FLEXIM

FLUXUS® F/G721

Setting Standards in Non-intrusive Liquid and Gas Flow Measurement

Oil & Gas

Chemical

Petrochemical

Water & Wastewater

Power Generation

District Energy

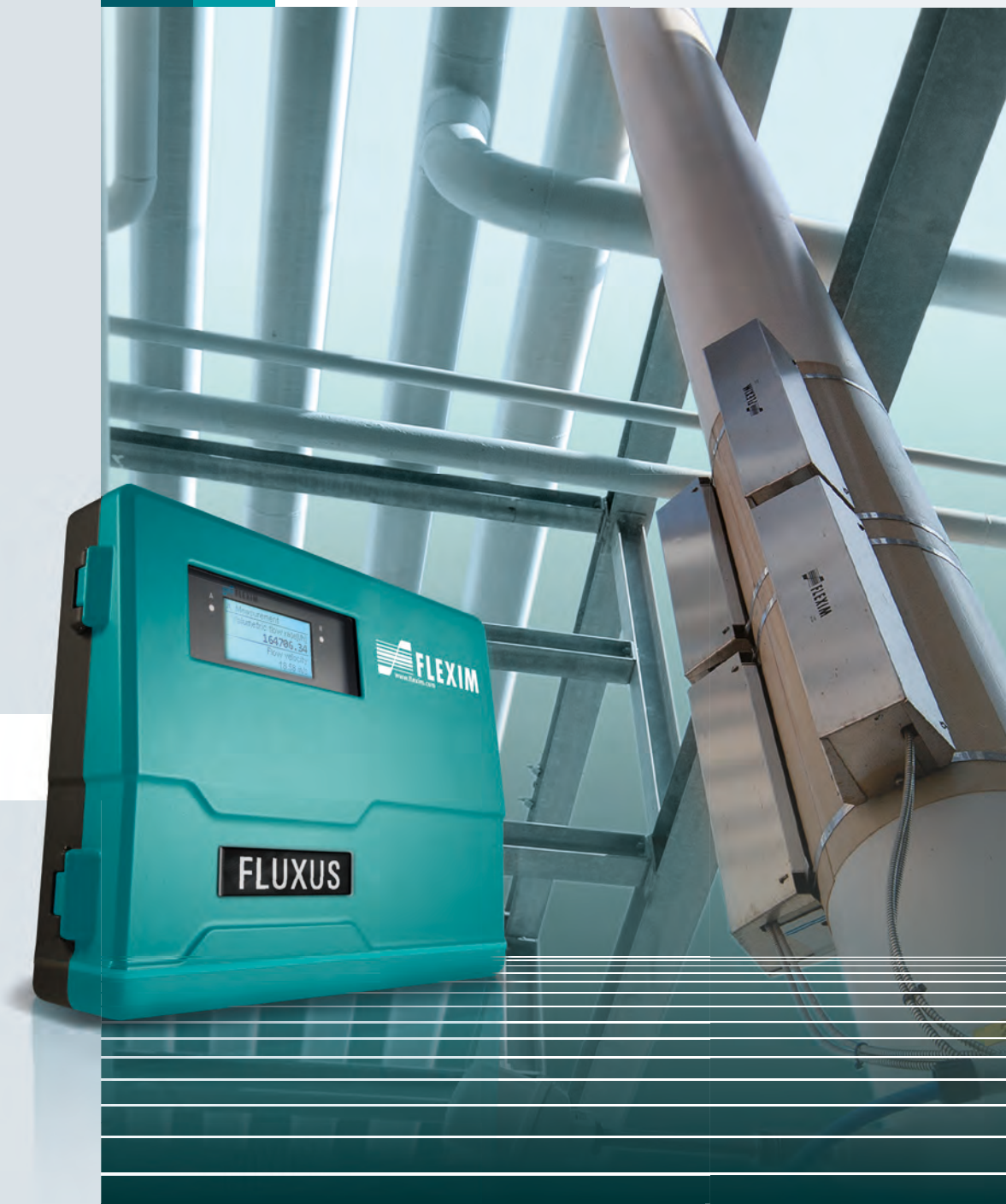
Pharmaceutical

Semiconductor

Food & Beverage

Mining

Energy Efficiency



FLEXIM Sets Standards

when measuring matters

Setting Standards

Reliable - Safe - Efficient

The FLUXUS® F/G721 is a technological breakthrough in the ultrasonic clamp-on flow measurement of liquids and gases.

With its new hardware design and improved, powerful digital signal processing it surpasses any other non-intrusive ultrasonic flowmeter in terms of accuracy, reliability and versatility.

Highly sophisticated signal filters, faster than ever processing capacities and substantially improved measurement algorithms make the FLUXUS® F/G721 a state-of-the-art measuring solution even for the most challenging applications. The meter adapts itself automatically to the respective measurement conditions and compensates for perturbations such as beam dispersal and structure-borne noise, allowing for even more precise and reliable measurements. Extreme fast measurement cycles allow for precise real time monitoring of highly dynamic processes.

Pushing the Boundaries

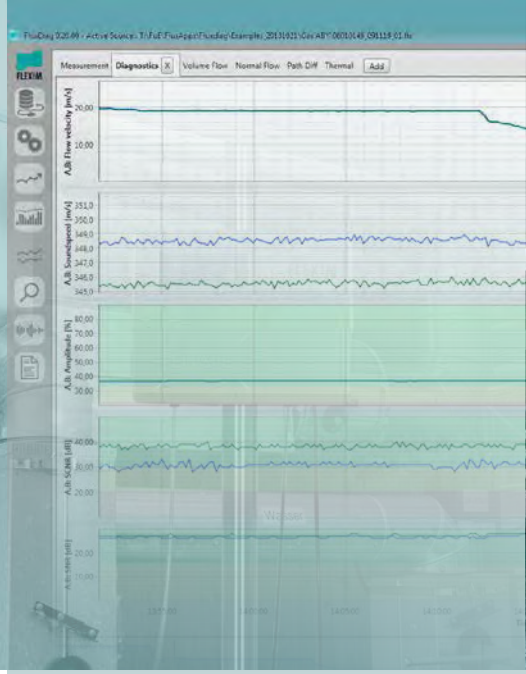
FLUXUS® F/G721 offers non-intrusive flow measurement of virtually any kind of liquid or gas, from the smallest tubing to the largest penstock, independent of the pressure inside the pipe and over a very large temperature range. Due to its advanced technology, the measurement is unaffected by solid or gaseous entrainments or gas wetness and distinguishes itself by its unrivalled turndown ratio: Even low flows down to only a few liters per hour can be recorded accurately.

As the flowmeter of choice for a very wide range of applications in virtually any industrial sector, the FLUXUS® F/G721 is available with two different enclosure types: aluminium housing for standard applications and stainless steel housing for operation in highly corrosive environments. The stainless steel housing can be used in explosion hazard areas (ATEX, IECEX Zone 2, FM Class I /Div2, EAC TR TS Zone 2).

Ready for Industry 4.0

The FLUXUS® F/G721 comes with all common communication protocols. HART, Modbus, Foundation Fieldbus, Profibus PA and BACnet allow bidirectional field communication, parameterisation and online diagnostics. Further special configurations guarantee optimal customisation to the individual application.

The FLUXUS® F/G721 is also one step ahead in terms of user guidance and diagnostics. It can be easily parameterised via USB. Its ethernet connectivity provides additional bidirectional communication capabilities.



Unrivalled advantages of non-intrusive flow measurement with the FLUXUS® F/G 721:

- → No process interruption - maintenance-free (no need for frequent work in hazardous areas)
- → Certified for operation within hazardous areas (ATEX, IECEx Zone 2); SIL2 capable
- → Fast measuring dynamics also capture highly pulsating flows
- → Reliable measurements even of slurries, liquids with gaseous entrainments or wet gas (up to LVF of 5%)
- → High operational safety with no risk of leaks
- → Independent of pipe material, diameter, wall thickness and internal pressure and temperature
- → Accurate and repeatable measurement readings - even at extremely low flow rates (high turndown ratio)
- → Highly cost efficient in comparison to wetted instrumentation

Technical facts

Measurement uncertainty (volumetric flow rate):	
FLUXUS® F721 (liquids)	± 1% of reading ± 0.005 m/s
FLUXUS® G721 (gases)	± 1 ... 2% of reading ± 0.005 m/s
Transmitter	
Explosion protection:	
FLUXUS® F/G721	ATEX/IECEx Zone 2, FM Class I / Div 2 available
Power supply:	
FLUXUS® F/G721	100 ... 230 V AC, 24 V DC, 12 V DC
Outputs:	
FLUXUS® F/G721	4 - 20 mA active / passive, 4 - 20 mA HART active / passive, pulse, frequency, binary
Inputs:	
FLUXUS® F/G721	Pt100 / Pt1000, 4 - 20 mA active / passive, binary
Digital Communication:	
FLUXUS® F/G721	Modbus RTU/TCP, BACnet MSTP/IP, M-Bus, Profibus PA, Foundation Fieldbus
Available transducers:	
Explosion protection:	
FLUXUS® F/G721	ATEX/IECEx Zone 1/Zone 2, FM Class I / Div 2
Pipe size range (inner diameter):	
FLUXUS® F721	6 mm ... 6500 mm
FLUXUS® G721	7 mm ... 1600 mm
Temperature range (pipe wall):	
FLUXUS® F721	-40 °C ... + 240 °C / WI: -200 °C ... +600 °C
FLUXUS® G721	-40 °C ... +240 °C

For more detailed Information please download the Technical Specifications here: www.flexim.com.

Unique features of the FLUXUS® F/G 721:

- → Highly accurate and reliable volume and mass flow measurement of liquids and gases as well as thermal energy
- → Accurate and reliable metering - due to its built-in HybridTrek® mode even of particle-loaded or gas entrained liquids
- → Virtually free of wear and tear with no maintenance required due to measurement outside the pipe wall
- → Every measurement system is pre-calibrated in-house (traceable to national standards) and delivered with a calibration certificate
- → Matched transducers, integrated temperature compensation (according to ANSI/ASME MFC-5.1-2011 regulations) and digital signal processing guarantee a high zero point and flow measurement stability
- → Permanent coupling with unique couplant pads, FlexSpring secured mounting fixtures guarantee durable contact pressure also on heavily vibrating pipes
- → Bidirectional communication as well as remote parameterisation and diagnostic capabilities

Versatile Applications

Oil & Gas

From wellhead to the gas station - everything is flowing. For the safe and efficient operation of the multitude of processes in hydrocarbon production, treatment and transport, all these flow rates need to be monitored. Harsh environments, challenging process conditions and highly explosive media place the highest demands on measuring equipment.
FLUXUS® F/G721 excels where others fail. Flow measurement from outside the pipe is independent of the pressure inside and not subject to wear and tear. In conjunction with the patented WaveInjector® mounting fixture, liquid flows can be measured in an unrivalled temperature range from -190 °C (for LNG) up to +600 °C (e.g. for refinery applications). Due to its sophisticated signal processing, the FLUXUS® F/G721 provides reliable measurements even in the most demanding applications such as the measurement of pulsating flows with solid/gaseous contents or on lines carrying heavily moisturized gas. As the FLUXUS® F/G721 can also be used for non-intrusive media identification, it is the ideal allocation meter for tank terminals.

Chemical Industries

Modern, integrated chemical plants form highly complex networks of mass and energy flows. Safety takes top priority. Continuous monitoring of all relevant process parameters is essential for fault-free operations.
FLUXUS® F/G721 measures from the safe side - the outside of the pipe. The practical advantages of non-intrusive flow measurement are obvious: no wear and tear by the medium flowing inside the pipe, no risk of liquid leakage or fugitive gas emissions, no pressure loss and, above all, unlimited plant availability.

Water & Wastewater

Withdrawal of water usually begins at wells, reservoirs and large water tanks. Pipes with large nominal diameters also mean high costs for wetted instrumentation and for installation work - this is not the case with FLUXUS®. Moreover, the F/G721 offers exceptionally precise bidirectional flow measurement over a wide turndown ratio, which is especially important when capturing low flow velocities at off-peak times for leak control.
FLUXUS® F/G721 measures independently of the pipe dimension and material. Its advanced technology allows for non-intrusive flow measurement even on prestressed concrete cylinder pipes (PCCP) which may be several meters in diameter. Due to its built-in Hybrid Trek mode, wastewater slurries with high solid / gaseous contents can also be precisely monitored.

Energy Efficiency

Energy counts. In every respect. Energy is a key factor for human life, work and economy.
Saving energy pays off. The FLUXUS® F721 Energy is the ideal solution to tap energy efficiency potentials non-intrusively, in HVAC applications as well as in industrial processes. Whether it is used for thermal power measurement in district heating networks or for monitoring the efficiency of an industrial heat exchanger, non-intrusive measurement never affects the safe supply in any way. With its excellent sensitivity for low flows and with highly accurate and paired temperature sensors, the FLUXUS® F721 Energy is particularly suited to accurate measurement of energy consumption in climatisation systems.
With regard to gases, the FLUXUS® G721 is the perfect tool to measure the consumption of costly compressed air - non-intrusively without any potential for possible leaks.

Power

Safe operation and security of supply are essential in power generation. Therefore it is clear: It's better not to touch the pipe! This is even more evident, if you want to measure flow rates in the gigantic headrace pipeline of a hydro power plant or even in the primary circuit of a nuclear power plant.
FLUXUS® F/G721 stands for absolutely reliable flow measurement without any interruption to supply. In conjunction with the WaveInjector®, FLUXUS® also measures the flow of molten salts which are used as heat transfer fluids in concentrated solar power plants. Another typical application is the flow measurement of hot boiler feedwater and the identification of water / steam cuts in water drain lines of combined cycle power plants.

Other Industries

The application range of FLUXUS® is broad. The non-intrusive measurement principle also plays out its full potential in hygienic applications, such as in the pharmaceutical, food & beverage or even the semiconductor industries. By measuring from outside the pipe wall, direct media contact and thus potential media contamination can be ruled out. Other application fields include the mining sector and adjacent steel plants. Typical applications include the measurement of mineral slurries or acid-loaded streams - measurement points where non-invasive technology is always preferred in comparison to wetted flowmeter technologies.