Getting data from Thames Water meters guidance

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This guidance document has been produced to help retailers, meter data service providers and non-household customers understand how to read our water meters and access consumption data from them.

Meter details

What sort of meters do Thames Water have?

There are two main types of water meters; analogue and digital.

Analogue meters, sometimes called "dumb" meters, have an analogue register/display and usually a pulse output. They can be read either visually or by attaching additional equipment, such as data loggers.

Digital meters started to be installed in the Thames Water area in 2015 and they are easily identified by their digital register/display. They are currently all Sensus meters and can be read visually or remotely, on a walk-by in automatic meter reading mode (AMR) or over the air in advanced metering infrastructure mode (AMI) if within our smart network. Some digital meters also have a pulse output and can be logged.

Details of the meters we install can be found in our Metering Policy.

Why are Thames Water installing digital meters?

Metering is at the heart of our plan to reduce demand for water and provide fairer billing. Therefore, it is our policy to meter all non-household properties wherever feasible and practical and we are also working to meter all household properties in our area.

Installing digital meters enables us to implement smart metering and modernise the way we manage water supplies. Smart metering allows us, as well as our customers to track the amount of water being used, giving our customers greater visibility and control over their usage and water bill. Meters also allow us to find leaks more quickly, giving us an opportunity to fix them.

What does automatic meter reading (AMR) and advanced metering infrastructure (AMI) mean?

Apart from visual reading, these are the two different ways we can read a digital meter without the need to physically access the meter. "Walk-by" is a descriptive term used for the automatic meter reading (AMR) mode and "over the air" for the advanced metering infrastructure (AMI).

- Automatic Meter Reading (AMR):
  A meter reader walks-by a digital meter holding a handheld device and automatically (via a wireless radio transfer) collects meter readings and transfers that data to a central data management system. This is similar to any analogue meters that have AMR equipment fitted (note that Thames Water does not maintain AMR capability for its analogue meters).
- Advanced Metering Infrastructure (AMI):
  A network of masts (antennas) is used to create a radio network called a smart network. The smart network allows digital meters to remotely transmit meter readings and data at

predefined intervals (e.g. hourly) to a secure, meter data management system for network operation, leakage detection and billing. It requires a local communication equipment (LCE) unit to be wirelessly connected to the digital meter. The LCE is a radio module that enables transfer of data from the meter to our systems. Currently, 95% of our London water supply area is covered by AMI.

It is worth noting that once a digital meter is working in AMI mode, it will no longer work in AMR mode.

What is a smart meter?

A smart meter is a digital meter in AMI mode, connected to our network, sending data remotely, over the air, through an LCE.

How can I identify a digital AMR or AMI meter?

Our digital meters are currently all Sensus meters and can be easily identified by their digital register/display. In London and inside the smart network, you will usually also see local communication equipment next to them:

YOU CAN FIND DETAILS OF THE TYPES OF METER WE INSTALL IN OUR METERING POLICY.

Alternatively, you can contact our Wholesale Service Desk.

FIGURE 1: DATA FLOW FROM METER TO CUSTOMER

Digital meters use the smart network in London and through the local communication equipment (LCE) transmit readings to our secure Meter Data Management System. Meter readings are stored there and used by Thames Water for billing purposes and leakage detection. They can also be shared with customers (Retailers and third parties) through our

Providing digital meter data service. Details of this service can be found in our Wholesale Service Offering and our Wholesale Tariff Document.

What is a Homerider meter and how can I identify meters with a Homerider module?

Homerider meters are Sensus meters with an analogue register/display and either a clip-on or a wired radio device attached to them. This system is no longer supported by Thames Water. Retailers, third parties and competent installers are allowed to remove any Homerider equipment from our meters, as long as they can do that without damaging the meter. Alternate equipment such as loggers can be fitted once the Homerider equipment is removed.

What is a pulse/pulse enabled/pulse output meter and how can I identify them?

If it's not a digital or a Homerider meter, then it's probably a meter with a pulse output. However, we do offer Cordonel digital meters which have a pulse output. They all have an analogue register/display and the volume of water that goes through them is translated into pulses, e.g. 1 pulse is equal to 1, 10 or 100 litres of water. The pulses can be read via a pulse pick-up module, a device attached to the meter that provides a physical connection to a logger through a free wire.

There are a number of meters installed before 1999 that do not have a "pulse" output. Their number is decreasing as they are targeted through our proactive meter replacement programme.

Meter readings and flow data

What sort of data can I get from a Thames Water meter?
That will depend on the type of meter, its location and any equipment installed on it, but in general, there are two types of consumption data:

Meter readings. Displayed in cubic meters (e.g. 1,234 m^3), these are required for billing customers and market settlement, but also used for detailed analysis of property's consumption, identifying water usage trends and leakage detection if hourly or 15min smart meter (AMI) data is available.
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Flow data. Time series flow data (e.g. 0.34 l/s @ 14:15), available at different flow units and time frames. It provides a frequent and detailed analysis of a property's consumption and is used for identifying water usage trends and leakage detection. It is often used in conjunction with building/energy management systems.

How can I get meter readings from Thames Water meters?
Regardless of meter type, location or additional equipment, you should always be able to visit the site and visually take a reading from a Thames Water meter.

Other options are also available:

- **Free Smart Reads Service** – for all digital (AMI) meters installed within our smart network, we'll provide one meter read per month to the market, where data is available.
- **Digital Data Service** - for digital meters inside our smart network, you can ask us to provide hourly or 15min meter readings daily through our digital meter data service. One-off set up charges apply. Details of this service can be found in our Wholesale Service Offering and our Wholesale Tariff Document.
- **AMR meter reading** - for digital meters installed outside our smart network, you can read the meter in AMR mode using a handheld Sensus Interface Radio Tool (SIRT) device and a suitable reading software. This can be achieved by either using a third-party Meter Reader Service Provider or by purchasing the right software and equipment from Sensus. Both options are only available for single meter readings and do not include historic meter readings or the ability to reconfigure the meters in any way.
- **Logging of the meter** - for pulse enabled analogue or pulse enabled digital meters, you can attach your own reading equipment. If there is a Thames Water logger attached to the meter, a splitter cable can be used to attach a second logger.

Ordering data services

How do I request services?
Retailers or third parties can order services by completing the T/015 form. More information on how to submit the request can be found in our Wholesale Service Offering. Please note, if you're

acting as a third party you'll need to include evidence of customer authorisation when submitting your request.

I'm a company providing water consumption monitoring services to non-household customers, can I order services from you directly?

Yes, third parties do not need to request services via the non-household customer's retailer. For details of the services we offer to third parties, please refer to our website.

If I'm a customer's retailer and the customer switches to another retailer, do I need to provide a letter of authority if I'm going to continue to provide water monitoring services after our retail contract with the customer ends?

You do not need to submit a new request for the service, but we will need evidence that you still have the customer's authorisation to access their consumption data once the contract for retail services has ended. Please send evidence of customer authorisation to our Wholesale Service Desk.

### How can I get consumption (flow) data from Thames Water meters?

Flow data can be obtained by fitting a data logger to a suitable meter with a pulse output. Depending on the meter type and other equipment installed on the meter, there are a few different ways to get flow data:

1. if it is a pulse enabled meter and there is no Thames Water logger installed you can install your own logger directly on to the meter.
2. if it is a pulse enabled meter and there is a Thames Water logger already installed, you can fit a splitter that will allow you to install your own logger next to ours, at your cost.
3. if it is a pulse enabled meter with redundant Thames Water equipment attached to it e.g. Homerider radio module (see below for more information), then you can remove it and install your logger. If another party has a logger attached, you need to seek their permission to remove their equipment prior to carrying out any work.
4. if it is a digital meter, it may not have a pulse output and you may not be able to fit a logger. If this is the case, you could install another meter downstream which you could fit your logger to, provided there is not impact on the integrity of our meter or the water network.
5. you can also ask us to change the type of meter. See Table 1 of our metering policy for details of the type of meter we will install and any charges.

Logging meters

How can I identify meters with a Thames Water logger attached?

You should check in CMOS for the "Wholesaler Logger" flag to confirm ownership of a logger. If you do not have access to CMOS, then you can contact our Wholesale Service Desk and we can check for you.
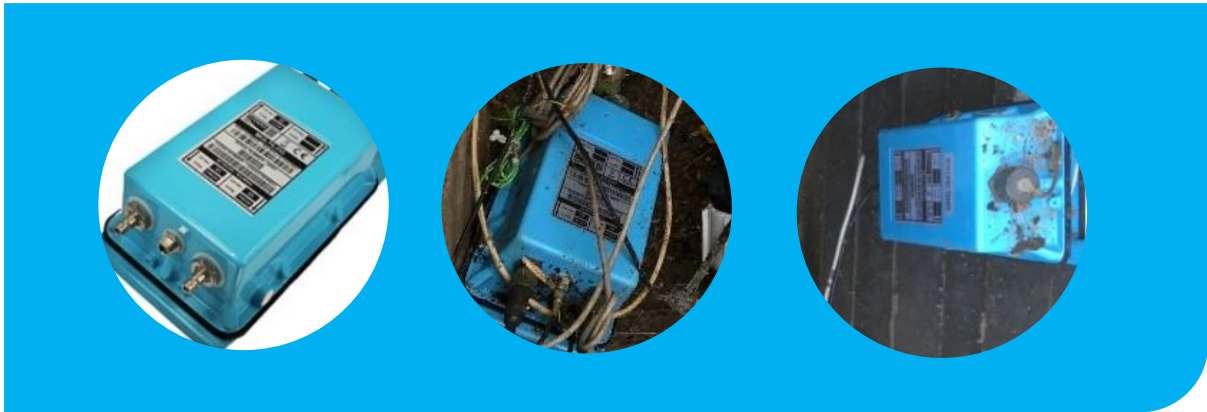
Do I need to ask for your permission to install a logger on your meter?

No, you do not need to ask for our consent to install a logger on a meter. However, we reserve the right to refuse access to our meters for logging purposes at any time, where:

1. we have reasonable grounds to believe that such access will interfere or is interfering with our ability to comply with its licence or statutory obligations or
2. if otherwise necessary for our reasonable operation of the network or
3. if otherwise necessary for leakage management purposes.

If we refuse access to our meter, you can ask us why we have refused permission.

If there is a discrepancy between meter reading taken by visually reading the meter and any data obtained by using a logger, we are entitled to use the visual readings on the meter as the correct value and accepting readings based on non-visual readings will be at our discretion. We will work with you to resolve any data discrepancies.

Where you connect equipment to our meter, you will indemnify us and keep us indemnified against any claims, demands, actions, costs, expenses, liabilities and damages or losses (including all interest, penalties and legal and other professional costs and expenses) incurred by us or our respective officers, agents or sub-contractors arising out of the connection of equipment to our meter or its subsequent use, or in connection with any and all fraudulent or negligent acts or omission of, or breaches of these terms and conditions by you, your officers or employees, or sub-suppliers.

For data protection purposes, we ask that third parties provide us with evidence that they have customer authorisation to install a logger before they attach the logger to the meter. Please send evidence to our Wholesale Service Desk.

How can I connect a logger to a meter?

As mentioned above, you can only connect a logger to a meter with a pulse output. You will need a meter specific pulse pick-up device that will be connected directly to the meter and a data logger that will be connected to the pulse pick-up device. There are several different pulse pick-up devices for different meter makes. Examples include:

Meter Manufacturer	Pulse pick-up
Sensus	HRi, HR-Mei
Honeywell / Elster (Kent)	PR6 / PR7, PR1,2,3,4,5
Itron (Actaris)	Cyble

There is a generic Thames Water wiring diagram for loggers, but it is strongly recommended that you follow the meter and logger manufacturers' instructions on how to install those devices as this will depend on meter type and size.
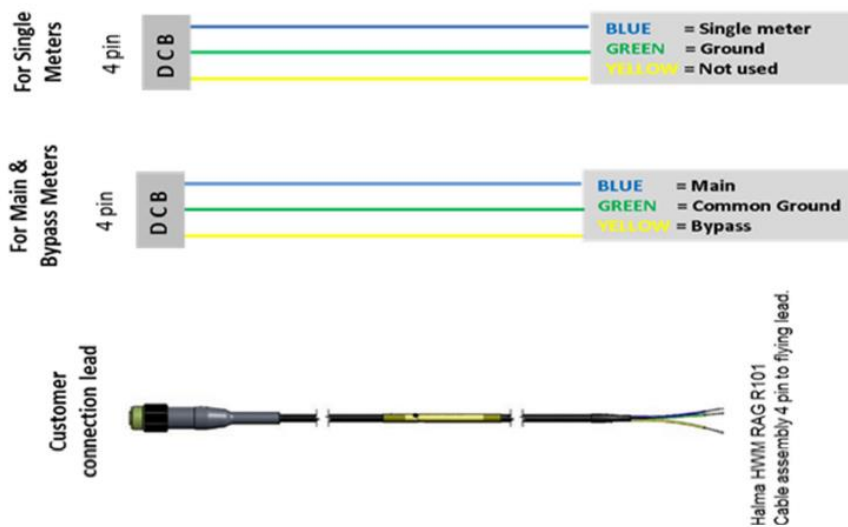
When attaching equipment to our meter you must ensure that the meter is not damaged as a result of installing the equipment and you must not do anything which might interfere with our ability to read the meter. You will be liable for any damage caused as a result of connecting the equipment, maintenance or removal of the equipment.

If we have a logger attached to the meter and you want to install your own logger using a splitter, you must disconnect our logger from the meter and reconnect it to the splitter.

Work must be carried out by competent personnel who must adhere to current health and safety legislation.

Do you allow other types of consumption monitoring equipment to be fitted to the meter?
We will consider allowing customers to attach different types of logging equipment to our meters, but you will need to demonstrate that it does not damage the meter or prevent us from reading or collecting data from the meter.

Can I ask for the type of meter installed to be changed to a type which can be logged?
Please refer to the Exchanging meters table in How can I get consumption (flow) data from Thames Water meters above.

If there is equipment already attached to the meter can I remove it to fit my logger?

Homerider equipment is no longer supported by Thames Water and can be removed from the meter. If there is a Thames Water logger attached to the meter you can attach your logger using a splitter that will allow you to install your logger next to ours. Where splitter cables are required, they can be fitted by a competent supplier.

What is a splitter?

A splitter is a device that can be used to connect ancillary devices such as loggers to pulse output meters, enabling pulse information to be collected.

If you replace the meter will you reconnect my logger?

See Table 1 in our metering policy for the meter replacement types. We will replace the meter with a pulse enabled meter and endeavour to reattach the logger.

If there is an incident, we may not be able to contact you before disconnecting the logger. We will leave the logger in the meter chamber.

Will you notify me that you are going to replace the meter so I can remove my logger?

If we intend to disconnect your equipment, we will, where possible let you know in advance so that you can make arrangements to disconnect the equipment. However, the safe and effective operation of our network may mean that this may not always be possible. If we have not been able to notify you that we are going to remove your logger, or if we have and you have not disconnected the equipment, we will use reasonable care to disconnect the logger and leave it in the meter pit.

We reserve the right to disconnect equipment at any time:

1. if we have reasonable grounds that the equipment is interfering with our ability to comply with our licence obligations or
2. if it is necessary for the operation of our network or
3. for leakage management purposes.

We will not be liable for any charges, costs or losses incurred by you in relation to any change in the meter type or any resulting additional costs relating to procuring or installing new equipment (such as splitters) to enable connection to a pulse enabled meter.

Further information

Information about the services we offer is available in our Wholesale Service Offering.

Information about our charges is available in our Wholesale Tariff Document.

Information about the types of meters we install is available in our Metering Policy.

You can also email our Wholesale Service Desk or use the Contact Us tool on our website.