

# PROCESS CONTROL

# UNIFLOW-200

## MULTIFUNCTION FLOW COMPUTER

## SPECIFICATIONS & OVERVIEW

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**Multi-run & multi-station design:**  
**8 meter runs and 4 station totalizations**

**High-performance microprocessor**

**Galvanically isolated I/O points**

**Software calibrated I/O channels**

**Smart transmitter interfaces**

**No potentiometers or batteries**

**Multiple RS232/RS485/RS422 serial ports**

**10/100 Ethernet and USB port**

**Modbus TCP, Modbus, HART,  
Honeywell DE, flow meter protocols**

**Configurable display**

**Reporting and data archiving**

**CO<sub>2</sub> emission calculation**

**Calculates all fluid properties according  
to relevant ISO, AGA, ASTM, GOST standards**

**Serial interfaces for gas chromatog-  
raphs, mass and ultrasonic flow meters**

**Online configuration software**

## OVERVIEW

**UNIFLOW-200** is an extremely reliable, user-friendly flow computer. A flexible and versatile instrument that satisfies all your flow measurement requirements.

Originally designed for hydrocarbon gas and liquid measurement, it's the perfect tool for fiscal measurements and custody transfers, but also works excellent in process applications where industrial gases, steam, or hot water are measured. UNIFLOW-200 is compatible with virtually all flow meters on the market. Eight meter runs handle up to eight different fluids with different types of flow meters, all in the same multi-run system. Measurements and calculations are based on the most recent international standards.

The expandable modular design provides interfaces for various metering equipments:

- **Standard 4-20 mA**
- **RTD**
- **Pulse-frequency**
- **Standard digital communications**
- **Digital inputs and outputs**

UNIFLOW-200 connects to your gas chromatographs, mass and ultrasonic flow meters, and digital transmitters. It works both as a standalone unit and as a system component.

System communication interfaces:

- **3 serial ports sw-selectable  
RS232/RS485/RS422  
(standard or Daniel Modbus protocol)**
- **1 LAN port, 10/100 Ethernet  
(Modbus TCP protocol)**
- **1 USB 1.1 port**

Free software (UNIFLOW-200 Toolbox, Configurator and Remote Archive Uploader) makes installation, configuration, start-up, and everyday use easy and straightforward.

## WHO IS IT FOR?

### Metrologists & process engineers

who need undisputable flow measurement data anywhere, anytime

### Hydrocarbon producers

who require robust & reliable metering solutions

### Industrial producers

who are serious about process optimisation

### Flow meter manufacturers

who need a reliable flow computer to integrate their products with

### Gas transmission system operators

who want to be sure about their custody transfers and fiscal measurements

### Engineering companies

who need to design redundant flow measurement systems at a moderate cost

### Flow measurement professionals

who need to work with several types of existing equipment without problems

### System integrators

who need heavy-duty solutions with a friendly price tag

### Energy professionals

who want to keep tight account of energy consumption and CO<sub>2</sub> emission

**See full specifications  
and try out UNIFLOW-200 at:  
[www.processcontrol.hu](http://www.processcontrol.hu)**

# SPECIFICATIONS

## Analog inputs

Symmetrical inputs with galvanic isolation.

Input range	0/4–20 mA *
Accuracy	+/- 0.02 %
Input voltage drop	5.4 V max.
Potential diff. among inputs	50 V max.

## 4-wire RTD inputs

Sensor type	PT100 **
Accuracy	+/- 0.03 °C
Wiring resist. incl. safety barriers	3 kΩ max.

## Pulse-frequency input (incl. NAMUR)

Signal processing	without loss of pulses
Frequency range	0–10000 Hz
Input signal level	2 V–15 V
Signal form	square, unipolar
Inaccuracy of freq. meas.	0.001 % max.

## Digital inputs

Potential-free contacts, open collector (transistor) and 24 V DC inputs can be accepted and used as static inputs, or pulse inputs (frequency: 100 Hz max.) without any further activity required from the user. Potential-free inputs are supplied with power from the circuit board (12 V DC, 6,8 kΩ).

## Analog outputs

Output channels with individual galvanic isolation.

Output range	0/4–20 mA *
Resolution	12 bits
Load	500 Ω max.

## Digital outputs

Galvanically isolated open collector (transistor), overvoltage- and overcurrent-protected outputs.

Load	100 mA, 40 V max.
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## Field bus inputs

HART	point to point or multidrop connections, 24 V DC power supply
Honeywell DE	single or multivariable transmitters, 24 V DC power supply

## Digital communication

RS232/RS422/RS485 *	
Baud rate	1200–38400 bps
Protocol	Modbus (RTU, ASCII)
10/100 Ethernet	RJ45 (Modbus TCP)
USB port	1.1

## Operator panel

3.5-inch QVGA 320×240 pixel backlit TFT color LCD display
Foil protected membrane keyboard

## EU conformity

EC-type examination certificate	CE marked
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## Uncertainty, MPE

- Maximum permissible error (MPE) of the separate calculator on the calculation of quantities of gas, applicable to electronic calculators without uncertainty of the input channels: (OIML R 140:2007) +/- 0.05 %.
- Maximum permissible error (MPE) of the separate calculator of gas volume conversion device including the uncertainty of the input channels: (EN 12405-1:2005) +/- 0.2 %.

- Max. permissible error (MPE) of the separate calculator on the calculation of quantities of liquid (OIML R 117-1:2007) +/- 0.03 %.

## Environment

Operating temperature	-10–+60 °C
Operating humidity	10–90 % (non-condensing)
Storage temperature	-25–+70 °C

## Power requirements

Dual power input	automatic switchover
Power inputs	
230 V AC +10 %, -15 %, 50–60 Hz	
24 V DC (20–35 V)	
Power consumption	25 W max.
Transmitter power	1×24 V DC, 200 mA max.

## Dimensions

Panel cut-out	186×91 mm
Case/min. cabinet depth	260/320 mm
Front panel	195×110 mm
Weight	4.3 kg

## Compliances & certificates

EN 12405, OIML R117, OIML R140, EC-type certificate, available with European CE mark. Registered in the state register of metering equipment of the Russian Federation. Registration number: 58182–14.

## Standards in calculations

Flow meters
ISO 5167 (1991, 1998, 2003); EN 12405 (2005); AGA 3 (1990, 2012); AGA 7 (1996); AGA 9 (1998); GOST 8.563 (1997); GOST 8.586 (2005).
Gas
ISO 6976 (1995, 2015); ISO 20765-1 (2005); ISO TR 9464 (2008); AGA 5 (2009); AGA 8 (1985, 1992); AGA 10 (2003); GPA 2172 (2009); GOST 30319 (1996, 2015).

Oil
ASTM D 1250/API 2540/IP 200 (1980); MPMS Chapter 11.1 (2004); GPA TP-27 (2007); STO Gazprom 5.9 B1, B2, B3 (2007).
Water, steam
IAPWS-IF97

## I/O modules \*\*\*

ANI8	8 ch. 4–20 mA
PT4	4 ch. PT100 **
ANI4PT2	4 ch 4–20 mA, 2 ch. PT100 **
PDIO484	4 ch. pulse input 8 ch. digital input 4 ch. digital output
AODIO484	4 ch. 4–20 mA output 8 ch. digital input 4 ch. digital output
HTI4×15	4 loops to scan 15 HART PV/loop (multidrop) or 4 PCS HART transmitters (point to point) using RTU protocol
DE4	2 PCS multivariable or 4 PCS single transmitters using DE protocol

## Supported flow meters

Orifice, Compact Orifice, Venturi Tube, Nozzle, V-Cone, Annubar, Vortex, Turbine, Positive Displacement, Ultrasonic, Coriolis, Electromagnetic, Rotameter
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## Supported fluids

Hydrocarbons
natural gas, coke oven gas, blast furnace gas, crude oil, refined products, lubricating oil, UGC, SLH, WFLH, NGL & LPG
Industrial gases
air, nitrogen, oxygen, hydrogen, argon, carbon-dioxide, carbon-monoxide, ethylene, ammonium, propane, general gases
Liquids other than water
ethanol, МТВЕ, ЕТВЕ, general liquids, two components liquid mixture
Water
water, water steam, water-glycol mixture - energy flow (heat transfer) calculation

\* Software selectable.

\*\* PT500 or PT1000 are also available.

\*\*\* One UNIFLOW-200 MFC can accommodate up to 5 I/O boards in any combination.