



MacSM

smart gas meter

Smart gas meter is a modern solution that provides accurate billing, monitoring of gas consumption and leak detection. The device records gas consumption continuously and sends this data to the gas supplier via wireless communication.

key benefits

- eliminate the problem of underestimation or overestimation of gas consumption by digital correction of the diaphragm gas meter error
- monitor gas consumption over defined periods
- detect intrusion attempts, cut off the gas supply or alert the user and gas supplier
- gain remote access to gas meters data for more accurate billing, faster response to emergencies and improve management of the gas network
- integrate with BMS systems
- upgrade firmware remotely without replacing the gas meter
- eliminate the risk of unauthorized access and manipulation of the device by multi-level password system and encrypted transmission

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edition
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technical data

nominal size	G4		
connection	inch connection 1 "1/4 and 7/8" (ISO 228-1) 110/130/160 mm spacing		
nominal flow rate [m³/h]	4		
qmax [m³/h]	6		
qmin [m³/h]	0.04		
basic error	± 1.5% - 0.1 Qmax ≤ Q ≤ Q max ± 3% - Qmin ≤ Q < 0.1 Qmax		
maximum pressure [kPa]	50		
maximum pressure drop [kPa]	≤ 0.2		
volume of the measurement chamber [m³]	0.0012		
weight	up to 2.4 kg		
ambient temperature	-25 ÷ 55 °C		
enclosure protection class	IP 65		
ex (applies to design /Ex)	II 3G Ex ic IIB T3 Gc certificate OBAC 25 ATEX 0047X		
design type	design of the AFD1 gas meter with a communication module built into the gas meter in accordance with EN 16314:2013		
keypad	1 monostable button, performing the following functions: short press: navigation, long press: selection of an option		
display	backlit alphanumeric, 2 lines, 12 characters, function and unit icons		
built-in sensors	opening of the housing cover, metrological lock		
application approval	permissible for installation in zone Z2 of explosion hazard for gases classified as group IIB		
resistance to high temperatures	T (according to EN1359)		
electromagnetic environment class	E2 (the instrument may be installed in areas exposed to disturbances in industrial buildings)		
mechanical class	M1		
transmission technology	cat.M1 + NB IoT + 2G		
built-in LPWAN licensed module	cat.M1 B1/B2/B3/B4/B5/B8/ B12/ B13/B18/B19/ B20/B25/ B26/B27/B28/B66/B85 Class 5 (21 dBm +1.7/-3 dB)	NB-IoT B1/B2/B3/B4/B5/B8/ B12/B13/ B18/B19/ B20/ B25/B28/B66/ B71/B85 Class 5 (21 dBm +1.7/-3 dB)	2G 850/900/1800/1900 MHz Class 4 (33 dBm ± 2 dB) GSM850 Class 4 (33 dBm ± 2 dB) EGSM900 Class 1 (30 dBm ± 2 dB) DCS1800 Class 1 (30 dBm ± 2 dB) PCS1900
SIM standards supported	3FF and MFF2		

communication protocol	GAZ-MODEM (for local connections); SMART-GAZ (for local and remote connections) DLMS
local communication	IEC 62056-21 compliant optical interface in the physical layer
power supply	one D-size lithium battery
battery life¹	- technology - daily report² + 20 additional (emergency) reports² per year - cat.M1 - 7.5 years (without PSM mode) / 9 years (active PSM mode) - NB-IoT - 9.5 years (without PSM mode) / 11.5 years (active PSM mode) - 2G - 6 years

¹ the operating time depends on the set configuration of the device for the values shown the following data has been assumed (per year): total operating time of the display is 180 minutes, 5 times local reading (2 minutes per), 2 remote software exchanges

² each report is extended by a synchronous communication mode (it is possible to read the device from the system)

the counting process of MacSM G4

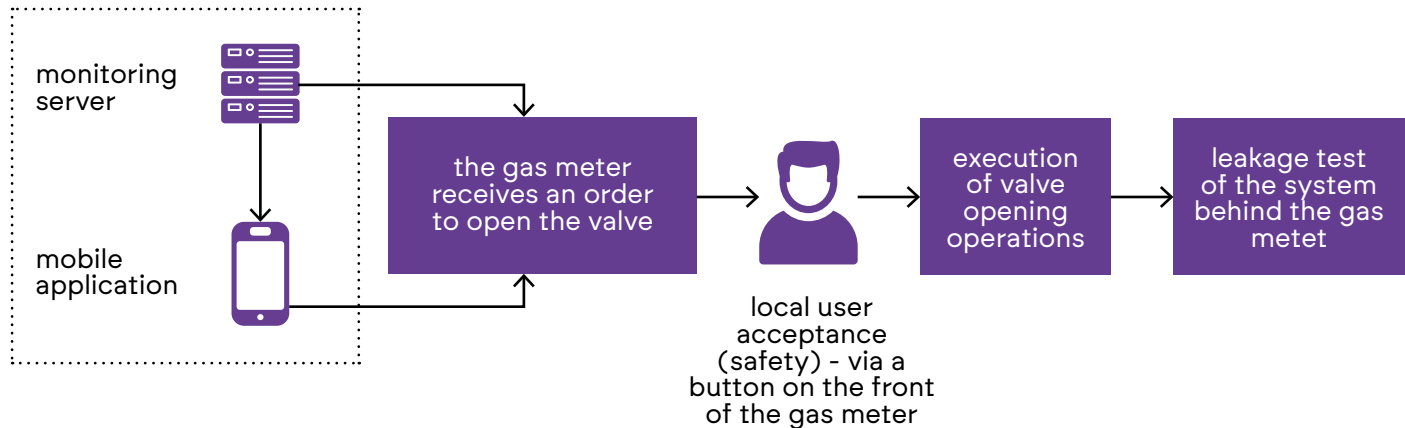
Pressurized gas is injected into the measurement chambers inside the meter. Gas fills chambers one after another. Each cycle of filling and emptying the chambers represents flow of the same amount of gas. The electronic counter records consumption data continuously, providing detailed information on flow / consumption over a specified period of time. It also provides 100% tamper resistance. The counter cannot be stopped by a magnet. The counting cannot be stopped by the end user.



valve operation

opening the valve

source issuing the open order



closing the valve

source issuing the closing order

