

Flexible Industrial Measurement

# FLUXUS<sup>®</sup> G601 CA Energy

The portable flow meter for the measurement of compressed air, gases and heat quantities

Non-intrusive

Flexible

Precise

Reliable

Intuitive

External measurement  
of internal flow





# Portable Flow Measurement of Compressed Air

There are many advantages to using compressed air in modern production environments, however,

## **compressed air is one of the most expensive forms of energy!**

More than 90% of the energy used for its production is lost in the form of heat and mechanical or other losses. In addition, leaks are a regular occurrence due to the often extensive pipeline systems and the difficulty in detecting possible leaks.

## **The FLUXUS® G601 CA Energy is the ideal measuring system**

- ▶ for checking entire compressed air networks and existing measurement technology,
- ▶ for compressed air balancing within plants and production environments,
- ▶ for individual measurement of virtually any compressed air branch,
- ▶ and therefore the tool of choice for detecting and quantifying leaks.

## **The FLUXUS® G601 CA Energy offers maximum flexibility**

- ▶ Measurements with the highest possible accuracy on pipes with nominal diameters between DN50 and DN300 and from a pressure level of 5 bar upwards (on plastic pipes from atmospheric pressure).
- ▶ The ultrasonic transducers are mounted on the outside of the pipe – there is no need for any pipework, process interruption or ventilation for installation.
- ▶ The FLUXUS® G601 CA Energy itself can never be the source of leaks – in complete contrast to conventional flowmeters for compressed air applications.
- ▶ The FLUXUS® G601 CA Energy is highly flexible and versatile and can be used almost anywhere. As a result, old-fashioned, permanent logger-based measurements are a thing of the past.

**The FLUXUS® G601 CA Energy, the ideal system for monitoring compressed air systems.**

## **Compressed air flow measurement in the automotive industry**

Production technology in the highly automated automotive industry largely depends on the use of compressed air. Many of the tools applied on the assembly lines are powered pneumatically. Since it is expensive to generate compressed air, its supply must be continuously optimised. For this reason, flow rates in the plant are measured and consumption rates are recorded. Non-intrusive ultrasonic flow measurement allows for an analysis of the system during ongoing operation. By using the FLUXUS® G601 CA Energy, a single measurement system allows for the gradual acquisition of flow rates at different measuring points.

The clamp-on ultrasonic transducers are simply mounted on the outside of the pipe at the relevant measuring points, without any necessary pipework and associated shutdowns. Based on the information obtained in regard to the flow direction, flow rates and consumption, compressors can be operated much more efficiently and further optimisation measures can be developed. In addition to that, the portable measuring system is used to diagnose leakages on days during plant shutdowns.

### **Advantages:**

- ▶ A single measurement system for a multitude of measuring points
- ▶ No risk of leakage
- ▶ No pressure losses
- ▶ Bidirectional measurement: simple recognition of the flow direction



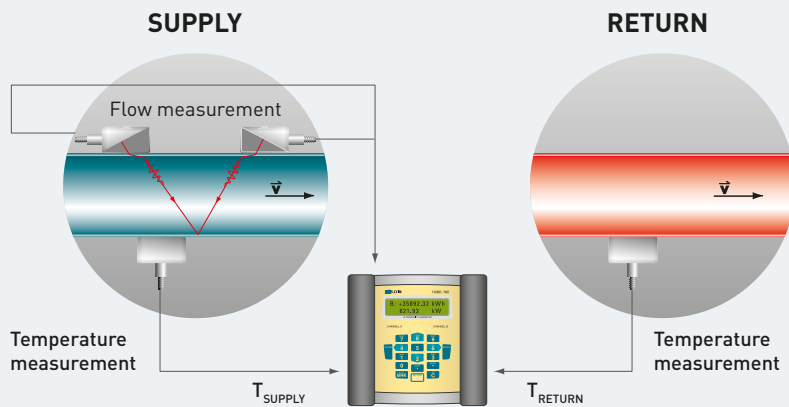


# Portable Thermal Energy Measurement

The FLUXUS® G601 CA Energy not only offers accurate flow measurement of compressed air and industrial gases but can also be used for Thermal Energy / BTU balancing in liquid media based heating and air-conditioning systems or heat exchangers. Its accuracy and reliability is therefore unrivalled, due to both the carefully selected and matched 4-wire PT100/1000 temperature sensors and also the enthalpy curves embedded in the device.

## The advantages of the FLUXUS® G601 CA Energy are obvious...

- ▶ Fast measurement in less than 5 minutes
- ▶ No pipework necessary
- ▶ Reliable measurement even under difficult conditions
- ▶ High accuracy due to digital signal processing and superior noise correction algorithms
- ▶ Maximum flexibility over a wide operating range - pipe size range from 6mm up to 2.5m and more as well as from -40°C up to 200°C
- ▶ Ergonomic design and robust housing
- ▶ Intuitive user guidance
- ▶ Long-lasting marathon battery for up to 14 hours autonomous measurement
- ▶ Interfaces and software for convenient visualisation and evaluation of measured values on the PC



**The FLUXUS® G601 CA Energy – also an ideal companion for monitoring thermal energy flows in buildings and facility management**

## Thermal energy balancing within facility management

In order to identify the energy savings potential of a building, first of all its entire energy situation must be recorded and analysed. For overall energy consumption, it is particularly important to check the relevant plants for heating, air conditioning and production of domestic hot water.

This is when the portable FLUXUS® G601 CA Energy flowmeter is used to determine the actual thermal energy balance of a heating or cooling plant directly through empirical measurements. Temperatures in the supply and return lines are measured using highly accurate temperature sensors. Flow measurement is carried out using the clamp-on transducers. With two available flow measurement channels and four temperature inputs to determine the thermal energy flow volume, the respective heat or cooling flows can simultaneously be detected at two measuring points in order to ensure the various outputs are balanced. Data loggers and various interfaces allow for an easy transfer of measured values to a PC which can then be displayed graphically and analysed with FluxData diagnostic software.

### Advantages:

- ▶ Ideal for energy audits and the optimisation of heating and cooling plants
- ▶ Measurement ready in less than 5 minutes
- ▶ High-precision recording and evaluation of measured values

# FLEXIM

More than 20 years of experience in clamp-on ultrasonic technology



## Technical Data

<b>FLUXUS® G601 CA Energy:</b>	Portable measuring device for non-intrusive flow measurement of gases (industrial gases, compressed air, etc.), liquids and thermal energy flow rates (clamp-on flow measurement according to the transit-time difference method, temperature measurement using clamp-on or inline temperature sensors)
<b>Quantities of measurement:</b>	Operating flow rate, standard flow rate, mass flow, flow velocity, heat flow, instantaneous thermal energy output, totalized thermal energy and fluid volume, temperature $T_s$ , $T_r$ , $\Delta T$ , Units: W, Wh, BTU, tons, J, etc., acoustic velocity of the medium
<b>Flow velocity:</b>	0.01 to 25 m/s for liquids, 0.01 to >35 m/s for gases
<b>Repeatability:</b>	0.15% of reading $\pm$ 0.01 m/s
<b>Accuracy for gas flow measurement:</b>	$\pm$ 0.5% of reading $\pm$ 0.01 m/s with field calibration** $\pm$ 1 ... 3% of reading $\pm$ 0.01 m/s without field calibration - depending on the application For the flow measurement of gases / compressed air at metal pipes a minimum pressurization level of 5 barg is necessary. For plastic pipes no minimum pressurization level is necessary.
<b>for liquid flow measurement*:</b>	$\pm$ 0.5% of reading $\pm$ 0.01 m/s with field calibration** $\pm$ 1 ... 1.2% of reading $\pm$ 0.01 m/s with 7 points wet flow calibration
<b>Temperature measurement:</b>	$\pm$ 0.05 K using paired clamp-on temperature sensors (100 Ohm/1000 Ohm, 4-wire)
<b>Data logger capacity:</b>	>100 000 measured values
<b>Loggable values:</b>	all physical quantities, totalized values and diagnostic values
<b>Outputs:</b>	4x passive current output, 2x binary output, 1x frequency output, interface: RS232 (USB converter included)
<b>Inputs:</b>	2x temperature input, 2x passive current input

\* under reference conditions and with  $v > 0,15$  m/s  
\*\* if reference uncertainty better than  $< 0,2\%$

Further Information can be found at the acc. G601 Technical Specifications at [www.flexim.com](http://www.flexim.com)

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