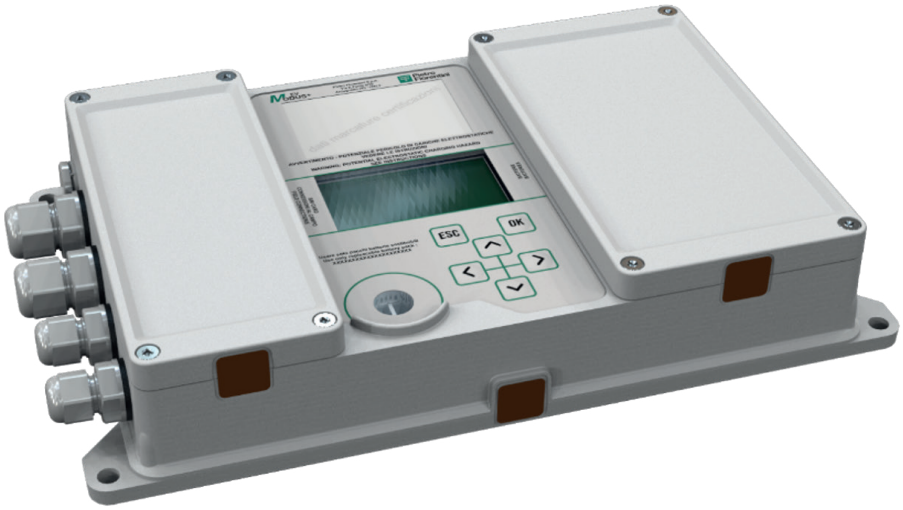
Pietro Fiorentini

Modus mini

Electronic Volume Converter



TECHNICAL BROCHURE

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Modus Mini_technicalbrochure_ENG_revA

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Who we are

We are a global organization specialized in designing and manufacturing technologically advanced solutions for natural gas treatment, transmission and distribution systems.

We are the ideal partner for operators in the Oil & Gas sector, with a business offer that goes across the whole natural gas chain.

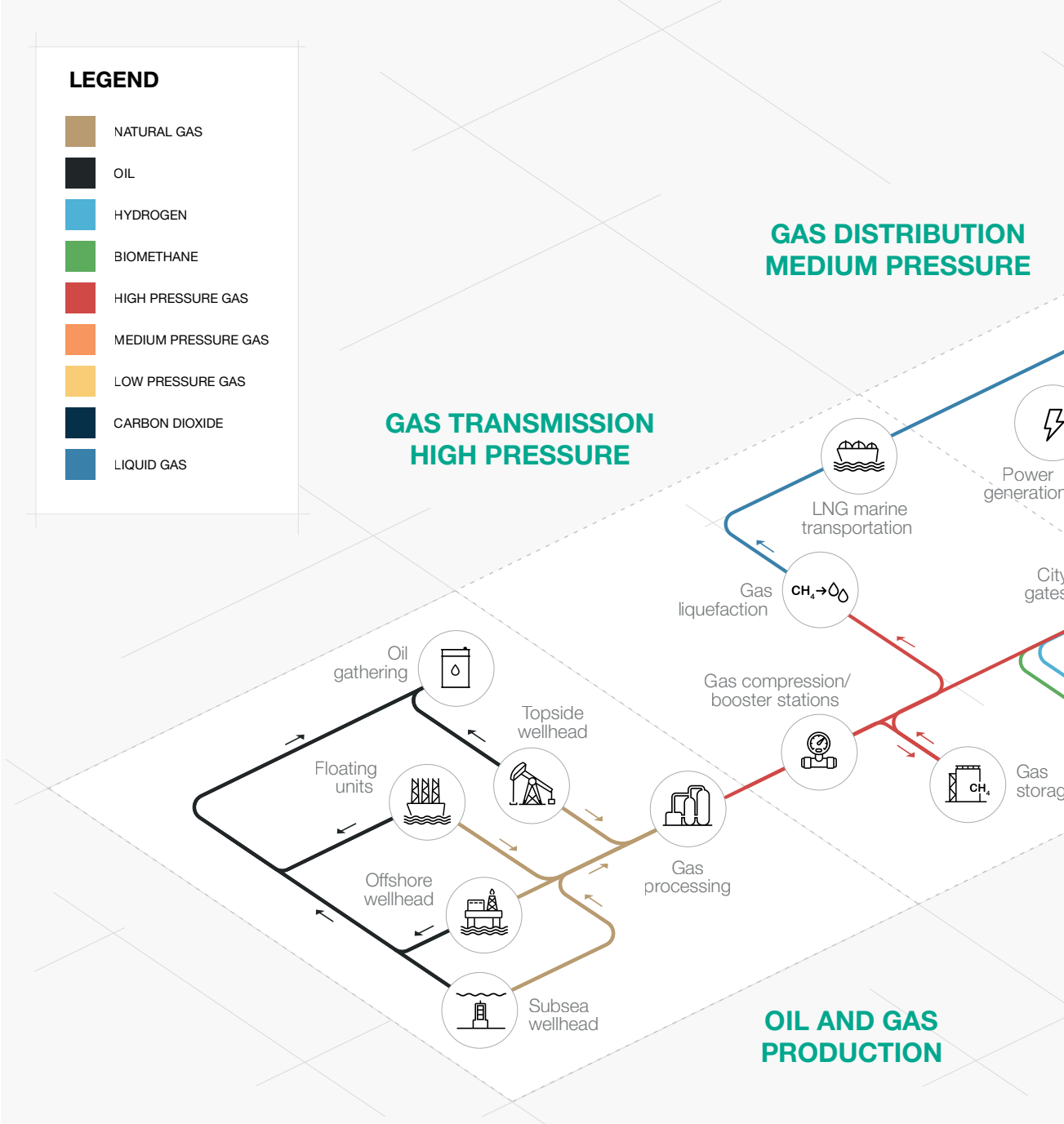
We are in constant evolution to meet our customers' highest expectations in terms of quality and reliability.

Our aim is to be a step ahead of the competition, with customized technologies and an after-sale service program undertaken with the highest grade of professionalism.

Pietro Fiorentini advantages

- Localised technical support
- Experience since 1940
- We operate in over 100 countries

Area of Application



Green icon indicates the application where this product is suitable for

DA VERIFICARE

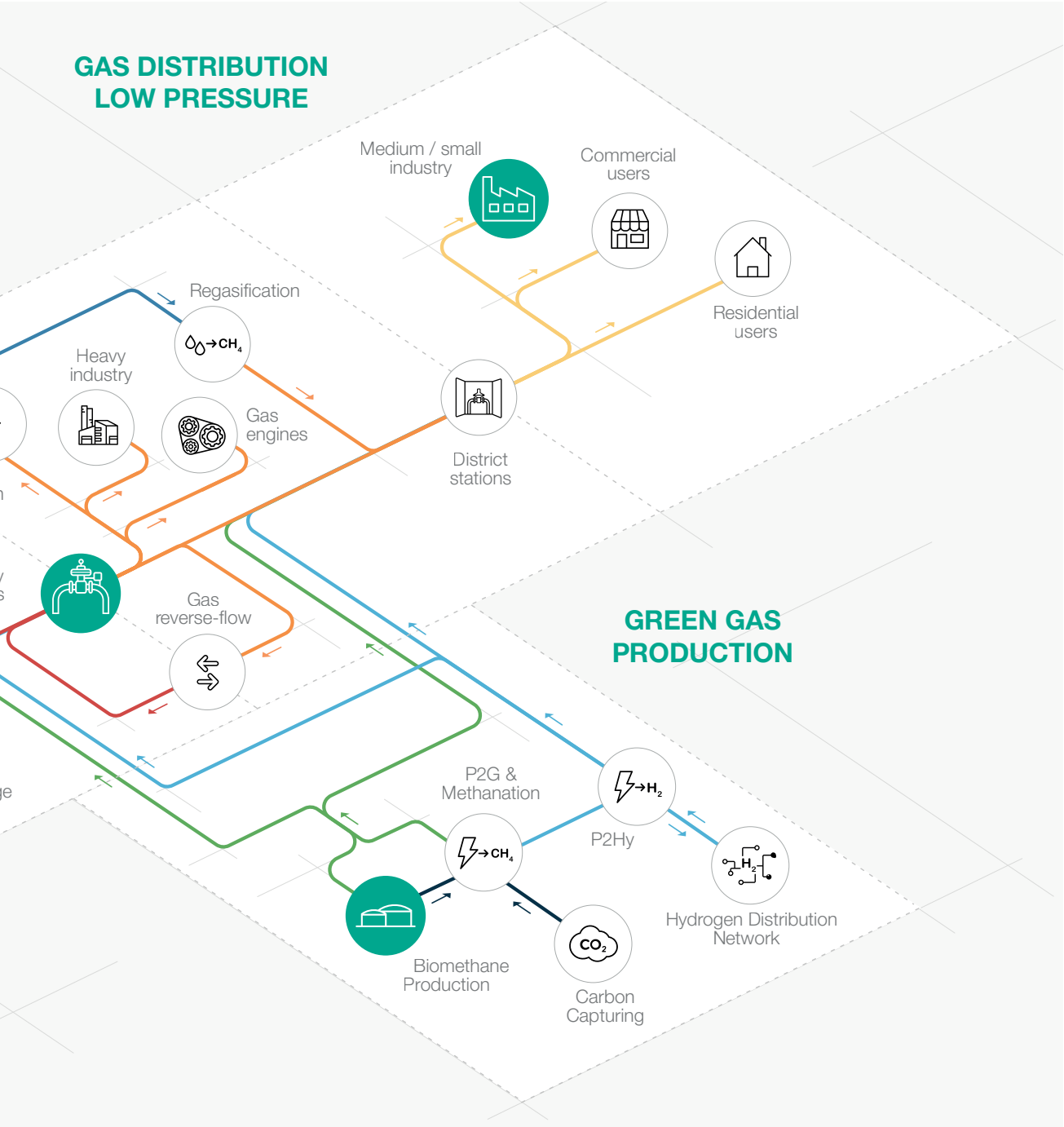


Figure 1 Area of application map

Introduction

Modus mini is a highly efficient single-channel electronic volume converter (EVC) with a built-in modem, powered by long-life batteries.

Equipped with a piezoresistive pressure sensor and PT1000 for temperature measurement, it complies with ATEX/IECEx and MID directives and is suitable for installation in Zone 1 hazardous areas with gas of the IIC group.

Designed for commercial and industrial applications, Modus mini ensures reliable performance with minimal power consumption.

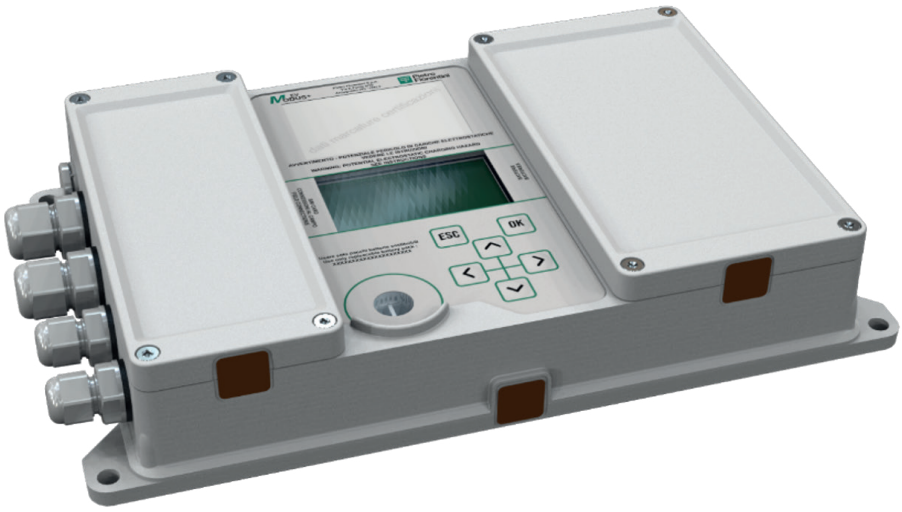


Figure 2 Modus mini

Modus mini competitive advantages

- NB-IoT and LTE Cat-M embedded modem
- Long battery life
- Easy to install, plug and maintain in the field
- Compact design
- Cybersecure
- Low energy consumption
- Simple HMI with LCD display and six buttons keybard
- Suitable for up to 20% Hydrogen blending application

Features	Values
Pressure sensor ranges	0.8 ÷ 2 bara, 0.6 ÷ 3.5 bara, 0.9 ÷ 10 bara, 5 ÷ 24 bara, 10 ÷ 40 bara, 20 ÷ 80 bara 80 ÷ 200 kPa, 60 ÷ 350 kPa, 90 ÷ 1000 kPa, 500 ÷ 2400 kPa, 1 ÷ 4 MPa, 2 ÷ 8 MPa
Temperature sensor range	-30 °C to +60 °C -22 °F to +140 °F
Ambient conditions	-25°C to +70°C -13°F to 158°F Relative humidity up to 95% (condensing/non condensing) Saline environment
Ingress protection	IP 66
Digital Inputs	1 LF pulse input up to 3Hz 1 Digital input General purpose
Digital outputs	3 Outputs Open Drain
Compressibility formulas	· AGA 7 . AGA-8 DC92 (Detailed / ISO 12213-2) · AGA NX19 mod · S-GERG 88 · M-GERG 88 (mod. H2)
ATEX Certification	II 2G Ex ib IIC T4 Gb
Power supply	Metrology Battery: 2 cells LiSOCl2 size D 38 Ah Battery life 15 Years in defined condition Modem Battery:1 cell LiSOCl2 size D 19 Ah Battery life up to 5 Years (1 connection/Day)
Local interfaces	Graphic display 128x24, 6 keys Optical port compliant with EN62056-21
Wireless communication	2G / Cat-M1 / NB-IoT with embedded modem
Communication protocols	IEC 62056 DLMS Cosem + UNITS 11291-14 MODBUS RTU

Table 1 Features

Materials and **Approvals**

Part	Material
Housing material	PC+ABS

Table 2 Materials

Modus mini is designed according to European standards EN 12405-1, EN 12405-2, IEC 60079-0, IEC 60079-11.
The product is CE marked and certified according to European Directive 2014/32/EU (MID) and 2014/34/EU (ATEX).

EN12405-1 EN12405-2 IEC 60079-0 IEC 60079-11 MID

Communication & batteries

Advanced communication and longevity

Modus mini integrates the latest-generation **NB-IoT / Cat-M1 (LTE Cat-M)** connectivity on 4G and 5G operator networks. The integrated modem, combined with low-power design, enables **long-term operation** with battery lifetime **up to 15 years**.
Communication is based on 3GPP standards to ensure wide interoperability and long-term network support.
An optional modem version with 2G / GPRS fallback is also available.

Communication protocol

The EVCD uses the DLMS/COSEM communication protocol, a globally adopted and non-proprietary standard for smart devices. It enables interoperability in multivendor environments through a standardized data model and secure data exchange.
The EVCD also supports Modbus RTU for industrial integration, with additional communication protocols available upon request.

Cybersecure

Modus mini is designed with cybersecurity in mind for connected gas metering applications and supports EU cybersecurity requirements for radio equipment under the Radio Equipment Directive (RED) 2014/53/EU and Delegated Regulation (EU) 2022/30.

DLMS/COSEM communication can be configured with authentication and encryption to protect data exchange and access rights.

Over-the-air firmware updates help to keep the device secure and up to date throughout its operating lifetime, supporting long-term security maintenance.

Local and industrial interfaces can be managed with controlled access to support secure deployment practices and the cybersecurity risk-management expectations introduced by the NIS2 Directive (EU) 2022/2555.

Installation & maintenance

Modus mini can be mounted on a wall, pipe, meter, or flange using the supplied universal bracket, enabling flexible installation in a wide range of layouts. The device features lateral cable entries, keeping wiring accessible and well separated for quick and clean connections, even in confined spaces and after the unit is fixed in place.

Front access to the communication battery compartment enables fast battery replacement without removing the device or disturbing existing cabling, and without removing or affecting the metrological seals. The access position and the overall design are engineered to make the replacement quick and straightforward.

These features reduce intervention time, lowering installation and maintenance costs over the device lifetime.

The enclosure is made of high-quality plastic, tested and proven over years of use on Pietro Fiorentini field-installed devices, enabling outdoor installation with direct exposure to environmental conditions, including UV radiation.

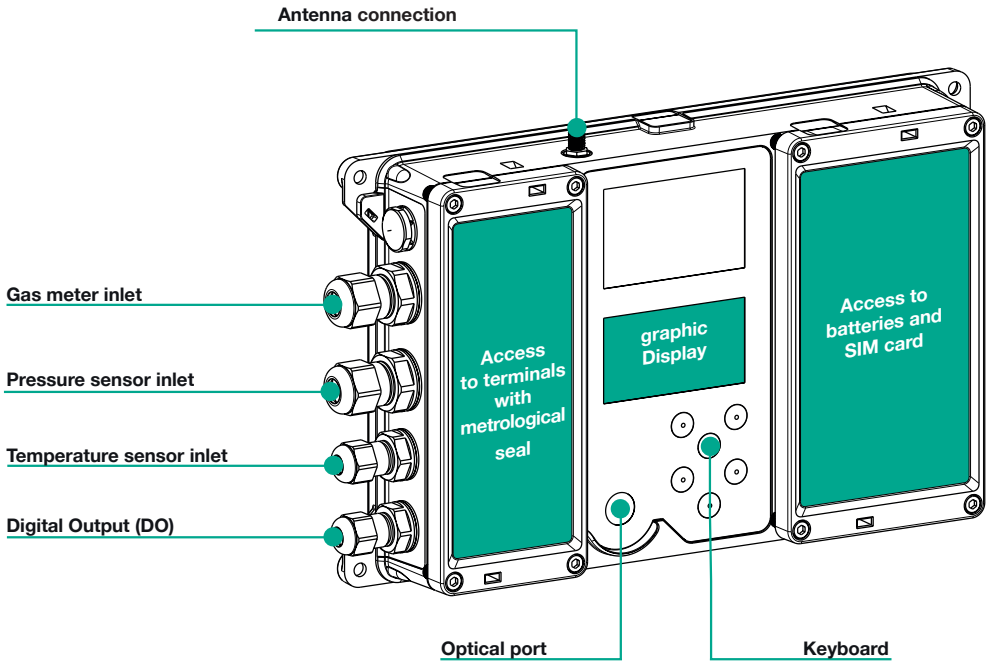


Figure 3 Modus mini

Weights and Dimensions

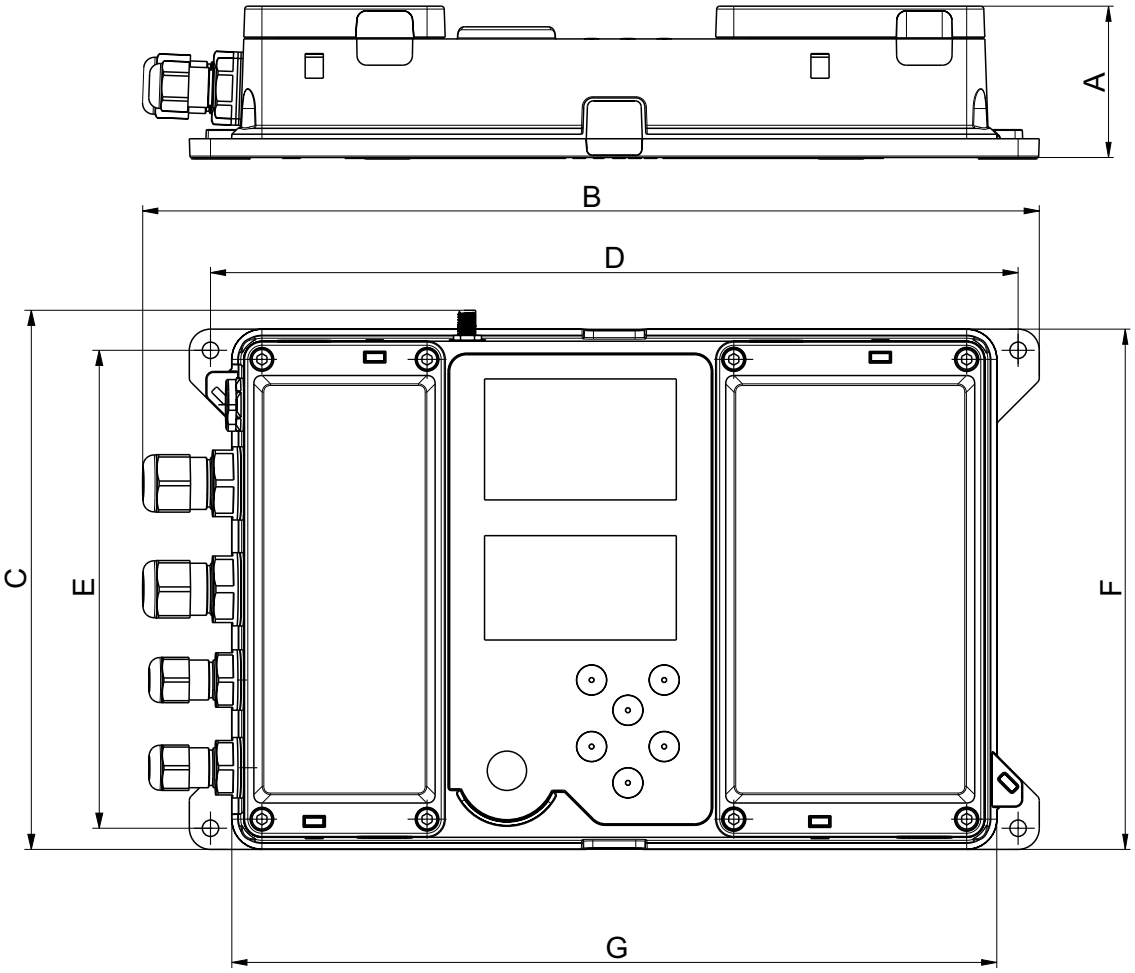


Figure 4 Modus mini - dimensions

Weights and Dimensions		
	[mm]	inches
A	50	2
B	296	11.65
C	178	7
D	267	10.5
E	158	6.22
F	172	6.77
G	253	10
Weight	kg	lbs
	2	4.4

Table 3 Weights and dimensions

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