iQ Boiler Controller.

Datasheet

Available from:
CONCEPT13.CO.UK
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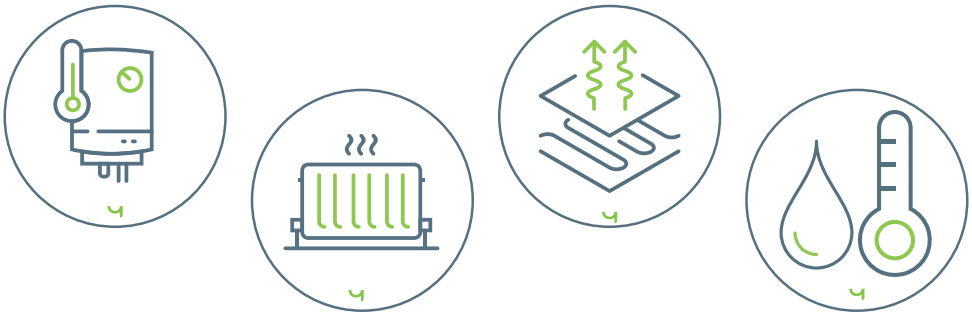
LoRa Alliance® Member

Application.

- The iQ Boiler Controller reads the status and temperature of the connected boiler and thermostat.
- Optimize the heating in your building by controlling the setpoints of the boiler.
- The iQ Boiler Controller has in internal heatcurve and/or dewpoint controller.
- Works with or without an Opentherm thermostat.
- HVAC Installers and Building Owners can easily identify boiler error status and employ predicitive maintenance.
- The LoRaWAN® module with a very long data transmission range allows the device to be used virtually anywhere.



Components.

- The device has 2 opentherm connectors for connecting a boiler and thermostat.
- The device has an analog input and digital output to connect the device to a traditional Building Management System.
- The device consists out of a Microcontroller with LoRaWAN® and Bluetooth Low Energy communication modules.
- The device is adapted for wall mounting by screws or an optional 3M double sided tape.
- The device has an internal control program for setpoint control of the boiler, it can be controller by the 0-10v input signal, thermostat, internal heating curve, internal room temperature compensation or internal dewpoint protection.
- The device has an internal temperature sensor to measure environmental conditions.
- The device has a an internal temperature sensor to protect the internal electronics from overheating.

Device Operation.

- The iQ Boiler Controller requires an operational LoRaWAN® network to transmit data, however it can operate as a stand-alone device as well.
- The device is powered by an external 24VDC power supply or by using a 5VDC USB-C adapter.
- By default the device will relay the messages from the thermostat to the boiler without any changes.
- Configuration of the device is done using mobile app or LoRaWAN downlinks.
- The log interval and parameters to be stored are adjustable from 5-60 minutes, the device will store the measured values in the internal storage of the device.
- The iQ Boiler Controller transmits data over more then 2 km in an open space with a medium density of buildings.
- It's recommended to add the device to the Yobi Hub, which allows detailed and easy monitoring of the data transmitted by the device.

Advantages.

- Because of it's ability to operate stand alone or over the LoRaWAN network you save on cabling costs.
- Conversion of existing installations is not required because of the LoRaWAN module.
- The meter is manufactured in Europe by qualified engineers and CE certified.
- The device synchronizes time over the LoRaWAN network ensuring that the time is always accurate.
- Remote control of the heating allowing for lowering the energy consumption by lowering temperatures in unoccupied environments.
- When the boiler goes into alarm, the HVAC Installer can send a mechanic with the proper spare parts saving on manhours and repeated visits.
- The data transmission is pseudo-random to avoid radio collisions.
- The device can be used on Private or Public Networks and works with the majority of the network servers and visualization platforms.

Mounting Advice.

The device contains a radio antenna, it's recommended to observe the environment when mounting the device to avoid problems due to for instance EMC.
The installation can be performed on a flat wall surface.
If you are considering to use the Temperature en Humidity sensor, a representative place should be selected.
Sunshine and draft, e.g. in the installation tube should be avoided, to avoid influencing the measurements. Seal the end of the installation tube.

- To connect the wiring to the device, the lower part of the enclosure needs to be removed from the base plate. On the bottom of the lower part there are 2 screws that can be removed.
- The mounting of the enclosure on a flat wall surface is done with screws and rawplugs or with the optional 3M mounting tape.

Removing the upper part of the enclosure will void the warranty off the device, it contains no user serviceable parts!

The installation and assembly of electrical equipment should only be performed by authorized personnel.
The product should only be used for the intended application. Unauthorised modifications are prohibited! The product must not be used in relation with any equipment that in case of a failure may threaten, directly or indirectly, human health or life or result in danger to human beings, animals or assets.
Ensure all power is disconnected before installing.
Do not connect to live/operating equipment.

CAUTION!
Risk of electric shock due to live components within the enclosure.

Please comply with:

- Local laws, health & safety regulations, technical standards and regulations
- Condition of the device at the time of installation, to ensure safe installation
- This data sheet and installation manual

Technical Details.

General System Parameters.

Power Supply	5~24VDC
Ambient condition	0..60°C, max. 85% rH non-condensing
Enclosure	PC, UL94-V0
Protection	IP30 according to EN60529
Size	140x140x20 mm
Weight	200g
Mounting	flush mounted
Control functions	Opentherm
Functions	Integrated heating curve, room temperature compensation, dewpoint protection
Display	-
Connection electrical	Terminal block, max 1.0mm2

Interfaces.

Thermostat	Opentherm Protocol, 2-wire
Boiler	Opentherm Protocol, 2-wire
Analog input	0-10VDC
Digital output	SPDT Relay, max 230V 0.5A

Sensors.

Temperature	-10°C to 80°C (+/- 0.3°C)
Humidity	0-100% Rv (+/- 2%)

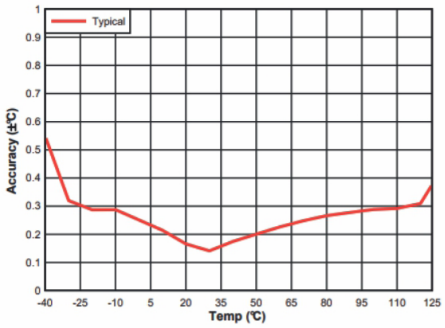


figure 1
Accuracy temperature sensor

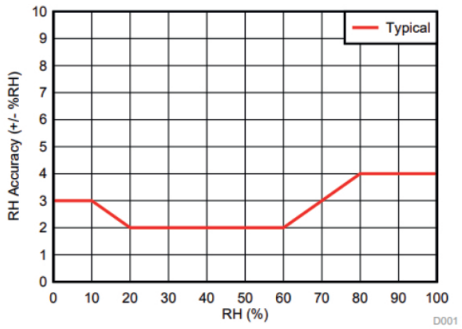


figure 2
Accuracy RH sensor

Regulatory Compliance.

CE	Low Voltage Directive (EU/2014/30) EMC Directive (EU/2014/35) Radio Equipment Directive - RED (EU/2014/53)

Wiring.

The device has 2 distinct connectors under the lower part of the enclosure.

A 10-pole male connector is placed within the device, our delivery consists out of a terminal block on which the wiring can be pushed in.

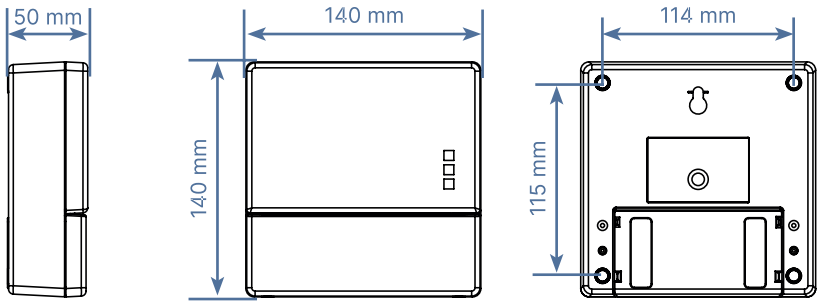
The terminal block has connections numbered from 1-10.

Note: only use the female plug for connecting cabling to the device, the plug is protected incorrect inserts.

Next to the 10-pole connect a USB-C slot is available for powering the device using a USB-C 5VDC adapter.

1	Power Supply 12-24VDC	DC Power +
2	Power Supply 12-24VDC	DC Power -
3	Opentherm Thermostat	+
4	Opentherm Thermostat	-
5	Opentherm Boiler	+
6	Opentherm Boiler	-
7	Analog input 1	0-10VDC
8	Analog input 1	GND
9	Digital Output 1	Common
10	Digital Output 1	NO

Dimensions.



Order Information.

Opentherm- LoRaWAN 868 (EU)	1002004
3M Mounting tape for enclosure	1002019

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