

# OXYMAT 61 Gas Analyzers for the Determination of Oxygen



<b>2</b>	<b>General</b>
2	Overview
2	Benefits
2	Application
2	Design
5	Function
7	Integration
<b>10</b>	<b>19" unit</b>
10	Technical specifications
11	Ordering data
12	Dimensional drawings
13	Schematics
16	More information
	- Documentation
	- Spare parts for a 2-year and a 5-year service
<b>17</b>	<b>Conditions of sale and delivery</b>
	<b>Export regulations</b>
	<b>Contact addresses</b>



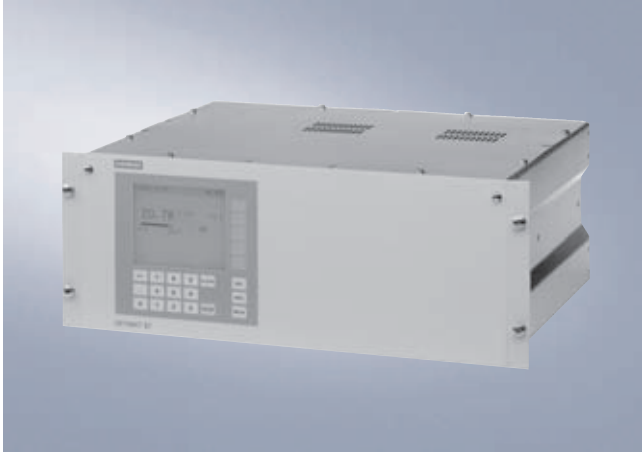
# Gas Analysis

## OXYMAT 61

### General

#### Overview

The measuring principle of the OXYMAT 61 gas analyzers is based on the paramagnetic alternating pressure method and is used to measure oxygen in gases in standard applications.



OXYMAT 61

#### Benefits

- Integrated pump for reference gas circulation (ambient air)
- High linearity
- Compact design
- Possibility of physical zero suppression.

#### Application

##### Application areas

- Environmental protection
- Boiler control in firing systems
- Quality monitoring
- Process exhaust monitoring
- Process optimization.

##### Further applications

- Chemical plants
- Gas manufacturers
- Research and development.

#### Design

- 19" unit with 4 HU for installation
  - in swing frames
  - in cabinets, with or without slide rails
- Front panel for service can be hinged down (laptop connection)
- Gas connections for sample gas input and output: pipe diameter 6 mm or 1/4"
- Gas and electrical connections at the rear.

##### Display and control panel

- Large LCD panel for simultaneous display of:
  - Measured value
  - Status line
  - Measuring ranges
- Contrast of LCD panel adjustable via menu
- Permanent LED backlighting
- Washable membrane keyboard with five softkeys
- Menu-based operation for configuration, test functions and calibration
- User help in plain text
- Graphic display of concentration trend; programmable time intervals.

##### Inputs and outputs

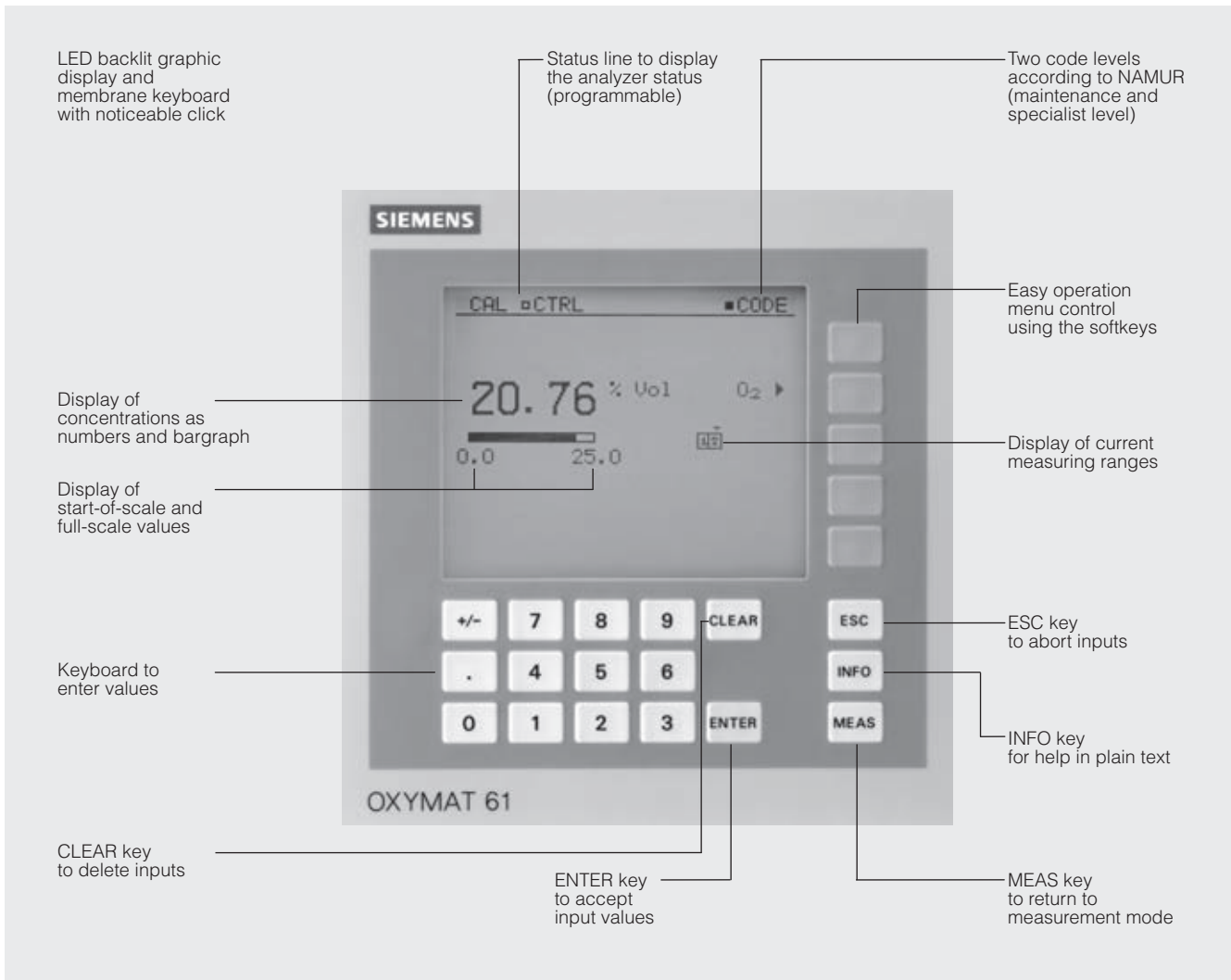
- Six binary inputs freely configurable (e.g. for range switching, processing of external signals from sample preparation)
- Six relay outputs freely configurable (failure, maintenance request, maintenance switch, limit alarm, external solenoid valves)
- Two programmable analog inputs (e.g. cross interference correction, external pressure sensor)
- Extension with eight additional binary inputs and eight additional relay outputs for automatic calibration with up to four calibration gases.

##### Communication

- RS 485 included in basic unit (connection at the rear).

##### Options

- RS 485/RS 232 converter
- RS 485/Ethernet converter
- Linking to networks via PROFIBUS DP/PA interface
- SIPROM GA software as service and maintenance tool.



OXYMAT 61, membrane keyboard and graphic display

### Executions of the wetted parts

Standard		19" unit
Gas path		
with hoses	Nipple	SS, type No. 1.4571
	Hose	Viton
	Sample cell	SS, type No. 1.4571
	Stub sample cell	SS, type No. 1.4571
	Restrictor	Teflon
	O-rings	Viton
	Hose coupling	Polyamide 6

Options		
Flowmeter	Metering pipe	Duran glass
	Float	Duran glass, black
	Float limit	Teflon
	Elbows	Viton
Sample gas pressure switch	Membrane	Viton
	Enclosure	PA 6.3T

# Gas Analysis

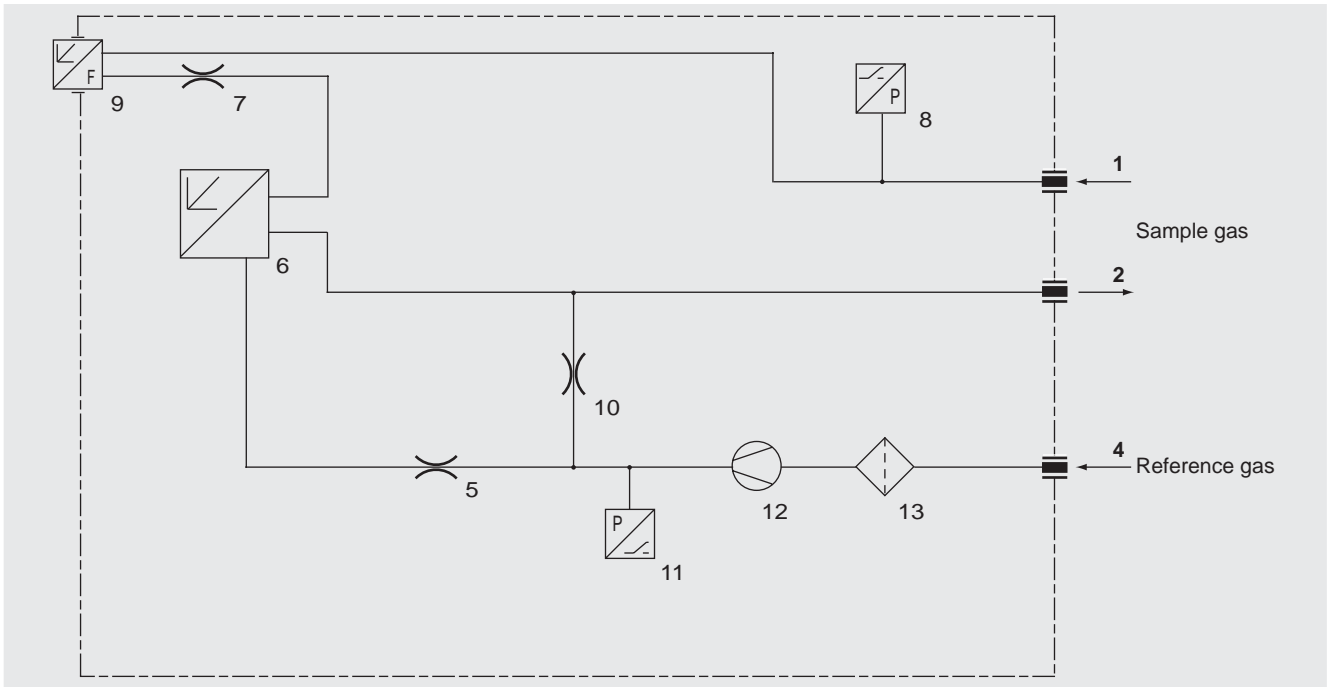
## OXYMAT 61

### General

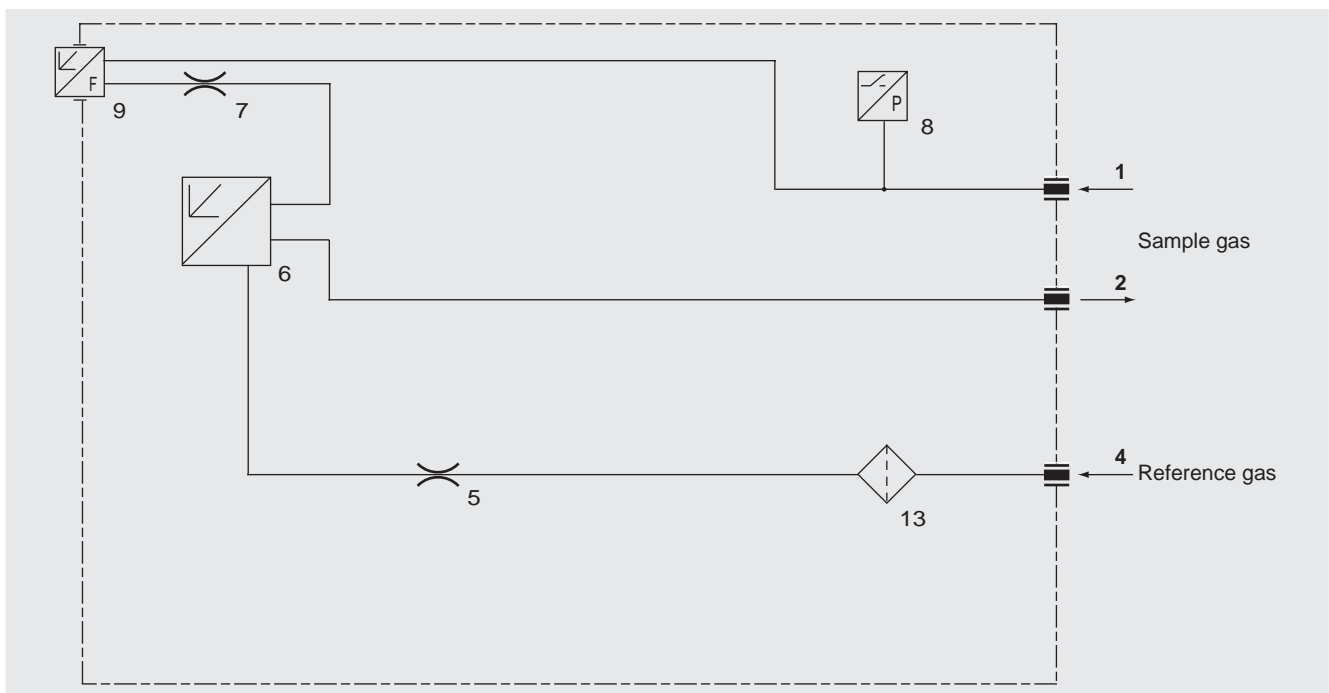
#### Gas path

##### Keys to the gas path figures

- |                                    |                                                 |
|------------------------------------|-------------------------------------------------|
| 1 Sample gas inlet                 | 8 Pressure switch in sample gas path (option)   |
| 2 Sample gas outlet                | 9 Flowmeter in sample gas path (option)         |
| 4 Reference gas inlet              | 10 Restrictor in reference gas path (outlet)    |
| 5 Restrictor in reference gas path | 11 Pressure switch for reference gas monitoring |
| 6 O <sub>2</sub> physics           | 12 Pump                                         |
| 7 Restrictor in sample gas path    | 13 Filter                                       |



Gas path OXYMAT 61 with integrated reference gas pump (connection for 100 hPa)



Gas path OXYMAT 61 with reference gas connection 3000 to 4000 hPa

### Function

In contrast to almost all other gases, oxygen is paramagnetic. This property is utilized as the measuring principle by the OXYMAT 61 gas analyzers.

Oxygen molecules in an inhomogeneous magnetic field are drawn in the direction of increased field strength due to their paramagnetism. When two gases with different oxygen concentrations meet in a magnetic field, a pressure difference is produced between them.

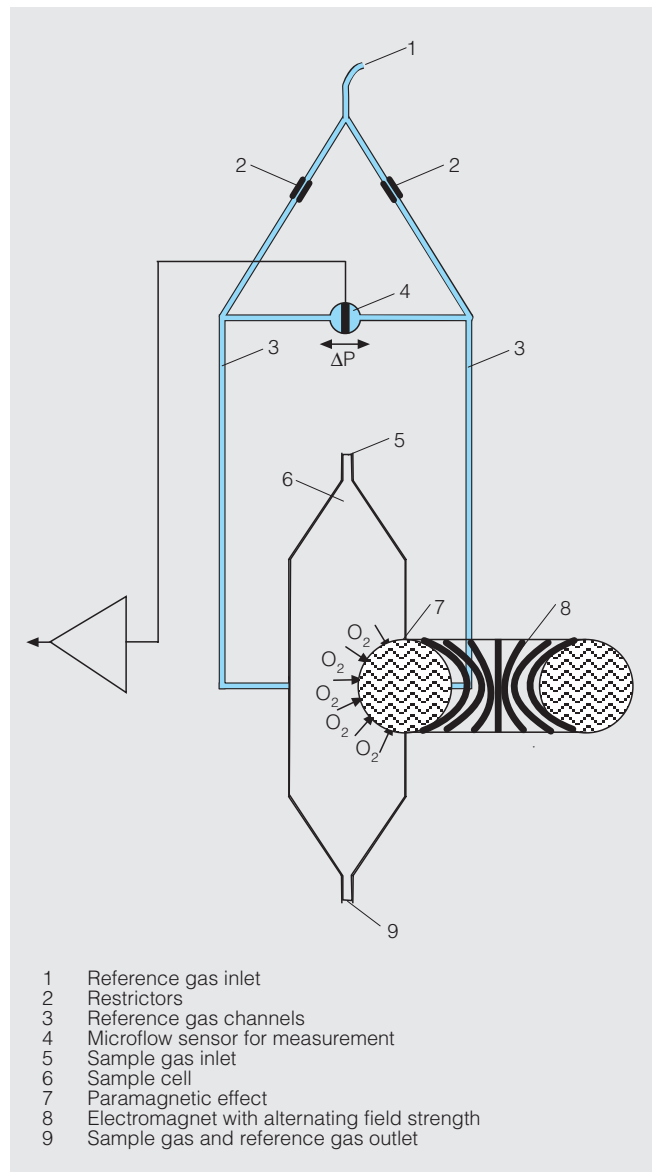
In the case of OXYMAT 61, one gas (1) is a reference gas ( $N_2$ ,  $O_2$  or air), the other is the sample gas (5). The reference gas is introduced into the sample chamber (6) through two channels (3). One of these reference gas streams meets the sample gas within the area of a magnetic field (7). Because the two channels are connected, the pressure, which is proportional to the oxygen concentration, causes a cross flow. This flow is converted into an electric signal by a microflow sensor (4).

The microflow sensor consists of two nickel grids heated to approx. 120 °C which form a Wheatstone bridge together with two supplementary resistors. The pulsating flow results in a change in the resistance of the Ni grids. This results in a bridge offset which depends on the oxygen concentration in the sample gas.

Because the microflow sensor is located in the reference gas stream, the measurement is not influenced by the thermal conductivity, the specific heat or the internal friction of the sample gas. This also provides a high degree of corrosion resistance because the flow sensor is not exposed to the direct influence of the sample gas.

By using a magnetic field with alternating strength (8), the effect of the background flow in the microflow sensor is not detected, and the measurement is thus independent of the instrument orientation.

The sample cell is directly in the sample path and has a small volume. The microflow sensor thus responds quickly, resulting in a very short response time for the OXYMAT 61.



OXYMAT 61, mode of operation

# Gas Analysis

## OXYMAT 61

### General

#### Special characteristics

- Four freely-parameterizable measuring ranges, also with zero offset, all measuring ranges linear
- Electrically isolated signal output selectable as 0/2/4 to 20 mA (also inverted)
- Autoranging or manual range switching possible; remote switching is also possible
- Storage of measured values possible during calibration
- Time constants selectable within wide limits (static/dynamic noise suppression); i.e. the response time of the analyzer can be matched to the respective application
- Simple handling using menu-based operation
- Low long-term drift
- Two operation levels with separate access code to prevent unintentional and unauthorized inputs
- Automatic range calibration can be parameterized
- Operation based on NAMUR Recommendation
- Monitoring of sample gas (option)
- Customer-specific analyzer options such as e.g.:
  - Customer acceptance
  - TAG labels
  - Drift recording
- Simple handling using a digital membrane keyboard and menu-based operation
- Short response time
- Reference gas supply external (N<sub>2</sub>, O<sub>2</sub> or air, approx. 3000 hPa) or via an integrated reference gas pump (ambient air, approx. 100 hPa)
- Monitoring of reference gas with reference gas connection 3000 to 4000 hPa
- Different smallest spans, depending on version 2.0% or 5.0% O<sub>2</sub>
- Internal pressure sensor to correct sample gas variations.

#### Correction of zero error / Cross interferences

Residual gas (concentration 100 % v/v)	Zero deviation in % v/v O <sub>2</sub> absolute
<b>Organic gases</b>	
Acetic acid            CH <sub>3</sub> COOH	-0.64
Acetylene             C <sub>2</sub> H <sub>2</sub>	-0.29
1,2 butadiene        C <sub>4</sub> H <sub>6</sub>	-0.65
1,3 butadiene        C <sub>4</sub> H <sub>6</sub>	-0.49
iso-butane            C <sub>4</sub> H <sub>10</sub>	-1.30
n-butane              C <sub>4</sub> H <sub>10</sub>	-1.26
1-butene              C <sub>4</sub> H <sub>6</sub>	-0.96
iso-butene            C <sub>4</sub> H <sub>8</sub>	-1.06
Cyclo-hexane        C <sub>6</sub> H <sub>12</sub>	-1.84
Dichlorodifluoromethane (R12) CCl <sub>2</sub> F <sub>2</sub>	-1.32
Ethane                C <sub>2</sub> H <sub>6</sub>	-0.49
Ethylene             C <sub>2</sub> H <sub>4</sub>	-0.22
n-heptane            C <sub>7</sub> H <sub>16</sub>	-2.4
n-hexane             C <sub>6</sub> H <sub>14</sub>	-2.02
Methane              CH <sub>4</sub>	-0.18
Methanol            CH <sub>3</sub> OH	-0.31
n-octane             C <sub>8</sub> H <sub>18</sub>	-2.78
n-pentane            C <sub>5</sub> H <sub>12</sub>	-1.68
iso-pentane         C <sub>5</sub> H <sub>12</sub>	-1.49
Propane              C <sub>3</sub> H <sub>8</sub>	-0.87
Propylene            C <sub>3</sub> H <sub>6</sub>	-0.64
Trichlorofluoromethane (R11) CCl <sub>3</sub> F	-1.63
Vinyl chloride       C <sub>2</sub> H <sub>3</sub> Cl	-0.77
Vinyl fluoride        C <sub>2</sub> H <sub>3</sub> F	-0.55
1,1 vinylidene chloride    C <sub>2</sub> H <sub>2</sub> Cl <sub>2</sub>	-1.22

Residual gas (concentration 100 % v/v)	Zero deviation in % v/v O <sub>2</sub> absolute
<b>Inert gases</b>	
Argon                    Ar	-0.25
Helium                 He	+0.33
Krypton                Kr	-0.55
Neon                    Ne	+0.17
Xenon                  Xe	-1.05
<b>Anorganic gases</b>	
Ammonia                NH <sub>3</sub>	-0.20
Carbon dioxide        CO <sub>2</sub>	-0.30
Carbon monoxide      CO	+0.07
Chlorine                Cl <sub>2</sub>	-0.94
Dinitrogen monoxide    N <sub>2</sub> O	-0.23
Hydrogen              H <sub>2</sub>	+0.26
Hydrogen bromide     HBr	-0.76
Hydrogen chloride    HCl	-0.35
Hydrogen fluoride     HF	-0.10
Hydrogen iodide      HI	-1.19
Hydrogen sulphide    H <sub>2</sub> S	-0.44
Oxygen                 O <sub>2</sub>	+100
Nitrogen                N <sub>2</sub>	0.00
Nitrogen dioxide      NO <sub>2</sub>	+20.00
Nitrogen oxide        NO	+42.94
Sulphur dioxide        SO <sub>2</sub>	-0.20
Sulphur hexafluoride    SF <sub>6</sub>	-1.05
Water                  H <sub>2</sub> O	-0.03

Zero error due to diamagnetism or paramagnetism of residual gases with nitrogen as the reference gas at 60 °C and 1000 hPa absolute (according to IEC 1207/3)

#### Conversion to other temperatures:

The zero errors mentioned in the table must be multiplied with a correction factor (k):

- with diamagnetic gases:  $k = 333 \text{ K} / (\theta [^{\circ}\text{C}] + 273 \text{ K})$
  - with paramagnetic gases:  $k = [333 \text{ K} / (\theta [^{\circ}\text{C}] + 273 \text{ K})]^2$
- (all diamagnetic gases have a negative zero error).

### Integration

#### Communication

##### Communications facilities

The gas analyzers of series 6 (ULTRAMAT 6, ULTRAMAT/OXYMAT 6, OXYMAT 6, OXYMAT 61, FIDAMAT 6 and CALOMAT 6), as well as the ULTRAMAT 23 offer the following communications facilities:

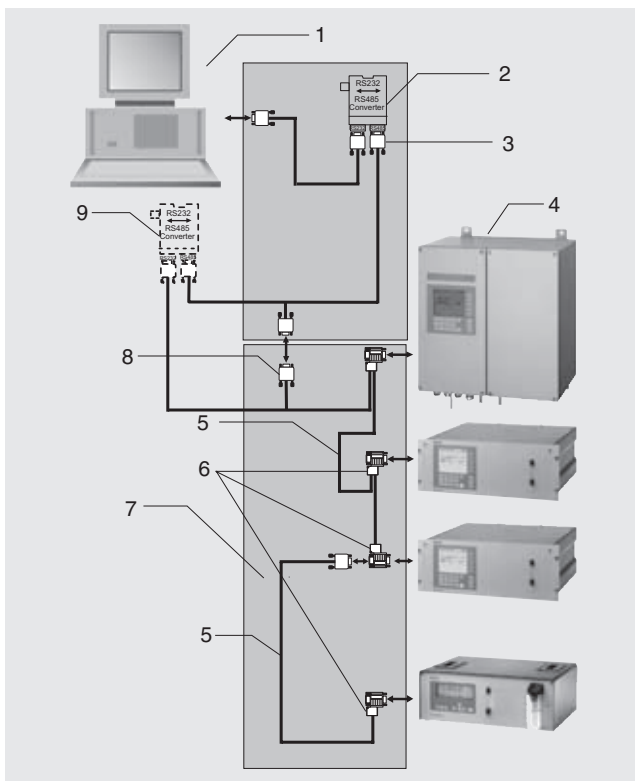
- RS 485 interface
- PROFIBUS DP/PA
- AK interface (only OXYMAT 6, ULTRAMAT 6 and ULTRAMAT/OXYMAT 6).

##### RS 485 interface (ELAN)

The standard integrated series interface permits to communicate between several gas analyzers via the internal bus (ELAN).

Up to 12 gas analyzers with max. four components can be networked.

The operating principle is shown in the following figure.



Typical design of an RS 485 network

Item	Designation
1	Computer
2	RS 485/RS 232 converter with RS 485/RS 232 cable
3	RS 485 bus connector with jumper
4	Analyzers
5	RS 485 cable
6	RS 485 bus connector
7	RS 485 network
8	9-pin SUB-D plug
9	Option: RS 485 repeater

### Interface parameters

Level	RS 485
Baud rate	9600
Data bits	8
Stop bit	1
Start bit	1
Parity	None
No echo mode	

### Ordering data

Interface description (d)  
 RS 485/RS 232 converter  
 RS 485/Ethernet converter  
 Further accessories (e.g. cable, connectors, repeater, etc.)

Order No.

**A5E00054148**  
**C79451-Z1589-U1**  
**C79451-A3364-D61**  
 see Catalog IK PI

### RS 485 interface (SIPROM GA)

SIPROM GA is a software tool for service and maintenance. All analyzer functions (except factory functions) can be remote-controlled and monitored via RS 485/RS 232 converters.

Up to 12 gas analyzers with max. four components can be networked.

Networking of several gateways is possible when using the RS 485/Ethernet converter (gateway). The number of operable analyzers is increased correspondingly.

#### Functions

- Display and saving of all analyzer data
- Remote operation of all analyzer functions
- Parameter and configuration settings
- Comprehensive diagnostics information
- Remote calibration
- Online help
- Cyclic saving of measured values and status on hard disk
- Exporting to commercially available application programs
- Downloading of new software.

#### Hardware requirements:

- PC/Laptop Pentium 133 MHz, RAM 32 MB, CD-ROM drive
- Free disk capacity min. 10 MB
- Free COM-Port: RS 232 or RS 485:
  - for coupling to ELAN network RS 485/RS 232
  - Linking the RS 485/Ethernet converter requires a 10 MB standard network (RJ 45 connection) with TCP/IP. The distance should not exceed 500 m with an RS 485 network, a repeater should be inserted for a longer distance.

#### Software requirements:

- Windows 95
- Windows 98
- Windows NT 4.0
- Windows 2000
- Windows XP.

# Gas Analysis

## OXYMAT 61

### General

Ordering data	Order No.
SIPROM GA software German/English selectable during installation, comprising 1 CD, with installation instructions, software product certificate and registration form	<b>S79610-B4014-A1</b>
<b>Firmware retrofitting sets for older analyzers:</b>	
ULTRAMAT 23 (prior to SW version 4.1) all languages	<b>C79451-A3494-S501</b>
ULTRAMAT 6 (prior to SW version 4.1)	
• German	<b>C79451-A3478-S501</b>
• English	<b>C79451-A3478-S502</b>
• French	<b>C79451-A3478-S503</b>
• Spanish	<b>C79451-A3478-S504</b>
• Italian	<b>C79451-A3478-S505</b>
OXYMAT 6 (prior to SW version 4.1)	
• German	<b>C79451-A3480-S501</b>
• English	<b>C79451-A3480-S502</b>
• French	<b>C79451-A3480-S503</b>
• Spanish	<b>C79451-A3480-S504</b>
• Italian	<b>C79451-A3480-S505</b>

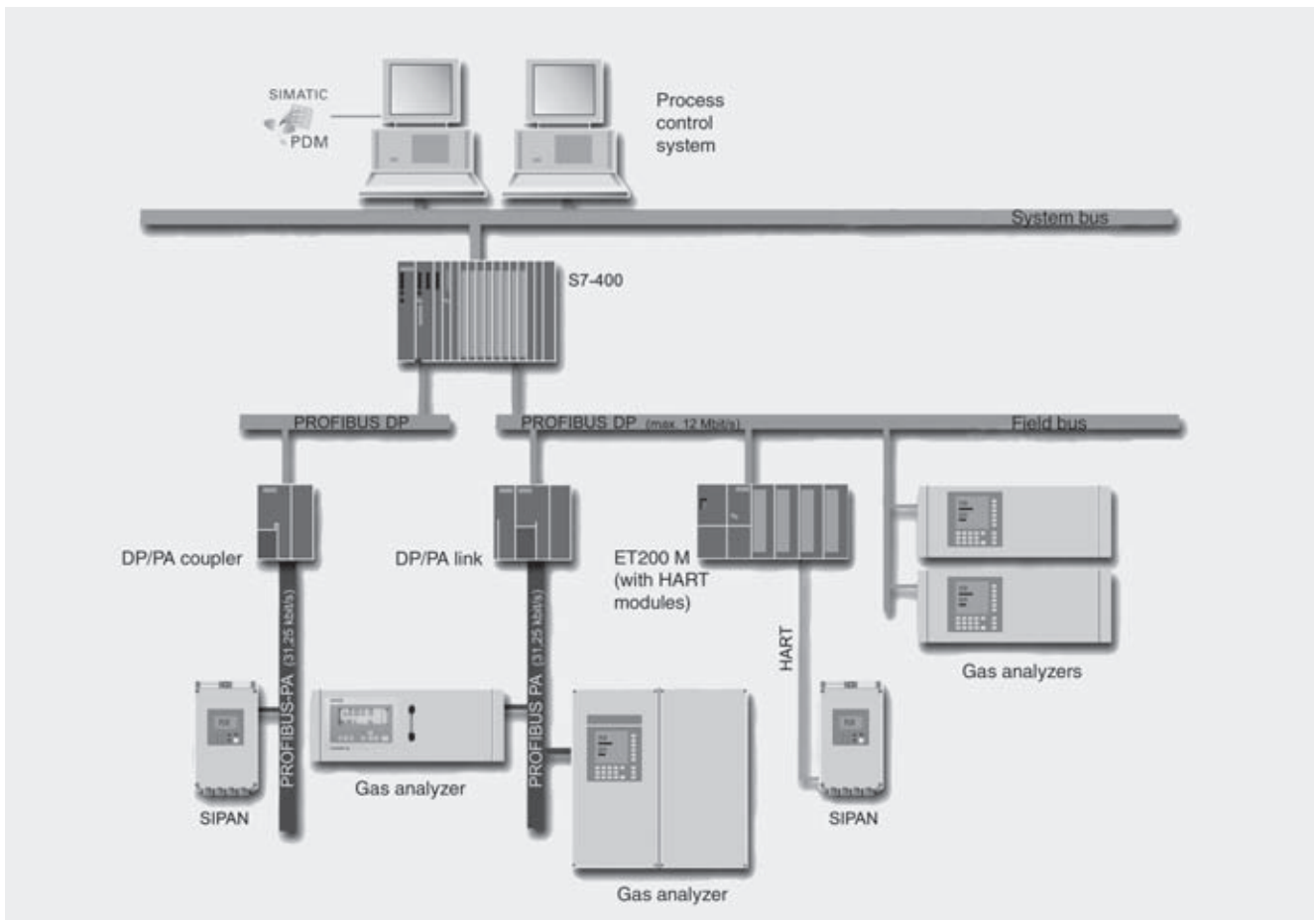
### PROFIBUS DP/PA

**PROFIBUS DP/PA** is the leading field bus on the market. All Siemens gas analyzers are suitable for PROFIBUS when equipped with an optional plug-in card (retrofitting also possible) and satisfy the binding "Device profile for analyzers" defined by the **PNO** (PROFIBUS user organization). Central access to the analyzers in the system is possible using the SIMATIC PDM operator input software.

The term field bus describes a digital communications system with which distributed field devices in a plant are networked together via one single cable, and connected at the same time to programmable controllers or to a process control system. PROFIBUS is the leading field bus on the market. The **PROFIBUS DP** version is widely used for production automation because of its high transmission rate for relatively small data quantities per device, whereas **PROFIBUS PA** particularly takes into account the features required for process engineering, e.g. large data quantities and application in potentially explosive atmospheres.

User benefits can be found in the extremely high potentials for cost savings in all areas of the plant, covering configuring and commissioning, operation and maintenance, and up to later plant extensions.

Operation of the gas analyzers from a control system or separate PC is possible using the SIMATIC PDM (Process Device Manager) operator input tool which is software executing under Windows and which can also be incorporated into the SIMATIC PCS 7 process control system. This permits clear display of both the incorporation of devices into the system and the complex parameter structure of the analyzers, permitting operation to be carried out simply by clicking.



Basic structure of a PROFIBUS system



The PROFIBUS user organization (PNO) is an independent international institution, and represents the interests of many vendors and users. In addition to services such as consultation, training and device certification, its prime task is the further development, standardization and promotion of the PROFIBUS technology. The definition of a binding functionality for a device class in a profile is a prerequisite for the uniform response of devices from different vendors, the so-called interoperability. The **profile for analyzers** was defined as binding at the end of 1999, thus guaranteeing the interaction of all PROFIBUS-based devices in a plant.

This profile defines the functionality of the analyzers in a block model: e.g. the **physical block** describes the measuring procedure, analyzer and vendor names, serial number and operating state (operation, maintenance). Various **functional blocks** contain the execution of specific functions such as the processing of measured values or alarms. The **transducer blocks** describe the functionality of the actual measuring procedure and its control, e.g. preprocessing of a measured value, correction of cross-interferences, characteristics, measuring ranges as well as switching and control procedures. Protocols define the data transmission between the stations on the bus.

A differentiation is made between **cyclic and acyclic services**. Cyclic services are used to transmit time-critical data such as measured values and statuses. The acyclic services permit the scanning or modification of device parameters during operation.

All gas analyzers of Series 6, (ULTRAMAT 6, ULTRAMAT/OXYMAT 6, OXYMAT 6, OXYMAT 61, FIDAMAT 6 and CALOMAT 6), as well as the ULTRAMAT 23 are suitable for PROFIBUS when fitted with the optional plug-in card.

**AK interface** (only OXYMAT 6, ULTRAMAT 6 and ULTRAMAT/OXYMAT 6)

The user benefits of numerous functions especially in the automotive industry, e.g. to operate a re-linearization

Unlike to PROFIBUS and ELAN, communication between only one unit and one PC is possible and operates according to the master-slave principle. The unit only transmits data on request with a command message, but always only command can be processed and answered.

*Funktion 88* permits to call the menu and to set the parameters.

# Gas Analysis

## OXYMAT 61

### 19" unit

#### Technical specifications

##### General

Measuring ranges	4, switchable internally and externally; autoranging is also possible
Smallest possible measuring span (referred to 1000 hPa absolute sample gas pressure, 0.5 l/min sample gas flow and 25 °C ambient temperature)	2% v/v or 5% v/v O <sub>2</sub>
Largest possible measuring span	100% v/v O <sub>2</sub>
Measuring ranges with zero offset	Any zero point is possible between 0 to 100% v/v as long as a suitable reference gas is used
Position of use	Front panel vertical
Conformity	CE identification EN 50081-1, EN 50082-2

##### Design, enclosure

Degree of protection	IP20 according to EN 60529
Weight	Approx. 13 kg

##### Electrical characteristics

Power supply	100 to 120 V AC (rated range 90 V to 132 V), 48 to 63 Hz or 200 to 240 V AC (rated range 180 V to 264 V), 48 to 63 Hz
Power consumption	Approx. 37 VA
EMC interference immunity (ElectroMagnetic Compatibility)	According to standard requirements of NAMUR NE21 (08/98)
Electrical safety	According to EN 61010-1, overvoltage category III
Fuses	100...120 V: 1.0T/250 200...240 V: 0.63T/250

##### Gas inlet conditions

Perm. sample gas pressure	800 to 1200 hPa
• External reference gas supply	
• With integrated pump	atmospheric pressure ± 50 hPa
Sample gas flow	18 to 60 l/h (0.3 to 1 l/min)
Sample gas temperature	0 to 50 °C
Sample gas humidity	< 90% relative humidity

##### Time response

Warm-up period	With ambient temperature < 30 min (maximum accuracy achieved after 2 hours)
Response time (T <sub>90</sub> )	3.5 s
Damping (electric time constant)	0 to 100 s, programmable
Dead time (purging time of gas path in analyzer at 1 l/min)	Approx. 0.5 to 2.5 s, depending on version
Time for internal signal processing	< 1 s

##### Pressure correction range

Pressure sensor, internal	500 to 2000 hPa (permitted sample gas pressure see gas inlet conditions)
---------------------------	--------------------------------------------------------------------------

**Measuring response** (referred to 1000 hPa absolute sample gas pressure, 0.5 l/min sample gas flow and 25 °C ambient temperature)

Output signal fluctuation	< 0.75% of smallest possible measuring range specified on rating plate with an electronic time constant of 1 s (corresponds to ± 0.25% with 2 σ)
Zero drift	< 0.5%/month of smallest possible meas. span specified on rating plate
Measured-value drift	< 0.5%/month of respective measuring span
Repeatability	< 1% of respective measuring span
Linearity error	< 1% of respective measuring span

**Influencing variables** (referred to 1000 hPa absolute sample gas pressure, 0.5 l/min sample gas flow and 25 °C ambient temperature)

Ambient temperature	< 0.1% [% O <sub>2</sub> ] / 1 K referred to the smallest possible measuring span according to rating plate
Sample gas pressure with air (approx. 100 hPa) as reference gas supply, a correction of the atmospheric pressure fluctuations is only possible when the sample gas is vented to ambient air)	Without pressure compensation: < 2% of measuring span / 1% change in pressure With pressure compensation: < 0.2% dof measuring span / 1% change in pressure
Residual gases	Deviation in zero point corresponding to paramagnetic or diamagnetic deviation of residual gas (see Table)
Sample gas flow	< 1% of smallest possible measuring span according to rating plate with a change in flow of 0.1 l/min within the permissible flow range
Power supply	< 0.1% of output signal span with rated voltage ± 10%

##### Electric inputs and outputs

Analog output	0/2/4 to 20 mA, floating; max. load 750 Ω
Relay outputs	6, with changeover contacts, freely selectable, e.g. for range identification; loading capacity: 24 V AC/DC/ 1 A, floating
Analog inputs	2, designed for 0/2/4 to 20 mA, for external pressure sensor and correction of influence of residual gas (correction of cross interference)
Binary inputs	6, designed for 24 V, floating, freely selectable, e.g. for range switching
Serial interface	RS 485
Options	Autocal function with 8 additional binary inputs and 8 relay outputs; also with PROFIBUS PA or PROFIBUS DP

##### Ambient conditions

Perm. ambient temperature	-30 to +70 °C during storage and transport, +5 to +45 °C during operation
Permissible humidity	< 90% relative humidity as annual average, during storage and transport (dew point must not be fallen below)

#### Reference gases

Measuring range	Recommended reference gas	Reference gas pressure	Remarks
0 to . . . % v/v O <sub>2</sub>	N <sub>2</sub>	3000 to 4000 hPa absolute, reference gas from cylinder	The reference gas flow is set automatically to 5 to 10 ml/min
. . . to 100% v/v O <sub>2</sub> (suppressed zero with full-scale value 100% v/v O <sub>2</sub> )	O <sub>2</sub>		
Around 21% v/v O <sub>2</sub> (suppressed zero with 21% v/v O <sub>2</sub> within the span)	Air		

### Ordering data

**OXYMAT 61 gas analyzer**  
19" unit for installation in cabinets

#### Gas connections for sample gas and reference gas

Piping with outer diameter 6 mm  
Piping with outer diameter 1/4"

#### Smallest possible span O<sub>2</sub>

2% Reference gas pressure 3000 hPa  
2% Reference gas supply with internal pump  
5% Reference gas pressure 3000 hPa  
5% Reference gas supply with internal pump

#### Power supply

100 V to 120 V AC, 48 to 63 Hz  
200 V to 240 V AC, 48 to 63 Hz

#### Sample gas monitoring

Without  
With (incl. flowmeter and pressure switch)

#### Supplementary electronics

Without  
Autocal function

- With additional 8 binary inputs/outputs
- With serial interface for the automotive industry (AK)
- With additional 8 binary inputs/outputs and PROFIBUS PA interface
- With additional 8 binary inputs/outputs and PROFIBUS DP interface

#### Language

German  
English  
French  
Spanish  
Italian

Order No..

7MB2001 - A00 -

0  
1

C  
D  
E  
F

0  
1

A  
D

A

B  
D  
E  
F

0  
1  
2  
3  
4

### Further versions

Please add „-Z“ to Order No. and specify Order code

RS 485/RS 232 converter  
Slide rails (2 rails)  
Set of Torx tools, socket spanner  
TAG labels (customer-defined inscriptions)  
Damping element for sample gas  
Customer acceptance (in factory before delivery) <sup>1)</sup>  
Clean for O<sub>2</sub>-Service (special-cleaned gas path)  
Drift recording <sup>2)</sup>  
Measuring range in plain text, if different from standard setting <sup>3)</sup>

Order code

**A11**  
**A31**  
**A32**  
**B03**  
**B04**  
**Y01**  
**Y02**  
**Y03**  
**Y11**

### Retrofitting sets

RS 485/Ethernet converter  
RS 485/RS 232 converter  
Autocal function with 8 binary inputs/outputs  
Autocal function with 8 binary inputs/outputs and PROFIBUS-PA  
Autocal function with 8 binary inputs/outputs and PROFIBUS-DP

Order No.

**C79451-A3364-D61**  
**C79451-Z1589-U1**  
**C79451-A3480-D511**  
**A5E00057307**  
**A5E00057312**

<sup>1)</sup> Customer acceptance: 1/2 day at factory in presence of customer.  
The following work is carried out: comparison of analyzer with ordering data, linearization check (zero, mid-point value and full-scale value), reproducibility check with calibration gas (recording in each case on XT recorder, logging of results).

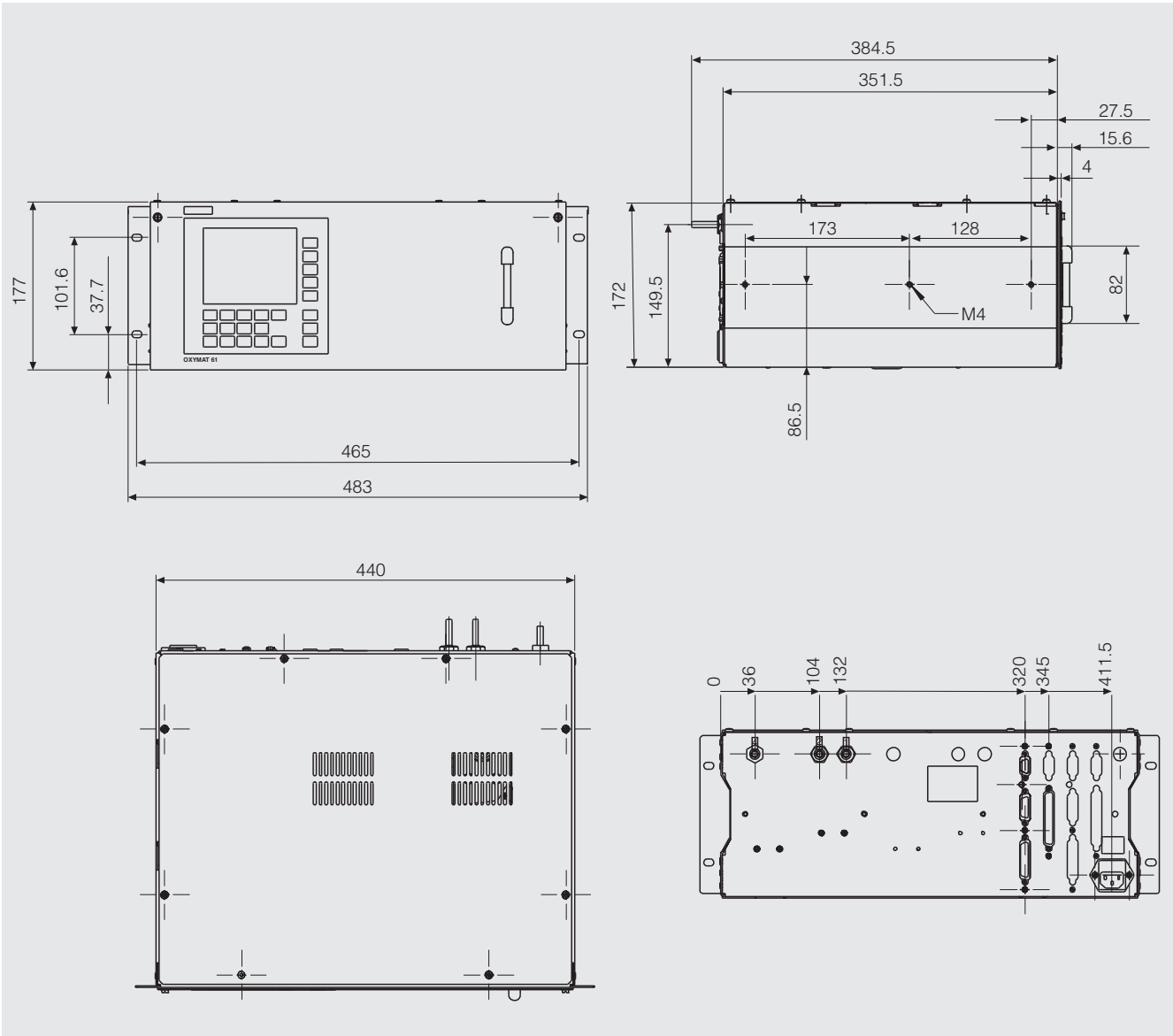
<sup>2)</sup> Drift recording: an XT recording is supplied when the analyzer is delivered;  
zero drift with 16 hours continuous operation and sensitivity drift (largest measuring range) with 6 hours continuous operation.

<sup>3)</sup> Standard setting: Measuring range 1: 0 to smallest possible span  
Measuring range 2: 0 to 10%  
Measuring range 3: 0 to 25%  
Measuring range 4: 0 to 100%.

# Gas Analysis OXYMAT 61

19" unit

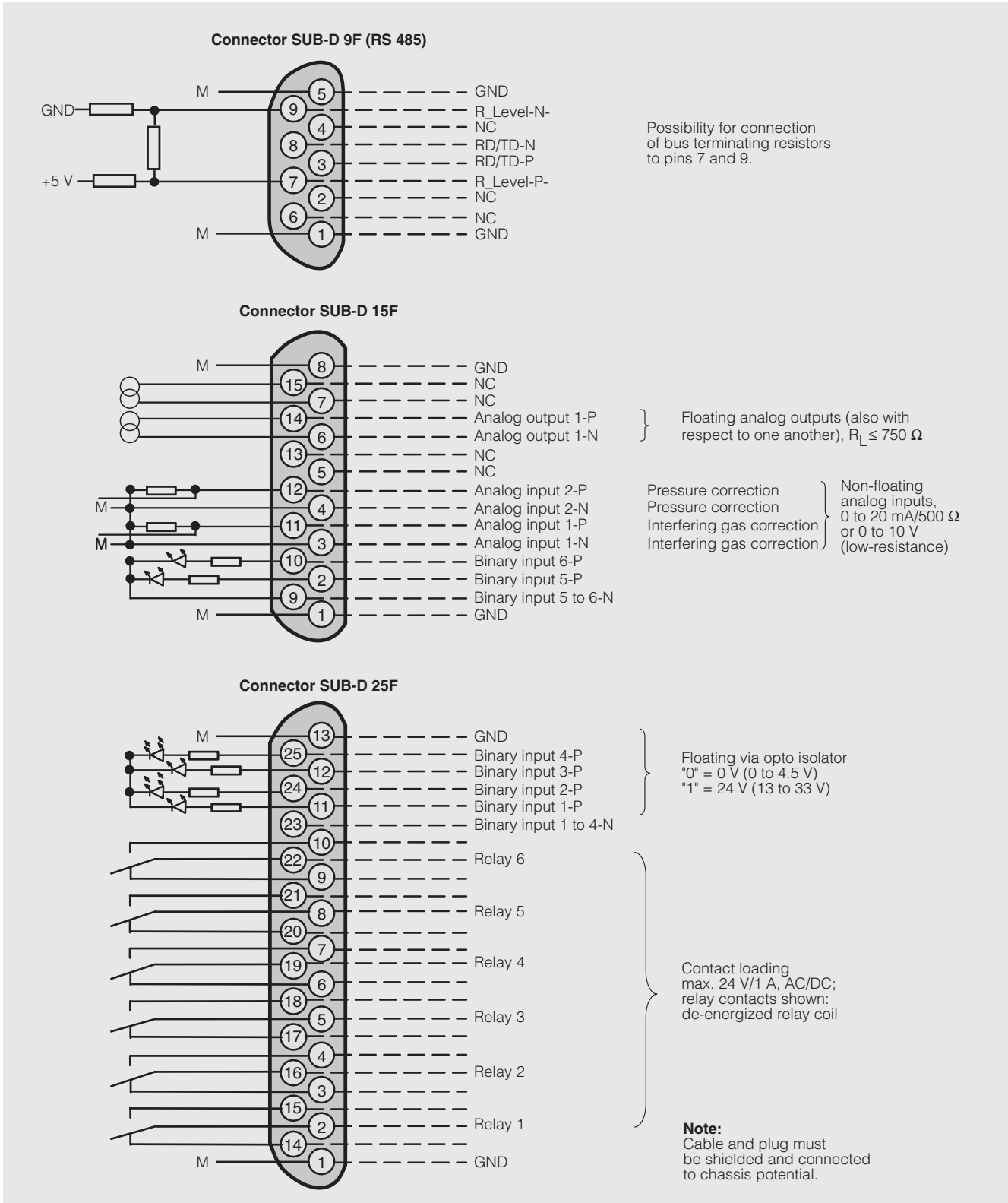
## Dimensional drawings



OXYMAT 61, 19" unit, dimensions in mm

## Schematics

### Pin assignment (electrical connections)



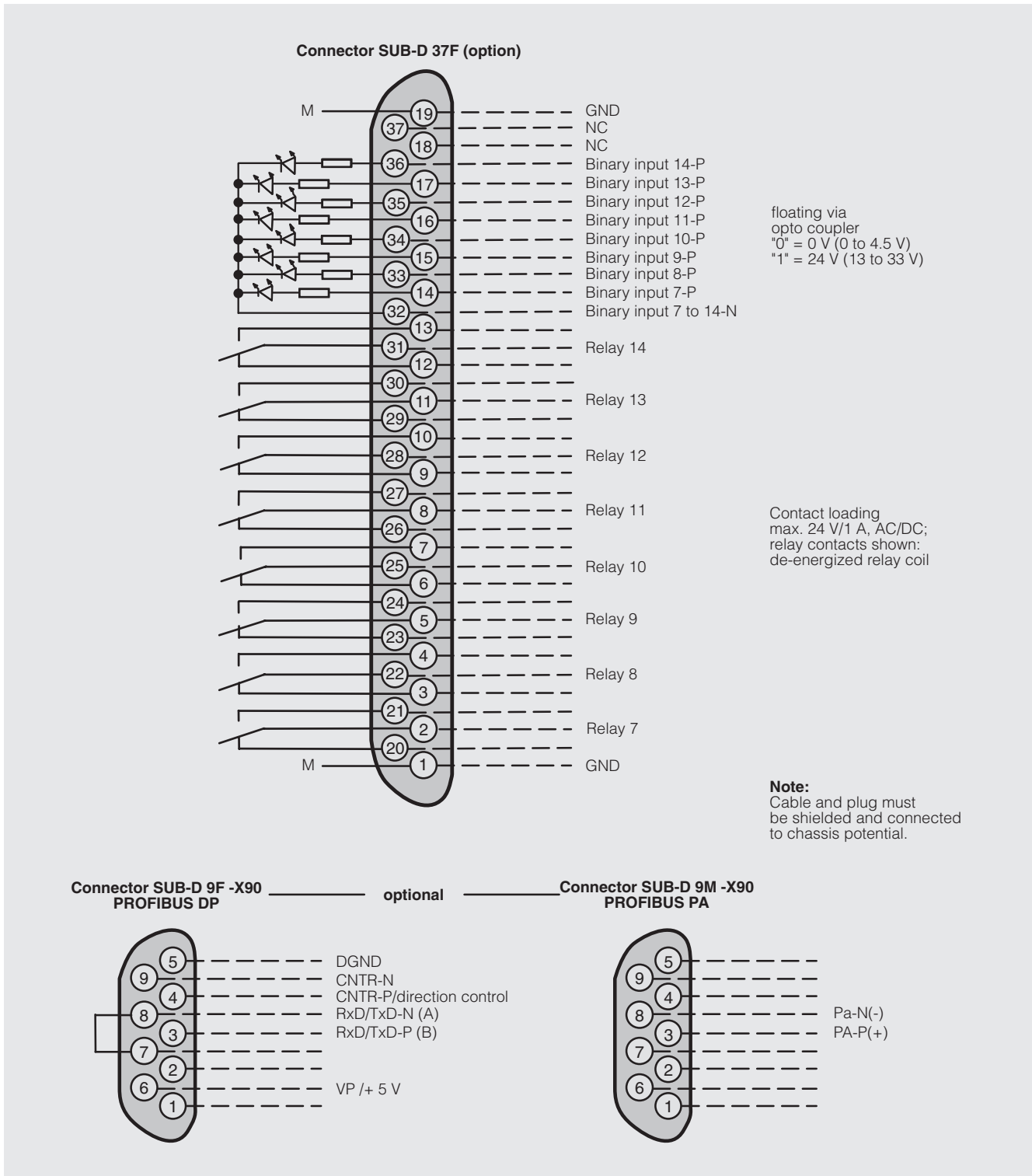
OXYMAT 61, 19" unit, pin assignment

# Gas Analysis

## OXYMAT 61

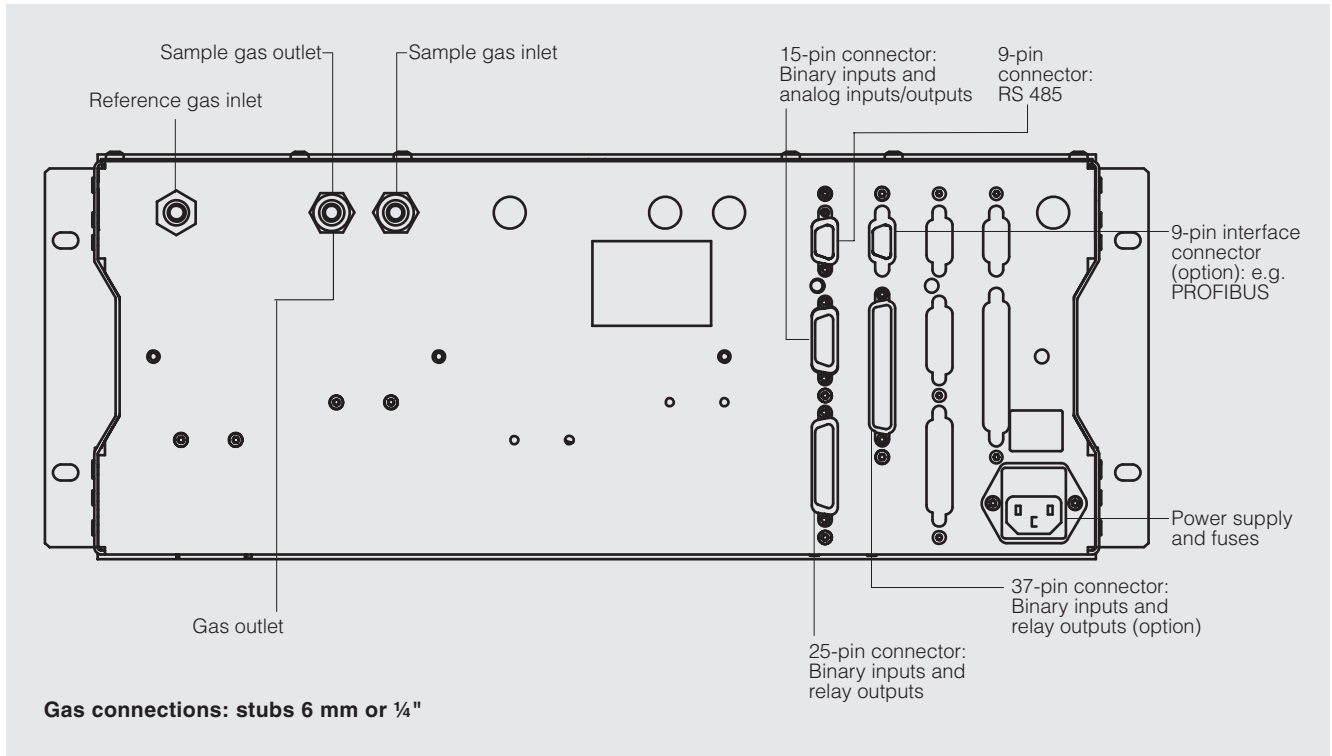
19" unit

### Pin assignment (electrical connections)



OXYMAT 61, 19" unit, pin assignment of the AUTOCAL board and PROFIBUS connectors

## Gas and electrical connections



OXYMAT 61, 19" unit, gas and electrical connections

# Gas Analysis

## OXYMAT 61

19" unit

### More information

#### Documentation

Manual	Order No.
<b>OXYMAT 61</b> Gasanalysengerät für IR-absorbierende Gase und Sauerstoff (German)	<b>A5E00123066</b>
<b>OXYMAT 61</b> Gas Analyzers for IR-absorbing Gases and Oxygen (English)	<b>A5E00123067</b>
<b>OXYMAT 61</b> Analyseurs de gaz pour la mesure de composants infrarouges et doxygène (French)	<b>A5E00123068</b>
<b>OXYMAT 61</b> Analizadores para gases absorbentes de infrarrojo y oxígeno (Spanish)	<b>A5E00123069</b>
<b>OXYMAT 61</b> Analizzatori per i gas assorbenti raggi infrarossi ed ossigeno (Italian)	<b>A5E00123070</b>

#### Proposition of spare parts for a 2-year and 5-year service

Description	Qty for 2 years	Qty for 5 years	Order No.
<b>Analyzer section</b>			
Reference gas supply (pump, restrictor, pressure switch, hose)	1	1	<b>A5E00114838</b>
O-ring	1	2	<b>C74121-Z100-A6</b>
Pressure switch (sample gas)	1	2	<b>C79302-Z1210-A2</b>
Flowmeter (only version with pump)	1	2	<b>C79402-Z560-T1</b>
Measuring cell			
• SS, type No. 1.4571, without flow-type compensation branch	-	1	<b>C79451-A3277-B535</b>
• O-ring (measuring head)	2	4	<b>C79121-Z100-A32</b>
• O-ring (stub)	2	4	<b>C71121-Z100-A159</b>
Measuring head (non flow-type compensation branch)	1	1	<b>C79451-A3460-B525</b>
Restrictor for sample gas path, hose	2	2	<b>C79451-A3480-C10</b>
Reference gas path, 3000 hPa (set of parts)	1	1	<b>C79451-A3480-D518</b>
<b>Electronics</b>			
Front panel with keyboard	1	1	<b>A5E00259978</b>
Baseplate (without firmware)	-	1	<b>C79451-A3474-B601</b>
Adapter board LCD/keyboard	1	1	<b>C79451-A3474-B605</b>
Magnet terminal board	-	1	<b>C79451-A3474-B606</b>
LC display	1	1	<b>W75025-B5001-B1</b>
Connector filter	-	1	<b>W75041-E5602-K2</b>
Fuse			
• 0,63 A / 250 V (230-V version)	2	4	<b>W79054-L1010-T630</b>
• 1,0 A / 250 V (110-V version)	2	4	<b>W79054-L1011-T100</b>



## Conditions of sale and delivery Export regulations, contact addresses

### Terms and Conditions of Sale and Delivery

#### in the Federal Republic of Germany

By using this catalog you can acquire hardware and software products described therein from the Siemens AG subject to the following terms. Please note! The scope, the quality and the conditions for supplies and services, including software products, by any Siemens entity having a registered office outside the Federal Republic of Germany, shall be subject exclusively to the General Terms and Conditions of the respective Siemens entity.

#### for customers with a seat or registered office in the Federal Republic of Germany

The General Terms of Payment as well as the General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry shall apply.

For software products, the General License Conditions for Software Products for Automation and Drives for Customers with Seat or registered Office in Germany shall apply.

#### for customers with a seat or registered office outside of Germany

The General Terms of Payment as well as the General Conditions for Supplies of Siemens, Automation and Drives for Customers with a Seat or registered Office outside of Germany shall apply.

For software products, the General License Conditions for Software Products for Automation and Drives for Customers with Seat or registered Office outside of Germany shall apply.

#### General

The prices are in € (Euro) ex works, exclusive packaging.

The sales tax (value added tax) is not included in the prices. It shall be debited separately at the respective rate according to the applicable legal regulations.

In addition to the prices of products which include silver and/or copper, surcharges may be calculated if the respective limits of the notes are exceeded.

Prices are subject to change without prior notice. We will debit the prices valid at the time of delivery.

The dimensions are in mm. Illustrations are not binding.

Insofar as there are no remarks on the corresponding pages, - especially with regard to data, dimensions and weights given - these are subject to change without prior notice.

Comprehensive Terms and Conditions of Sale and Delivery are available free of charge from your local Siemens business office under the following Order Nos.:

•6ZB5310-0KR30-0BA0  
(for customers based in the Federal Republic of Germany)

•6ZB5310-0KS53-0BA0  
(for customers based outside of the Federal Republic of Germany)

or download them from the Internet:

[www.siemens.com/automation/mall](http://www.siemens.com/automation/mall)

(Germany: A&D Mall Online-Help System)

### Export regulations

The products listed in this catalog / price list may be subject to European / German and/or US export regulations.

Therefore, any export requiring a license is subject to approval by the competent authorities.

According to current provisions, the following export regulations must be observed with respect to the products featured in this catalog / price list:

AL	Number of the <u>German Export List</u> . Products marked other than "N" require an export license. In the case of software products, the export designations of the relevant data medium must also be generally adhered to. Goods labeled with an " <u>AL not equal to N</u> " are subject to a European or German export authorization when being exported out of the EU.
ECCN	<u>Export Control Classification Number</u> . Products marked other than "N" are subject to a reexport license to specific countries. In the case of software products, the export designations of the relevant data medium must also be generally adhered to. Goods labeled with an " <u>ECCN not equal to N</u> " are subject to a US re-export authorization.

Even without a label or with an "AL: N" or "ECCN: N", authorization may be required due to the final destination and purpose for which the goods are to be used.

The deciding factors are the AL or ECCN export authorization indicated on order confirmations, delivery notes and invoices.

Subject to change without prior notice.

### If you have any questions, please contact your local sales representative or any of the contact addresses below.

Siemens AG  
A&D PI 2M Process Analytics  
Oestliche Rheinbrueckenstr. 50  
D-76187 Karlsruhe  
Germany  
Tel.: +49 721 595 4234  
Fax: +49 721 595 6375  
E-Mail: [processanalytics@siemens.com](mailto:processanalytics@siemens.com)  
[www.processanalytics.com](http://www.processanalytics.com)

Siemens Applied Automation  
500 West Highway 60  
Bartlesville, OK 74003  
USA  
Tel.: +1 918 662 7000  
Fax: +1 918 662 7052  
E-Mail: [saaisales@sea.siemens.com](mailto:saaisales@sea.siemens.com)  
[www.sea.siemens.com/ia](http://www.sea.siemens.com/ia)

Siemens Pte. Limited  
A&D PI2 Regional Head Quarter  
The Siemens Center  
60 MacPherson Road  
Singapore 348615  
Tel.: +65 6490 8702  
Fax: +65 6490 8703  
E-Mail: [splanalytics.sgp@siemens.com](mailto:splanalytics.sgp@siemens.com)  
[www.siemens.com/processanalytics](http://www.siemens.com/processanalytics)

Siemens AG  
Automation and Drives  
**Process Instrumentation and Analytics**  
D-76181 Karlsruhe  
Federal Republic of Germany

Order No.: **E86060-K3510-B171-A3-7600**

Printed in the Federal Republic of Germany  
KG K 0604 3.0 ROT 16 En / 415110