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Application note

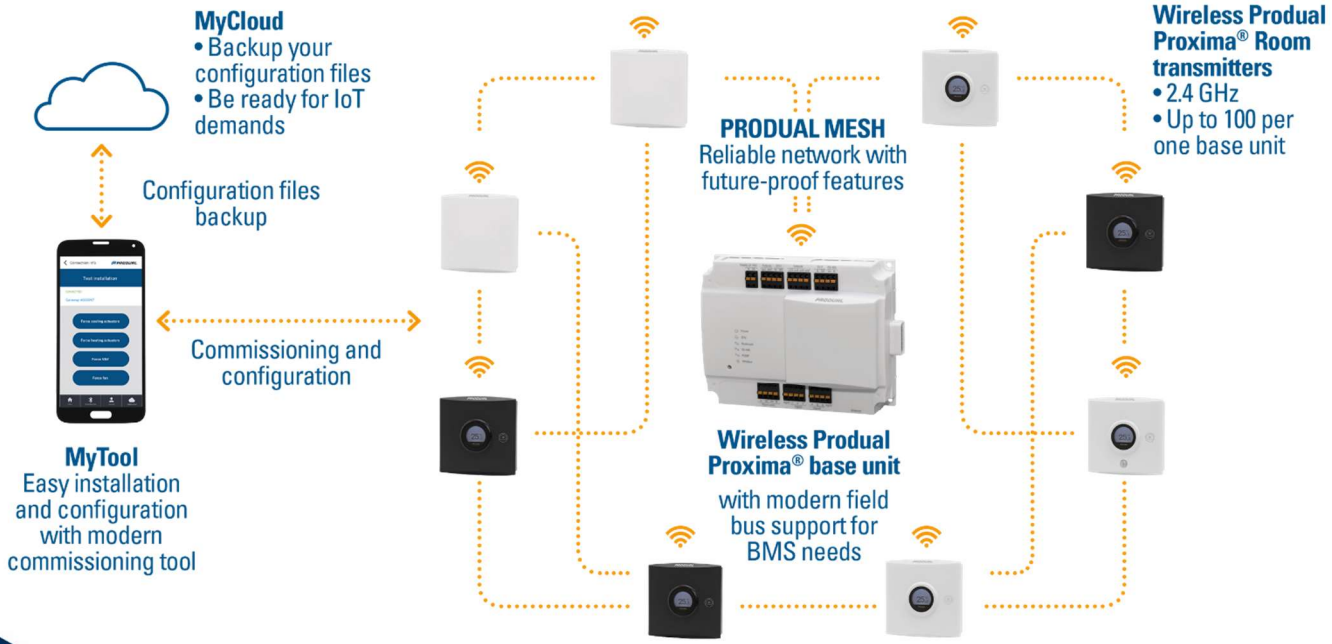
Data centre environment monitoring with wireless Proxima input module

The wireless power of Produal Proxima ® MESH

The wireless future is here! Our next-generation Produal Proxima® solution creates reliability for wireless measuring for a multitude of applications – from environment monitoring to IoT applications.

Wireless Produal Proxima® is one of the first wireless MESH systems that can be fully operated with a battery if needed. Its every transmitter acts simultaneously as a repeater, removing the need for external repeater units in a network. Utilising the latest wireless technology innovations, Produal MESH network ensures reliable communication even on challenging radio conditions that is unprecedented on the market. In addition, with external power supply, there is a possibility to run a wireless network with minimal latency in applications where speed is a high priority.

Wireless Produal Proxima® is a combination of the latest technologies and reliability. Under one network, there is a possibility to add 100 transmitters. These transmitters are creating reliable MESH network where one base unit WBU operates as a gateway to all information collected by the network. Basic WTR and WTR24 transmitters can be used to read surrounding conditions such as temperature, humidity, and CO2. WTR-IM is an input module to which it is possible to connect external sources like temperature sensor probes, digital contact, leak guard, and lots of other measurements.



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WBU – Wireless Base Unit

WBU operates as a connection point of the wireless network. It has Modbus TCP/IP and Modbus RTU interfaces to connect wireless network to BMS and other systems.

WBU has an SMA connector for an external antenna to improve the signal coverage area.

Modbus TCP / IP and Modbus RTU can be read simultaneously, which allows data to be used across multiple systems. For example, when Modbus TCP / IP is connected to the DCIM system, and Modbus RTU is connected to the local BA-system. This guarantees high security because the local automation can be kept out of the TCP / IP network, but the same data can be shared between both systems.

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WTR-IM – Wireless input module

WTR-IM is a multipurpose transmitter with almost unlimited application possibilities. The transmitter can read various external measurements as well as status information.

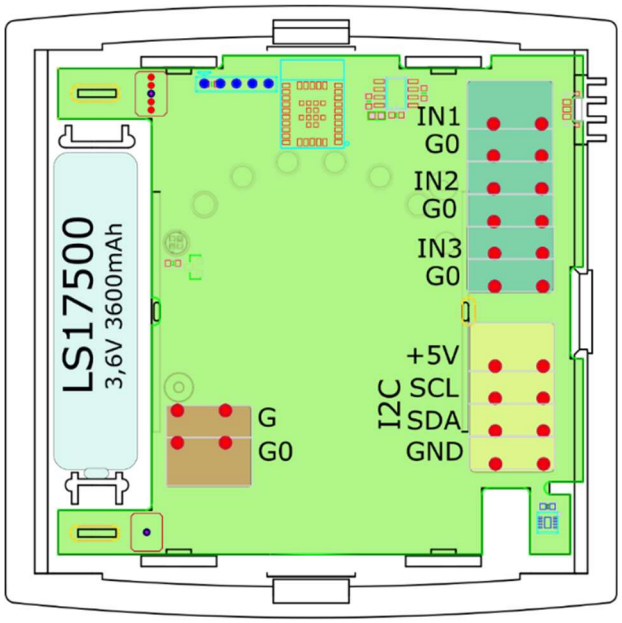
Built-in temperature + humidity sensors for measuring surrounding conditions

Three connectors for external measurements

Supported external measurements:

- NTC10 (temperature)
- 0…10 V
- Digital input NO and NC
- Resistance

WTR-IM can be operated at the same time with external power supply or/and battery. If used with an external power supply with battery, the battery is working as backup power in case of power failure. The power supply is supported from 10 V to 30 V.



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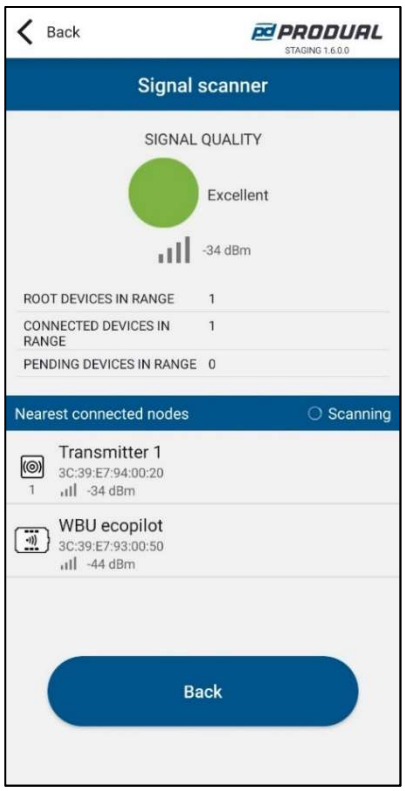
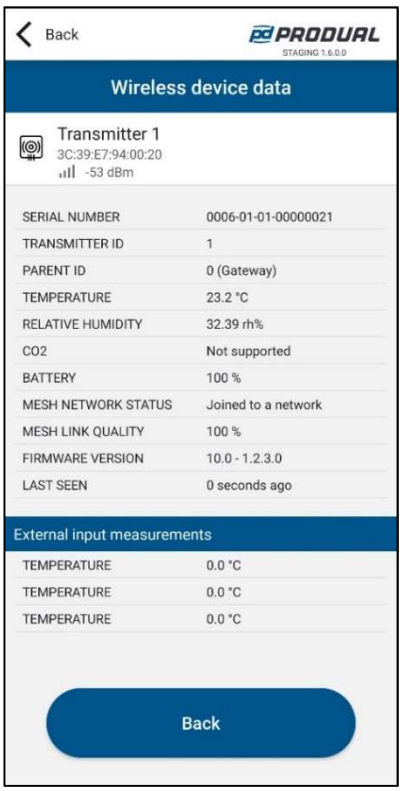
MyTool Android application

MyTool application is for installing and commissioning of the wireless network.
It can also be used for maintenance and field monitoring.

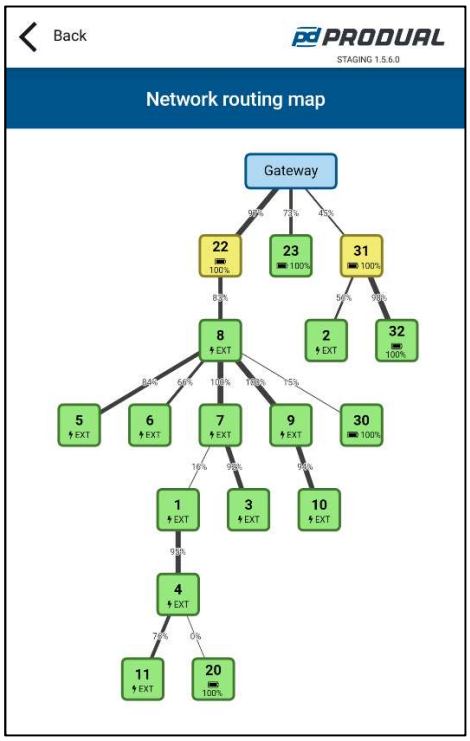


Picture 1.
Signal scanner for ensuring the best possible installation place and for measuring the transmitter signal.



Picture 2.
Reading device data directly from the transmitter.

Picture 3.
Network routing map to visualize how the wireless network is routing. Also showing battery data and other relevant information from the wireless network.



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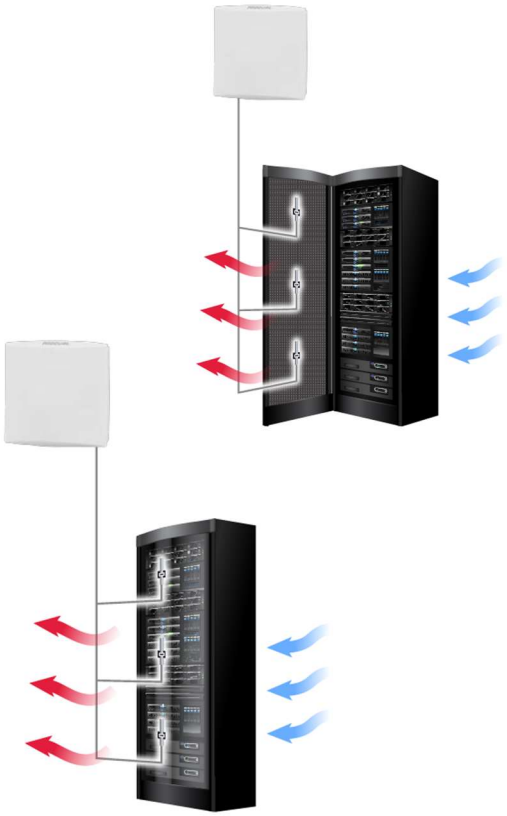
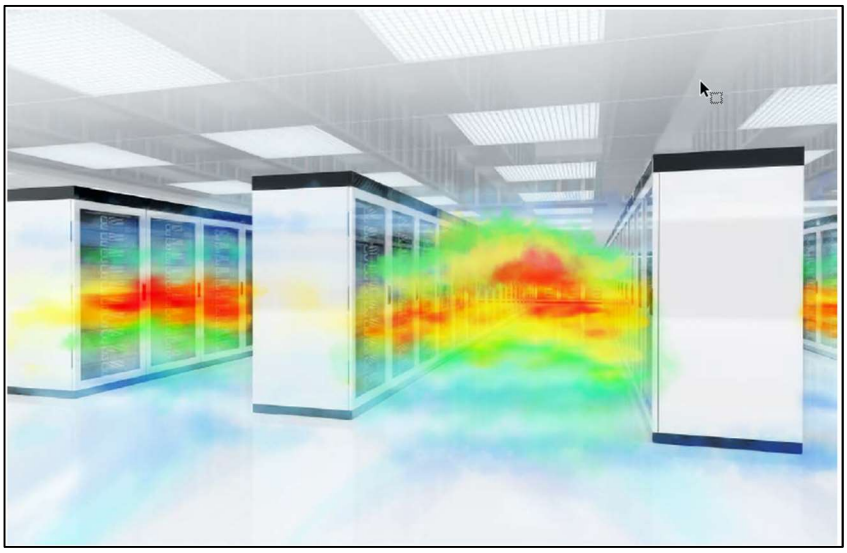
WTR-IM application example

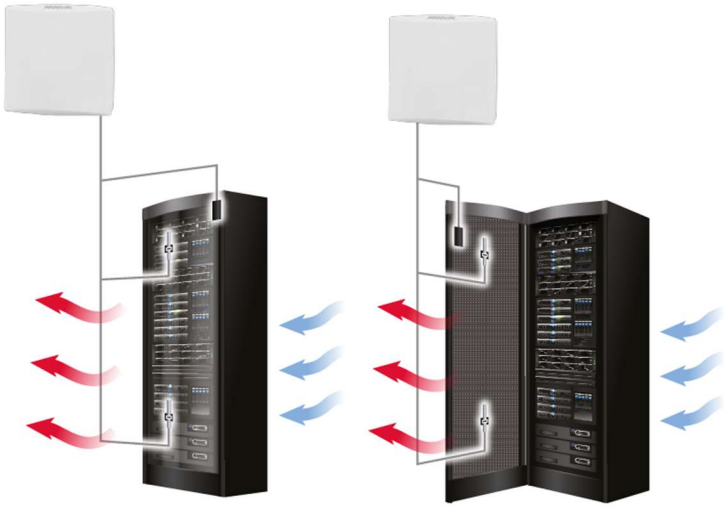
Cabinet temperature monitoring



WTR-IM has three pcs of universal inputs. In this customer application, there are three passive temperature sensors (NTC10) that are placed to the top, middle, and bottom of the computing rack. Cold air is flowing through the rack, and sensor elements are measuring hot air temperature that is coming out from the rack.



Measurement data for DCIM system and visualization needs of room temperatures.



WTR-IM can also read digital inputs. In this example, two inputs read the flow-through temperature, and one input is monitoring the cabinet door contact.

Produal TEKY NTC 10 temperature sensor

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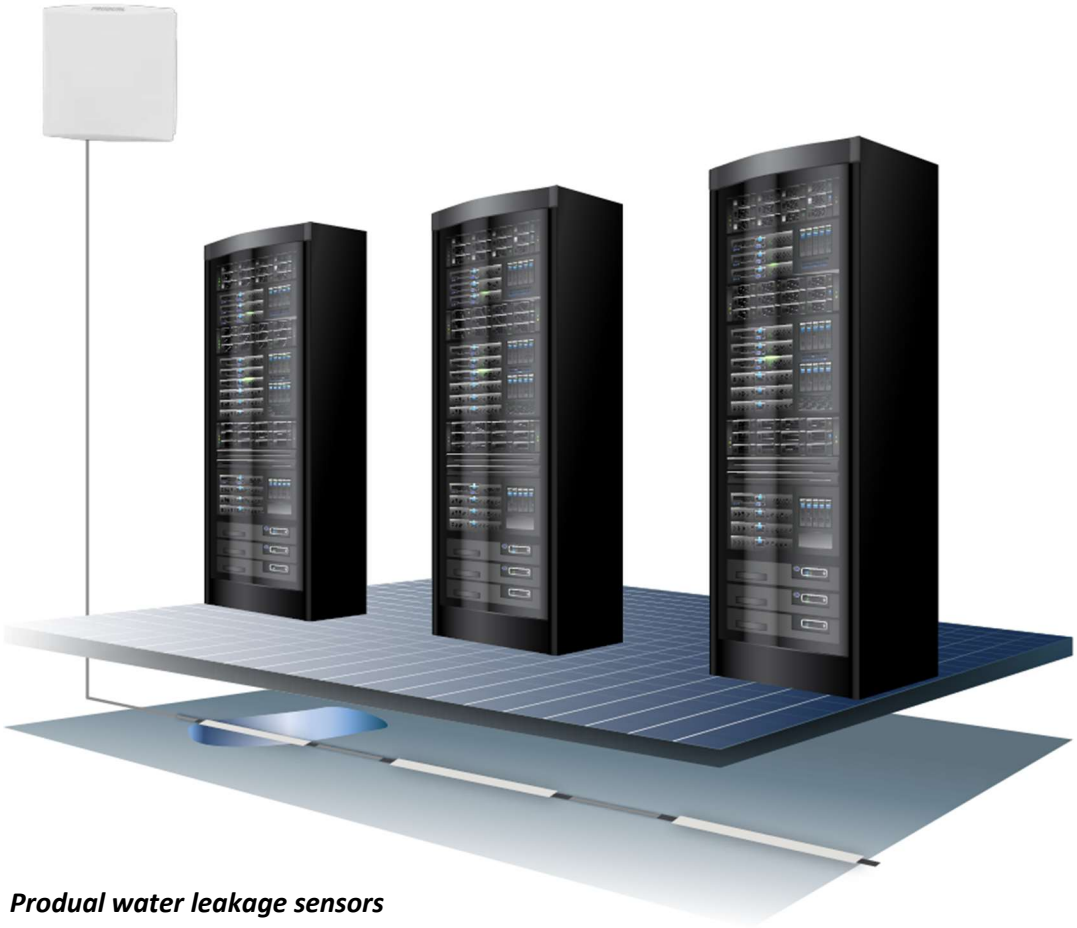
WTR-IM application example

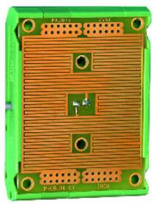
Water leak monitoring

There are lots of possibilities to connect various water leak measurement elements to WTR-IM, such as Produal VVA1, VVA2, VVA3 or VVN2. Three pcs of different water leak sensors can be connected to one WTR-IM module.



Produal water leakage sensors

VVA 1



VVA 2

VVA 3

VVN 1

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WTR-IM application example

Condensation monitoring

WTR-IM can compare the surface temperature of the cooling pipe with the surrounding dewpoint and give an early warning before the condensation happens. WTR-IM has internal temperature and humidity element that can calculate environment dewpoint. Cooling system surface temperature can be read by connecting surface temperature sensor (TEPK NTC10) to cooling pipe.

Produal TEPK NTC 10
strap-on temperature sensor

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WTR-IM application example

Differential pressure monitoring

PEL is a high accuracy differential pressure transmitter that can be connected to WTR-IM (requires 24 V power supply). With PEL, differential pressure can be monitored between spaces.

Produal PEL
differential pressure transmitter for air

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