

DIEHL
Metering

HYDRUS 2.0 BULK SMART WATER METERING

With superb metrology and connectivity
the best of two worlds



Empower a sustainable future

HYDRUS 2.0 BULK – THE BEST OF TWO WORLDS.

THE GAME CHANGER FOR WATER UTILITIES. THE FIRST HYDRUS BULK WATER METER WITH THE PROVEN ULTRASONIC TECHNOLOGY AND INTEGRATED SMART FUNCTIONS.

FOR METROLOGY AND ...

Measures. Just better.

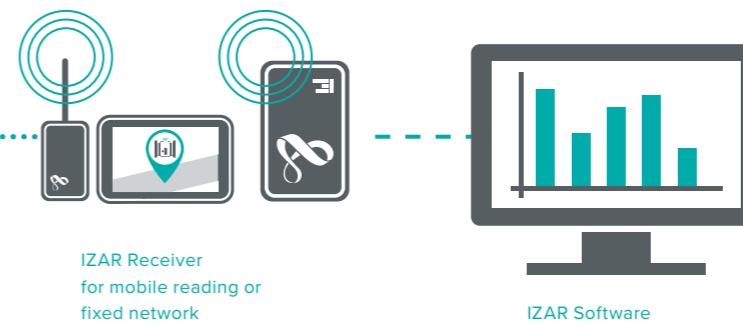
Everything that cannot be measured will not be billed. So do not miss a drop. With HYDRUS 2.0 BULK and its ultrasonic measuring technology, you can benefit from even more accurate consumption values for billing and decrease non-revenue water.

- ▶ Precise ultrasonic measuring technology with two measuring paths
- ▶ High measuring dynamic range of up to R 1000
- ▶ Minimal starting flow of 15 l/h for DN 50
- ▶ High overload flow rate of up to 2x Q₄
- ▶ Full range from DN 50 to DN 200 with all common body lengths

Measures. Just longer.

HYDRUS 2.0 BULK is a sustainable investment, since this quality product ensures endurance and durability over its entire lifetime. Benefit from exact measuring results for a long time and save costs for meter exchanges.

- ▶ Long-term measuring stability
- ▶ Resistance towards particles
- ▶ Ultra-robust and waterproof design (IP 68)
- ▶ No calming sections (UOD0) and grounding required
- ▶ Less energy consumption of the pumps thanks to pressure loss class of 0.16 bar
- ▶ No magnetic manipulation possible
- ▶ No measurement of air
- ▶ Battery lifetime of 16 years



... CONNECTIVITY.

Generates information. Just smarter.

HYDRUS 2.0 BULK provides more than only the total water volume for billing. Its smartness creates valuable information about unwanted events which need quick measures, e.g. leakages.

- ▶ Generates billing and metrological information as well as parameters for grid monitoring on-site at the meter or for the overall water network
- ▶ Easy-to-read display with symbols, loops and error & alarm codes
- ▶ Extensive data logging functions with hourly, daily, weekly, monthly values and due dates
- ▶ Self-check monitoring with fallback mode

Transmits information. Just more efficient.

The combination of HYDRUS 2.0 BULK and Diehl Metering's IZAR connectivity solutions makes a powerful system infrastructure that helps you to easily obtain the information of all meters in your distribution network.

- ▶ Integrated communication functions for mobile reading and fixed network
- ▶ Read-out via radio R4, R4+, wired M-Bus or L-Bus or Pulse
- ▶ High radio range and robustness even for challenging meter installation locations such as pits
- ▶ High data granularity and timeliness
- ▶ OMS Generation 3 or 4, profile B
- ▶ Other IoT technologies possible like LoRaWAN® and NB-IoT – please contact our sales team for more details

LoRaWAN® is a registered trademark of Semtech Corporation and is therefore legally protected

GENERATED INFORMATION FOR YOUR USE CASES

What you can see in the IZAR software with high data granularity and timeliness

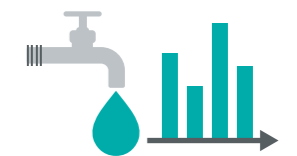
BILLING

Easy export to your billing software



CONSUMPTION MONITORING

Clear visualization of water consumption history per meter



DEVICE & ANOMALIES MONITORING

Error & alarm codes to act quickly



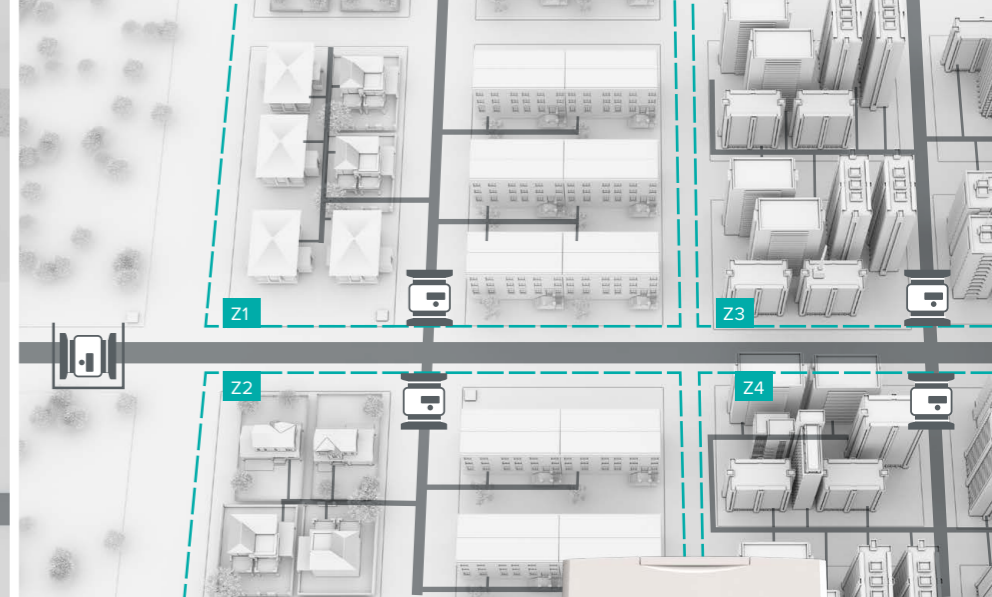
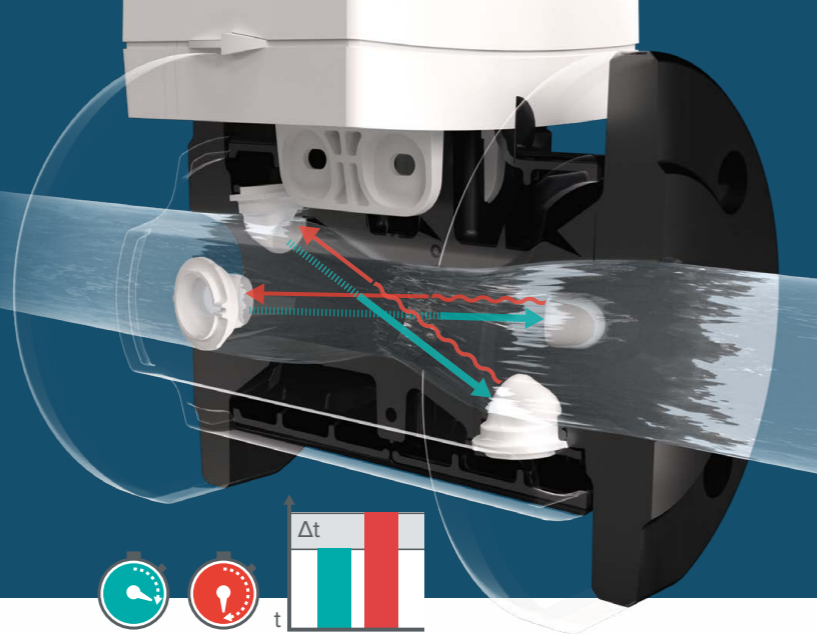
WATER LOSS MANAGEMENT

Detection of losses in zones of your distribution network



METROLOGY AT ITS BEST.

HYDRUS 2.0 BULK – the right bulk meter for extremely low and high water flows with ultrasonic performance and long-term operation.



Application

This bulk meter can be used for billing or just for measuring the water volume in main supply lines of the overall distribution network or certain zones/district metered areas (DMA). In combination with domestic meters you can capture the supply and consumption of the complete water network, which is helpful for water balance or water loss detection purposes.

Ultrasonic for ultra performance

HYDRUS 2.0 BULK as the first ultrasonic bulk meter of the HYDRUS series applies its proven Diehl Metering measuring technology based on the transit time difference principle. With its four transducers and therefore two measuring paths in an orthogonal set-up, metrological high-performance is assured.

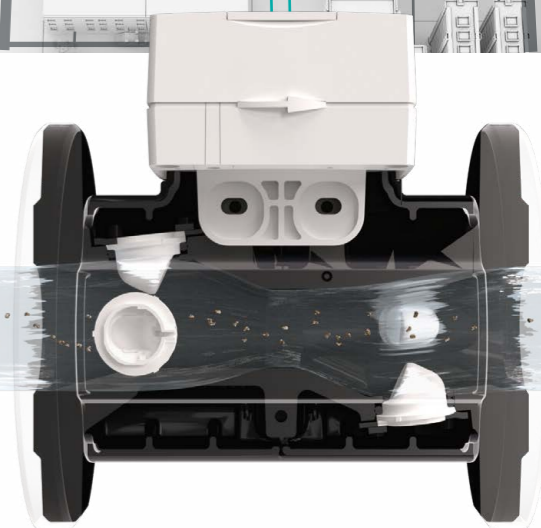
Long-term measuring operation and accuracy

The static free-flow principle of HYDRUS 2.0 BULK without any moving parts ensures an unobstructed water path during measuring. With IP 68 the meter is robust, water and dust proof.

The fallback mode makes sure that in case one measurement path is not working any longer that the meter will continue its operation with the remaining path.



DN 50 up to DN 200



MEASURES. JUST BETTER.

MEASURING DYNAMIC

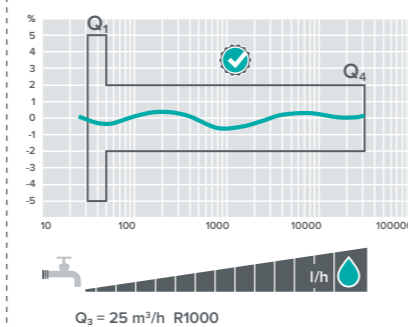
- ▶ Approved measuring range of up to R 1000
- ▶ A huge spectrum of water flows used in practice can be covered

STARTING + OVERLOAD FLOW RATE

- ▶ Registers very low and high flow rates
- ▶ High overload flow rate up to $2 \times Q_4$
- ▶ Minimal starting flow of 15 l/h for DN 50

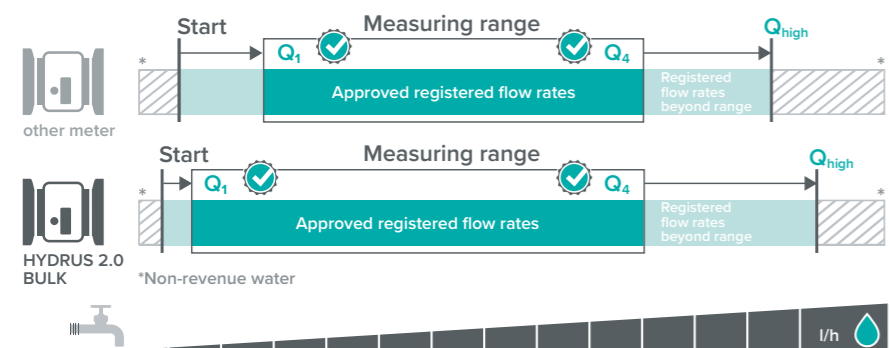
MEASURING ACCURACY

- ▶ Less deviations at all measured water flows
- ▶ More accurate results
- ▶ Repeatability and reproducibility tests prove its precision



Your benefit

No matter what kind of water flow occurs, accuracy for the overall spectrum is the goal. Less deviations lead to more precise billing.



Your benefit

Only what is measured can be billed. The higher the dynamic, the less is the non-revenue water level.

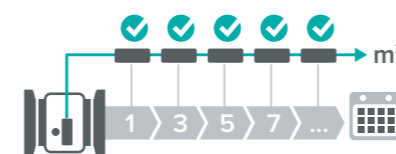
Your benefit

Regardless, if very small or extremely high water flows are in use – every registered flow reduces non-revenue water.

MEASURES. JUST LONGER.

MEASURING STABILITY

- The measuring accuracy of typical mechanical meters can get less with time due to increasing wear and tear.
- ▶ HYDRUS 2.0 BULK assures precise measuring results during the entire meter lifetime
- ▶ Strong battery that lasts for 16 years

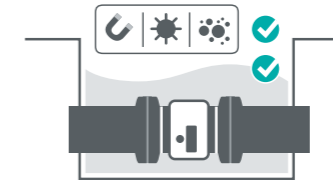


Your benefit

Permanent measuring accuracy over the entire meter lifetime to provide always reliable results and to reduce non-revenue water.

ROBUSTNESS

- HYDRUS 2.0 BULK performs even under extreme environmental conditions. It is resistant towards:
- ▶ Particles such as sand in the pipe
- ▶ Pressure surges
- ▶ Vibrations
- ▶ Magnetic manipulation
- ▶ UV radiation
- ▶ Flooding

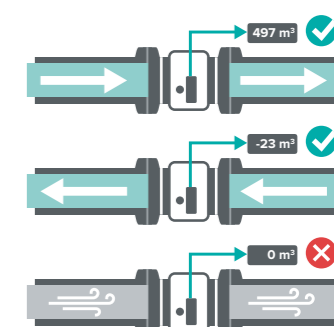


Your benefit

Maintenance-free and long-term smooth operation extends the meter lifetime. Therefore, you can save costs and effort for meter exchanges.

MEASURING VALIDITY

- HYDRUS 2.0 BULK guarantees always reliable measuring values.
- ▶ Measures the forward volume, but also reverse flows precisely
- ▶ Only water will be registered and no air

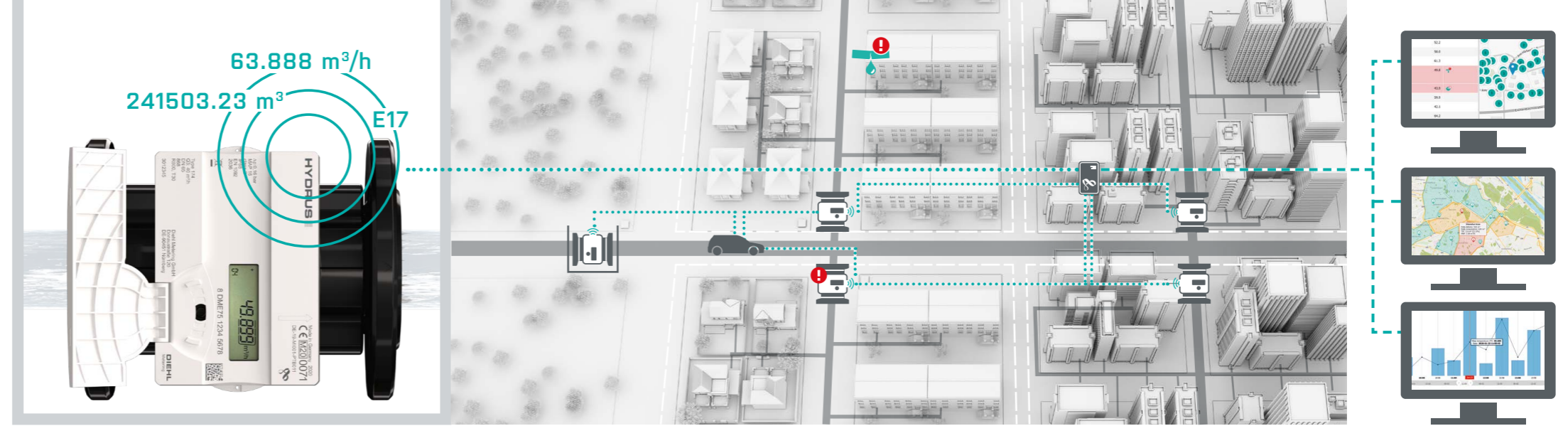


Your benefit

The validity of the measured values for billing and water balances can be assured.

CONNECTIVITY AT ITS BEST.

Digitalized processes and valuable information about your distribution network with smart and connectivity functions.



Smart functions

HYDRUS 2.0 BULK provides you a considerable amount and variety of valuable information you would miss without this smart device installed. Not only does it save the due date consumption volume for billing, with also metrological information and other parameters generated permanently along its operation, it creates a water consumption history and informs about

possible anomalies of the water network on-site. Leakage or reverse flow alerts could give a hint that the water supply grid has a defect.

HYDRUS 2.0 BULK makes use of its continuously self-check function that generates instantly error and alert codes when something is wrong with the device. With quick actions, long function interferences can be avoided.

Connectivity for digitalized processes

The integrated communication function of each installed HYDRUS 2.0 BULK enables the gathering of the data (e.g. for billing) via AMR/AMI meter read-outs. That is why the HYDRUS 2.0 BULK is the smart key component of the complete connectivity solution which – with system and software – makes the effortful and time-consuming pit meter reading processes obsolete.

Connectivity for analysis

Imagine the possibilities with the aggregation of all HYDRUS 2.0 BULK and smart domestic meters in a fully automatic system infrastructure. A fixed network solution does not only read-out all meters at once, you get also information about your overall distribution network. The highly granular (up to hourly) consumption history and other metrological information get

visualized in the IZAR software which assists you to analyze the water supply and usage. Alerts about the device status or leakages in zones or houses will be obtained in real time due to a high data timeliness. Make smart and fast decisions to lower costs and non-revenue water. Save resources and optimize your water network to provide a crucial contribution to sustainability.

GENERATES INFORMATION. JUST SMARTER.

SMART INFORMATION

Billing & metrological information

- ▶ Total volume
- ▶ Due date volumes
- ▶ Current & reverse flow volume
- ▶ Temperature (ambient/medium)

Error & alarm codes

For grid anomalies on-site, e.g.

- ▶ Leakages
 - ▶ Air in the pipe
 - ▶ Reverse flows
- For device status, e.g.
- ▶ Low battery
 - ▶ Fallback mode



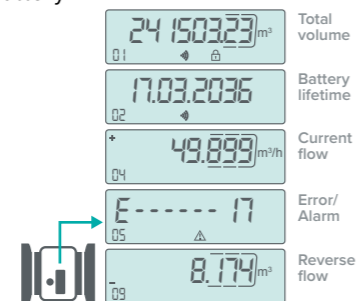
Your benefit

Obtain the consumption volume on the due date for billing and information about water grid or meter anomalies to reduce or avoid severe damages.

DISPLAY

Easy to read on-site with the electronic display.

- ▶ High resolution with 9 digits
- ▶ Switching loops for more information
- ▶ Helpful symbols, e.g. leakage or low battery



Your benefit

See smart information on-site for taking actions immediately when anomalies occur.

DATA LOGGING

- ▶ Data logging memory capability with hourly, daily, weekly, monthly values and due dates
- ▶ Stores measuring values, errors and alarms
- ▶ Logging can be read-out with an opto head on-site

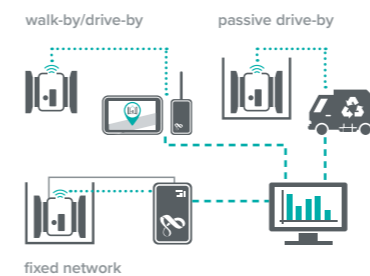


Your benefit

In case of anomalies, get more transparency about what happened by tracking down past information and rectify the problem on-site.

MOBILE READING AND FIXED NETWORK

- ▶ For walk-by/drive-by/passive drive-by incl. fixed network ready
- ▶ For fixed network
- ▶ For wired M-Bus, L-Bus, Pulse
- ▶ Other IoT technologies possible like LoRaWAN® and NB-IoT

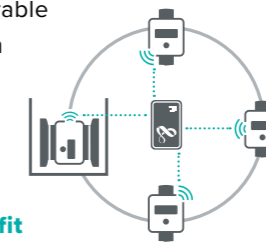


Your benefit

Have efficiencies in the way you get values and obtain information to take actions in your distribution network. Select the best communication technology fitting your requirements.

IZAR RADIO PERFORMANCE

- ▶ Integrated radio communication
- ▶ Drive-by up to 50 km/h
- ▶ Optimized Extra Long Range Mode R4+ with four times higher coverage compared to standard metering radio and reliable robustness
- ▶ For reaching meters in challenging installation situations like pits or other hard-to-read locations
- ▶ High data granularity and timeliness
- ▶ Configurable telegram content



Your benefit

Reliable coverage for large areas with less receivers to have lower total cost of ownership for your system infrastructure.

DATA SECURITY & PRIVACY

- ▶ OMS Generation 3 or 4, profile B
- ▶ Role concept to give the right person the right access key



Your benefit

Your customers appreciate a safe data flow and their privacy.

HYDRUS 2.0 BULK BATTERY LIFETIME OF 16 YEARS

- Independent from:
- ▶ Reading technology
 - ▶ Climatic environment
 - ▶ Interferences by other radio networks

