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, US meter protocols

Configurable display

Reporting and data archiving

CO_2 emission calculation

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

Serial interfaces for gas chromatographs, mass and ultrasonic flow meters

Online configuration software

OVERVIEW

UNIFLOW-200 is 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**
- **1 LAN port, 10/100 Ethernet (Modbus TCP protocol)**
- **1 SW-selectable RS232/RS485/RS422 (standard or Daniel Modbus protocol)**

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_2 emission

See full specifications and try out UNIFLOW-200 at 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.

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

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 ***

AI8	8 ch. 4–20 mA
PT4	4 ch. Pt100 **
AI4PT2	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 HART 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

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, MTBE, ETBE, 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.