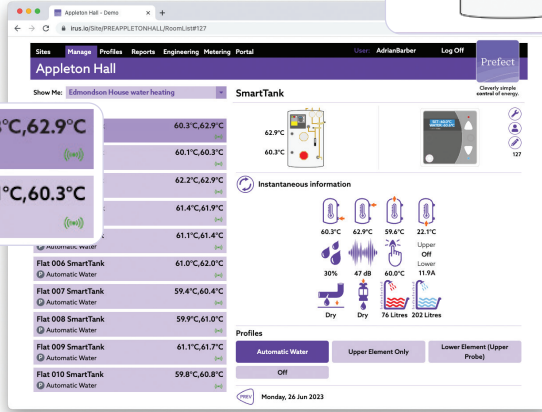


• Water temperature in the centre of the tank, and on/off status of the elements.

## Instantaneous data screen

• Individual tank details i.e. profile, temperature and comms status.

• Switching between pre-set profiles is as easy as a click.



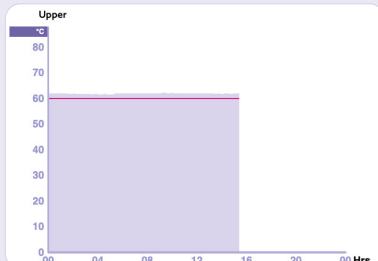
(From top, left to right)

- Lower, upper, outgoing and incoming tank water temperatures; Humidity; Sound pressure; Setpoint; Element power; Leak; and Tundish status; Hot and cold water consumption.

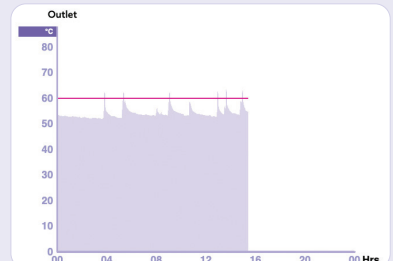
## 24 hour data screens



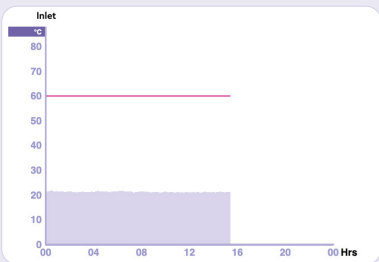
• Lower probe temperature.



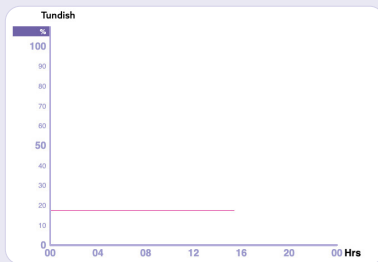
• Upper probe temperature.



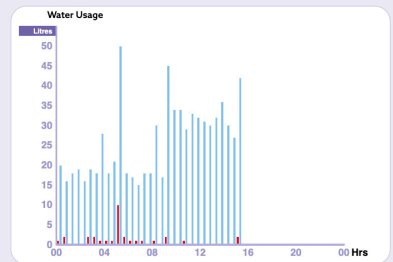
• Hot water-out temperature.



• Cold water-in temperature.



• Tundish status.



• Volume of water used.

## Reporting

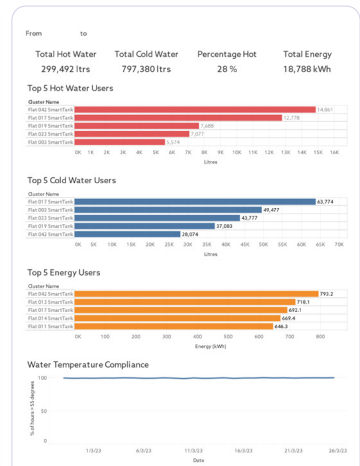
Information is easily exported from the Irus Portal. It is used to produce many and varied reports/displays of real-time data, using visualisation software such as *Tableau*.

For example: Excessive usage; Top 5 hot/cold water users; Top 5 energy users.

Irus records all temperatures. This effectively compiles a log of evidence that will help to prove compliance with water safety plans for guarding against Legionella.

Cluster	2402	27102	28402	0103	0203	0303	0403	0503	0603	0703	0803	0903	1003	1103	1203	1303	1403	1503	1603	1703	1803	1903	2003	2103	2203	2303	2403	2503	Total	
Flat001	194	214	234	196	204	214	234	214	204	214	234	214	204	214	234	214	204	214	234	214	204	214	234	214	204	214	234	214	204	4,976
Flat002	156	204	329																											3,949
Flat003	358	260	201	376																										4,822
Flat004	449	357	331	301																										4,822
Flat005	246	198	242	302																										4,822
Flat006	565	649	648	465																										4,822
Flat007	299	341	442	492																										4,822
Flat008	88	258	304	191																										4,822
Flat009	17	178	129	272																										4,822
Flat010	412	463	515	473																										4,822
Flat011	510	373	255	37																										4,822
Flat012	221	450	163																											4,822
Flat013	247		247																											4,822
Flat014	86	84	32	27	60	34	202	44	53	21	49	29	30	117	28	43	47	40	80	100	40	54	34	71	60	152	202	180	4,822	

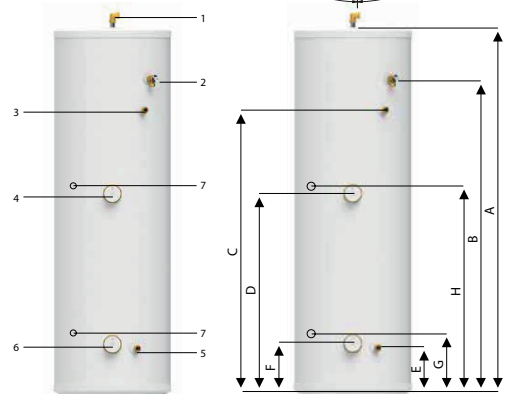
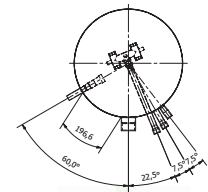
• Darker shades highlight rooms with high water usage.



• Bespoke visualisation of data.

# irus SMART Tank

## Specification



### Prefect Irus SMART Basic Appliance

- Hot water draw off (22mm) compression
- Pressure and temperature relief valve 95°/6 bar
- Hot water secondary return 22mm
- Titanium Immersion heater 1 3/4" BSP 3kW (normally on-peak)
- 22mm cold supply compression
- Titanium Immersion heater 1 3/4" BSP 3kW (normally off-peak) Additional immersion heater 1 3/4" BSP 3kW
- Prefect thermostat pockets

### Part G3 components supplied in a separate box

- Combination inlet group incorporating pressure reducing valve, strainer, check valve, balance cold take off point, expansion relief valve and expansion vessel connection points.
- Potable expansion vessels c/w integral wall bracket
- Tundish
- Drain valve
- Compression fittings

Tank size	120	150	210	250	300	
Load profile	L	L	L	L	L	
Energy efficiency class	C	C	C	C	C	
Heat loss	(watts)	39	47	62	74	86
	(kW/24hrs)	0.94	1.13	1.49	1.78	2.06
Energy efficiency	(%)	37	37	37	37	38
Annual consumption	kWh	2760	2753	2737	2747	2669
Thermostat temperature setting	(°C)	62	62	62	62	62
Sound power level	(db)	15	15	15	15	15
Capacity	(litres)	119	148	208	248	287
Weight (empty)	(kg)	21	25	32	36	41
Weight (full)	(kg)	140	173	240	284	328
Pressure regulator 3 bar inlet group c/w balance cold supply, expansion vessel connection and expansion valve set at 4.5 bar	(bar)	3	3	3	3	3
Expansion vessel size pre-charged to 3 bar	(litres)	12	18	25	25	35
Volume of on peak water heated	(litres)	53.3	66.3	93	110.7	128.3
Heat up time from 15°C to 60°C (applies to primary heat source only)	(mins)	119	150	209	249	299

### Dimensions - See diagram above

Overall height	(mm) A	931	1118	1494	1744	1990
Overall diameter	(mm)	550	550	550	550	550
Pressure and temperature relief valve	(mm) B	689	876	1252	1502	1748
22mm secondary return/tapping	(mm) C	n/a	n/a	1141	1353	1562
On peak immersion heater - High level	(mm) D	499	605	815	955	1092
Cold feed 22mm compression connection	(mm) E	220	220	220	220	220
Off peak immersion heater - Low level	(mm) F	240	240	240	240	477
Upper sensor pocket	(mm) G	530	634	845.0	944.9	1123
Lower sensor pocket	(mm) H	270	270	270	229.9	507

**NOTES:** 1. Recovery times based on Primary Coil/I.H. duty (i.e. assumes the boiler output is adequate). 2. All connections are supplied with compression fittings for direct connection to copper pipework. 3. The diagrams shown are generic. For exact product specification refer to the table. 4. Heat up and recovery times based on 0.25 l/s primary flow rate and at 82°C flow temperature.

## irus overview

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

**Room Heating Control and Environmental Conditions Monitoring**

**Central Control**

**Water Monitoring, Heating, and Control**

**Hob Safety Control**

**Leak Detection and Water Wastage**

Due to our policy of continuous improvement, we reserve the right to change specifications without notice. All information was correct at time of when this document was produced - August 2023