



QAMR

Remote meter readout of
consumption data by radio



QUNDIS[™]
ADVANCED MEASURING SOLUTIONS.

The QAMR system

State of the art radio technology



Data comes on demand, efficiency all by itself.

QAMR, the Automatic Meter Reading system from QUNDIS, is the leading system for radio technology in the market. It lets you record all of the consumption values normally found in households with meter reading devices and transmit them wirelessly to network nodes installed in the appropriate systems. Each of these network nodes has all consumption information at its disposal. All data is shared, making it available for reading out at any network node – by interface at the node, by radio from a (standing) car or via a gateway with modem or IP interface from a remote location. Although the principle is highly versatile, its application is surprisingly simple. From easy installation of meter reading devices and network nodes to self-configuring radio technology: if there's one thing you don't need with **QAMR**, it's a college degree in IT.

An investment in the future

With this highly developed remote meter readout system, we from QUNDIS offer meter reading services a further innovative and high-performance product. With the development of these systems we also invest in the future, one that would be inconceivable without the responsible handling of our energy resources. AMM, Automatic Meter Management, even goes a step further. With this it is not only possible in the foreseeable future to record monthly consumption data, but also to compare this to other values for the determination of specific handling recommendations.

The possibilities are unlimited

Until then, **QAMR** spearheads the market by enabling consumption data to be read from any size system via GPRS, GSM or any existing broadband cable system. Simple, fast and reliable. And with the aid of a gateway, direct data transfer into your own billing system is possible as an optimum prerequisite for fast and error-free billing. Since data can be transmitted from remote locations several times a day, it can not only be used for billing purposes but for other services as well, for example for various analyses or housing industry statistics, or for showing consumption cycles to tenants.

QAMR is in addition compatible with the KNX European standard for home automation. Its standardised interfaces make it easy to connect this system to other "systems" (such as heating regulation and controlling of lights or blinds). The possibilities of **QAMR** are unlimited in the truest sense of the word.



How **Q**AMR functions

Remote meter readout at the press of a button

All you need to do is walk to your desk.

Whether the meter-reader plans to go to the system and read data on-site or do the work from the office – **QAMR** offers him both options. If he wants to readout on-site, he can readout all consumption values for the entire property from any network node. This can be done either at the node itself or – even simpler – he radios the network node from outside. After just a couple of minutes, he has all of the measurements without errors. Remote meter readout makes it even easier for the meter-reader: **QAMR** systems from QUNDIS can be readout directly from the billing office. Via GSM phone network, GPRS or via computer or broadband cable networks. No matter how you look at it, it is tailor-made to the customer's needs without having to make a single tenant appointment.

QAMR in small systems

You can still profit from **QAMR** radio technology even where there are only a couple of flats in close proximity. A single network node might even suffice with an average reception radius of 15–25m in the building to reach all of the measuring devices. Consumption values can be read out on-site or via a gateway from your office.

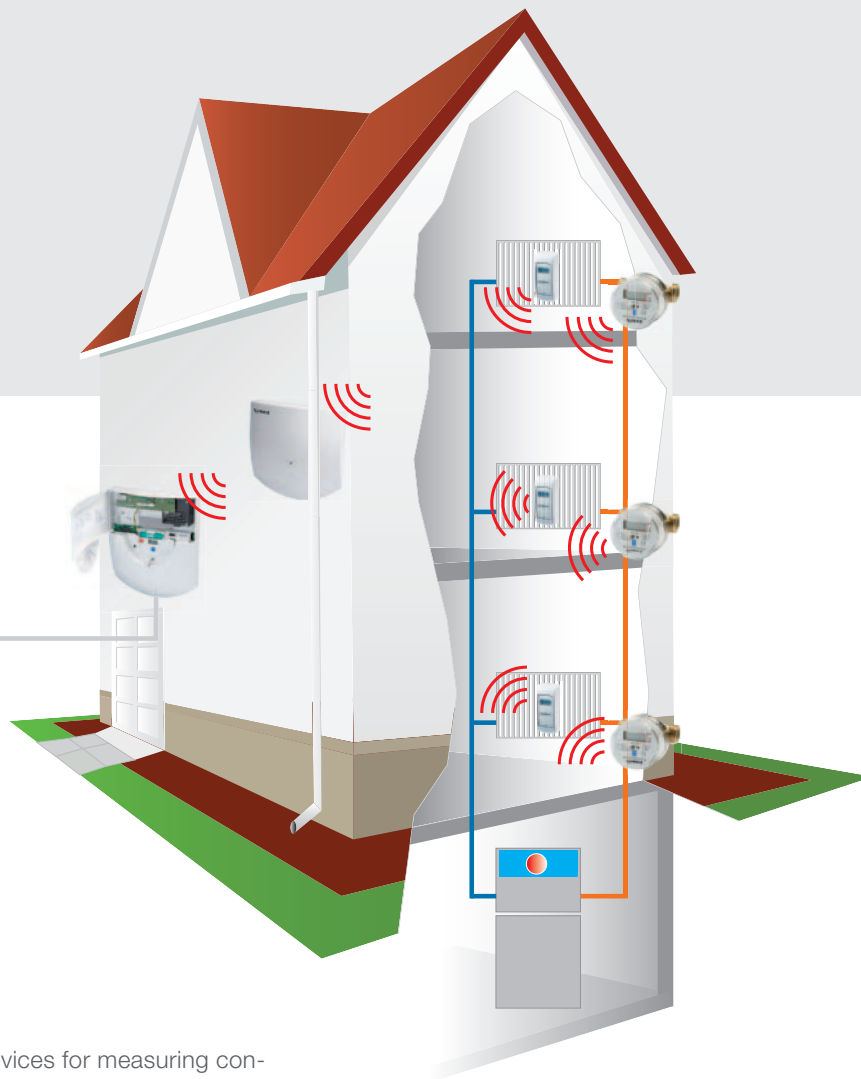
QAMR in medium-sized systems

A medium-sized system consisting of no more than twelve network nodes can easily administer 500 measuring devices. The network nodes also exchange all consumption values wirelessly while enabling you to use any network node or gateway to do on-site readout.

QAMR in large systems

It definitely makes sense to use the **QAMR** in extensive properties – the gateway used can receive data from as many as 2,000 readout devices, buffering them and storing them for readout. This calls for setting up subnetworks with as many as 500 measuring devices connected via M-Bus to one network node with a gateway where it can be centrally read out from the remote location. Another advantage is the fact that you can easily integrate existing meters via the M-Bus interface to read them out remotely via this gateway.





The measuring devices

The range of measuring devices for measuring consumption in flats and buildings is substantial: QUNDIS heat cost allocators in single or dual sensor design, compact heat meters, mechanical water meters with radio modules that can be retrofitted or fully electronic water meters where the radio transmitter is pre-integrated. Measuring devices such as gas or electricity meters from other manufacturers can also be integrated into the **QAMR** system with the internal pulse adapter. It's easy to see how competitive the QUNDIS range of products is by its cooperation with other readout device manufacturers. This makes it possible to supplement radio-ready measuring devices from our cooperation partners with a radio module and to read them out via **QAMR**.

Reliable and fit for the future

QAMR underlines the fact that it is a reliable and future-oriented solution by its stable performance in the 868 MHz range. Fears concerning possible harm resulting from electromagnetic radiation are totally unfounded. The standardised wireless M-Bus communication protocols used all over Europe also show how user-friendly this system is, along with the ease of integrating existing M-Bus devices or transmitting readout data as XML files or in text format.

The network

The functional principle of the network represents pure efficiency. The measuring devices transmit current consumption values several times a day, and completely independently. The network nodes installed on the staircase receive these data telegrams. All network nodes communicate with one another so that each one stores all consumption values for the entire property. This gives an extremely high level of data security while simplifying readout, because the network node for readout can be selected by you. Easy assembly of the standard network node equipped with a high-performance battery puts the finishing touches to this convenient full package. No time-consuming network connections are needed.

Automatic readout from a remote location

The organiser installed in the readout software makes readout extremely convenient. This allows data to be read out directly at any time and to be made available for other applications.

Advantages of **Q**AMR

Transparency for everyone

Nobody wants big brother looking over his shoulder – but everybody appreciates transparent billing.

Sometimes it's good to have total transparency and make information available to everyone. **QAMR** has achieved this admirably, because everyone involved benefits from detailed billing.

Advantages for tenants



The convenient thing is that appointments with the meter reading service are made superfluous. Tenants profit from transparent and error-free readout values, and their consumption costs are calculated immediately and no longer estimated when they move for example, as in the case of obsolete systems. Thanks to this transparent billing method, the tenant also has a further advantage with the **QAMR** system.

Something else should be mentioned: the entire **QAMR** system from QUNDIS is absolutely safe. Safe for persons with heart pacemakers and for sceptics who are afraid of harm from electromagnetic radiation: optimised transmission power and minimal transmission time of the measuring devices have the effect that all values stay far below the limit values specified in the German Federal Emission Protection Directive.

Advantages for the meter reading service



The flexibility of a completely wireless system is at the top of **QAMR** agenda. The meter-reader can choose between on-site or remote readout.

It is also flexible in that it can be adapted to various system dimensions while still using the same components. Thanks to supporting planning instruments such as PC radio modules and test transmitters, **QAMR** offers fitters the optimum tools for reliably planning radio systems. Installing the system itself is highly simple. After mounting the network nodes, the measuring devices log on in the network automatically. Another benefit of this permanently self-monitoring system is the fact that existing systems can be simply expanded by adding additional measuring devices and network nodes.



Advantages for the housing industry



Reading out consumption values simply, without errors and on a realtime basis is a major plus for both tenants and owners or landlords. After all, it guarantees quicker and more comprehensible billing for water and heat while avoiding unnecessary complaints with its reliability of data transmission, and it also provides a high degree of transparency when tenants change. Choosing between various reading cycles and immediate detection of device defects or manipulation are some other compelling arguments for using the **Q AMR** system. There's no doubt about it: **Q AMR** makes sense for everybody.

Technical features

The **Q AMR** system from QUNDIS uses standardised communication and open data interfaces that make it easy to integrate it into existing billing systems. **Q AMR** works in the range of 868 MHz on a frequency which is reserved for these and similar applications. The meter reading service is provided with the following information:



- ~ Device number
- ~ Consumption value on the key date
- ~ Consumption value at time of reading
- ~ Consumption values for the last 18 months
- ~ Status information of the measuring devices and network nodes

A major advantage of the **Q AMR** system is its long running time. Hot water and heat meters are engineered for as much as 5 years and cold water meters for as much as 6 years of operation. Pulse adapters work on a 12-year battery, heat cost allocators work 10 years long and water meter add-on modules 12 years. Finally, network nodes operate for least 5 years, after which simple battery replacement is required.

The system poised for the future

QUNDIS and the technology of tomorrow

We form tomorrow's standards
from the visions of today.

QUNDIS is more than a highly-professional supplier in the market for measuring devices and systems engineering. We are first and foremost a visionary company that is committed to investing in the future with extensive research and development. Day after day. The technologies of the future enable us to do much more than come up with customer-friendly products. Innovative technologies put us in a position to react to one of the greatest problems of our time: environmental pollution, climate change and the global reduction in energy reserves. The technologies we come up with should first and foremost help everyone to undertake something about the increasingly daunting global energy problems: to handle the theme conscientiously and with the utmost care.



*No matter how people will be heating in future,
we can measure it.*

Innovation rooted in tradition

QUNDIS has always technologically been a step ahead of its time. Thanks to our long tradition of successful entrepreneurship, our business partners know that they can rely on our pioneering ingenuity. Because in contrast to many of our competitors who are only passing visitors to the market, our history shows that our thinking and actions are geared to the long term. We aim to set things in motion and to change things for the better. And not only in today's product technology, but also in our role as visionary thinkers. That's the reason why we tell all of our business partners that they can rely on us. Today and in the future.

Visionary thinking

We would like to give just one example of our visionary work at this point: the **Q AMM** system. The so-called Automatic Meter Management marks the future for the **Q AMR** wireless remote readout system, already firmly established in the market. **Q AMR** enables the energy consumption of all sizes of systems to be readout centrally and directly from the billing office. Just as easy as it is fast and with an extremely high level of data security. And **Q AMM** goes a step further. In the foreseeable future, it will be possible not only to measure and analyse values, but also to regulate control elements. This enables immediate reaction to unnecessary energy consumption. A fact that is right in tune with our corporate philosophy. In addition, these systems are open for other services. For example, the integration of smoke detectors or emergency alarms.

The components of QAMR

A connection for everyone



Network nodes and gateways



Heat cost allocators



Heat meters

The heart of the **QAMR** remote meter readout system receives the consumption values of the measuring devices and distributes them within the network. Each individual network node can provide all values for reading out because of their ability to communicate with each other. Values are read out on-site at any network node via cable connection or per radio from any point within the network node transmission radius. Gateways allow remote meter readout via various communication interfaces: GSM, GPRS or TCP/IP.

The hallmark of **QAMR** heat cost allocators is their ability to communicate, coupled with simple operation.

Compact and remote sensor devices are offered as one-sensor and two-sensor devices, enabling them to be used on practically all radiators. Extensive mounting accessories are also available.

For standard nominal flows of 0.6m³/h, 1.5m³/h und 2.5m³/h, heat meters in the form of screwed connection meters and measuring capsule meters are offered. What's special: the volume meter can be mounted as a compact unit together with the display or mounted remotely with the integrated cable. Beyond this, there are combined heat/cold meters in the same designs for special applications.



Electronic water meters

As cold water or hot water meters these are offered as screwed meters and measuring capsule meters for nominal flows of 1.5 m³/h and 2.5 m³/h. Electronic scanning guarantees a high level of operating reliability and measuring accuracy. Various construction lengths and special constructions such as valve or bathtub meters can also be supplied.



Water meter add-on modules for mechanical water meters

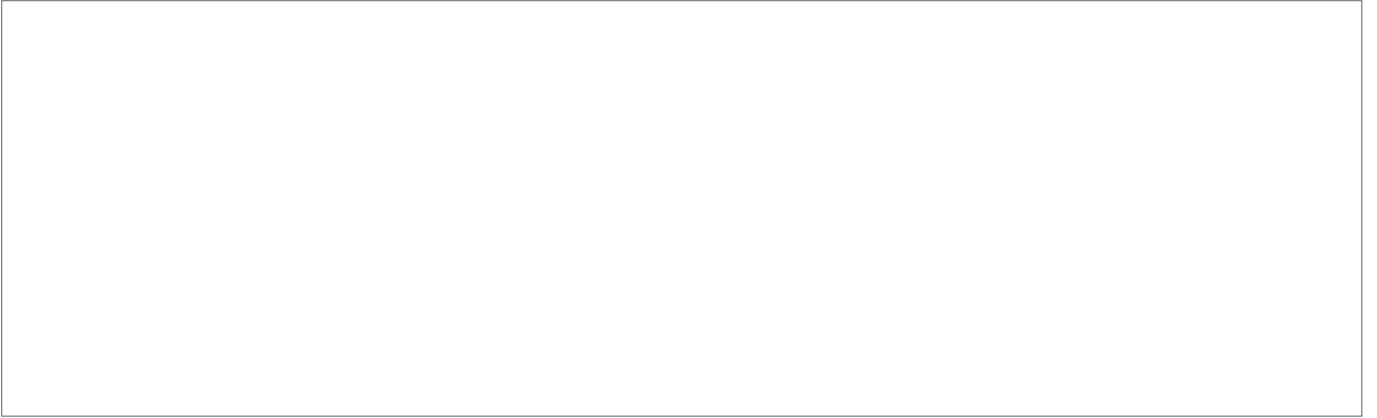
QUNDiS also features add-on modules that record counting pulses and transmit them to the network for radio-ready mechanical water meters from third-party suppliers. There are radio add-on modules available for radio-ready water meters from the manufacturers Sensus, Elster, Deltamess and Wassergeräte. An add-on radio module for Allmess water meters is in preparation.



Pulse adapters

QAMR networks are open for the integration of external meters with a contact output

Each pulse adapter has two independent inputs so that different meters can be connected to one pulse adapter for connection to the **QAMR** remote meter reading system. For example a gas meter and an electricity meter.



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