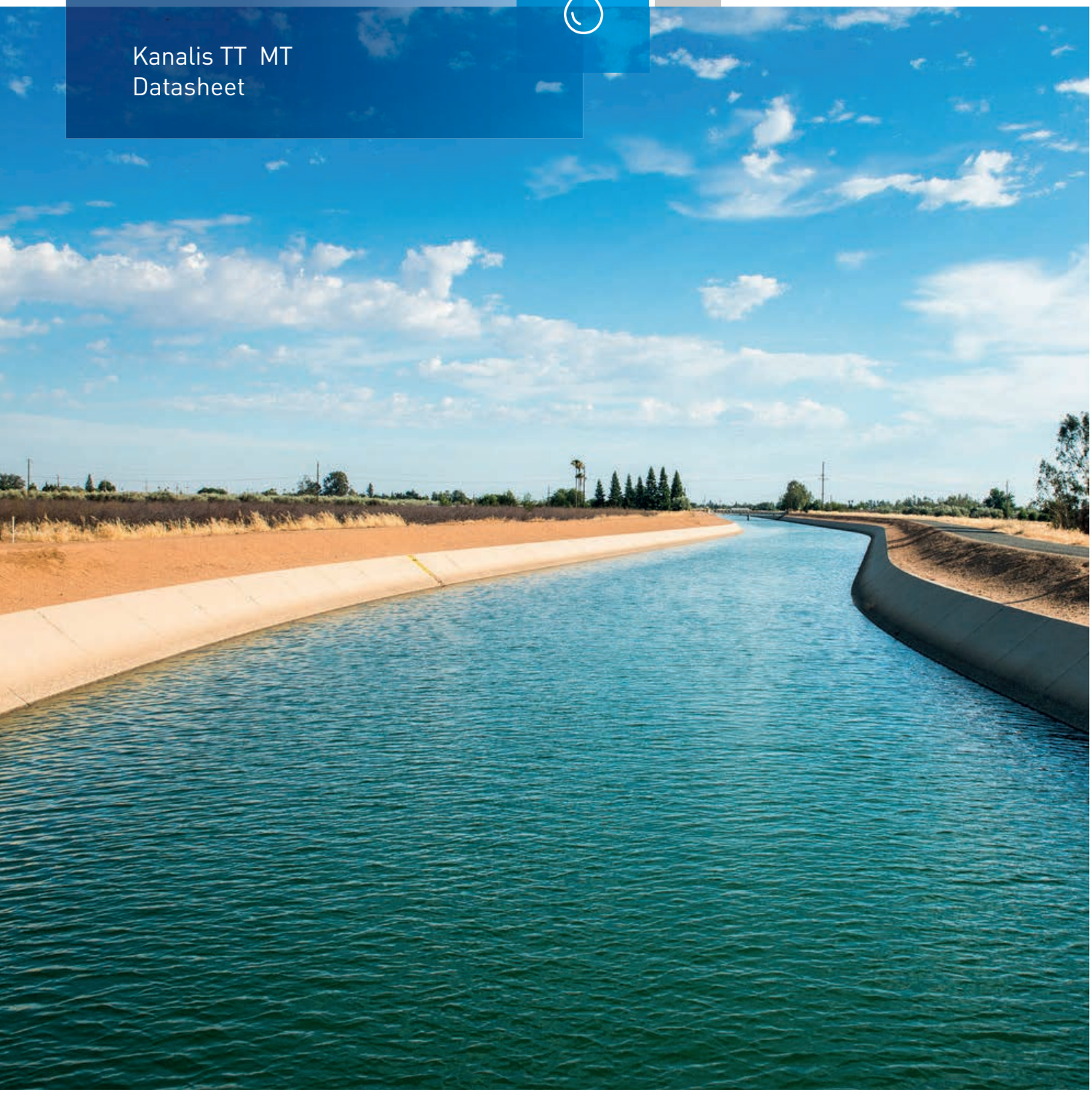
Acoustic Multi-Path Flowmeter

Kanalis TT MT
Datasheet



Innovative measurement solutions
for valuable resources

Kanalis TT MT

Application

GWF's Kanalis TT MT is a velocity area open channel flowmeter which uses the acoustic "travel-time" method.

This method assumes no relation between level and flow, like weirs or flumes. It will correctly determine flow throughout its designed range by measuring water velocity and depth.

For installation in open channels or closed conduits, Kanalis TT MT operates over the fully bi-directional flow range without causing obstruction or head loss. Onsite characteristics such as varying water levels, skew flow or complex channel shapes are taken into account via specific path configurations.

Typical applications include:

- Rivers
- Irrigation Channels
- Industrial Discharges
- Wastewater Treatment Plants (WWTP)
- Hydroelectric Power Plants

Features & Benefits

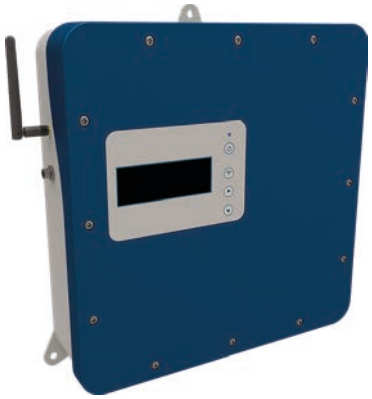
- Suitable for up to 6 paths
- Expandable for up to 18 paths
- ISO 6416 compliant
- Local and remote communication
- Onboard data logging
- No need for mains power to operate (solar operation possible)
- Low power consumption

ISP™ Technology

The flow meter combines intelligent signal processing (ISP) with correlation detection methods. It uses controlled signals, whose characteristics are imposed during the transmission phase (duration, frequency, level etc.). The reception is therefore based on the suitable filtering of these characteristics, possibly accounting for the perturbations brought by the environment.

The frequency modulated signals are processed on reception by correlating the received signal with a copy of the expected signal. The use of this Intelligent-Signal-Processing is justified for very accurate measurements of transit time with an excellent time resolution and a high processing gain.

Technical Information



Kanalis TT MT

Travel time system with digital signal processing

The Kanalis TT MT flow meter is a compact instrument incorporating the latest electronics and digital signal processing technologies, realizing high performance and easy operation, suitable to most environments.

Parameterization of the measurement site and data visualization is easily possible using the standard webbrowser of your smart phone, tablet PC or notebook – there is no need for any additional software or App.

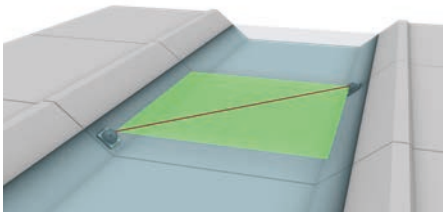
Software

Advantages

- wireless communication with flowmeter (WiFi)
- protection from unauthorized access due to individual user rights
- 16 GB internal data logger
- graphical menu-driven interface for rapid commissioning
- system diagnostic, remote maintenance
- flexible data visualization (e.g time series, velocity profiles)

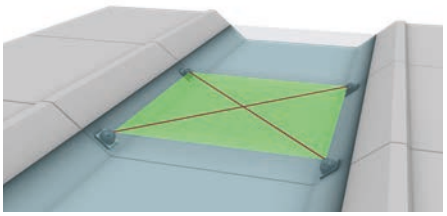
Single-path system

In its most basic form, the system operates with a single pair of transducers. However, it relies upon a relatively stable velocity profile, essentially unaffected by changes in the relation between water level and flow. The main flow has to be parallel to the bank. The relationship between measured velocity and flow is established by hydrometric calibration.



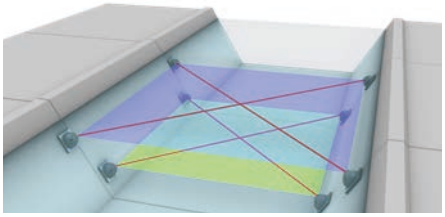
Crossed-path system

In rivers there is a high risk of cross flow. Its intensity depends mainly on the river's geometry and if there is an upstream bend in the river. Although the cross flow does not influence the quantity of the flow, it may affect the measurement, a second pair of transducers will be necessary. By crosswise arrangement of four transducers, effects of changing flow direction can be eliminated.



Multi-path system

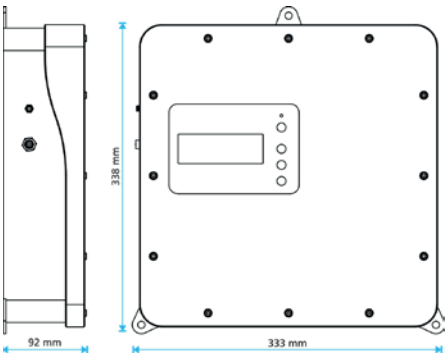
An even more accurate flow measurement can be obtained with systems using several planes.The measured result can be further improved by using a multi path system layering each of the acoustic paths in parallel planes one above the other. This negates having an expensive hydrometric calibration. This type of system is suitable for applications with large water level fluctuations, reverse flow or a vertical velocity distribution outside the theoretical normal.



Technical Data

Transmitter

Specifications



	Kanalis TT MT
Acoustic Paths	1 to 18, length 1 to 30 m
Channel Width	1 to 30 m (3 to 98ft.)
Display	4 lines, 20 characters
Keypad	4 keys
Datalogger	16GB Micro SD card
Communication	RS-485, Modbus (RS-232 or RS-485), WLAN, GPRS, Ethernet 10/100 Mbps
Inputs	max. 4 x 4-20 mA, 2 x digital
Outputs	max. 4 x 4-20 mA, 4 x Relay, 2 x digital
Power Supply	85-260 V_{AC} (48-60 Hz) or 9-36 V_{DC}
Approval	IP 65
Enclosure	ABS, wall mounted

Tranducer Mount Ball

Specifications	TD-200/18	TD-200/8	TD-200/18 Atex
Frequency	200 Hz	200 Hz	200 Hz
Beam Width	18° (-3dB)	8° (-3dB)	8° (-3dB)
Dimensions	Ø 140 mm	Ø 218 mm	Ø 140 mm
Height	70 mm (2.76 inch)	109 mm (4.29 inch)	70 mm (2.76 inch)

Mounting Assembly Standardized mounting devices are available for any kind of channel geometry like rectangular, trapezoid or natural river banks. The flow optimized design protects the transducers against moving objects suspending in the flow stream. It also provides room for connections and protective conduits.

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