



4M4/6 EX with C/EX and Y/EX

# Regulated, Explosion-Proof, Electrically Heated Sample Lines Type 3/4/5-N/M EX



Type 3 with PTFE tube non-replaceable

Type 4 with PTFE tube replaceable

Type 5 with stainless steel tube non-replaceable

## Special Features

- Approval according to ATEX for mounting in explosion zones 1, 2, 21 and 22
- Regulation via external temperature controller
- Completely assembled
- Type 3: PTFE tube non-replaceable
- Type 4: PTFE tube replaceable
- Type 5: stainless steel tube non-replaceable
- Hose/tube  $\varnothing$  DN 4/6, 6/8 or 8/10
- 2 temperature ranges:  
N = 100 °C [212 °F], M = 200 °C [392 °F]

## Application

The explosion-proof electrically heated M&C sample lines 3/4/5-N/M EX are used in gas analysis systems to prevent measuring errors and at the same time as frost protection during the transport of sample gas from the sampling point to the gas conditioning system or directly to a heated analyzer (above the dew point).

## Description

The explosion-proof electrically heated M&C sample lines 3/4/5-N/M EX are supplied completely assembled in fixed length according to customer requirements.

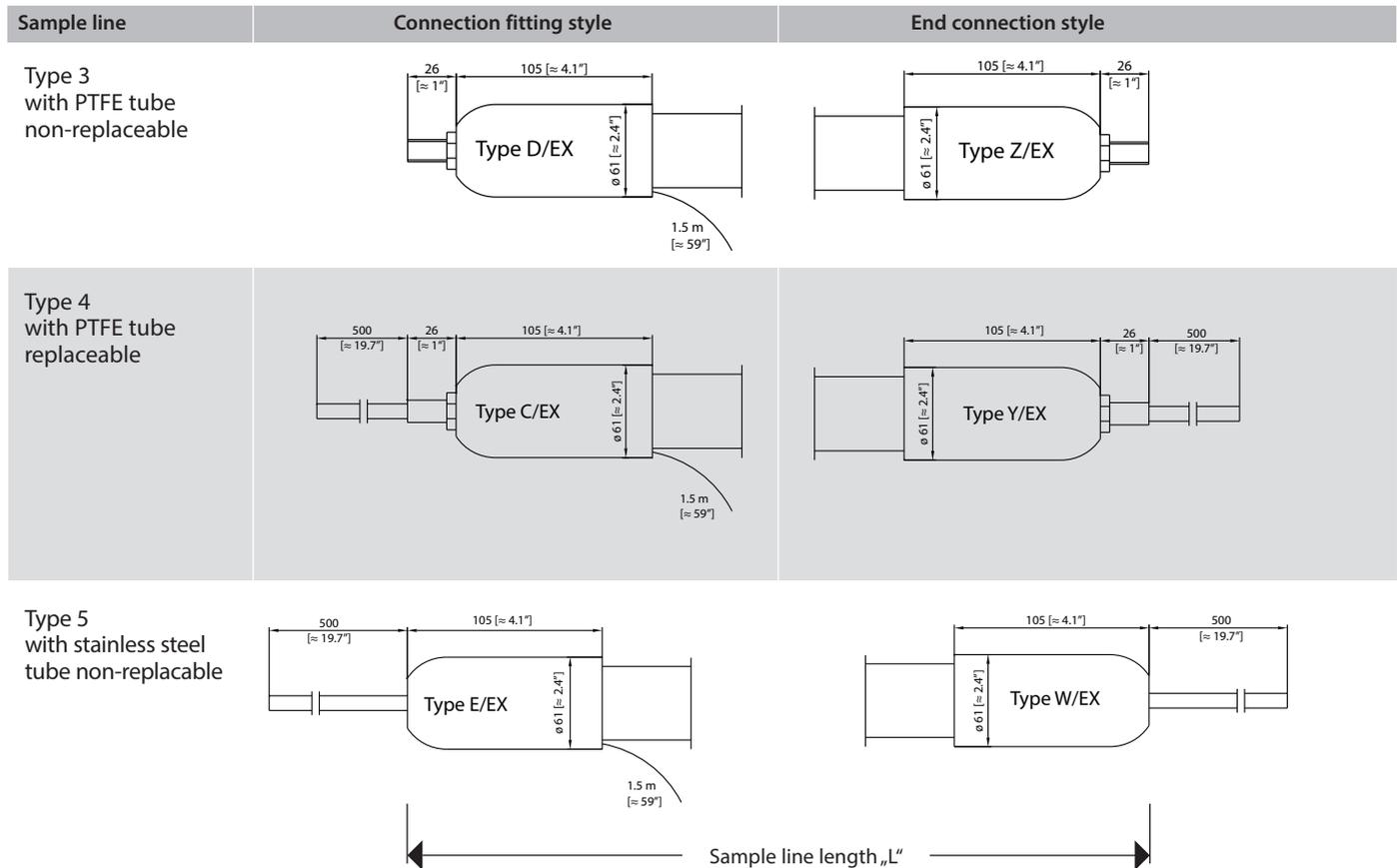
Several options that can be supplied are available:

- 2 different temperature versions (N = 100 °C [212 °F], M = 200 °C [392 °F]), EX T3
- 3 hose/tube versions (type 3, 4, 5) with either DN 4/6, 6/8 or DN 8/10 each as well as
- 3 connection fittings (C, D, E) and
- 3 end fittings (W, Y, Z).

The robust design of the sample lines consists of the inner medium tube, a thermally conducting and supporting body made of braided stainless steel tubing, the axially coiled high-performance heating conductor and a two-layer thermal insulation. The outer jacket is an antistatic corrugated hose out of polyamide.

The ends of the sample line are made of heat-resistant silicone materials, and the entire construction ensures that the complete sample line is properly heated, including the ends.

The explosion-proof sample lines are equipped with two Ex-PT100 intrinsically safe 2GD according to ATEX for temperature detection.



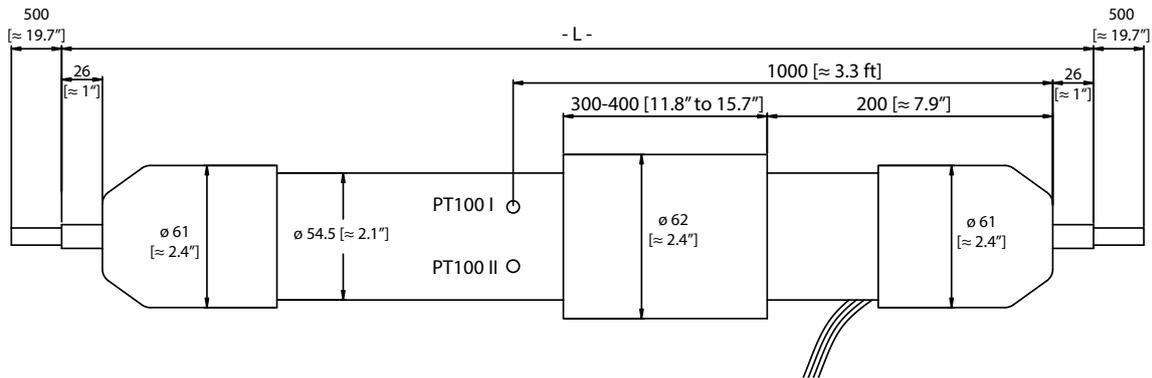
Dimensions in mm [Inches]

## Technical Data

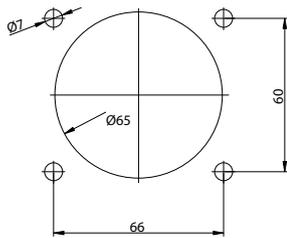
Sample lines type 3/4/5-N/M EX	N	M
Operating temperature, max.	+100 °C [212 °F]	+200 °C [392 °F]
Power consumption	100 W/m	
Pressure, max.	Type 3 = 5 bar g, Type 4 = 3 bar g, Type 5 = 100 bar g	
Ambient temperature, max.	-20 to +65 °C [-4 to 149 °F]	
Tube DN	Optional DN 4/6, 6/8 or 8/10	
Sample line inlet and end connections	See connection and end fittings C, D, E and W, Y, Z	
Electrical connections	1.5 m cable for power and 2 x PT100 sensor connection with cable gland M12 x 1.5 Ex	
Electrical standard	II 2 G Ex e II T3, II 2 D Ex tD A21 IP65 TX	
Power supply	230 V AC standard, supplied via a temperature controller	
PT100 sensor position	1 m [≈ 3.3 ft] from the power connection fitting	
Weight	Max 1.5 kg/m [≈ 2.2 lbs/m]	
Sample line with one heating circuit max. length	230 V: 30 m [≈ 98.4 ft]	
For longer lines, an addit. heating circuit is required	115 V: 13 m [≈ 42.7 ft]	
Sample line connections	Type 3 = stainless steel 316Ti tube nipple ø 6, 8 or 10 mm, on request, 26 mm [≈ 1.02"] long Type 4 = PTFE tube ø 6, 8 or 10 mm on request, 0.5 m [≈ 1.6 ft] on both sides Type 5 = stainless steel 316Ti tube ø 6, 8 or 10 mm on request, 0.5 m [≈ 1.6 ft] on both sides	
Thermal insulation	High-temperature polyester fleece	
Outer jacket	Corrugated tube out of polyamide black	
Application fields	Mobile and stationary, indoor and outdoor mounting	
Smallest bending radius	500 mm [≈ 19.7"]	

Description	Type	DN	Part No.
Regulated, explosion-proof, electrically heated sample line type 3 with non-replaceable PTFE tube, max. 100 °C [212 °F], 230 V/50 Hz,  II 2 G Ex e II T3,  II 2 D Ex tD A21 IP65 TX	3N EX	4/6	03B3500W
Regulated, explosion-proof, electrically heated sample line type 3 with non-replaceable PTFE tube, max. 200 °C [392 °F], 230 V/50 Hz,  II 2 G Ex e II T3,  II 2 D Ex tD A21 IP65 TX	3M EX	4/6	03B3510W
Regulated, explosion-proof, electrically heated sample line type 3 with non-replaceable PTFE tube, max. 100 °C [212 °F], 230 V/50 Hz,  II 2 G Ex e II T3,  II 2 D Ex tD A21 IP65 TX	3N EX	6/8	03B3530W
Regulated, explosion-proof, electrically heated sample line type 3 with non-replaceable PTFE tube, max. 200 °C [392 °F], 230 V/50 Hz,  II 2 G Ex e II T3,  II 2 D Ex tD A21 IP65 TX	3M EX	6/8	03B3540W
Regulated, explosion-proof, electrically heated sample line type 3 with non-replaceable PTFE tube, max. 200 °C [392 °F], 230 V/50 Hz,  II 2 G Ex e II T3,  II 2 D Ex tD A21 IP65 TX	3M EX	8/10	03B3570W
Regulated, explosion-proof, electrically heated sample line type 4 with replaceable PTFE tube, max. 100 °C [212 °F], 230 V/50 Hz,  II 2 G Ex e II T3,  II 2 D Ex tD A21 IP65 TX	4N EX	4/6	03B4500W
Regulated, explosion-proof, electrically heated sample line type 4 with replaceable PTFE tube, max. 200 °C [392 °F], 230 V/50 Hz,  II 2 G Ex e II T3,  II 2 D Ex tD A21 IP65 TX	4M EX	4/6	03B4510W
Regulated, explosion-proof, electrically heated sample line type 4 with replaceable PTFE tube, max. 100 °C [212 °F], 230 V/50 Hz,  II 2 G Ex e II T3,  II 2 D Ex tD A21 IP65 TX	4N EX	6/8	03B4530W
Regulated, explosion-proof, electrically heated sample line type 4 with replaceable PTFE tube, max. 200 °C [392 °F], 230 V/50 Hz,  II 2 G Ex e II T3,  II 2 D Ex tD A21 IP65 TX	4M EX	6/8	03B4540W
Regulated, explosion-proof, electrically heated sample line type 4 with replaceable PTFE tube, max. 200 °C, 230 V/50 Hz,  II 2 G Ex e II T3,  II 2 D Ex tD A21 IP65 TX	4M EX	8/10	03B4570W
Regulated, explosion-proof, electrically heated sample line type 5 with non-replaceable stainless steel 316Ti tube, max. 200 °C [392 °F], 230 V/50 Hz,  II 2 G Ex e II T3,  II 2 D Ex tD A21 IP65 TX	5M EX	4/6	03B5510W
Regulated, explosion-proof, electrically heated sample line type 5 with non-replaceable stainless steel 316Ti tube, max. 200 °C [392 °F], 230 V/50 Hz,  II 2 G Ex e II T3,  II 2 D Ex tD A21 IP65 TX	5M EX	6/8	03B5540W
<b>Connection fittings C, D and E for DN 4/6, 6/8 and 8/10 incl. 2 x PT100 and 1.5 m cable</b>			
Connection fitting with tube stub type C/EX, for heated sample line type 4, DN 4/6, ex version, incl. 2 x PT100 intrinsically safe 2GD according to ATEX	C/EX	4/6	03B1520
Connection fitting with tube stub type D/EX, for heated sample line type 3, DN 4/6, ex version, incl. 2 x PT100 intrinsically safe 2GD according to ATEX	D/EX	4/6	03B1530
Connection fitting with tube stub type E/EX, for heated sample line type 5, DN 4/6, ex version, incl. 2 x PT100 intrinsically safe 2GD according to ATEX	E/EX	4/6	03B1540
Connection fitting with tube stub type C/EX, for heated sample line type 4, DN 6/8, ex version, incl. 2 x PT100 intrinsically safe 2GD according to ATEX	C/EX	6/8	03B1570
Connection fitting with tube stub type D/EX, for heated sample line type 3, DN 6/8, ex version, incl. 2 x PT100 intrinsically safe 2GD according to ATEX.	D/EX	6/8	03B1580
Connection fitting with tube stub type E/EX, for heated sample line type 5, DN 6/8, ex version, incl. 2 x PT100 intrinsically safe 2GD according to ATEX	E/EX	6/8	03B1590
Connection fitting with tube stub type C/EX, for heated sample line type 4, DN 8/10, ex version, incl. 2 x PT100 intrinsically safe 2GD according to ATEX	C/EX	8/10	03B1575
Connection fitting with tube stub type D/EX, for heated sample line type 3, DN 8/10, ex version, incl. 2 x PT100 intrinsically safe 2GD according to ATEX	D/EX	8/10	03B1585
<b>End fittings W, Y and Z for DN 4/6, 6/8 and 8/10</b>			
End fitting type W/EX for heated sample line type 5, DN 4/6, ex version	W/EX	4/6	03B2530
End fitting with tube stub type Y/EX for heated sample line type 4, DN 4/6, ex version	Y/EX	4/6	03B2510
End fitting with tube stub type Z/EX for heated sample line type 3, DN 4/6, ex version	Z/EX	4/6	03B2520
End fitting type W/EX for heated sample line type 5, DN 6/8, ex version	W/EX	6/8	03B2570
End fitting with tube stub type Y/EX for heated sample line type 4, DN 6/8, ex version	Y/EX	6/8	03B2550
End fitting with tube stub type Z/EX for heated sample line type 3, DN 6/8, ex version	Z/EX	6/8	03B2560
End fitting with tube stub type Y/EX for heated sample line type 4, DN 8/10, ex version	Y/EX	8/10	03B2555
End fitting with tube stub type Z/EX for heated sample line type 3, DN 8/10, ex version	Z/EX	8/10	03B2565
<b>Options</b>			
Electrically heated sample line with power 115 V AC instead of 230 V AC			03B9999
Extra charge for additional heating circuit for regulated explosion-proof heated sample line, incl. 2 x PT100 intrinsically safe 2GD acc. to ATEX.			90B0019
<b>Explosion-proof temperature controller</b>			
Temperature controller and temperature limiter with external control panel, explosion-proof version for ex zones 1 and 21, protection class according to ATEX: for controller and limiter  II 2 G Ex emb(ib) IIC T4,  II 2 D Ex tD A21 IP65 T100°C, for controller unit  II 2 G Ex ib IIC T4, II 2 D Ex tD A21 IP65 T100°C, for heated ex sample line with 2 x PT100 sensor, PT100 input intrinsically safe, reset for limiter via the external control unit, measure and control range: -40 up to 300 °C [-33.8 up to 572 °F], capacity: 16 A, power: 230 V/50 Hz, ambient temperature: -32 up to 65 °C [-25.6 up to 149 °F].			03B8000
Temperature controller as spare for combination item No. 03B8000, explosion-proof version for ex zones 1 and 21, protection class according to ATEX: II 2 GD E Ex em IIC T4 IP65 T100, measure and control range: -40 up to 300 °C [-33.8 up to 572 °F], capacity: 16 A, power: 230 V/50 Hz, ambient temperature: -32 up to 65 °C [-25.6 up to 149 °F]			03B8010
Temperature limiter as spare for combination item No. 03B8000, explosion-proof version for ex zones 1 and 21, protection class according to ATEX: II 2 GD E Ex em IIC T4 IP65 T100, measure and control range: -40 up to 300 °C [-33.8 up to 572 °F], capacity: 16 A, power: 230 V/50 Hz, ambient temperature: -32 up to 65 °C [-25.6 up to 149 °F]			03B8020
External control panel as spare for combination Item No. 03B8000 Explosion-proofed version for Ex-Zone 1 and 21 protection class according to ATEX: II 2 GD E Ex ib IIC T4 IP65 T100			03B8030

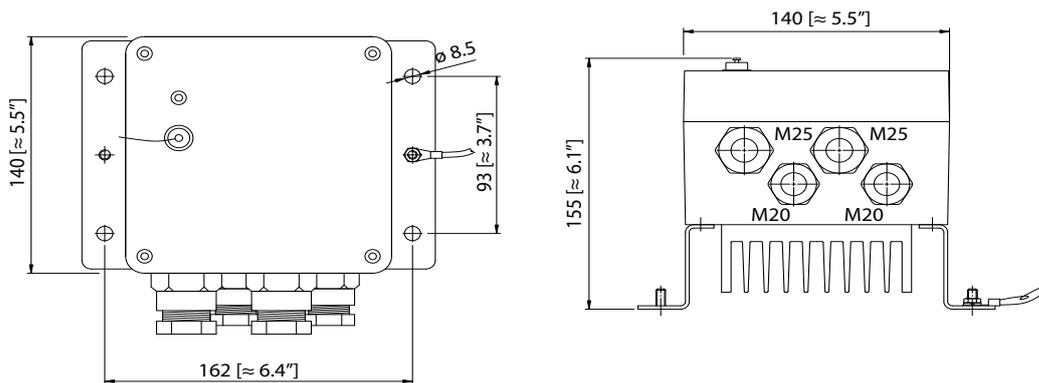
Other versions on request.



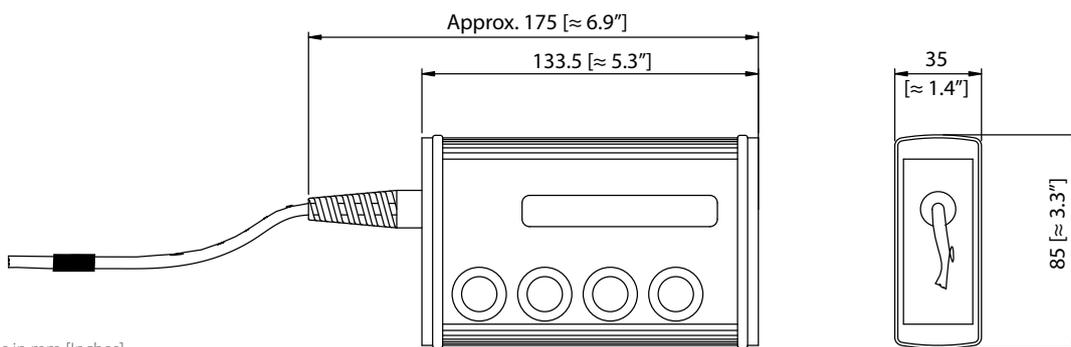
## Mounting Holes for Two-part Cabinet-bushing for Line Diameter 62 mm



## Dimensions of Temperature controller, Limiter and Control Panel



Temperature controller and limiter are two components that look identical from the outside.



Dimensions in mm [Inches]

## Please specify with order:

- Line type (3, 4, 5)
- Line length in meter
- 1 x connection fitting (C, D, E)
- Temperature range (N, M)
- Tube dimension DN (4/6, 6/8, 8/10)
- 1 x end fitting (W, Y, Z)
- 1x temperature controller

### For example:

- 6 x 03B4510W: 6 m electrically heated sample line, 4M4/6 EX, max. 200 °C with replaceable PTFE tube DN 4/6
- 1 x 03B1520: connection fitting C/EX
- 1 x 03B2510: end fitting Y/EX
- 1 x 03B8000: explosion-proof temperature controller