



Rinnai

Remote Monitoring and I.O.T. Solutions

**Rinnai**

## Introduction

**Rinnai** have developed a range of optional remote monitoring and BMS enabled controls to support our market leading continuous flow water heaters.

These advanced monitoring solutions enable users to benefit from the cutting-edge functionality inherent within our proprietary water heating technology.

The range of connectivity solutions will ensure that users will have full control over their hot water provision.

This range of remote monitoring technology allows for continuous communication with the advanced PCB harnessed within the array of high efficiency Rinnai continuous flow water heaters.

This functionality means that communications points within the commercial water heaters can be transposed over IP, onsite BMS systems like Trend or via localised intuitive screens. A unique software switch within the system ensures that Rinnai technologies can be used with both Modbus and Bacnet communication protocols.

The gateway and remote monitoring modules are self-contained and can be mounted in close proximity to the water heaters. Both 3m and 9m connection cables are available to support installation requirements..



## Why advanced monitoring solutions?

By integrating all levels of building services into building automation and control systems, widespread 'smart buildings' and 'smart cities' edge a little closer to reality.

When system components such as water heaters – which have previously been marooned in their lonely control environments – are fully connected using the mature, open and interoperable systems, the possibilities go beyond simply meeting regulatory requirements, and towards the nirvana of 'smart energy grids'.

The interoperability of plant room equipment with globally accepted communications protocols is key for the proper operation of smart buildings, energy saving, temperature control and carbon footprint improvements.



Practically – the innovative nature of Rinnai appliances through in-built processes and peripheral smart devices have ensured that proprietary communications protocols may coexist to form an integrated building automation and control system.

Manufacturers need to develop products with appropriate internal control software/firmware so the BACS can communicate with the vital operational parameters. So, considering a continuous-flow direct water heater, the combustion process may be closely controlled to optimise operation, but unless that information can pass to the management level – for example, through appropriate 'objects' or 'SNVTs' – opportunities for 'smart' operation would have formally been prohibited.

This is now a thing of the past as Rinnai water heating technology can be fully transposed to support, remote temperature control, energy monitoring, trend logging, event handling and alarming functionality to bring the formally lonely and unmonitorable water heating plant into the modern age.

## Rinnai Advanced Remote Monitoring Enclosure – R-BMS-100

The remote monitoring enclosure is designed to fully integrate to the Rinnai water heaters onto an open protocol BMS. It is also fully compatible with our 7" touch screen to provide local feedback for the water heaters via an intuitive user experience.

The enclosure allows up to 6 Rinnai water heaters to be connected to an internal serial hub which in turn communicates with the Rinnai BMS gateway allowing all relevant data objects to be viewed via the onsite BMS system.



### Advanced Remote Monitoring Enclosure – Functionality

Transposing proprietary communications objects to BMS enables the following entities of functionality to be observed.

- Temperature set point checking and setting
- Error alarming for first hit repair
- Alarm handling for salient communications needs related to clients
- Event handling for monitoring purposes which could include energy, water and Carbon.
- Intuitive screen for localised monitoring
- IP access from windows enabled PC or device

The Advanced monitoring system is enabled with a smart software switch meaning that Rinnai communications support the following protocols.

- BACnet /IP
- BACnet MS/IP
- Modbus RTU

## Rinnai GATEWAY – One on one control functionality

The remote monitoring gateway is designed to fully integrate to the Rinnai water heaters onto an open protocol BMS. This differs from the remote monitoring enclosure as it is solely designed to work on a one water heater one gateway basis.

Therefore, the gateway allows one Rinnai water heater to be connected to an internal serial hub which in turn communicates with the Rinnai BMS gateway allowing all relevant data objects to be viewed via the onsite BMS system. This is an ideal solution for much smaller projects that still require BMS integration.



**\*For KM/KB models only**

### Rinnai Gateway – Functionality

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- Error alarming for first hit repair
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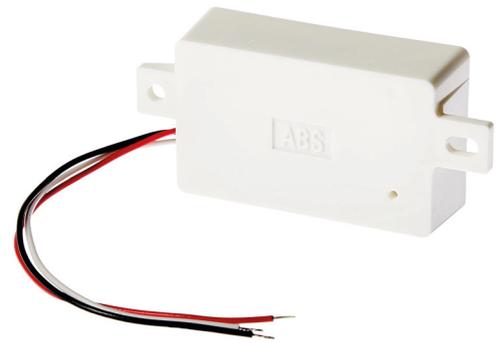
- BACnet /IP
- BACnet MS/IP
- Modbus RTU

## Rinnai Error Indication Switch

The error indication switch is a volt-free switch intended to be connected to a building management system.

The switch comes complete with mounting pack as standard for ease of installation. When an error occurs the water heater will shut down, this in turn will be communicated through the maintenance switch to the onsite BMS.

This is a cost-effective solution for simple error indications with a third party BMS system.



## Rinnai Maintenance Switch – Functionality

- Cost-effective
- Communicates error status to wider BMS system
- Easy install



# Quick Guide

I want to connect multiple Rinnai water heaters to an onsite BMS system and read multiple communications points.

You need the **Rinnai enclosure** without the onsite screen.



**Tips:** System integrators are required for the onsite BMS to make the water heaters visible and set functions.

I have multiple Rinnai water heaters and want to visualize my system, but I do not have an onsite BMS.

You need the **Rinnai enclosure** with the onsite screen.



**Tips:** The intuitive screen enables you to access individual Rinnai water heaters and assess their performance, quickly identify error codes and ensure the correct temperatures are set for your hygiene or comfort regimes.

I want to connect multiple Rinnai water heaters and transposed data over IP to a laptop or mobile device.

You need to **Rinnai enclosure** without the onsite screen.



**Tips:** Follow this installation instructions to set up readable communications points online via a Windows enabled PC or device.

I have a single Rinnai water heater and I want to visualise this on my onsite BMS.

You need the **Rinnai Gateway**.



**Tips:** System integrators are required for the onsite BMS to make the water heaters visible and set functions.

I just want to know the basics, is the water heater functioning?

You need the **Rinnai error indication switch**.



**Tips:** Connect to the PCB within the appliance and vault signals can be recorded on your BMS.

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