

# BACKER IOT SMART TEMPERATURE CONTROLLER (HRDc)



**THE SMART WAY TO CONTROL YOUR  
HEATING REQUIREMENTS**



The Backer IoT Smart Temperature Controller from Heatrod allows the user to actively control and monitor their heating systems, wherever they are. Giving accurate control of temperature and therefore energy usage.

# BACKER IOT SMART TEMPERATURE CONTROLLER

Our range of smart temperature controllers and immersion heaters are designed to offer the flexibility to fit into any environment and provide maximum levels of control



## Core features:

- Energy management
- Condition monitoring
- Integrated heating
- Ultimate connectivity
- Logic control

## Applications:

- Process Control
- Building Management
- Staged Heating Control
- Scheduled Duty Cycling
- Remote Monitoring & Control

## OVERVIEW

Developed to fill a gap in the digital control of our own heating products, the Backer IoT Smart Temperature Controller (HRDc) allows users to visualize and control energy usage and application temperatures remotely. Heating equipment will nearly always be the highest user of energy on a commercial or industrial site – active monitoring and management can quickly benefit the user through energy savings.

Our Smart Temperature Controller is designed to be incorporated into integrated heating applications, built into our immersion heaters and also as a stand alone panel mounted independent controller. The HRDc is designed to be fitted directly into your control or instrument panel with an easy to fit flexible housing. Both process and target temperatures can be easily viewed from the front screen and alterations to the set point can be made using buttons on the front panel.

## FEATURES

Device management is a key principle in monitoring and controlling heating devices. The Backer IoT Smart Temperature Controller (HRDc) and Smart Immersion Heater (HRDi) are designed with the Internet of Things at the heart of their ability. They allow clustering of devices and management as part of a flexible device dashboard. This may be split by plant room, building or even across a global asset base.

The addition of condition monitoring as an integral feature of the controller, allows users to develop condition monitoring strategies and maintenance routines.

Flexibility is key – this means the ability to connect multiple temperature sensors as well as other auxiliary signals and be able to control a variety of outputs from heating elements to pumps and fans.

The software is just as important as the hardware. Our in-depth knowledge of PID control, along with features such as condition monitoring can all be configured and monitored with our extensive suite of software.

[DOWNLOAD THE HRDC INSTALLATION MANUAL](#)



MEMBER OF BACKER GROUP

# BACKER IOT SMART TEMPERATURE CONTROLLER

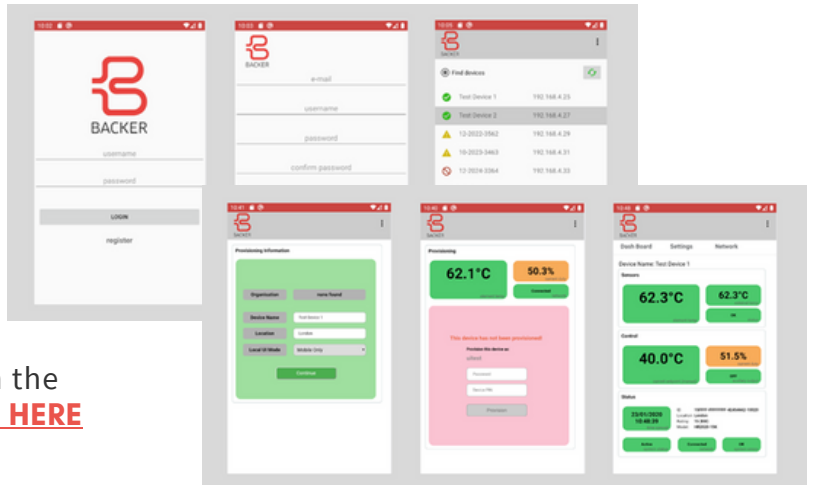
## TECHNICAL DATA & CONNECTIVITY

Maximum communications flexibility is offered using either a mobile android app or by connecting through any web browser. With basic setpoint functions available from the Backer IoT Device android app, the user can progress to more complex scheduled heating times through the web browser-based scheduling system. Data is constantly logged and decision making becomes simple using the tools that the HRDC dashboard has to offer.

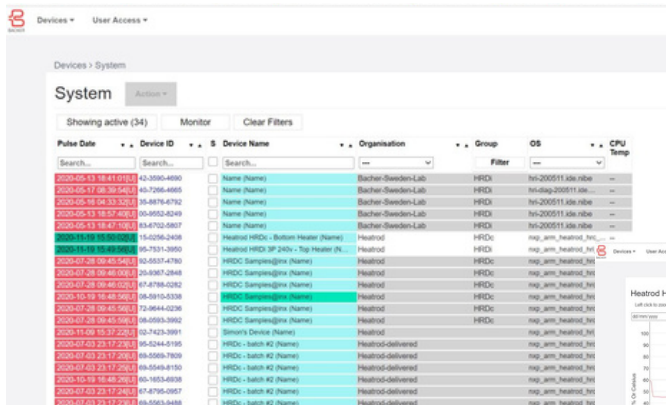
## BACKER IOT DEVICE APPLICATION

The Backer IoT Device application can be downloaded [here](#) for android devices. Once you have registered or signed in, you will be able to see your HRDC or other Backer devices available on the local network.

Further details on the app can be found in the [HRDC QUICKSTART GUIDE - DOWNLOAD HERE](#)



## BACKER DEVMAN CLOUD SERVER



The Backer Devman Cloud Server allows a user to manager their assets from single to multiple devices depending on installed base. From high level device/asset management, the user can then drill down into detailed monitoring and control features for each of their controllers.

Once into the device dashboard, the full cloud software environment allows for all aspects of data monitoring through to detailed control functionality to suit your specific heating applications. Time/Calendar scheduling, Duty Cycling, Condition Monitoring can all be worked on from a central point whether on site or working remotely



To log into the Devman Cloud Server, first download the android app and set up the HRDC as detailed in the Installation Manual and Quickstart Guide. Then login [here](#).



**COMING SOON**

The Backer IoT Smart Immersion Heater  
- contact us for OEM system solutions

# BACKER IOT SMART TEMPERATURE CONTROLLER FEATURES

Standard Features (included)	Compliant to EN60730 (Electronic Controls to Domestic and Related)
	Temperature sensing range up to 300°C
	Local temperature display
	Local setpoint display
	Local (same network) Android App (limited functions no internet required)
	Local basic button control and indication
	Web browser based SCADA energy/ops dashboard
	AI optimised energy consumption*
	Highly accurate PID control (auto or manual)
	Device access on the LAN is restricted until the device is securely provisioned
	Remote switching/activation
	Energy usage trends*
	Timer/scheduler - weekly, half hourly scheduler (via web browser)*
	Timer functions: A standard front panel configurable mode. Operation is front panel button triggered or GPIO triggered. Supports both total heating time and time from reaching setpoint.

Date & time Scheduling: Now supports 3 independent PID channels + a 4th GPIO schedule. By default half-hourly granularity is supported for 4 full 7 day repeating schedules. Timings down to 1 minute granularity can be supported with fewer channels and limited scheduling points.

Standard Network Security	Internet communication is encrypted and mutually authenticated using TLS1.2
	Compliant with the EN 303 645 (ETSI) security guidelines, which is set to form the basis of future regulatory requirements for IoT products in the UK and European market


Energy Module (optional)	Smart Energy Tariff Integration (available where energy provider tariff API is available) - automatically charge up your hot water storage using low cost periods (renewable energy such as wind, solar etc).
	Long term energy data logging (cloud). Logs energy and time when electricity is consumed and also logs when heat energy is extracted in applications where thermal storage is a factor.
	Online thermal modelling of customer plant or process (heat capacity and thermal loss estimation for process organisation)
	Energy savings analyser

Condition Monitoring (optional)	Multiple device management on multiple sites
	Relay actuation monitoring and alarms
	Process heating degradation over time
	Element degradation, scaling or sludging
	Maintenance scheduler

Simple Logic Functions (optional)	Graphical blocks for configuration of simple logic
	Basic PLC functions
	Download to your device from the web

\*Connection (ethernet) required to Backer IoT Cloud Services required - these functions are provided at no extra cost but a network connection is required.

# BACKER IOT SMART TEMPERATURE CONTROLLER TECHNICAL SPECIFICATION



Part Number	Short Description	Inputs					Outputs		Comms			IoT Service					
		PT100 (2 wire)	PT100 (3 wire)	Thermocouple input	0-10V	4-20mA	SSR 5VDC-240V AC, max 120mA (IO ext. contactor)	Internal Relay - EMR 5VDC-240VAC, max 5A	Modbus-RT	RS-485	Ethernet (RJ45 connection)	3 year software/firmware maintenance	Android config. app (local network)	3 year enhanced software features	Energy management module	Condition monitoring module	Logic function module
<b><u>HRDC-2IJ3-11111V1</u></b>	HRDc - all features	1	1	1	1	1	3	1	1	1	1	1	1	1	1	1	1
<b><u>HRDC-2IP3-11111V1</u></b>	HRDc - PT100	1	1	X	1	1	3	1	1	1	1	1	1	1	1	1	1
<b><u>HRDC-2IJ5-11111V1</u></b>	HRDc - stand alone	1	1	1	1	1	3	1	1	1	1	1	1	X	X	X	X
<b><u>HRDC-2IP5-11111V1</u></b>	HRDc - PT100 stand alone	1	1	X	1	1	3	1	1	1	1	1	1	X	X	X	X