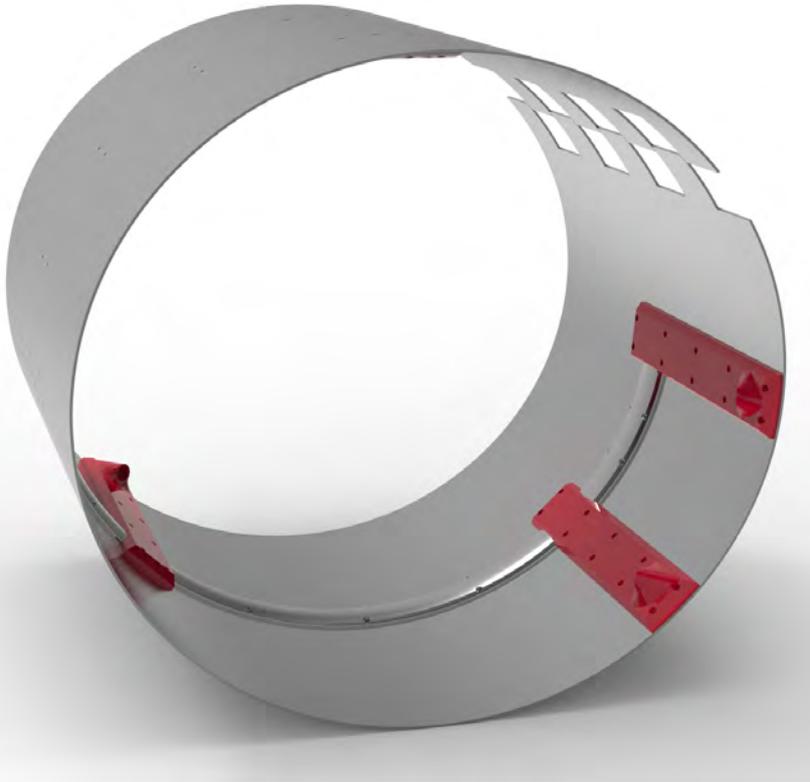


# SMART CITIES WASTE WATER SENSOR PLATFORM



## FEATURES

### Accurate measurement of physical waste water parameters

The WS-100 measures water level, water pressure, water flow and water temperature in high-resolution. The thickness of the silt layer can also be measured.

### Measurement of other parameters (optional)

The WS-100 can be extended with additional measurement parameters, for example sensors to measure conductivity and pH for specific applications.

### Local data storage

The WS-100 locally stores raw measurement data ensuring long, completely standalone unattended operation. Having access to raw measurement data is perfect for research applications and/or for developing AI based decision making processes.

### Rugged & waterproof

The WS-100 is fully waterproof (> IP69) and built to last. Sensors are not affected by pollution in their operating environment. Enclosures are made of tough materials that also protect the electronics well.

### Easy to maintain

Sensors and system require very little to no maintenance. Power banks can be charged on location. The system keep detailed error logs to quickly find potential problems.

### Connectivity

Standard communication via RS485/Modbus or Bluetooth Low Energy (BLE4.2). Other standards or optical communication can be made available on request.

### Application Programming Interface

The complete API is available to communicate over RS485 or Bluetooth LE. The API and internal data processing can be customized for specific applications.

### OEM customizations

The WS-100 water measurement platform can be customized or extended for specific applications.

## SUMMARY

The Smart Cities water sensor platform is an entire solution for obtaining relevant information about waste water and/or a complete sewerage network. The sensing platform can also be used for surface water measurement applications.

The system consists of a number of components:

### Sensor measurement unit

Waterproof sensors that measure a variety of physical and chemical (waste) water parameters.

### Control & communication unit

Waterproof data collection, processing and raw data storage (sd-card) unit. The control unit is equipped with a number of wired and/or wireless connectivity standards to communicate measurement data to the Cloud. The control unit also contains power banks for standalone operation in case no external power is available.

### Cloud based storage and visualization (optional)

Cloud based storage, AI based data processing and visualizations of a complete infrastructure or network.

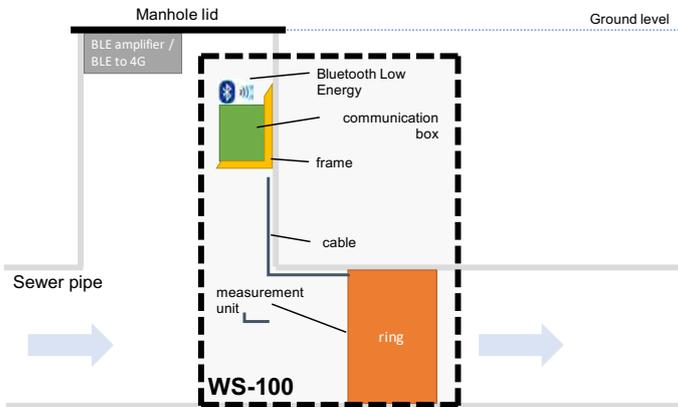
**NOTE: Preliminary specifications. Subject to change without notice**

# SMART CITIES WASTE WATER SENSOR PLATFORM

## APPLICATIONS

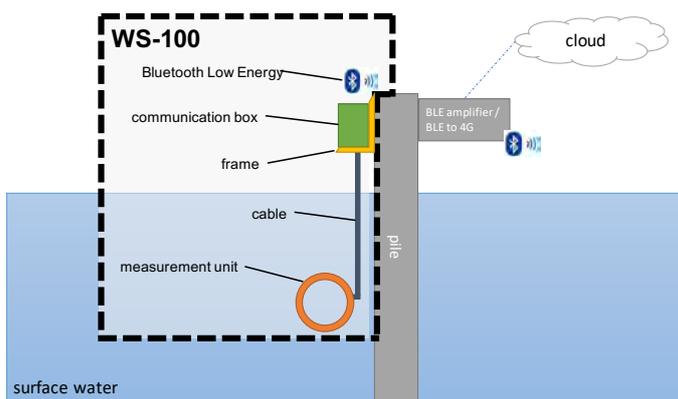
### Waste water monitoring in sewer pipes

The WS-100 water sensor platform is suitable for a wide variety of (waste) water monitoring applications in sewer pipes.



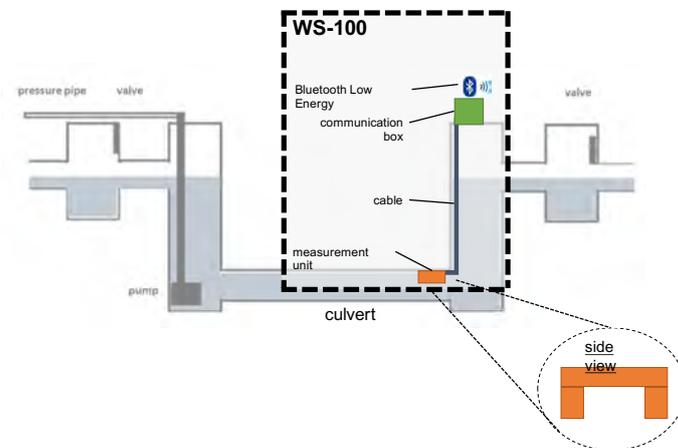
### Surface water monitoring

The WS-100 water sensing platform is also used for surface water monitoring.



### Culvert water monitoring

The WS-100 water sensing platform is also used for measuring in culverts.



# SMART CITIES WASTE WATER SENSOR PLATFORM

## TECHNICAL SPECIFICATIONS

### Measurements

**Physical parameters:** water level, pressure, flow, water & environment temperature, silt layer thickness\*

**Chemical parameters:** water conductivity, specific chemicals, pH (validation pending).

### Sensors

- Flow, level, thickness sensing: tested pipe diameters upto 125mm
- Flow rate measurement range: tbd
- Temperature measurement range: 0-25°C
- Pressure measurement range: 0-2 bar
- Water resistance: IP69 or better

- Mechanical sensor executions:  
**Metal insert:** quick installation in concrete pipes with diameters ranging: 300-900mm (tested in the field)

**External PVC ring:** for diameters < 300mm external PVC rings are used.

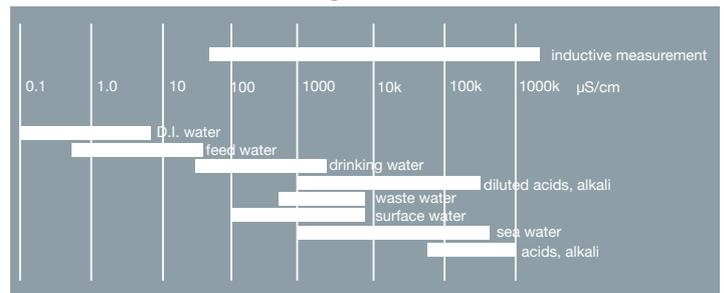
### Control unit

- Dimensions (l x w x h): 300 x 240 x 95mm
- Weight: approximately 8kg
- Water resistance: IP69 or better
- Local storage of raw data measurements
- Connectivity: RS485, Modbus, Bluetooth Low Energy (4.2)
- Power bank: 12VDC, 25Ah, rechargeable.

\* Silt layer thickness/water level depends on diameter of sewer pipe



### Water Conductivity measurements



# SMART CITIES WASTE WATER SENSOR PLATFORM

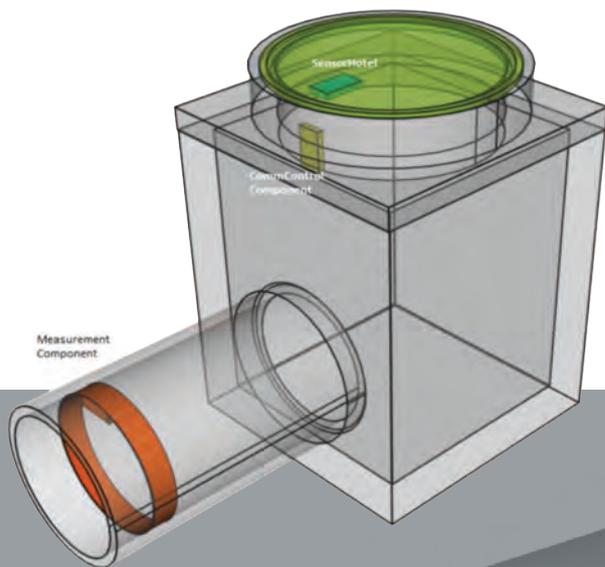
## CUSTOM SOLUTIONS

2M Engineering is specialized in the development of sensor products. 2M Engineering develops, certifies and produces standard and customized solutions for specific applications.

Together with our clients we determine the specifications, customisation requirements and subsequently build, test and validate new solutions before larger scale production.

## MORE INFORMATION

Contact 2M Engineering to learn more. Together we can explore if our water sensing technology platform is the answer to the application you have in mind.



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