

Selection and ordering data

ULTRAMAT/OXYMAT 6 gas analyzer

19" rack unit for installation in cabinets

Combined measurement of IR-absorbing gas and O₂

Gas connections for sample gas and reference gas

Pipe with 6 mm outer diameter

Pipe with ¼" outer diameter

Smallest possible measuring span O₂

0,5 % reference gas pressure 3 000 hPa

0,5 % reference gas pressure 100 hPa (external pump)

2 % reference gas pressure 3 000 hPa

2 % reference gas pressure 100 hPa (external pump)

5% reference gas pressure 3 000 hPa

5% reference gas pressure 100 hPa (external pump)

Sample chamber (OXYMAT channel)

Non-flow-type compensation branch

- Made of stainless steel, mat. no. 1.4571
- Made of tantalum

Flow-type compensation branch

- Made of stainless steel, mat. no. 1.4571
- Made of tantalum

Internal gas paths

Sample chamber¹⁾
(lining)

Reference chamber
(flow-type)

(both channels)

(ULTRAMAT channel)

(ULTRAMAT channel)

Hose made of FKM
(Viton)

Aluminum
Aluminum

Non-flow-type
Flow-type

Pipe made of titanium

Tantalum
Tantalum

Non-flow-type
Flow-type

Stainless steel pipe
(mat. no. 1.4571)

Aluminum
Tantalum

Non-flow-type
Non-flow-type

With sample gas monitoring (both channels)

Hose made of FKM
(Viton)

Aluminum
Aluminum

Non-flow-type
Flow-type

Add-on electronics

Without

AUTOCAL function

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

Power supply

100 ... 120 V AC, 48 ... 63 Hz

200 ... 240 V AC, 48 ... 63 Hz

Footnotes, see next page

Order No.

7MB2023-

0 1 A B C D E F

Cannot be combined

0 → A21

1 → A20

B B → A26, Y02

D D → A26, Y02

F F → A26, Y02

A

B

C

D

C

D

0

1

0 0 → A20, A21

1

4 → A20, A21, Y02

5 → Y02

6 → A20, A21

8 → A20, A21

4

5

6

8

2

3

2 2 → A20, A21

3

0

1

2

3

5

6

7

5 → Y02

0

1

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Combined measurement of IR-absorbing gas and O₂

Order No.

7MB2023-

Cannot be combined

<u>ULTRAMAT channel</u>	<u>Possible with measuring range identification</u>
<u>Measured component</u>	
CO	11 ²⁾ , 12 ... 30
CO highly selective (with optical filter)	12 ²⁾ , 13 ... 30
CO (TÜV; see table "TÜV single component (IR channel)", page 1/111)	
CO ₂	10 ²⁾ , 11 ... 30
CH ₄	13 ²⁾ , 14 ... 30
C ₂ H ₂	15 ²⁾ , 16 ... 30
C ₂ H ₄	15 ²⁾ , 16 ... 30
C ₂ H ₆	14 ²⁾ , 15 ... 30
C ₃ H ₆	14 ²⁾ , 15 ... 30
C ₃ H ₈	13 ²⁾ , 14 ... 30
C ₄ H ₆	15 ²⁾ , 16 ... 30
C ₄ H ₁₀	14 ²⁾ , 15 ... 30
C ₆ H ₁₄	14 ²⁾ , 15 ... 30
SO ₂ (TÜV; see table "TÜV single component (IR channel)", page 1/111)	13 ²⁾ , 14 ... 30
NO (TÜV; see table "TÜV single component (IR channel)", page 1/111)	14 ²⁾ , 15 ... 20, 22
NH ₃ (dry)	14 ²⁾ , 15 ... 30
H ₂ O	17 ²⁾ , 18 ... 20, 22
N ₂ O	13 ²⁾ , 14 ... 30

<u>Smallest measuring range</u>	<u>Largest measuring range</u>	<u>Measuring range identification</u>
0 ... 5 vpm	0 ... 100 vpm	10
0 ... 10 vpm	0 ... 200 vpm	11
0 ... 20 vpm	0 ... 400 vpm	12
0 ... 50 vpm	0 ... 1 000 vpm	13
0 ... 100 vpm	0 ... 1 000 vpm	14
0 ... 300 vpm	0 ... 3 000 vpm	15
0 ... 500 vpm	0 ... 5 000 vpm	16
0 ... 1 000 vpm	0 ... 10 000 vpm	17
0 ... 3 000 vpm	0 ... 10 000 vpm	18
0 ... 3 000 vpm	0 ... 30 000 vpm	19
0 ... 5 000 vpm	0 ... 15 000 vpm	20
0 ... 5 000 vpm	0 ... 50 000 vpm	21
0 ... 1 %	0 ... 3 %	22
0 ... 1 %	0 ... 10 %	23
0 ... 3 %	0 ... 10 %	24
0 ... 3 %	0 ... 30 %	25
0 ... 5 %	0 ... 15 %	26
0 ... 5 %	0 ... 50 %	27
0 ... 10 %	0 ... 30 %	28
0 ... 10 %	0 ... 100 %	29
0 ... 30 %	0 ... 100 %	30

Operating software and documentation

German	0
English	1
French	2
Spanish	3
Italian	4

1) Only for cell length 20 to 180 mm

2) Can be ordered as special application (no. 3100 with order code Y12)

Additional versions	Order code	Cannot be combined
Add "-Z" to Order No. and specify order codes.		
Flow-type reference cell with reduced flow, 6 mm (ULTRAMAT channel) ¹⁾	A20	
Flow-type reference cell with reduced flow, ¼" (ULTRAMAT channel) ¹⁾	A21	
Reference gas monitoring (pressure switch ... 3 000 hPa), for OXYMAT channel only	A26	
Connection pipes (can only be combined with the appropriate gas connection diameter and internal gas path materials)		
• Titanium connection pipe, 6 mm, complete with screwed gland, for sample gas side	A22	
• Titanium connection pipe, ¼", complete with screwed gland, for sample gas side	A24	
• Stainless steel connection pipe (mat. no. 1.4571), 6 mm, complete with screwed gland, for sample gas side	A27	
• Stainless steel connection pipe (mat. no. 1.4571), ¼", complete with screwed gland, for sample gas side	A29	
Telescopic rails (2 units)	A31	
Set of Torx screwdrivers	A32	
Kalrez gaskets in sample gas path (O ₂ side)	B01	
TAG labels (specific lettering based on customer information)	B03	
Kalrez gaskets in sample gas path (IR side)	B04	
FM/CSA certificate – Class I Div 2	E20	
Clean for O ₂ service (specially cleaned gas path) (ULTRAMAT channel and OXYMAT channel)	Y02	
Measuring range indication in plain text ²⁾ , if different from the standard setting	Y11	
Special setting (only in conjunction with an application no., e.g. extended measuring range, only ULTRAMAT channel)	Y12	
Extended special setting (only in conjunction with an application no., e.g. determination of interference influences, only ULTRAMAT channel)	Y13	
TÜV version acc. to 13th and 17th BImSchV (only ULTRAMAT channel)	Y17	E20

RS 485/Ethernet converter	A5E00852383
RS 485/RS 232 converter	C79451-Z1589-U1
RS 485 / USB converter	A5E00852382
AUTOCAL function with serial interfaces for the automotive industry (AK)	C79451-A3480-D33
AUTOCAL function with 8 digital inputs/outputs for ULTRAMAT channel or OXYMAT channel	C79451-A3480-D511
AUTOCAL function with 8 digital inputs/outputs and PROFIBUS PA for ULTRAMAT channel or OXYMAT channel	A5E00057307
AUTOCAL function with 8 digital inputs/outputs and PROFIBUS DP for ULTRAMAT channel or OXYMAT channel	A5E00057312

2) Standard setting: Smallest measuring range
25 % of largest measuring range
50 % of largest measuring range
Largest measuring range } in % or
ppm (vpm)

Selection and ordering data

Order No.

ULTRAMAT/OXYMAT 6 gas analyzer

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Combined measurement of IR-absorbing gas and O₂

7MB2024-

0 1 2 3 4 5 6 7 8 9 A B C D E F

Cannot be combined

Gas connections for sample gas and reference gas

Pipe with 6 mm outer diameter

Pipe with 1/4" outer diameter

0

1

0 → A21

1 → A20

Smallest possible measuring span O₂

0,5 % reference gas pressure 3 000 hPa

0,5 % reference gas pressure 100 hPa (external pump)

2 % reference gas pressure 3 000 hPa

2 % reference gas pressure 100 hPa (external pump)

5 % reference gas pressure 3 000 hPa

5 % reference gas pressure 100 hPa (external pump)

A

B

C

D

E

F

B B → A26, Y02

D D → A26, Y02

F F → A26, Y02

Sample chamber (OXYMAT channel)

Non-flow-type compensation branch

- Made of stainless steel, mat. no. 1.4571

- Made of tantalum

A

B

Flow-type compensation branch

- Made of stainless steel, mat. no. 1.4571

- Made of tantalum

C

D

C

D

Internal gas paths

(both channels)

Hose made of FKM
(Viton)

Pipe made of titanium

Stainless steel pipe
(mat. no. 1.4571)

Sample chamber¹⁾
(lining)

(ULTRAMAT channel)

Aluminum

Aluminum

Tantalum

Tantalum

Aluminum

Tantalum

Reference chamber
(flow-type)

(ULTRAMAT channel)

Non-flow-type

Flow-type

Non-flow-type

Flow-type

Non-flow-type

Non-flow-type

0

1

4

5

6

8

0 → A20, A21

4 → A20, A21, Y02

5 → Y02

6 → A20, A21

8 → A20, A21

With sample gas monitoring (both channels)

Hose made of FKM
(Viton)

Aluminum

Aluminum

Non-flow-type

Flow-type

2

3

2 → A20, A21

Add-on electronics

Without

AUTOCAL function

- With 8 additional digital inputs and outputs for ULTRAMAT channel and OXYMAT channel

- With serial interface for the automotive industry (AK)

- With 8 additional digital inputs/outputs and PROFIBUS PA interface for ULTRAMAT channel and OXYMAT channel

- With 8 additional digital inputs/outputs and PROFIBUS DP interface for ULTRAMAT channel and OXYMAT channel

0

1

5

6

7

5 → Y02

Power supply

100 ... 120 V AC, 48 ... 63 Hz

200 ... 240 V AC, 48 ... 63 Hz

0

1

Footnote, see next page

Selection and ordering data

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Add "-Z" to Order No. and specify order codes.		
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TAG labels (specific lettering based on customer information)	B03	
Kalrez gaskets in sample gas path (IR side)	B04	
FM/CSA certificate – Class I Div 2	E20	
Clean for O ₂ service (specially cleaned gas path) (ULTRAMAT channel and OXYMAT channel)	Y02	
Measuring range indication in plain text ²⁾ , if different from the standard setting	Y11	
Special setting (only in conjunction with an application no., e.g. extended measuring range, only ULTRAMAT channel)	Y12	
Extended special setting (only in conjunction with an application no., e.g. determination of interference influences, only ULTRAMAT channel)	Y13	
TÜV version acc. to 13th and 17th BImSchV (only ULTRAMAT channel)	Y17	→ E20
Retrofitting sets	Order No.	
RS 485/Ethernet converter	A5E00852383	
RS 485/RS 232 converter	C79451-Z1589-U1	
RS 485 / USB converter	A5E00852382	
AUTOCAL function with serial interfaces for the automotive industry (AK)	C79451-A3480-D33	
AUTOCAL function with 8 digital inputs/outputs for ULTRAMAT channel or OXYMAT channel	C79451-A3480-D511	
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AUTOCAL function with 8 digital inputs/outputs and PROFIBUS DP for ULTRAMAT channel or OXYMAT channel	A5E00057312	

1) Cannot be combined with non-flow-type reference cell.

2) Standard setting:

Smallest measuring range

25 % of largest measuring range

50 % of largest measuring range

Largest measuring range

}

in % or
ppm (vpm)

TÜV, single component (IR channel)

Component	CO (TÜV)		SO ₂ (TÜV)		NO (TÜV)	
Measuring range identification	Smallest measuring range from 0 to ...	Largest measuring range from 0 to ...	Smallest measuring range from 0 to ...	Largest measuring range from 0 to ...	Smallest measuring range from 0 to ...	Largest measuring range from 0 to ...
C			75 mg/m ³	1 500 mg/m ³		
D	50 mg/m ³	1 000 mg/m ³	300 mg/m ³	3 000 mg/m ³		
E			500 mg/m ³	5 000 mg/m ³	100 mg/m ³	2 000 mg/m ³
F	300 mg/m ³	3 000 mg/m ³	1 000 mg/m ³	10 000 mg/m ³	300 mg/m ³	3 000 mg/m ³
G	500 mg/m ³	5 000 mg/m ³			500 mg/m ³	5 000 mg/m ³
H	1 000 mg/m ³	10 000 mg/m ³	3 000 mg/m ³	30 000 mg/m ³	1 000 mg/m ³	10 000 mg/m ³
K	3 000 mg/m ³	30 000 mg/m ³	10 g/m ³	100 g/m ³	3 000 mg/m ³	30 000 mg/m ³
P	10 g/m ³	100 g/m ³	30 g/m ³	300 g/m ³	10 g/m ³	100 g/m ³
R	30 g/m ³	300 g/m ³	100 g/m ³	1 000 g/m ³	30 g/m ³	300 g/m ³
V	100 g/m ³	1 160 g/m ³	300 g/m ³	2 630 g/m ³	100 g/m ³	1 250 g/m ³

Example for ordering

ULTRAMAT/OXYMAT 6, TÜV

IR channel

Component: CO

Measuring range: 0 to 50/1 000 mg/m³

with hoses, non-flow-type reference compartment

without automatic adjustment (AUTOCAL)

230 V AC; German

7MB2023-0EA00-1XD0-Z +Y17**TÜV, two components in series**

Component	CO (TÜV)		NO (TÜV)	
Measuring range identification	Smallest measuring range from 0 to ...	Largest measuring range from 0 to ...	Smallest measuring range from 0 to ...	Largest measuring range from 0 to ...
AH	75 mg/m ³	1 000 mg/m ³	200 mg/m ³	2 000 mg/m ³
AJ	300 mg/m ³	3 000 mg/m ³	500 mg/m ³	3 000 mg/m ³
AC	1 000 mg/m ³	10 000 mg/m ³	1 000 mg/m ³	10 000 mg/m ³

Example for ordering

ULTRAMAT/OXYMAT 6, TÜV

IR channel

Components: CO/NO

Measuring range CO: 0 to 75 / 1 000 mg/m³, NO: 0 to 200/2 000 mg/m³

with hoses, non-flow-type reference cell

without automatic adjustment (AUTOCAL)

230 V AC; German

7MB2024-0EA00-1AH0-Z +Y17