

Reducing costs for contractors and developers

KURVE
TECHNOLOGIES

The flexible consumer
interface for heat networks



HEAT NETWORKS

Heat networks are a key element to the UK successfully achieving its carbon targets by 2050. Heat networks provide the flexibility to exploit large scale, renewable and recovered heat sources that cannot be accessed at an individual building level. While offering a low-carbon source of energy, heat networks also offer improved safety, supply reliability and energy security.

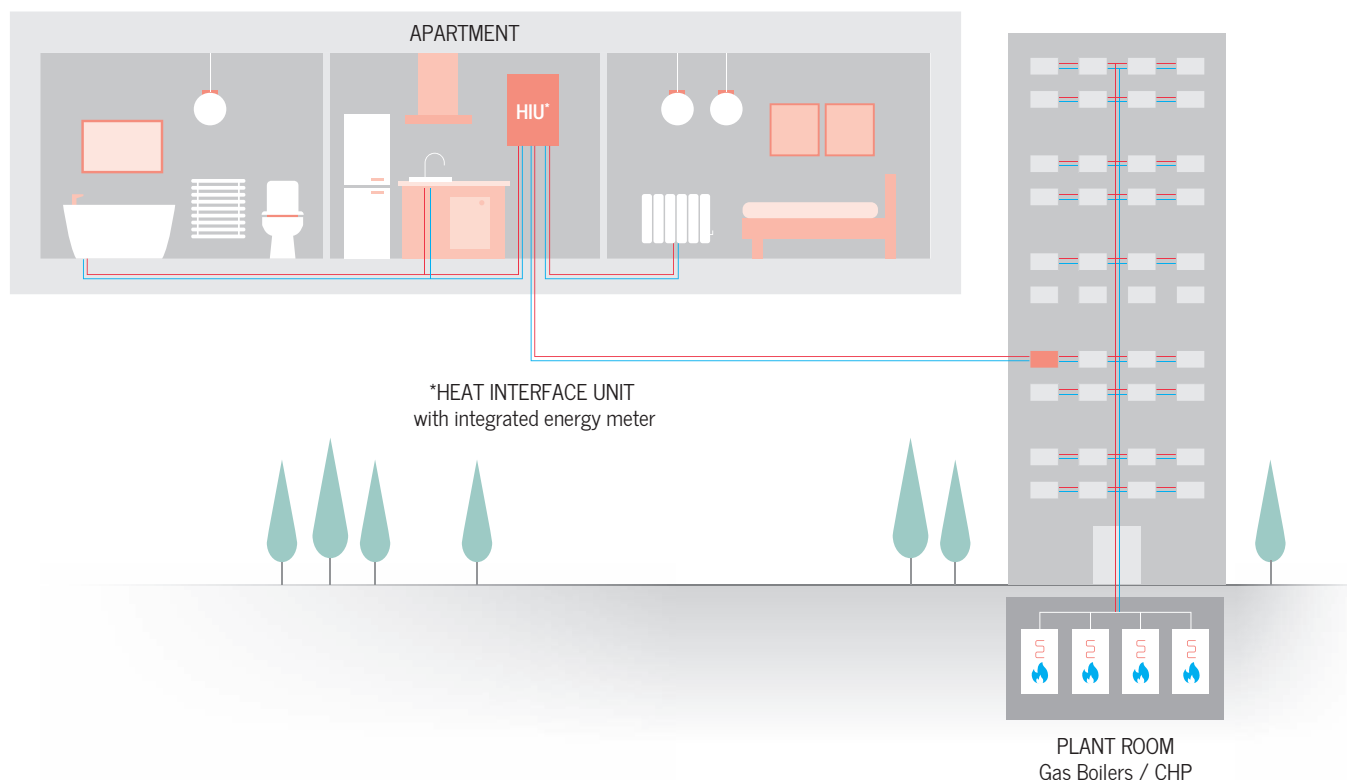
The Climate Change Committee estimates that heat networks need to provide 18% of the UK's domestic heat by 2050, for the UK to meet its ambitious carbon targets. Heat networks currently account for only 2% of UK domestic heat demand, with the industry facing multiple challenges including high capital expenditure (CapEx), increasing operational (OpEx) and replacement expenditures (RepEx), and more demanding requirements for metering and billing.

Metering and billing regulations are tightening - as of 25th October 2020, the Energy Efficiency Directive (EED) requires all meters installed to be remotely readable. In addition, by 1st January 2027, all existing meters must be remotely readable, with data being provided to end consumers on at least a monthly basis.

The installation of metering networks should be performed in line with the best practice standards set-up by CIBSE's Code of Practice 2020 (CP1). In addition, as per **Objective 3.8 ('To define a metering strategy and select heat metering, prepayment and billing systems that are accurate and cost-effective')** of CP1, any additional RepEx for a smart metering system should be taken into account in the overall financial assessment alongside CapEx and OpEx.

Any metering and billing performed following the occupation of a scheme should be in compliance with Heat Network (Metering and Billing) Regulations 2014.

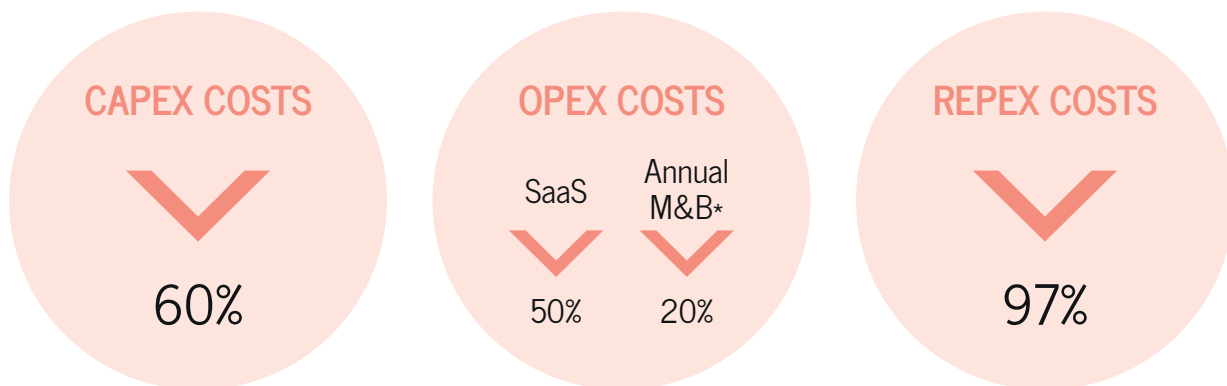
EXAMPLE OF A HEAT NETWORK



KURVE TECHNOLOGIES

KURVE - REDUCING HEAT NETWORK COSTS

KURVE Technologies was established in 2018 and after extensive development, the KURVE web-app has launched. Consumer experience is paramount to the success of heat networks and having on-the-go access helps consumers to engage with their energy consumption. KURVE helps reduce costs and risk whilst improving transparency and convenience to residents.



KURVE IS A JOINT VENTURE BETWEEN INSITE ENERGY AND SAV SYSTEMS



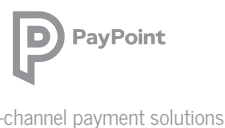
"Optimum indoor living with minimum energy wastage."

Since 1997 we have worked continuously to improve our solutions by collaborating closely with clients, designers, site engineers and our chosen technology partners to ensure the right solution is delivered to each project, making us UK market leaders for HIUs.



With over 10 years of heat network experience, Insite Energy provides a range of specialist services to heat network operators across the UK. This includes smart metering, billing, payment and customer support services to over 28,000 homes. At Insite, we aim to take the stress out of metering and billing for all.

KURVE TECHNOLOGY PARTNERS

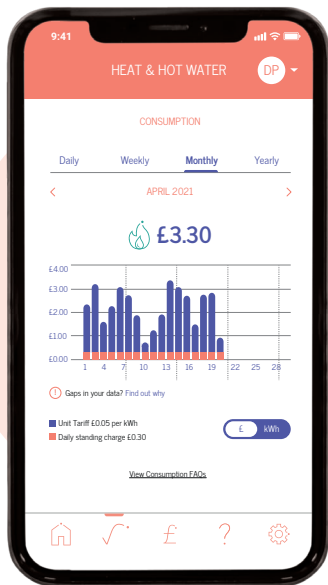


FOLLOW YOUR KURVE

KURVE has been designed with both clients and residential consumers in mind. This new smart metering and billing solution has been developed as a web-app allowing customers to access their account through any Internet-connected device from anywhere, at any time.

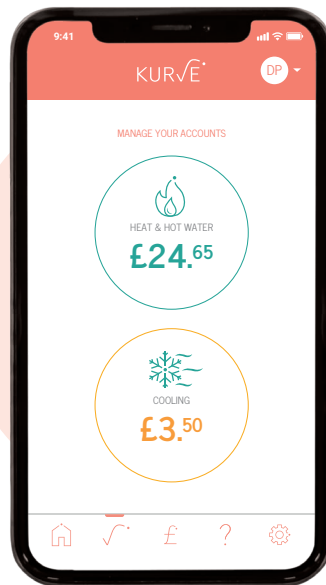
KURVE displays a customer's energy consumption over the day, week, month and year, giving them access to their data whenever they want. This visibility promotes their engagement with their energy usage - a proven way of encouraging reduced energy use and achieving cost savings.

From the KURVE web-app a customer can view their current balance. With the embedded fast and secure payment technology, consumers can conveniently manage their utility account on the go. Paying for energy use has never been easier or more convenient. To date (Mar 2022), 97% of consumer payments have been made online via the web-app.



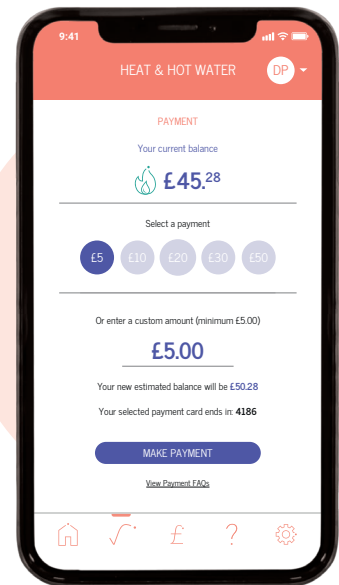
CONSUMPTION AT YOUR FINGERTIPS

- Daily, weekly, monthly and yearly views
- Historical data access
- View energy usage (kWh)
- View energy spend (£)
- Promotes conscientious energy usage and reduced spend
- Current and historic tariffs (daily standing charge and kWh unit rate) displayed in app.



YOUR BALANCE

- View current balance (£)
- View today's usage (kWh)
- Activate emergency credit
- View latest meter reading
- Traffic light colours to highlight current balance status
- Estimated number of days of credit remaining



MAKING PAYMENT

- Email balance notifications sent to customers as helpful top-up reminders
- Top-up via the KURVE web-app
- Top-up at any PayPoint outlet with cash or card
- Top-up via 24/7 secure phone payment service (IVR)
- Ability to store multiple payment cards
- 4-click quick-pay process
- Payment history viewable in app
- Fully PCI compliant payment processes



KURVE FOR CLIENTS

CAPEX, OPEX & REPEX

- Simple in-dwelling installation requirements, saving c. 2-hours per unit:
 - No in-home display device required
 - Energy meter only
- Simple network installation requirements:
 - Standard wired M-Bus network
 - Resultant reduction in CapEx
- Results in minimal maintenance (OpEx cost)
- Results in reduced asset replacement (RepEx cost)

FLEXIBLE KURVE SET-UP

- Streamlined resident sign-up journey with tailored-to-scheme customer communications
- Adjustable welcome, friendly-hours and emergency credit
- Adjustable cut-off limit to enable PAYG and CAY-G set-up, remotely switchable
- Alternative account set-up options for vulnerable customers
 - Option for 'keep warm' billing omission
 - Customer account settings can be configured at property level to client requirements



DEBT RISK MANAGEMENT

- Automatic supply isolation in the event of non-payment (self disconnection)
- Enhanced cash-flow security
- Individual debt recovery plans available
- PCI, GDPR and Cyber Essentials compliant
- Ring-fenced client accounts for customer payment collections
 - Full compliance with: Heat Network (Metering and Billing) Regulations 2014, CIBSE Code of practice (CP1) 2020 and Heat Trust guidelines.



For more information on the installation requirements for KURVE, download our guide.

www.kurve-tech.com/install



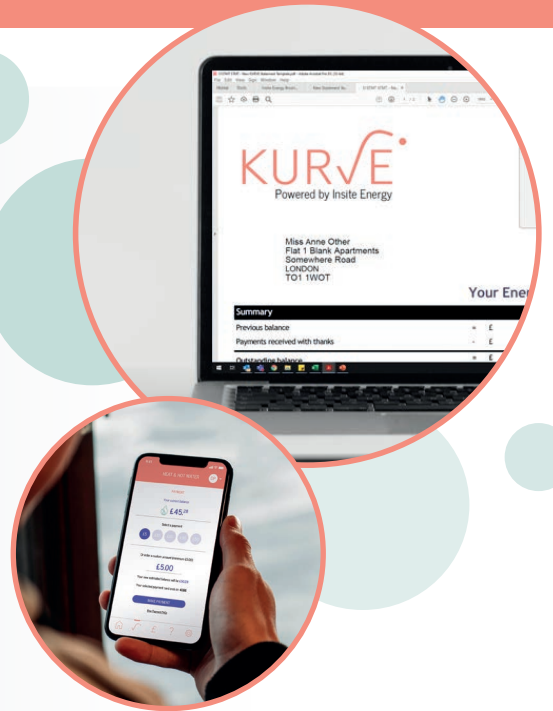
KURVE FOR CUSTOMERS

FLEXIBLE BILLING OPTIONS

We understand that all customers are different. As a result KURVE can be offered in various ways:

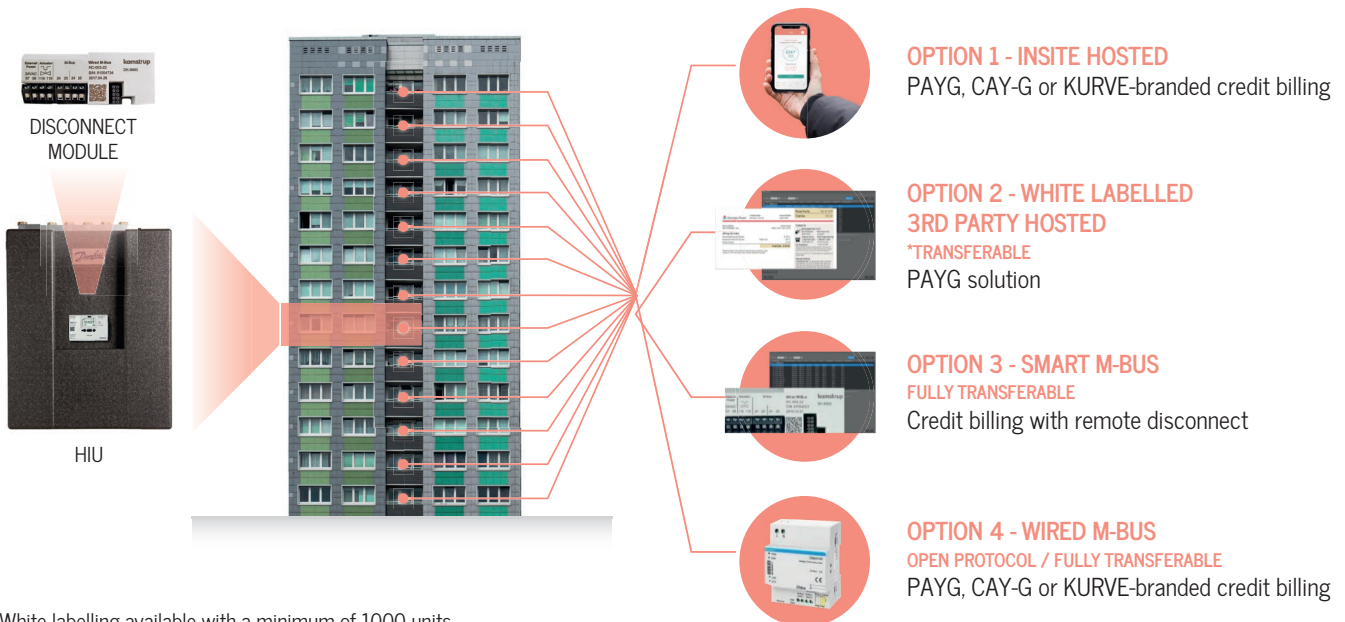
- **KURVE Pay-As-You-Go (PAYG):** a customer has full access through their online account.
- **KURVE Credit-As-You-Go (CAY-G):** a **NEW** configuration of the web-app allowing customers to pay in arrears whilst having a cut-off limit in place to manage the risk of aged debt.
- **KURVE-branded credit billing:** standard monthly electronic or paper credit billing with KURVE branded statements, with the ability for manual disconnection. This is our recommended billing method for vulnerable customers who may struggle with technology or the risk of being disconnected.

Whatever option is selected, an authorised account holder can be appointed to manage an account on behalf of a friend or family member. As KURVE is a web-app, accessible from anywhere, this makes supported account management effortless.



OPEN PROTOCOL

Kamstrup Open Protocol infrastructure behind KURVE ensures full transferability of hardware installed on site and software to operate the system.



* White-labelling available with a minimum of 1000 units

HOW IT WORKS

FLEXIBILITY TO PICK WHAT WORKS FOR YOUR SCHEME



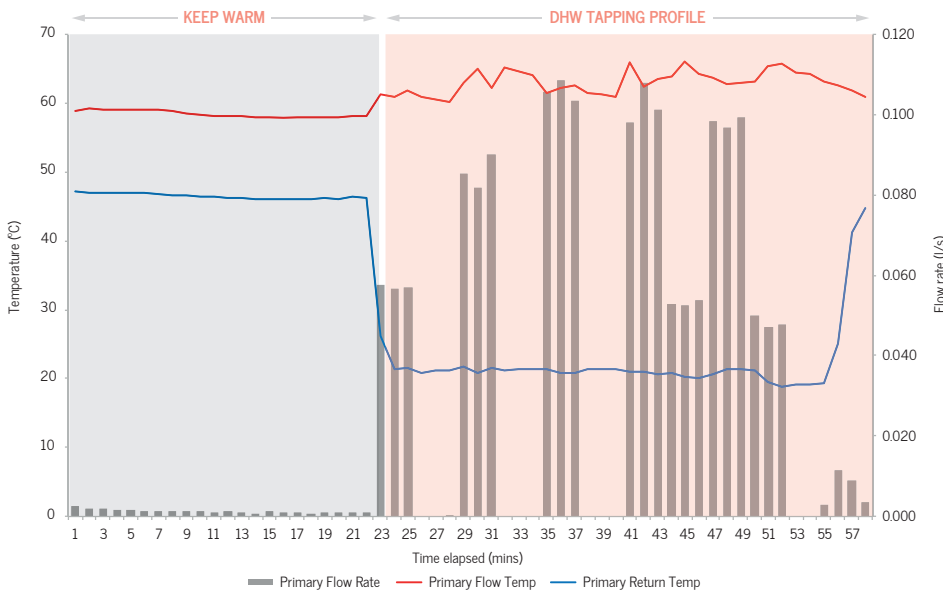
Fully transferable; if at any point you want to move away from the KURVE solution, you will have full control to do so obtaining meter data via the wired M-Bus network.

HIU COMMISSIONING

Gone are the days of simple checklists for commissioning HIUs, as these do not tell the full story. Clients, consultants, contractors and commissioning engineers all face challenges to prove HIU commissioning has been successfully completed. Kamstrup energy meters provide the evidence to resolve this issue.

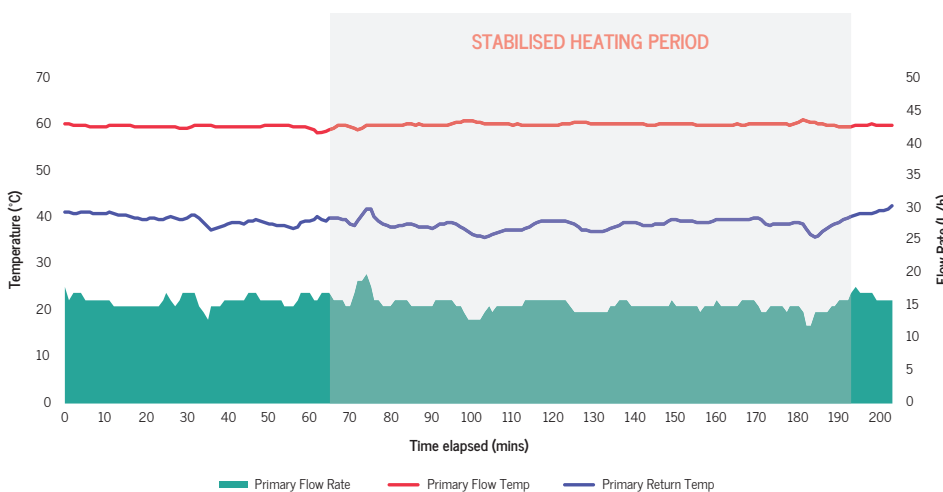
With the Kamstrup meter installed inside the HIU, one-minute meter data can be extracted to show heat network flow and return temperatures and flow rate. There are three main variables to commissioning a HIU; (1) domestic hot water, (2) space heating and (3) keep warm function. This data is used to analyse and demonstrate HIU performance. Please see an example of the data that can be extracted below.

DHW AND KEEP WARM PERFORMANCE



Why add complexity when the data is already there!

HEATING PERFORMANCE



ONGOING MONITORING

KAMSTRUP ENERGY METER

Kamstrup's technology has grown with the heat network industry, with over 350 engineering specialists engaged in Kamstrup's Research and Development department. There is a huge amount of intelligent technology built into the Kamstrup meter, making it possible to process and log readings. This data can be used for ongoing monitoring to quickly highlight if things are going wrong in the system.

MAX POWER & MAX FLOWRATE

To help with peak load monitoring, max power and max flow readings are recorded. Understanding this metric helps with maintenance, operation and design.

VWART / VWAFT

Volume Weighted Average Return Temperature (VWART) is a key factor for heat networks to monitor the health of the system. Keeping the VWART as low as possible reduces costs and improves efficiencies.

VWART is calculated and displayed on the Kamstrup meter, and extracted through the M-Bus datagram.



Kamstrup 603 energy meter

PERMANENT DATA-LOGGING

Each energy meter incorporates a permanent memory (EEPROM) where the energy data is stored, assisting engineers and billing companies to access the recorded information when required. The following four data loggers are included as standard:

Yearly logger	20 readings
Monthly logger	36 readings
Daily logger	365 readings
1 min logger	4320 readings

READY PRO

Easy to access, clear and actionable data is key to being able to understand how your scheme is operating. With KURVE's open protocol wired M-Bus system you will always be able to have the data in the way that works for you.

You can't manage what you can't measure.

Heat network performance analysis

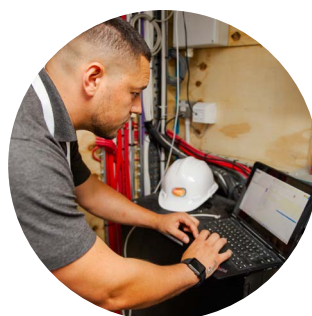


KURVE



KURVE UK SUPPORT

KURVE's specialist teams work across all areas of metering and billing delivery with nation-wide coverage.



Please come visit us at our
Technology Centre in Woking
for a hands-on introduction
to KURVE.



KURVE Technologies

Studio 4 Stuart House, St. Johns Street, Peterborough, England, PE1 5DD

Telephone: +44 (0) 20 3696 4977
enquiries@kurve-tech.com

London – Woking – Peterborough – Edinburgh – Manchester – Bath





www.kurve-tech.com