

Factsheet

Trade Waste Flow Measurement Fact Sheet

Trade waste flow measurement devices

In accordance with Unitywater's Trade Waste Management Plan, all customers with a Category 2 trade waste agreement are required to use a flow measurement device on their trade waste discharge point. Other customer sites may also be required to install a flow measurement device following assessment of a trade waste application. This flow measurement equipment provides accurate data on the rates, volumes, and frequency of trade waste discharges to our wastewater system.

We may use the flow data to:

- Determine the volume of discharge and the mass of substances being discharged to Unitywater's wastewater network.
- Calculate accurate customer charges.
- Determine a site specific variable sewerage usage percentage.
- Enable flow proportional sampling of the trade wastewater.
- Provide accurate hydraulic data to plan operations of networks and Sewage Treatment Plants.
- Manage compliance against the conditions of your agreement.

Requirements for trade waste flow measurement equipment

A full pipe electromagnetic flow meter that can be electronically verified is a standard requirement for new Category 2 applications seeking to discharge commercial or industrial trade wastewater. All existing Category 2 sites that do not currently have a flow meter will need to install one. Unitywater will also install, at no cost to the customer, a data logger on the trade waste flow meter at all Cat 2 customer sites where practical.

The installation of the discharge flow meter instrumentation must be in a location that excludes any domestic wastewater generated on-site. The meter and sampling point must be in a safe, level and accessible location with protection from the weather where possible.

The flow meter needs to be set up for full pipe flow to enable accurate measurement and may require pipe bends to ensure a full pipe set-up (see Fig 2 below).

Flow measurement equipment must:

- Be as close as possible to the pollutant source or immediately downstream of the pre-treatment plant to monitor the total discharge. No other trade waste connection to sewer should be made downstream of the flow meter.
- Have the flow totaliser next to the sampling point to allow connection of an automatic sampler to the correct plug. This is to enable flow proportional sampling.
- Have a readout that displays the total volume discharged in kilolitres (kL) and instantaneous flow in litres per second (L/s). Cubic metres (m³) are permitted as an alternative unit where kL is not an option. No other units are acceptable.
- Be hardwired to the electrical supply with battery back-up.
- Have a suitable weather-proof RCD protected 10 amp 240-volt AC power outlet next to the sampling point to enable connection to power automatic wastewater sampling equipment.
- Please refer to *Table 1 Instrument specification and installation procedures for trade wastewater* for detailed installation requirements.

Commissioning, verifying, calibrating and maintaining flow meters

Once a flow meter is installed, it must undergo on-site commissioning and verification. A verification certificate is required for all new discharge flow meter installations, including the replacement or installation of a flow meter at a current trade waste discharge site.

Verification must be undertaken annually at a minimum by a qualified person in accordance with Australian Standards with a certificate of verification to be provided to Unitywater.

Customers are responsible for keeping the flow meter in proper working condition in accordance with the manufacturer's guidelines. To ensure the accuracy and reliability of the flow measurement system, all associated pipework and fittings must also be maintained regularly.

Correct installation of equipment

Designing flow measurement systems to meet specific site conditions is a specialised task.

While many consultants, manufacturers, and suppliers can provide the necessary equipment, it must be integrated into a system tailored to your site's unique requirements.

Only appropriately qualified professionals should be engaged to design, install, and service this equipment.

Fig. 1 – Example of a trade waste discharge meter set-up



Fig 2 – Basic “full pipe” meter set-up

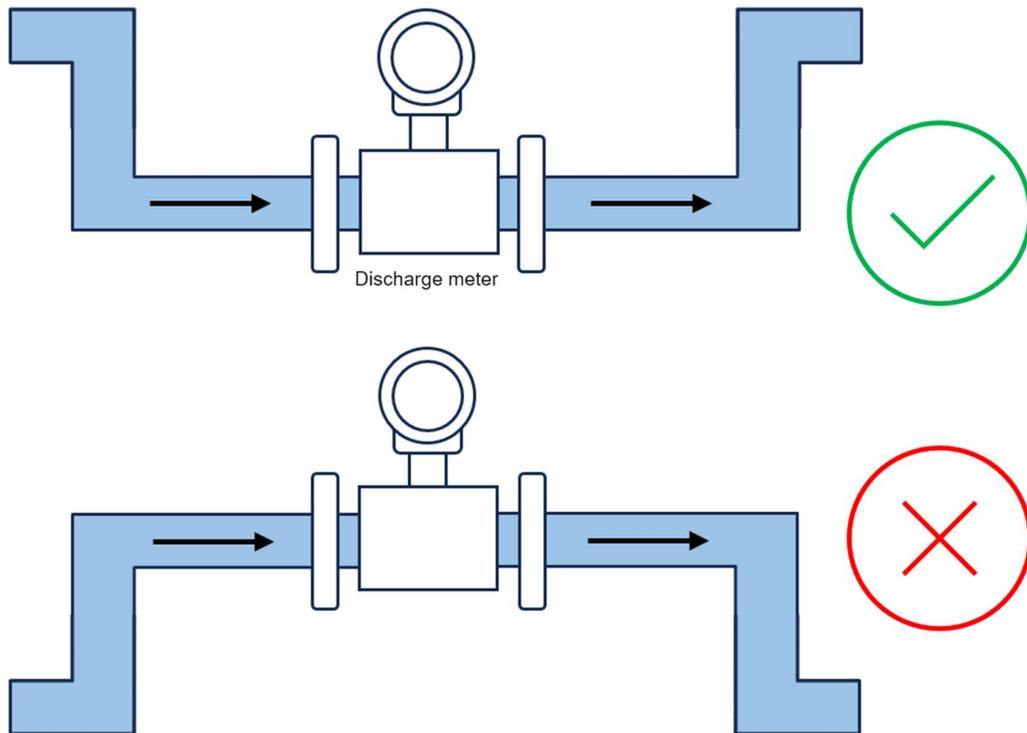


Table 1: Instrument specification and installation procedures for trade wastewater

Factor	Specification
Pipe size	25mm to 150mm – larger pipe sizes require prior approval
Accuracy	Plus or minus 2% of the actual flow at the lowest typical flows.
Visual display	<ul style="list-style-type: none"> Instantaneous flow rate in litres per second (minimum one decimal place). Totaliser in kilolitres (minimum six digit) with no external reset. Uninterrupted power supply with battery backup of minimum 48 hours.
Power supply	<ul style="list-style-type: none"> An RCD protected 10 amp 240V AC Power outlet to connect an automatic sampler. Hardwired instrumentation housed in a weatherproof (IP56) enclosure with a clear front, where it can be easily accessed. All electrical work to be completed by a Licensed Electrical Contractor meeting Australian Standards.
External output plug	<p>To enable interface between the flow metering equipment and automatic sampling equipment (where composite sampling is required), the flow meter must have:</p> <ul style="list-style-type: none"> Amphenol 6 pin output plug (part number MS3102E14S-6P) with dust cover (part number MS 25043-14). The plug is to be located at a height adequate to avoid any liquid ingress and within 2 metres of the sampling point. Voltage free (isolated) pulse output connected to Pin A (+ve) and Pin C (-ve), with a minimum duration of 300 milliseconds for each unit count on the totaliser unit. Pulse output set at 1 pulse per 1 kilolitre (1,000 Litres). For small volume dischargers (<5kL/d), pulse output is to be set at 1 pulse per 100 litres. Displayed units will need to be changed from kL to L for small volume dischargers.
Installation procedures	<p>Full pipe flow measurement installations may vary, depending on the type and manufacturer of the flow meter. Refer to the manufacturer's specifications. Note that all installations must comply with the following:</p> <ul style="list-style-type: none"> An isolating valve must be installed upstream of the meter for maintenance purposes (not required for pumped discharges). Pipework in to, and out of, the flow meter must be designed using pipe bends/elbows to ensure that the flow meter section remains full at all times. To ensure accurate flowmeter readings, install the meter in a straight pipe section, avoiding turbulence and obstructions, with sufficient straight pipe lengths upstream and downstream, as recommended by the manufacturer. Avoid installing the flow meter near strong electromagnetic fields.
Conductivity	The conductivity of the process liquid is to be a minimum of 20 micro Siemens per centimetre ($\mu\text{S/cm}$).