



MacMAT IV

Flowcomputer



Flowcomputer **MacMAT IV** is a key element of safe and precise measuring systems for flows of large volume of natural gas. It guarantees safety of work, data security and interference protection, as a result of more than 25 years of experience in volume correctors and flowcomputers development. MacMAT IV is equipped with intrinsically-safe, explosion-proof measuring inputs as well as binary inputs allowing to connect devices from Ex-Zone. has IP65 protection class, and provides high level of electromagnetic compatibility (EMC). The device also has a redundant power supply system.

Measuring circuits provide long-term high stability and they combine functionality of digital communication interfaces to cooperate with transducers and flowmeters.

MacMAT IV is designed for direct co-operation with gas meters: ultrasonic, mass, turbine, rotary, and external chromatographs and calorimeters.


Built-in 100 Mbps Ethernet interface and quick serial RS485/RS422 port working with baud rates up to 460 kbps allow to an easy integration with IT systems.

Distinguishing features of MacMAT IV

- 64-bites processor with pipelining allows to on-line work in 250ms cycle with real calculation all of computation algorithms
- Device has intrinsically-safe measuring circuits, which can be connected direct in explosion-proof areas
- High efficiency redundant communication channels with external SCADA, DSC, PLC systems, ultrasonic gas meters, gas chromatographs: Ethernet port, four galvanically insulated serial ports RS485/422, local communication in infrared is proper with IEC 62056-21, USB host, intrinsically-safe galvanically insulated four HART modems
- Multilevel access for administrators and users via built-in WEB server, supporting advanced configuration and mapping measurements variables between cooperating devices



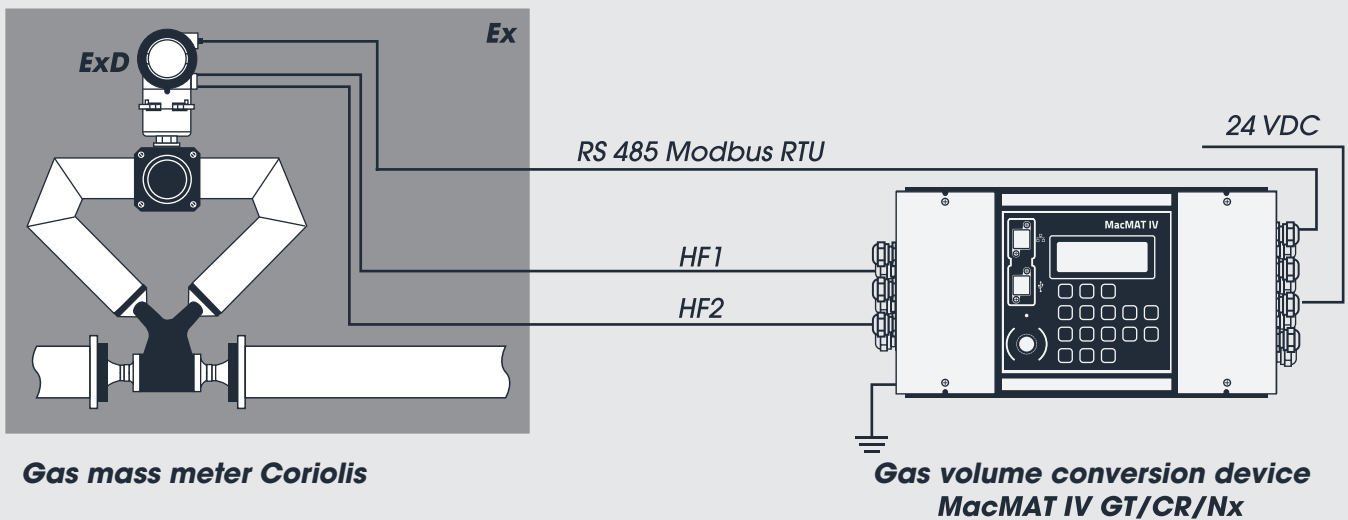
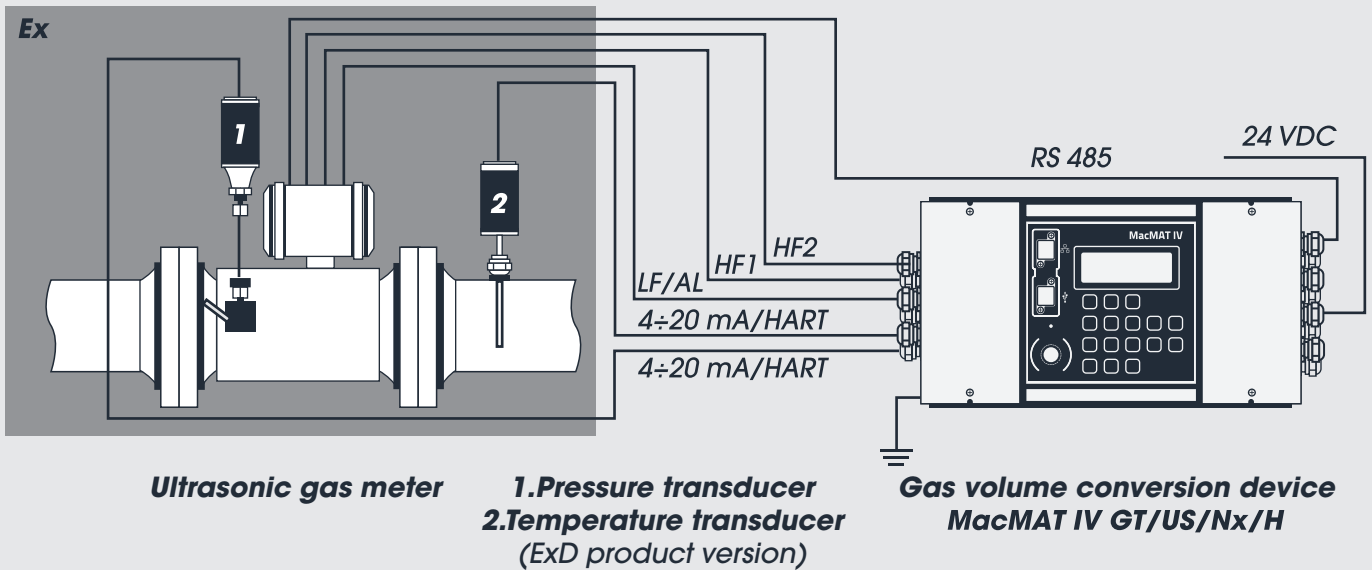
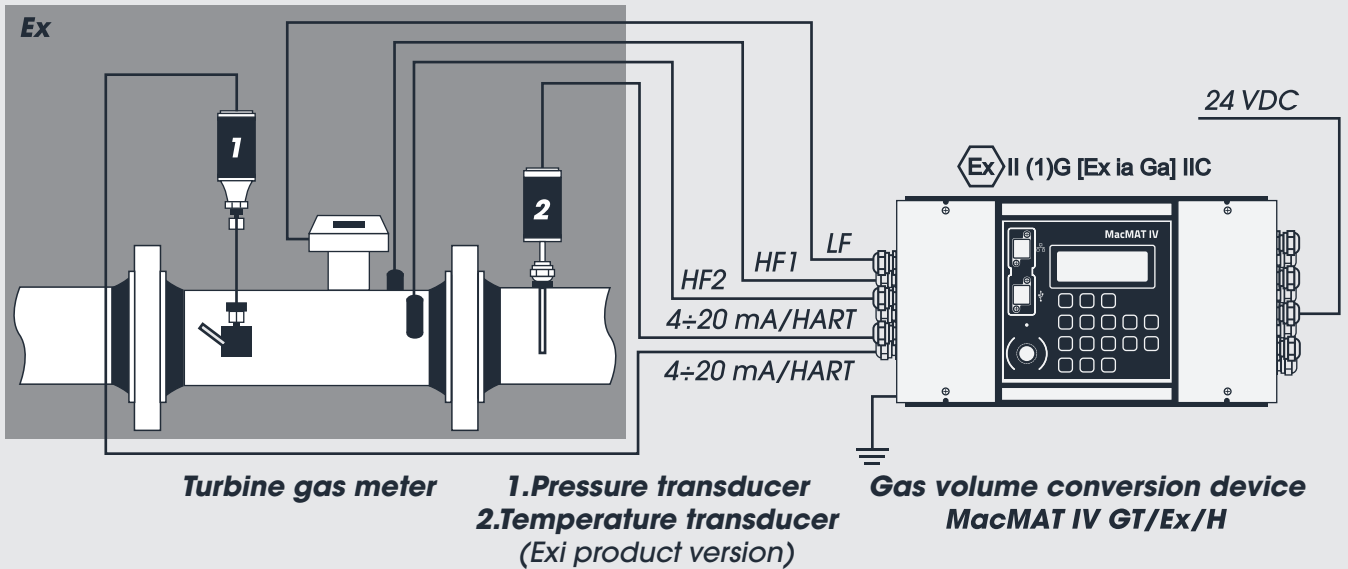
Technical specification

Measuring inputs accuracy	0,007% FS in operating range -10°C ÷ +55°C
Computation algorithms	AGA8-92DC, SGERG-88, AGA8-G1, AGA8-G2
Computation of volume	EN 12405-1:2005+A2:2010
Computation of energy	EN 12405-2:2012
Analog inputs	Four analog inputs 4÷20 mA
HART digital inputs	Independent HART modems on current loop 4-20mA, working in point-point mode, multidrop and in diagnostic measuring channel mode
Pulse inputs	One LF input, two HF inputs NAMUR standard with detecting dis-/connection wires, configurable switch thresholds by PN-EN 60947-5-6:2002
Communication	<ul style="list-style-type: none"> • Ethernet port RJ45 100Mb • 3x separated RS485 channels, baud rate up to 460kbps • 1 RS422/485 channel, baud rate up to 460 kbps • Infrared interface, IEC 62056-21, baud rate up to 115200 bps • Host USB 2.0
Dimensions	366 x 208 x 95 mm
Housing	ABS material, protection class IP65
Ambient temperature	-10°C ÷ +55°C, storage -20°C ÷ +70°C
Relative humidity	Max 95% in temperature 40°C (without condensation)
Power supply	Main external power supply: 16÷30V DC (typical 24V) current consumption 0,5A. spare power supply: 10÷16 V DC (typical 12V)
Power consumption	12W
Keyboard	16 keys
Display	4 lines x 20 characters
Permissible application	Permission for mounting the device out of explosion-danger area only. External intrinsically-safe circuits can be used to cooperate with device measuring circuits installed in 1 and 2 zones, explosion hazard mixture of steams, gases and explosive mists with oxygen classified to explosion group IIA, IIB and IIC
EX housing marking (concerns execution /Ex)	 II (1) G (Ex ia Ga) IIC – FTZU 13 ATEX 0010 certificate
Environment condition class (Mechanical)	M2- device can be install in places exposed to high level vibrations and shocks, i.e. made by near machine and nearly passing vehicles or heavy machines in neighborhood.
Environment condition class (Electromagnetic)	E2- device can be install in places exposed to disorders appearing in industrial buildings
Electromagnetics disruptions	Character and level of disruptions corresponding to PN-EN 61326-1:2009 and PN-EN 12405-1:2005+A2:2010



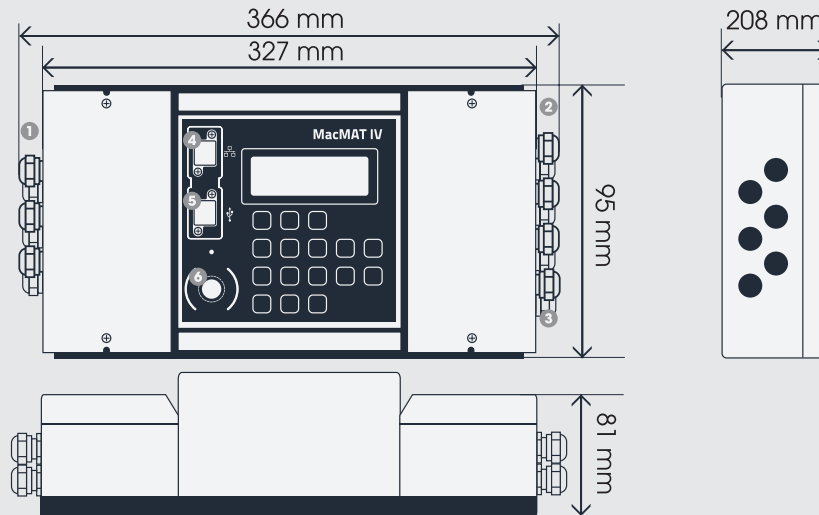


Communication



Enclosure conditions / MacMAT IV

- 1 Measuring inputs
- 2 Transmission circuits
- 3 Controlling circuits
- 4 Ethernet port
- 5 USB
- 6 Optical Interface



MacMAT IV device is equipped with 6 independent, high efficiency communication channels. These channels can work in MASTER or SLAVE mode, that makes possible integration of MacMAT IV with devices and measuring stations systems (chromatographs, dew point converters, controllers) and billings systems SCADA.

