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Overview

The entire SIPROCESS GA700 device is configured in a modular fashion and consists of a base unit and at least one – maximum two – modules. It can optionally be fitted with up to two interface modules.

Benefits

The base unit provides:

- Transmission and evaluation of measurement results
- Display and transmission of device parameters
- Operation (parameterization, configuration)

In addition to the modules, the base unit contains the interfaces for the peripherals.

Application

Application areas

Depending on the modules installed, the device is predominantly used in the following sectors:

- Chemical industry
- Petrochemicals
- Steel
- Cement
- Power generation
- Environmental protection

Design

19" rack unit

- 19" rack unit with 3 height units (HU) for installation
  - in hinged frames
  - in cabinets
- Gas connections directly on the analyzer module for sample gas inlet and outlet: for pipe diameter 6 mm
- Purging gas connections (optional), purging gas connection for 6 mm or 1/4" hose (optional)
- ATEX-/IECEx approval for Zone 2

Wall-mounted device

- Gas connections directly on the analyzer module for sample gas inlet and outlet: Pipe union for pipe diameter 6 mm
- Purging gas connections (optional): Pipe diameter 12 mm
- ATEX-/IECEx approval for Zones 1 and 2

Field device

- Field control unit: Flameproof encapsulated enclosure with mounted Ex e connection enclosure (IP55)
- Ex-d field module with installed module (IP65)
- ATEX-/IECEx approval for Zone 1
- Maximum cable length of the cable between field module and field control unit: 7 m

Display and control panel

- LCD panel for simultaneous display of:
  - Measured value
  - Status bar
  - Measuring ranges
- Menu-driven operation for parameterization, test functions, adjustment
- Operator support in plain text
- Operating software in six languages (English, German, French, Italian, Spanish, Portuguese)

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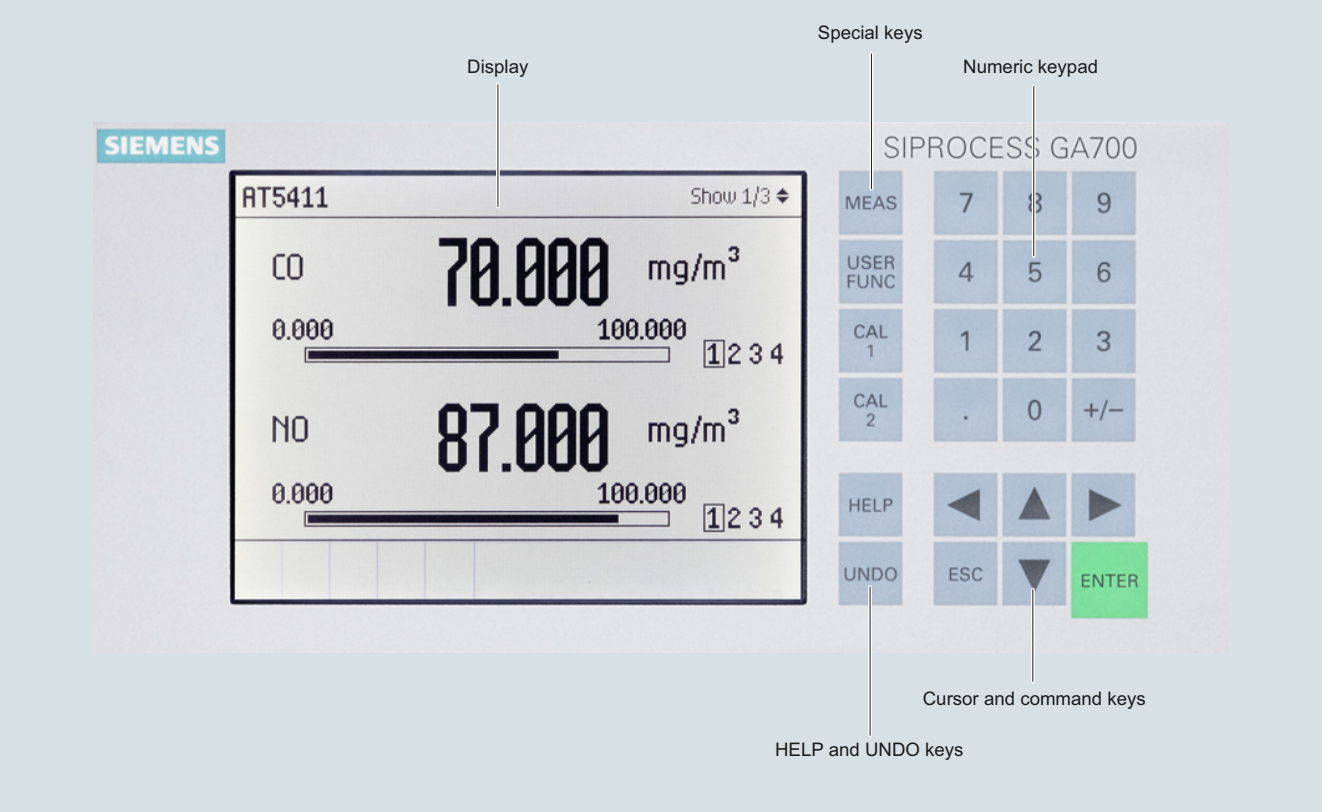
Base unit



Display and operator panel of the SIPROCESS GA700 devices

Inputs and outputs

- 19" rack unit and wall-mounted unit
  - 8 digital inputs, designed for 24 V, floating, freely configurable (e.g. for measurement range switchover, processing of external signals from sample preparation)
  - 8 relay outputs, with changeover contacts, freely configurable (e.g. for faults, maintenance requests, limit alarms, external solenoid valves)
  - Ethernet connection contained in the base unit (connection on the rear side, Ethernet RJ 45, 100 MBit)
  - Service interface (front side); Ethernet RJ 45, 100 MBit.
- Field control unit
  - 1 analog output for each component 0/4 to 20 mA
  - 5 relay outputs, with changeover contacts, freely configurable, e.g. for faults or measuring range identification
  - 5 digital inputs, designed for 24 V, floating, freely configurable, e.g. for measurement range switchover

Interface modules

- 19" rack unit and wall-mounted unit
  - Interface module 1.1:
    12 relay outputs and 8 digital inputs
  - Interface module 2.1:
    1 analog output for each measuring component (0/4 to 20 mA or configurable according to NAMUR), plus 3 relay outputs for each module
  - Interface module 2.2:
    One analog output for each measured component (0/4 to 20 mA or configurable according to NAMUR), 4 analog inputs and 4 digital inputs
- Field control unit
  - Interface module 2.2:
    4 analog inputs 0/4 to 20 mA

Function

Essential characteristics

- Measuring range identification
- Storage of measured values possible during adjustments
- Four freely parameterizable measuring ranges, also with suppressed zero point
- Autoranging possible; remote switching is also possible
- Wide range of selectable time constants (static/dynamic noise suppression); i.e. the response time of the analyzer can be matched to the respective measuring task
- Measuring point switchover for up to 12 measuring points (programmable)
- Parameterizable measuring point identification
- Automatic, parameterizable measuring range calibration
- Operation based on the NAMUR recommendation
- Three control levels with their own authorization codes for the prevention of accidental and unauthorized operator interventions
- Simple handling using a numerical membrane keyboard and operator prompting
- Customer-specific analyzer options such as:
  - Customer acceptance
  - TAG labels

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Technical specifications

	19" rack unit	Wall enclosure	Field control unit
General information			
Operating position	Horizontal	Vertical	Horizontal
Conformity	CE mark in accordance with EN 50081-1 and EN 50082-2		
Design, enclosure			
Weight without module	8.6 kg	23 kg	27 kg
Degree of protection	IP20 according to EN 60529	IP65 in accordance with EN 60529, restricted breathing enclosure to EN 50021	IP55 according to EN 60529
Electrical characteristics			
Auxiliary power	100 ... 240 V AC (nominal range of use 85 ... 264 V), 50 ... 60 Hz (nominal range of use 47 ... 63 Hz)		
Power consumption	Max. 280 VA		
EMC interference immunity (electromagnetic compatibility)	In accordance with the standard requirements of NAMUR NE21 (05/2006) and EN 61326-1 (2013)		
Electrical safety	In accordance with EN 61010-1, overvoltage category II		
Gas inlet conditions, purging gas pressure			
Continuous (recommended)	-	30 hPa above atmospheric pressure	-
Continuous (maximum)	-	< 100 hPa above atmospheric pressure	-
Transient (maximum)	-	165 hPa above atmospheric pressure	-
Electrical inputs and outputs			
Analog outputs	-	-	1 for each component 0/4 ... 20 mA, floating; load ≤ 100 Ω, R_L ≤ 750 Ω
Relay outputs	8, with changeover contacts, can be freely parameterized, e.g. for measuring range identification; max. load: 24 V AC/DC/1.7 A (total load for all 8 relay outputs in continuous operation max. 160 W), floating, non-sparking		5, with changeover contacts, can be freely configured, e.g. for measuring range identification; load rating: 24 V AC/DC/1.7 A, isolated, non-sparking
Digital inputs	8, designed for 24 V, floating, freely configurable, e.g. for measuring range switchover		5, designed for 24 V, floating, can be freely configured, e.g. for measuring range switchover
Ethernet interface Ethernet RJ 45, 100-megabit	Rear	Underside	Underside
Service interface Ethernet RJ 45, 100-megabit	Front (behind door)	Inside on the processing unit	Inside on the processing unit
Interface module 1.1	12 relay outputs, with changeover contacts, load rating: 24 V AC/DC/1.7 A (total load for all 12 relay outputs in continuous operation max. 244 W), floating, non-sparking 8 digital inputs, designed for 24 V, floating, freely configurable		-
Interface module 2.1	1 analog output for each component 0/4 ... 20 mA, floating; load 100 Ω ≤ R_L ≤ 750 Ω; 3 relay outputs per module, load rating: 24 V AC/DC/1.7 A (total load for all 6 relay outputs in continuous operation max. 122 W), floating, non-sparking		-
Interface module 2.2	1 analog output for each component 0/4 ... 20 mA, floating; load 100 Ω ≤ R_L ≤ 750 Ω; 4 analog inputs 0/4 … 20 mA, non-isolated, internal resistance ≤ 100 Ω 4 digital inputs, designed for 24 V, floating		4 analog inputs 0/4 … 20 mA, non-floating, internal resistance ≤ 100 W
Climatic conditions			
Permissible operating altitude	3 000 m above sea level		2 000 m above sea level
Permissible ambient temperature (with one module; application-dependent with two modules)	Depends on application, See technical specifications of the modules Ventilation slits must not be covered (recommended minimum clearance upward from the next device when installing 2 modules and at maximum ambient temperature: min. 1 HU)	Depends on application, See technical specifications of the modules	-30 ... + 70 °C during storage and transportation 5 ... 55 °C for regular operation with OXYMAT 7 5 ... 60 °C for operation with OXYMAT 7 and with limited measuring accuracy
Permissible humidity	< 90% RH (RH: relative humidity), during storage, transportation and operation (must not fall below dew point)		

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Extractive continuous process gas analysis
SIPROCESS GA700

1

Base unit

Selection and ordering data	Article No.											Cannot be combined
SIPROCESS GA700 ↗	**7MB3000-**	■	■	■	**0**	■	**-**	■	■	■	**0**	
↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.												
Base unit versions												
19"-rack unit enclosure		**0**										**0**
Wall housing		**3**										**3**
Wall housing (bushing with support for shielding)		**4**										**4**
Field control unit, Ex d (including 1 analog output, 5 relay outputs and 5 digital inputs)		**6**										**6**
Module 1 (slot 1)												
Without			**X**									**X X X**
ULTRAMAT 7			**B**									
OXYMAT 7			**C**									
CALOMAT 7			**F**									
Module 2 (slot 2)												
Without				**X**								
ULTRAMAT 7				**B**								**B**
OXYMAT 7				**C**								**C**
CALOMAT 7				**F**								**F**
Interface module 1												
Without					**0**							
Interface module 1.1 (12 relay outputs + 8 digital inputs)					**1**							**1**
Interface module 2												
Without						**0**						
Interface module 2.1 (1 analog output for each component + 3 additional relay outputs for each module)						**1**						**1**
Interface module 2.2 (1 analog output for each component + 4 analog inputs + 4 additional digital inputs)						**2**						**2**
Interface module 2.2 for field control unit (4 analog outputs)						**6**						
Language of the Compact Operating Instructions / Explosion Protection Manuals												
Language of the Compact Operating Instructions / Language of the Ex manuals												
• German / • German, English						**A**						
• English / • German, English						**B**						
• French / • French, Dutch						**C**						
• Italian / • Italian, Spanish, Portuguese						**D**						
• Spanish / • Italian, Spanish, Portuguese						**E**						
• Portuguese / • Italian, Spanish, Portuguese						**G**						
• Finnish, Swedish, Danish						**M**						**M**
• Estonian, Latvian, Lithuanian						**N**						**N**
• Czech, Polish, Slovak						**P**						**P**
• Romanian, Bulgarian, Greek						**Q**						**Q**
• Hungarian, Slovenian, Croatian						**R**						**R**
Ex-version												
Standard, operation in non-hazardous zone										**A**		**A** **A**
Standard, operation in non-hazardous zone with purging gas connection (wall housing only)										**B**		**B** **B** **B**
Operation in hazardous zone 2 (ATEX/IECEx approval), flammable or non-flammable gases Ex nA nC ic IIC T4 Gc (19" rack unit only)										**C**		**C** **C** **C**
Operation in hazardous zone 2 (ATEX/IECEx approval), non-flammable gases Ex nR ic IIC T4 Gc (wall housing only)										**D**		**D** **D** **D**
Operation in hazardous zone 1 and 2 (ATEX/IECEx approval), flammable or non-flammable gases Ex pxb ib IIC T4 Gb, Ex pzc ib IIC T4 Gc (wall housing only)										**E**		**E** **E** **E**
Operation in hazardous zone 1, 2, 22 (ATEX/IECEx approval), flammable or non-flammable gases Ex pxb ib IIC T4 Gb, Ex pzc ib IIC T4 Gc, Ex nR ib IIC T4 Gc, Ex pxb ib IIIC T65°C Dc, Ex pzc ib IIIC T65°C Dc, Ex tc ib IIIC T65°C Dc (wall housing only)										**G**		**G** **G** **G**
Setup in hazardous zone 1 and 2 (ATEX/IECEx approval) for flammable or non-flammable gases (for Ex d only)										**H**		

Selection and ordering data	
Additional versions	**Order Code**
Add "-**Z**" to Article No. and specify Order code	
TAG labels (specific inscription based on customer information)	**B03**
Base unit module assignment number	**D00 ... D99**

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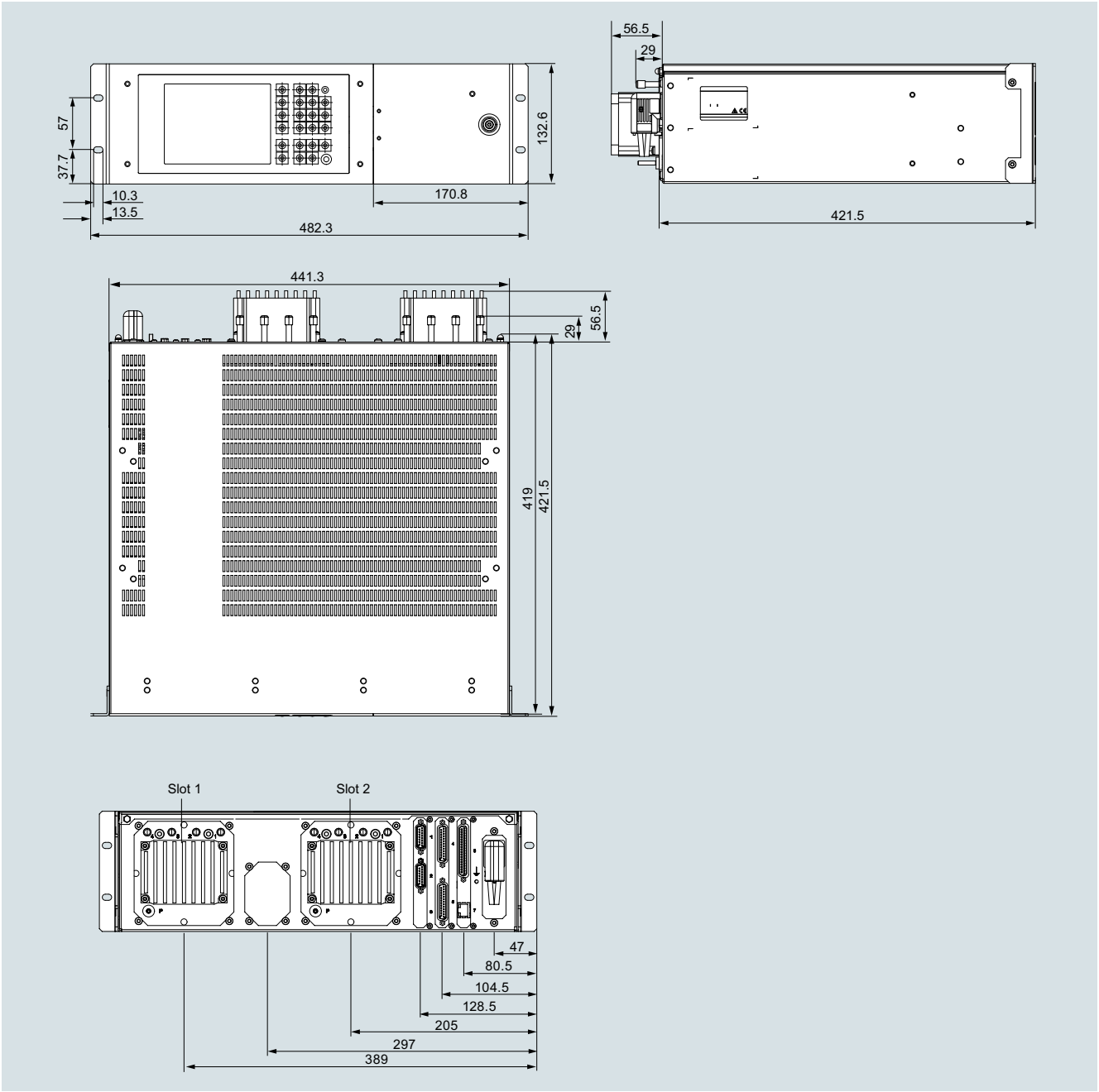
Dimensional drawings



SIPROCESS GA700, rack unit, dimensions in mm

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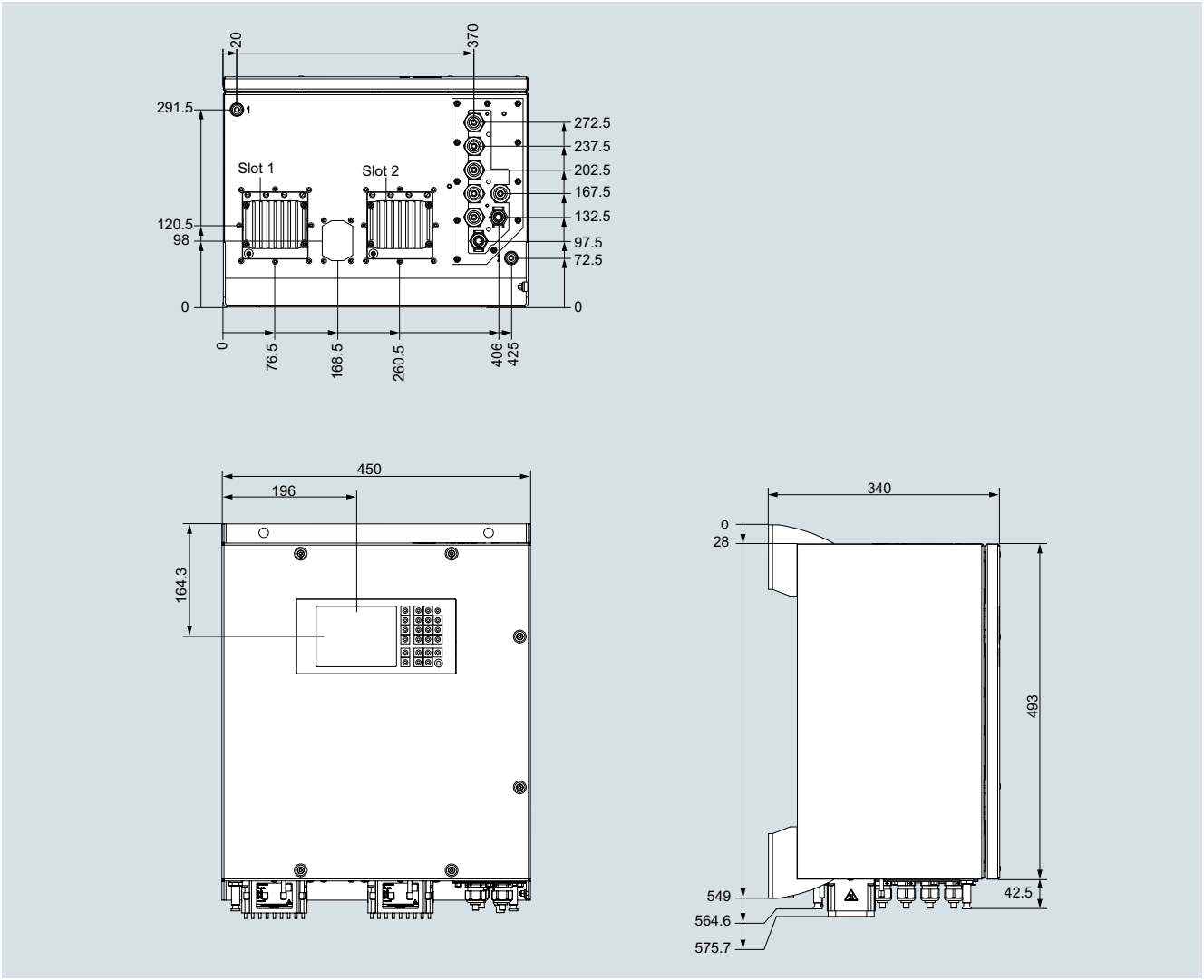
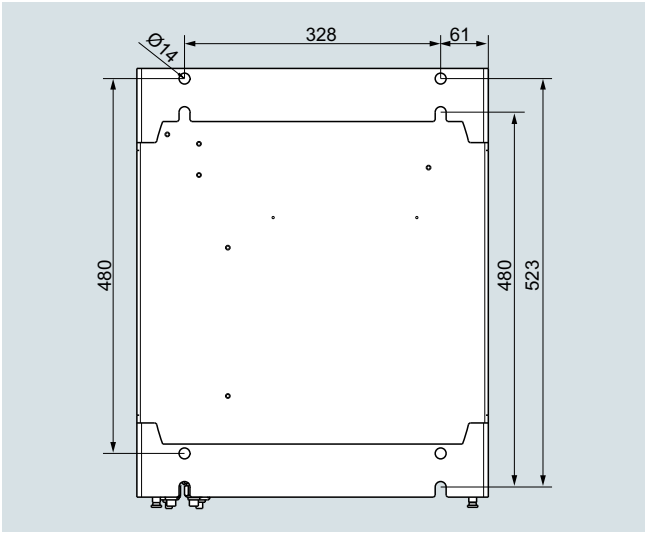
Base unit



SIPROCESS GA700, wall enclosure, dimensions in mm



SIPROCESS GA700, wall housing, drilling pattern, dimensions in mm

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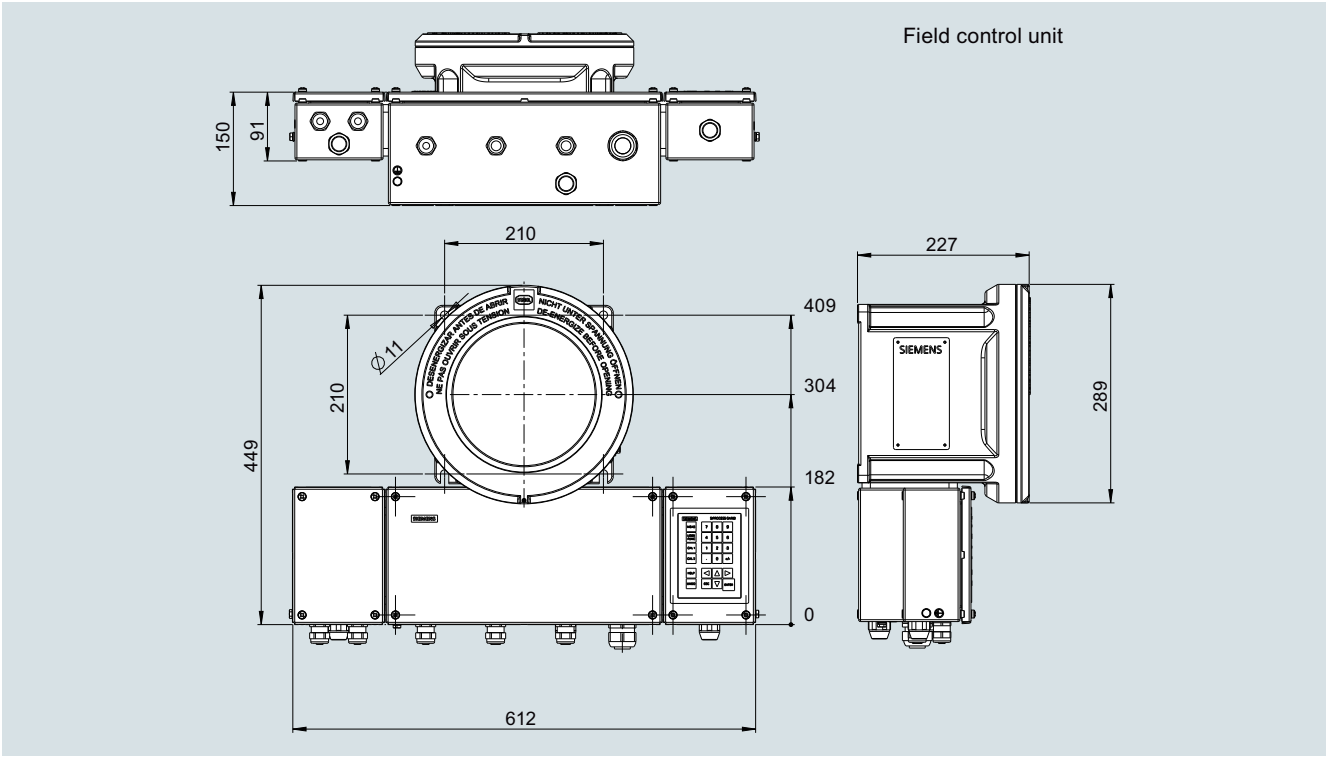
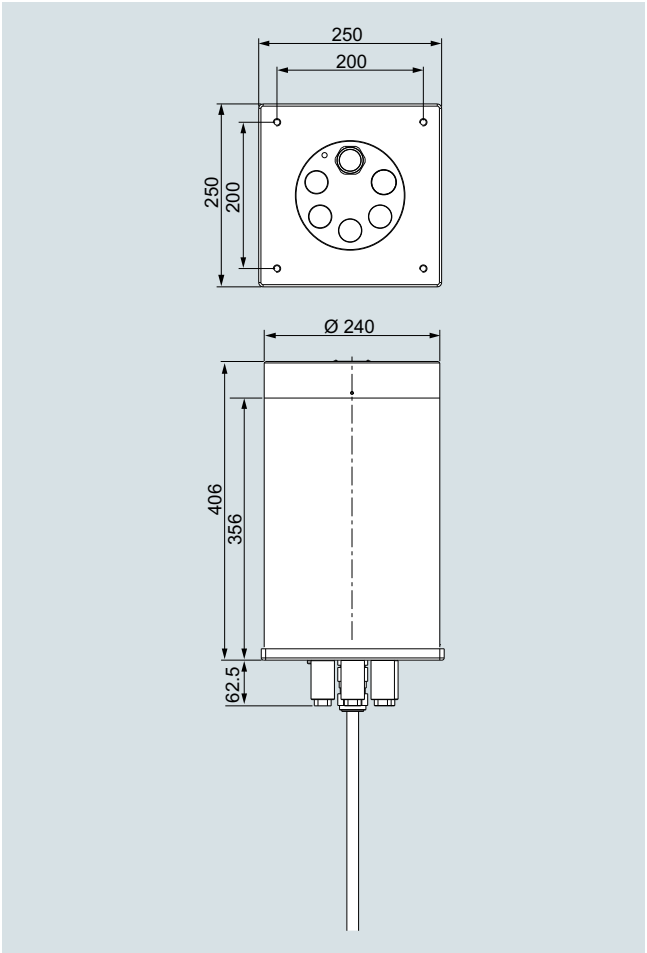


SIPROCESS GA700, field control unit, dimensions in mm



SIPROCESS GA700, field module, dimensions in mm

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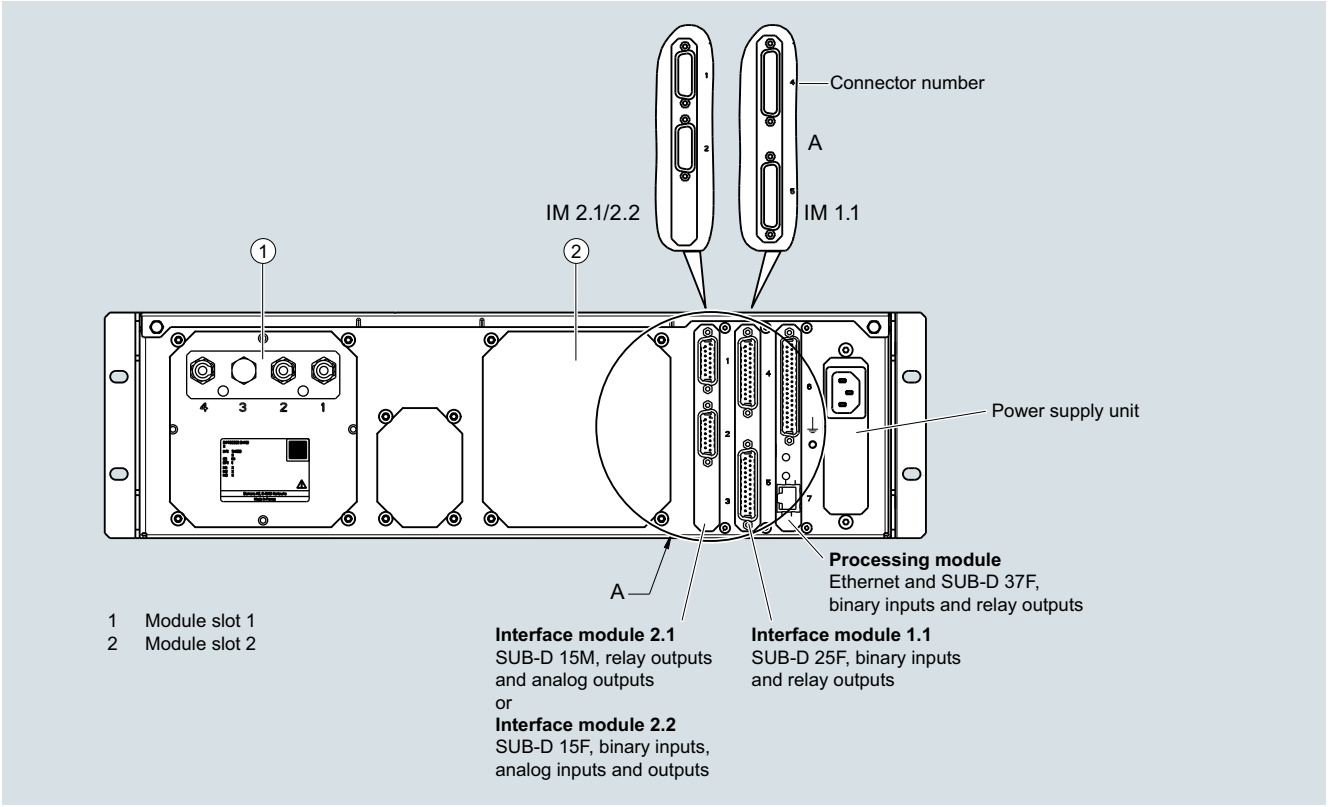
Circuit diagrams

Connection of the signal cables



Expansion options for interface modules with the example of the rear wall of the rack unit

Possible combinations

You can install a maximum of two analyzer modules in the wall-mounted and rack-mounted enclosures of the SIPROCESS GA700 series. No fixed allocation rules apply. Every module can be operated in every slot.

The following restrictions must be observed:

- Change to measuring frequency required:
  - [O7 and O7]: 8.33 Hz (O7 No. 1) - 10 Hz (O7 No. 2)
  - [O7 and U7]: 10 Hz (O7) - 12.5 Hz (U7)]
- Restricted temperature range:
  [U7 and O7] or [U7 and C7]: 5 to 45 °C
- Restricted smallest measuring range:
  [U7 and O7]
- NAMUR NE21 does not apply in combination:
  [C7 and U7] or [C7 and O7]