

# SHARKY 775

## Ultrasonic energy meter



Secure. Flexible. Efficient. The new generation  
in measurement of thermal energy.



## HOW SECURE IS YOUR DATA?

### The SHARKY 775 provides your measurement data with the necessary security.

The SHARKY 775 regularly emits your pre-set consumption values and status data by radio for mobile reading. In district heating supply, it is helpful for high-resolution data to also be received via stationary data concentrators.

Regardless of how you receive the data, it is important to ask whether it is possible for the data to get into the wrong hands, or whether it could be tampered with. How can the data be protected against such attacks? The simple answer is: OMS Version 4, Profile B.

#### Be safe rather than sorry with the Open Metering Standard.

Today, the "OMS Version 4, Profile B" standard is considered state of the art in radio data transmission for battery-operated consumption metering devices for thermal energy. This level of security is achieved through individual keys in each meter. In order to ensure a continuously high level of security for your consumption data, we offer a secure method of transmitting the individual keys. You should store these carefully and securely each time that you receive them.

#### The SHARKY 775 helps you to meet data security requirements.

The objectives set out in the EU's General Data Protection Regulation (GDPR) aim to protect consumers against damage or losses caused by unauthorised use of their data. This means that every time you process personal data, you must be able to prove that you have a justified interest in doing so. Many aspects – such as volume of data, type of use, storage, and transparency for the consumer, to name but a few examples – come into play. When used correctly, the SHARKY 775 with OMS Version 4, Profile B is the perfect meter for fulfilling data security requirements.



#### How OMS Version 4, Profile B works

The AES symmetrical procedure, with a 128-bit key, is used for encryption. For each transmission, two new keys (KENC and KMAC) are derived from the meter's master key. The data is encrypted with KENC to protect its integrity and confidentiality. To guarantee authenticity, the data and the KMAC are used to generate a message authentication code (MAC).

Alongside the security of data, the procedure ensures that radio transmissions are different every time. This greatly hinders any spying.



## HOW CAN YOU OPTIMISE YOUR STORAGE?

### More flexibility during set-up. Lower storage costs.

When ordering an energy meter, network operators and metering service providers often have to decide whether the device should be configured for installation in the inlet flow or in the outlet flow. Subsequent changes made on site by the installer are then no longer possible. The result? Every installation situation has to be well planned in advance, and variants have to be kept in stock. If the situation changes suddenly, e.g. due to pipes not being accessible, this can cost valuable time and money.

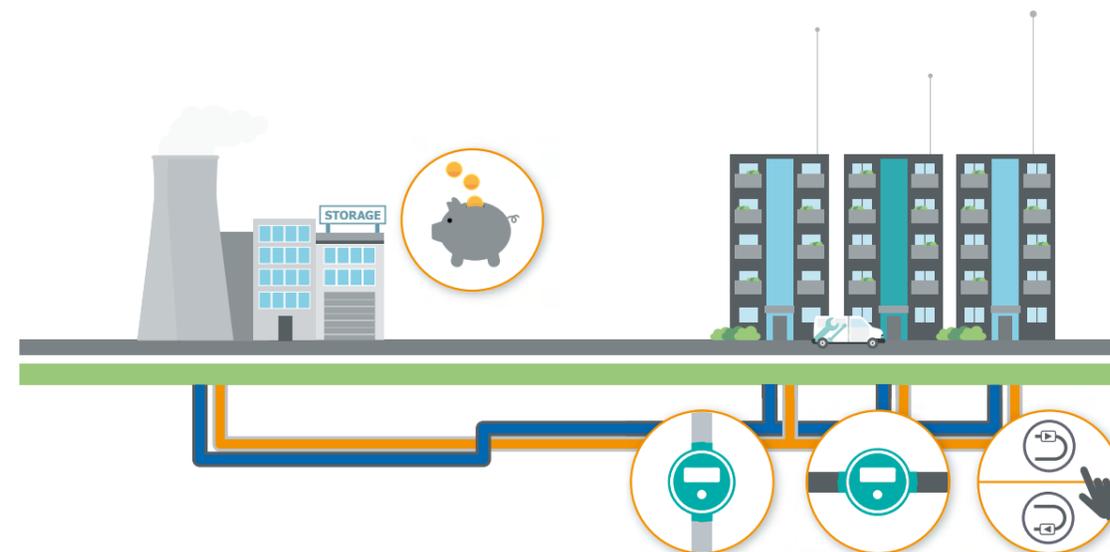
#### Thanks to the new SHARKY 775, you only need one meter for everything.

It can be configured for inlet flow or outlet flow on site at the touch of a button via its display and thus covers a wide range of applications. This allows for flexible installation, without having to specify when ordering the meter. Whether for an inlet or outlet position, horizontally, vertically or wall-mounted, the SHARKY is suitable for any installation

situation, thus reducing the need for different versions. This makes ordering and planning much easier, and reduces storage costs.

Another benefit for the installer: easy, safe installation in small spaces, and flexible on-site configuration.

With a wide temperature range of 5 °C to 150 °C, the SHARKY 775 is suitable both for heat metering and for cold metering.



# SHARKY 775 – RELY ON FUTURE SECURITY



**Flexible inlet and outlet set-up:**  
Can be configured on site for inlet or outlet position. This makes planning easier and reduces the storage costs.

**International display:**  
Expansion by one decimal place, extensive language selection – with the option of European and American units of measurement.

**Integrated radio:**  
Meter reading via Walk-by/Drive-by. Can be upgraded to a Fixed Network at any time – without additional meter parameterisation.

**Accurate for smallest and largest quantities:**  
Selected nominal sizes in the dynamic range 1:250 are approved in accordance with EN and MID.

**Battery life of up to 20 years:**  
Intelligent electronics design for extremely low consumption – even in radio-controlled mode.

**Intelligent self-monitoring:**  
Automatic notification in the event of air in the pipes, incorrect installation or sensor mix-up.

**Uncomplicated maintenance:**  
The metering unit is easy to replace with no need for readjustment.

**Excellent data security:**  
Data security in accordance with the BSI (Bundesamt für Sicherheit in der Informationstechnik – German Federal Office for Internet Security); data telegrams comply with OMS Version 4, Profile B.

**Even greater volumes of data:**  
Now with a readable 32-kByte (EEPROM) memory.

**International standards:**  
Supports frequencies 868 MHz or 434 MHz.

**Heat, cold or air conditioning meters:**  
Cold metering from 5 °C, heat metering up to 150 °C.

**Excellent interoperability:**  
Based upon the compatible Open Metering System (OMS) Version 4, Profile B.



Diehl Metering uses the OMS security standard for secure transmission of data – paving the way for sustainable digitalisation in measuring technology.

# HOW EFFICIENT IS YOUR HEATING NETWORK?



Reducing energy losses in the district heating network has always been a focus for Danish district heating provider BRAMMING FJERNVARME A.M.B.A. Since 2011, the provider has been reading its SHARKY energy meters fully automatically via a Fixed Network from Diehl Metering.

“This smart system from Diehl Metering allows us to optimise our network. We can analyse the collected consumption data using the IZAR software, remedy malfunctions, and detect potential for improvement. Thanks to continual analysis, we are able to tailor the heat

generation to our customers’ consumption behaviour – without hampering quality of supply! We have managed to lower our forward and return temperature in the network, which has reduced our energy losses from over 22 % to 17 % as a first step. This brought us an enormous cost saving of € 325,000 in 2017. The collected measurement values also form the basis for further optimisation analyses. As an additional service, our customers can view all data from the IZAR PLUS Portal, such as consumption and temperatures, in a web portal.”

Steen Thøgersen, Chief Operating Officer  
at BRAMMING FJERNVARME A.M.B.A.

## Efficient use of district heating. For better cost effectiveness.

An efficient district heating system requires both perfectly functioning technical equipment and careful consumer heating behaviour. This avoids high return temperatures, which diminish the overall effectiveness of energy generation and distribution, and lead to higher energy costs for the utility. In order for these temperatures to be reduced, reliable information about temperature conditions in the distribution network is needed. This is the only way that the forward and return temperature can be efficiently controlled, and unnecessary high forward temperatures can be prevented from being fed into the network.

### The new SHARKY 775 delivers all the readings for increased efficiency.

It transmits the forward and return temperature, flow rate, current output, energy consumption and alarm messages by radio on an ongoing basis, providing a

solid foundation for increased efficiency. In a Diehl Metering Fixed Network, these readings are received several times per hour via data concentrators (receivers), and analysed using IZAR@NET 2 Meter Data Management software (MDM).

### The aim? The optimum difference between forward and return temperature.

Utilities can see the difference between the forward and return temperature (temperature spread) for each SHARKY consumption meter displayed and weighted with the energy consumption in IZAR@NET 2 software. This ensures that faults and abnormal operating conditions at transfer stations are quickly identified. Usually, a repair or consultation with the consumer is enough to achieve high temperature spreads and a considerable reduction in the return temperature.

### Measuring the forward temperature at the end of the chain for optimum heat management.

The feed-in temperature of the heat generation systems must be so high that all consumers receive the promised forward temperature – even if they are at the end of a supply line. This is the only way to guarantee the desired hot water temperature and avoid contamination (legionella bacteria) in the local network.

A SHARKY connected to the end of the chain delivers the forward temperature several times per hour via stationary data concentrators. IZAR@NET 2 software can automatically pass these measured values on to the control mechanisms (SCADA) in the heat generation systems, where they can be used to optimise the feed-in temperature.

### The result is measurable:

- Optimum forward and return temperature: Increase of the temperature spread
- Lower volume flow
- Minimisation of pump use and protection against pump wear and tear
- Reduction in energy costs

