

Ultrasonic distance measuring systems

UDM



The ultrasonic distance measuring systems **UDM 1000** and **UDM 2000** facilitate highly accurate distance and thickness measurements in gaseous mediums on resonating surfaces, such as metals, glass, wood, liquids and many types of fabric. Whereby measuring accuracy amounts to up to $10\mu\text{m}$!

The measuring range starts from the sensor's front rim $+30\text{mm}$ up to approx. 2mtr for passive sensors without auxiliary reflector. For sensors with one or two auxiliary reflectors, the measuring range starts approx. 30mm behind the last auxiliary reflector in the sound's direction. Sensors with auxiliary reflectors are always used in cases, where highly accurate measurements are required. For measurements allowing for an accuracy of $\geq 3\text{mm}$, or for relative measurements, no auxiliary reflector is required.

Measuring accuracy solely depends on the sensors employed, and on environmental conditions. The ultrasonic measuring system always operates with a default definition of $2,5\mu\text{m}$. This is determined by the hardware employed, and by the pulse sequence. All calculations on the ultrasonic card are performed with 32 bit floating point arithmetic.

This new generation of ultrasonic devices have the following remarkable features:

- **high measurement frequency also for thickness measuring with two sensors of up to 400Hz by using a micro controller**
- **additional optical data interface for attachment of fibre-optic light guides**
- **easy programming of all parameters by LC-display and 4 input keys**
- **running-time dependent amplifying adjustment of ultrasonic sound signal**

The **UDM** systems have been designed for fitting different ultrasonic converters:

- ⇒ Sell radiator for highly accurate measurements, $\pm 0.01\text{mm}$ on short range
- ⇒ piezoceramic sound converter for measuring of longer distances (up to 2 mtr)



Technical Data:

| | |
|----------------------------|--|
| Power supply: | 24VDC, 100mA |
| Conversion rate frequency: | 200Hz, optional 400Hz |
| Definition: | 2.5µm in air for sensor U 1000, 25µm in air for sensor P 8000 active |
| Measuring range: | up to 10 mtrs |
| Analogue exit: | 0-10V |
| Relay exits: | 2 |
| Interfaces: | RS 232 - V.24 and optical-serial |
| Display: | 2-digit LC-display with lighted background, optional: LED-display |

Accessories:

- data conversion module for conversion of the serial data via optical waveguides on RS 232 V.24 level for connection of optical waveguides to a PC, etc.
- extension leads for the ultrasonic sensors with LEMOSA sockets
- power unit 220VAC/24VDC

Subject to technical changes. Version: January 2011



Dr. D. Wehrhahn
Meßsysteme für die Qualitätssicherung
Dr. D. Wehrhahn
Meßsysteme für die Qualitätssicherung
Hildesheimer Str. 140
D-30173 Hannover

Fon +49 511 51 26 65
Fax +49 511 52 21 52

Mail info@drwehrhahn.de
Web www.drwehrhahn.de