Selection and ordering data			Order No.										Cannot be combined
ULTRAMAT/OXYMAT 6 gas analyzer 19" rack unit for installation in cabinets Combined measurement of IR-absorbing gas and O_2			D)	**7MB2023-**	■	■	■	■	**-**	■	■	■	■	
Gas connections for sample gas and reference gas													
Pipe with 6 mm outer diameter					**0**								**0** → **A21**
Pipe with ¼" outer diameter					**1**								**1** → **A20**
Smallest possible span O_2													
0.5 % reference gas pressure 3 000 hPa						**A**							
0.5 % reference gas pressure 100 hPa (external pump)						**B**							**B** **B** → **A26, Y02**
2 % reference gas pressure 3 000 hPa						**C**							
2 % reference gas pressure 100 hPa (external pump)						**D**							**D** **D** → **A26, Y02**
5% reference gas pressure 3 000 hPa						**E**							
5% reference gas pressure 100 hPa (external pump)						**F**							**F** **F** → **A26, Y02**
Sample chamber (OXYMAT channel)													
Non-flow-type compensation branch													
• Made of stainless steel, mat. no. 1.4571							**A**						
• Made of tantalum							**B**						
Flow-type compensation branch													
• Made of stainless steel, mat. no. 1.4571							**C**						**C**
• Made of tantalum							**D**						**D**
Internal gas paths (both channels)	Sample chamber[1] (lining) (ULTRAMAT channel)	Reference chamber (flow-type) (ULTRAMAT channel)											
Hose made of FKM (Viton)	Aluminum	Non-flow-type						**0**					**0** **0** → **A20, A21**
	Aluminum	Flow-type						**1**					**1**
Pipe made of titanium	Tantalum	Non-flow-type						**4**					**4** → **A20, A21, Y02**
	Tantalum	Flow-type						**5**					**5** → **Y02**
Stainless steel pipe (mat. no. 1.4571)	Aluminum	Non-flow-type						**6**					**6** → **A20, A21**
	Tantalum	Non-flow-type						**8**					**8** → **A20, A21**
With sample gas monitoring (both channels)													
Hose made of FKM (Viton)	Aluminum	Non-flow-type						**2**					**2** **2** → **A20, A21**
	Aluminum	Flow-type						**3**					**3**
Add-on electronics													
Without								**0**					
AUTOCAL function													
• With 8 additional binary inputs and outputs for OXYMAT channel								**1**					
• With 8 additional binary inputs and outputs for ULTRAMAT channel								**2**					
• With 8 additional binary inputs and 8 additional binary outputs for ULTRAMAT channel and OXYMAT channel								**3**					
• With serial interface for the automotive industry (AK)								**5**					**5** → **Y02**
• With 8 additional binary inputs/outputs and PROFIBUS PA interface for ULTRAMAT channel and OXYMAT channel								**6**					
• With 8 additional binary inputs/outputs and PROFIBUS DP interface for ULTRAMAT channel and OXYMAT channel								**7**					
Power supply													
100 ... 120 V AC, 48 ... 63 Hz										**0**			
200 ... 240 V AC, 48 ... 63 Hz										**1**			

Footnotes, see next page

Selection and ordering data			Order No.		
ULTRAMAT/OXYMAT 6 gas analyzer 19" rack unit for installation in cabinets Combined measurement of IR-absorbing gas and O_2			D) **7MB2023-** ■■■■■-		Cannot be combined
ULTRAMAT channel Measured component		Possible with measuring range identification			
CO		11[2], 12 ... 30		**A**	
CO highly selective (with optical filter)		12[2], 13 ... 30		**B**	
CO (TÜV; see Table "TÜV, Single component (IR-chanel)", page 2/88)				**X**	
CO_2		10[2], 11 ... 30		**C**	
CH_4		13[2], 14 ... 30		**D**	
C_2H_2		15[2], 16 ... 30		**E**	
C_2H_4		15[2], 16 ... 30		**F**	
C_2H_6		14[2], 15 ... 30		**G**	
C_3H_6		14[2], 15 ... 30		**H**	
C_3H_8		13[2], 14 ... 30		**J**	
C_4H_6		15[2], 16 ... 30		**K**	
C_4H_{10}		14[2], 15 ... 30		**L**	
C_6H_{14}		14[2], 15 ... 30		**M**	
SO_2 (TÜV; see Table "TÜV, Single component (IR-chanel)", page 2/88)		13[2], 14 ... 30		**N**	
NO (TÜV; see Table "TÜV, Single component (IR-chanel)", page 2/88)		14[2], 15 ... 20, 22		**P**	
NH_3 (dry)		14[2], 15 ... 30		**Q**	**Q**
H_2O		17[2], 18 ... 20, 22		**R**	**R**
N_2O		13[2], 14 ... 30		**S**	
Smallest measuring range	Largest measuring range	Measuring range identification			
0 ... 5 vpm	0 ... 100 vpm	10		**A**	
0 ... 10 vpm	0 ... 200 vpm	11		**B**	
0 ... 20 vpm	0 ... 400 vpm	12		**C**	
0 ... 50 vpm	0 ... 1 000 vpm	13		**D**	
0 ... 100 vpm	0 ... 1 000 vpm	14		**E**	
0 ... 300 vpm	0 ... 3 000 vpm	15		**F**	
0 ... 500 vpm	0 ... 5 000 vpm	16		**G**	
0 ... 1 000 vpm	0 ... 10 000 vpm	17		**H**	
0 ... 3 000 vpm	0 ... 10 000 vpm	18		**J**	
0 ... 3 000 vpm	0 ... 30 000 vpm	19		**K**	
0 ... 5 000 vpm	0 ... 15 000 vpm	20		**L**	
0 ... 5 000 vpm	0 ... 50 000 vpm	21		**M**	
0 ... 1 %	0 ... 3 %	22		**N**	
0 ... 1 %	0 ... 10 %	23		**P**	
0 ... 3 %	0 ... 10 %	24		**Q**	
0 ... 3 %	0 ... 30 %	25		**R**	
0 ... 5 %	0 ... 15 %	26		**S**	
0 ... 5 %	0 ... 50 %	27		**T**	
0 ... 10 %	0 ... 30 %	28		**U**	
0 ... 10 %	0 ... 100 %	29		**V**	
0 ... 30 %	0 ... 100 %	30		**W**	
Operating software and documentation					
German					**0**
English					**1**
French					**2**
Spanish					**3**
Italian					**4**

D) Subject to export regulations AL: 9I999, ECCN: N

1) Only for cell length 20 mm to 180 mm

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

Selection and ordering data

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 inscription 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 binary inputs/outputs for ULTRAMAT channel or OXYMAT channel	**C79451-A3480-D511**
AUTOCAL function with 8 binary inputs/outputs and PROFIBUS PA for ULTRAMAT channel or OXYMAT channel	**A5E00057307**
AUTOCAL function with 8 binary 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)

Selection and ordering data			Order No.		
ULTRAMAT/OXYMAT 6 gas analyzer 19" rack unit for installation in cabinets Combined measurement of IR-absorbing gas and O_2			**7MB2024-** ■■■■■ - ■■■■		Cannot be combined
Gas connections for sample gas and reference gas					
Pipe with 6 mm outer diameter			**0**		**0 → A21**
Pipe with ¼" outer diameter			**1**		**1 → A20**
Smallest possible span O_2					
0.5 % reference gas pressure 3 000 hPa			**A**		
0.5 % reference gas pressure 100 hPa (external pump)			**B**		**B B → A26, Y02**
2 % reference gas pressure 3 000 hPa			**C**		
2 % reference gas pressure 100 hPa (external pump)			**D**		**D D → A26, Y02**
5% reference gas pressure 3 000 hPa			**E**		
5% reference gas pressure 100 hPa (external pump)			**F**		**F F → A26, Y02**
Sample chamber (OXYMAT channel)					
Non-flow-type compensation branch					
• Made of stainless steel, mat. no. 1.4571			**A**		
• Made of tantalum			**B**		
Flow-type compensation branch					
- Made of stainless steel, mat. no. 1.4571			**C**		**C**
- Made of tantalum			**D**		**D**
Internal gas paths (both channels)	Sample chamber[1] (lining) (ULTRAMAT channel)	Reference chamber (flow-type) (ULTRAMAT channel)			
Hose made of FKM (Viton)	Aluminum	Non-flow-type	**0**		**0 → A20, A21**
	Aluminum	Flow-type	**1**		
Pipe made of titanium	Tantalum	Non-flow-type	**4**		**4 → A20, A21, Y02**
	Tantalum	Flow-type	**5**		**5 → Y02**
Stainless steel pipe (mat. no. 1.4571)	Aluminum	Non-flow-type	**6**		**6 → A20, A21**
	Tantalum	Non-flow-type	**8**		**8 → A20, A21**
With sample gas monitoring (both channels)					
Hose made of FKM (Viton)	Aluminum	Non-flow-type	**2**		**2 → A20, A21**
	Aluminum	Flow-type	**3**		
Add-on electronics					
Without			**0**		
AUTOCAL function					
• With 8 additional binary inputs and outputs for ULTRAMAT channel and OXYMAT channel			**1**		
• With serial interface for the automotive industry (AK)			**5**		**5 → Y02**
• With 8 additional binary inputs/outputs and PROFIBUS PA interface for ULTRAMAT channel and OXYMAT channel			**6**		
• With 8 additional binary inputs/outputs and PROFIBUS DP interface for ULTRAMAT channel and OXYMAT channel			**7**		
Power supply					
100 ... 120 V AC, 48 ... 63 Hz				**0**	
200 ... 240 V AC, 48 ... 63 Hz				**1**	

Footnote, see next page

Selection and ordering data				Order No.		
ULTRAMAT/OXYMAT 6 gas analyzer 19" rack unit for installation in cabinets Combined measurement of IR-absorbing gas and O_2				**7MB2024-** ■■■■■ - ■■■■		Cannot be combined
ULTRAMAT channel Measured component		Smallest measuring range	Largest measuring range			
CO/NO	CO	0 ... 100 vpm	0 ... 1 000 vpm		**A H**	
	NO	0 ... 300 vpm	0 ... 1 000 vpm			
CO/NO	CO	0 ... 300 vpm	0 ... 3 000 vpm		**A J**	
	NO	0 ... 500 vpm	0 ... 3 000 vpm			
CO/NO	CO	0 ... 1 000 vpm	0 ... 10 000 vpm		**A C**	
	NO	0 ... 1 000 vpm	0 ... 10 000 vpm			
For CO/NO (TÜV; see Table "TÜV, two components in series", page 2/88)						
CO_2/CO	CO_2	0 ... 100 vpm	0 ... 1 000 vpm		**B A**	
	CO	0 ... 100 vpm	0 ... 1 000 vpm			
CO_2/CO	CO_2	0 ... 300 vpm	0 ... 3 000 vpm		**B B**	
	CO	0 ... 300 vpm	0 ... 3 000 vpm			
CO_2/CO	CO_2	0 ... 1 000 vpm	0 ... 10 000 vpm		**B C**	
	CO	0 ... 1 000 vpm	0 ... 10 000 vpm			
CO_2/CO	CO_2	0 ... 3 000 vpm	0 ... 30 000 vpm		**B D**	
	CO	0 ... 3 000 vpm	0 ... 30 000 vpm			
CO_2/CO	CO_2	0 ... 1 %	0 ... 10 %		**B E**	
	CO	0 ... 1 %	0 ... 10 %			
CO_2/CO	CO_2	0 ... 3 %	0 ... 30 %		**B F**	
	CO	0 ... 3 %	0 ... 30 %			
CO_2/CO	CO_2	0 ... 10 %	0 ... 100 %		**B G**	
	CO	0 ... 10 %	0 ... 100 %			
CO_2/CH_4	CO_2	0 ... 10 %	0 ... 100 %		**C G**	
	CH_4	0 ... 10 %	0 ... 100 %			
CO_2/NO	CO_2	0 ... 300 vpm	0 ... 3 000 vpm		**D J**	
	NO	0 ... 500 vpm	0 ... 3 000 vpm			
Operating software and documentation						
German						**0**
English						**1**
French						**2**
Spanish						**3**
Italian						**4**

1) Only for cell length 20 to 180 mm

Selection and ordering data

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 inscription 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 binary inputs/outputs for ULTRAMAT channel or OXYMAT channel	**C79451-A3480-D511**
AUTOCAL function with 8 binary inputs/outputs and PROFIBUS PA for ULTRAMAT channel or OXYMAT channel	**A5E00057307**
AUTOCAL function with 8 binary 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)