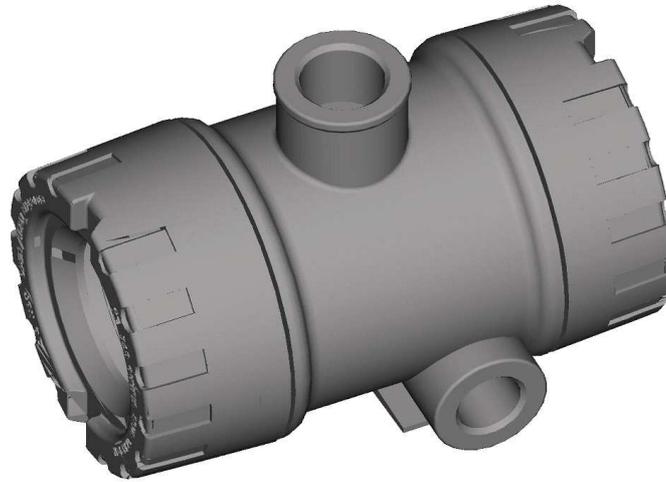




N-L4321

Updated 17.11.2020



APPLICATION MANUAL

Flameproof Ex d

Universal two-compartments instrument housing types:
XD-SID100, XD-SID100win, XD-SID100Lwin

Contents:

1. Destination.
2. Flameproof joints.
3. Pressure test.
4. Earth and protection terminals.
5. Cover locking.
6. Protection degree IP.
7. Assembly of inside conductor bushing.
8. Way of mounting.
9. Marking.

NOTES OF SAFETY

The XD-SID100 series are designed to accommodate various electronic instruments or devices and electric power supply, working in hazardous areas. If used incorrectly it is possible that application-related dangers may arise.

The XD-SID100 series universal instrument housing may be used by qualified and authorized company and people only, under strict observance of these application manual and relevant standards, legal requirements, and, where appropriate the certificate.

Only the empty XD-SID100 series instrument housing is certified. When used as part of an end product assembly, subsequent approval of the end use equipment assembly is required.

1. DESTINATION.

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- Marking:

2014/34/UE	IECEX
I M2 Ex d I Mb	Ex d I Mb
II 2G Ex d IIC Gb	Ex d IIC Gb
II 2D Ex t IIIC Db	Ex t IIIC Db

- Standards:

ATEX 2014/34/UE
EN IEC 60079-0, EN 60079-1, EN 60079-31,
IEC 60079-0, IEC 60079-1, IEC 60079-31

- Ambient temperature:

XD-SID100	-50 to + 200°C
XD-SID100win, XD-SID100Lwin	-50 to + 60°C

- Service temperature:

Housing type	T_{serv}	T_{serv}
	O-ring VMQ rubber	O-ring FKM rubber
XD-SID100	-50 to + 150 °C	-20 to + 200 °C
XD-SID100win XD-SID100Lwin	-50 to + 85 °C	-20 to + 85 °C

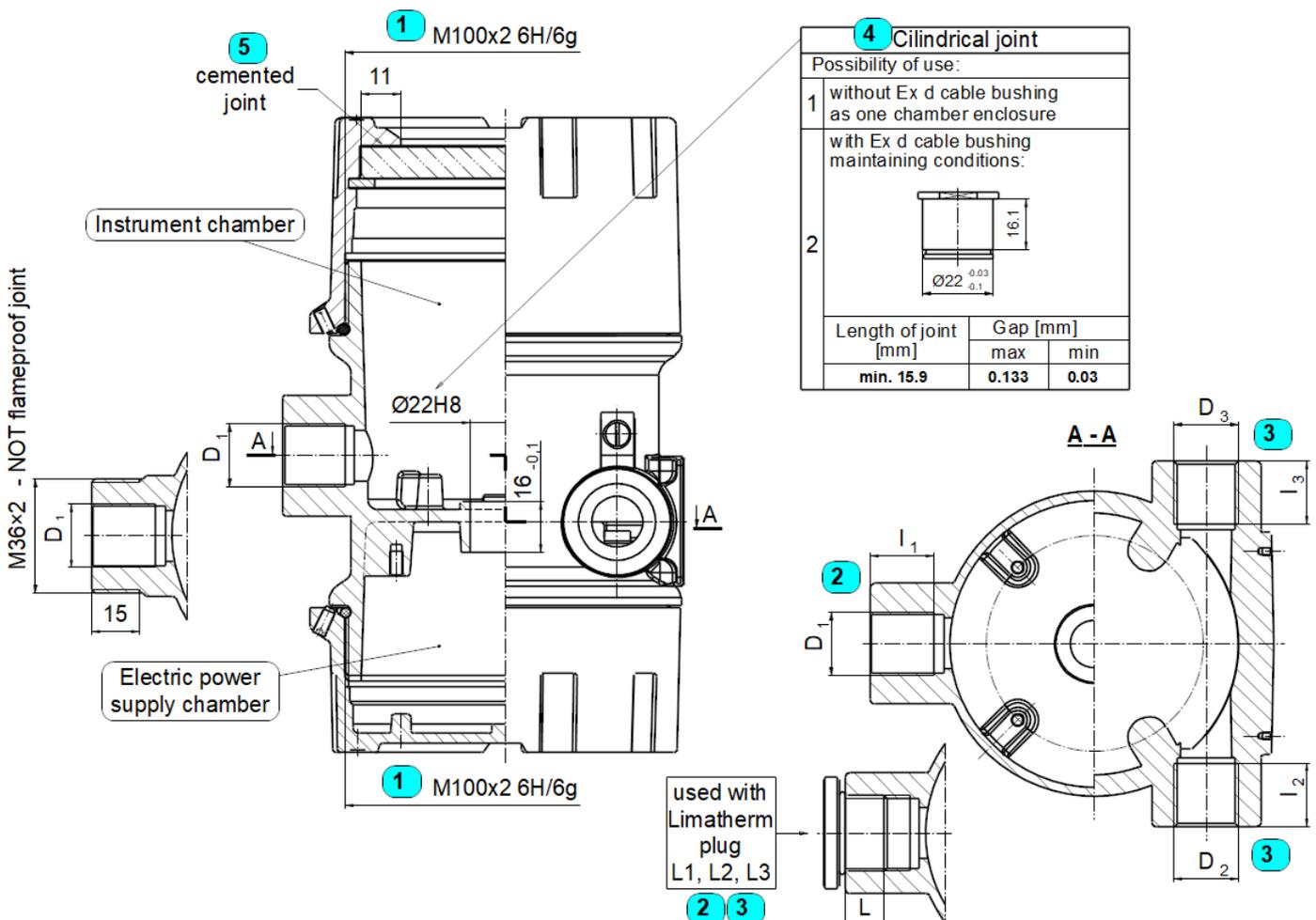
- Possible zone application

Zone	Protection Code
Zone 0 , Zone 20	Ex d + Ex ia Ex d + mechanical separation
Zone 1 , Zone 21	Ex d
Zone 2 , Zone 22	Ex d

- It is not allowed to install circuit breaker or contractors with oil filling and rotating apparatus producing turbulence inside of the enclosure.
- The apparatus installed inside of the enclosure can have any layout, ensuring more than 20% (group I) and 40% (group IIC) of free cross-section.

2. FLAMEPROOF JOINTS.

Flameproof joints are designed for volume $500 < V \leq 2000 \text{ cm}^3$ group II C enclosures.



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Lp.	Connection type		Requirements of 60079-1	Achieved values					
1	M100x2 6H/6g		threads engaged ≥ 5	9					
			depth of engagement ≥ 8 mm	18,5mm					
2	D ₁ proces opening	M20x1.5 6H M24x1.5 6H M25x1.5 6H	fit of thread	l ₁	6g of male thread should be ensured by customer	L ₁	6H/6g		
			threads engaged ≥ 5		should be ensured by customer, possible to reach: 12,5		6,5		
			depth of engagement ≥ 8 mm		should be ensured by customer, possible to reach: 19mm		10mm		
		M27x2 6H	fit of thread	l ₁	6g of male thread should be ensured by customer	L ₁	6H/6g		
			threads engaged ≥ 5		should be ensured by customer, possible to reach: 9,5		5		
			depth of engagement ≥ 8 mm		should be ensured by customer, possible to reach: 19mm		10mm		
		½NPTmod ¾NPTmod	threads provided on each part ≥ 5	l ₁	8,9 male part should be ensured by customer	L ₁	-		
			threads engaged		should be ensured by customer, possible to reach: 5,0 ÷ 5,5		5		
		3	D ₂ , D ₃ conduit openings	M20x1.5 6H M24x1.5 6H M25x1.5 6H	fit of thread	l ₂ , l ₃	6g of male thread should be ensured by customer	L ₂ , L ₃	6H/6g
					threads engaged ≥ 5		should be ensured by customer, possible to reach: 12,5		6,5
					depth of engagement ≥ 8 mm		should be ensured by customer, possible to reach: 19mm		10mm
				½NPTmod ¾NPTmod	threads provided on each part ≥ 5	l ₂ , l ₃	8,9 male part should be ensured by customer	L ₂ , L ₃	-
threads engaged	should be ensured by customer, possible to reach: 5,0 ÷ 5,5				5				
4	Cylindrical joint Ø22H8		min. length of joint 12,5mm	min 15,9 mm					
			max gap of joint 0,15mm	should be ensured by customer, possible to reach with Limatherm cable bushing: max 0,133 mm					
5	Cemented joint		min. length of joint 10mm	11mm					

NPT threads are modified to reach 5÷5,5 engaged threads and can create flameproof joint with threaded male part with standard cutting tolerance.

Process opening can be used for mounting sensor (e.g. level, flow sensor) or thermowell.

Conduit openings can be used to equip it with cable glands, fill sealing fittings, flexible couplings or thermowells. **Appropriate certificated cable glands for direct entry has to be used.**

Each D₁, D₂ and D₃ opening can be plugged.

Conduit Ø22H8 is destined to be equipped with flameproof Ex d conductor bushing, which separate instrument chamber from electric power supply chamber.

However this conduit cannot be plugged by conductor bushing.

Housing need not be equipped with conductor bushing. Then it is used as one-chamber enclosure.

! If the Ex- conductor bushing is used, the new-created cylindrical joint has to be tested according to EN 60079-1, cl.15 !

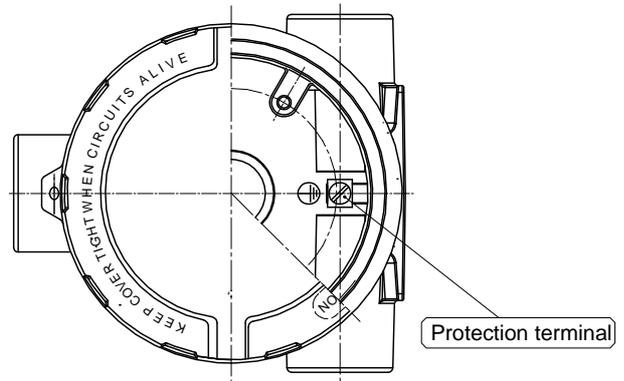
3. PRESSURE TEST.

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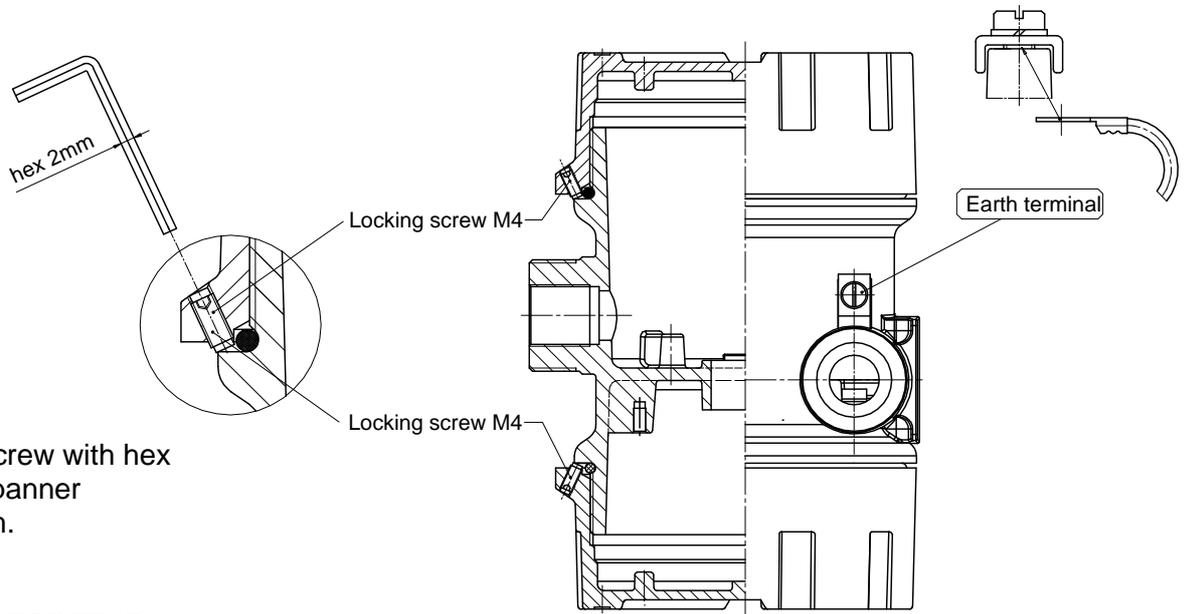
Enclosure was verified by over pressure static test **55 bars / 10 s.**
 The measured maximum reference pressure was 10,75 bars for $T_{amb} = -50^{\circ}C.$

4. EARTH AND PROTECTION TERMINALS.

Place	Type	Cable cross section [mm ²]	
		Stranded wire	Solid wire
Inside	Protection terminal	1.5	2.5
Outside	Earth terminal	4.0	6.0



5. COVER LOCKING.



Lock the cover by screw with hex socket using hex spanner with across flat 2mm.

6. PROTECTION DEGREE IP.

There are three connections of assembled device deciding about IP degree:

- 1 – cover
- 2 – process opening
- 3 – conduit openings.

Threaded connection sealing	Possible IP
Without sealing - standard accuracy class thread	54
Use of a sealant, e.g. Loctite 577	68
Thread tightened with O-ring	68

If IP for each connection			IP of assembled device
1	2	3	
68	54		IP 54
	66		IP 66
	67		IP 67
	68		IP 68

! ATTENTION !

Protection IP68 refers to depth 1,0m of submersion under water.

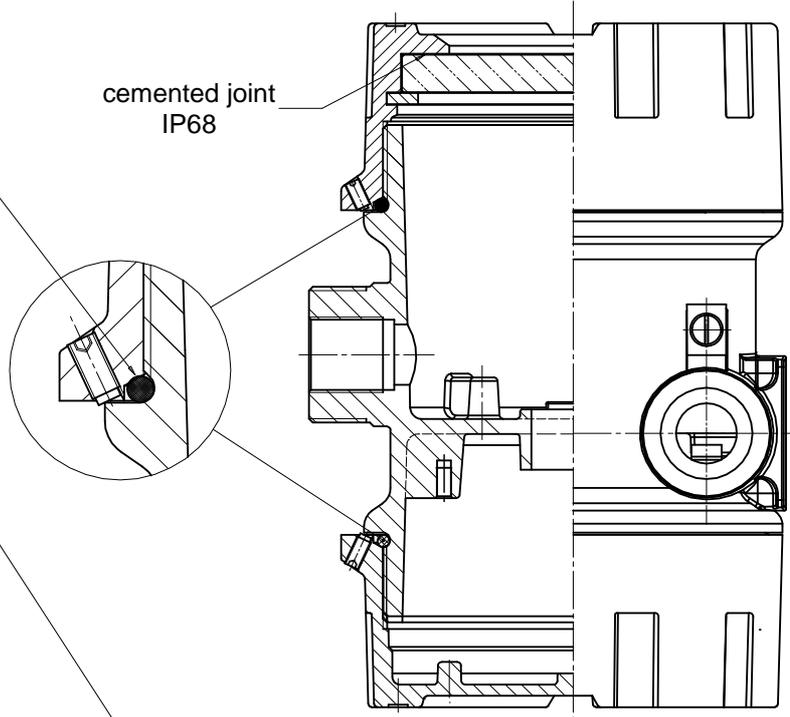
It is required min IP65 protection for instruments designed for dust zones.
 (Besides zone 22, non-conductive dust, where min IP54 protection is required)

Component must be installed to avoid a risk from propagating brush discharges for application in explosive dust atmosphere.

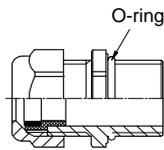
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1
max. possible to achieve IP68
LIMATHERM RESPONSIBILITY
<ul style="list-style-type: none"> • design • execution quality
CUSTOMER RESPONSIBILITY
<ul style="list-style-type: none"> • rate of screw tightness

cemented joint
IP68

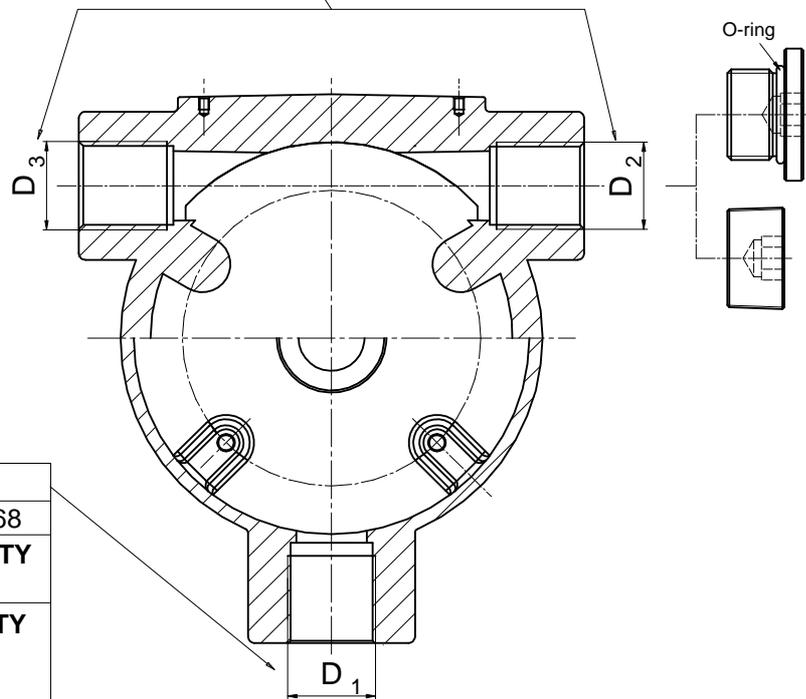


3
max. possible to achieve IP68
LIMATHERM RESPONSIBILITY
<ul style="list-style-type: none"> • sealing surface quality • thread execution quality
CUSTOMER RESPONSIBILITY
<ul style="list-style-type: none"> • choice of cable gland type regarding to cable diameter and IP degree • cable gland mounting and sealing • rate of press cap tightness

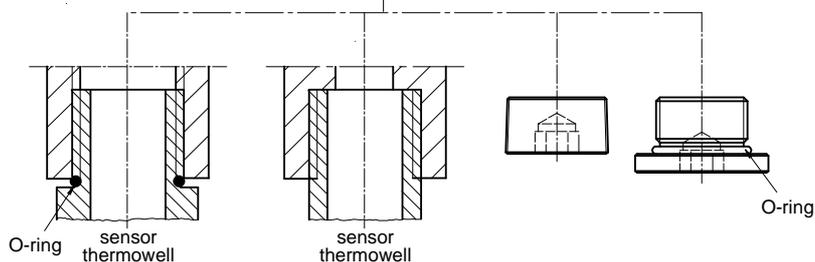


fill sealing fitting

flexible coupling

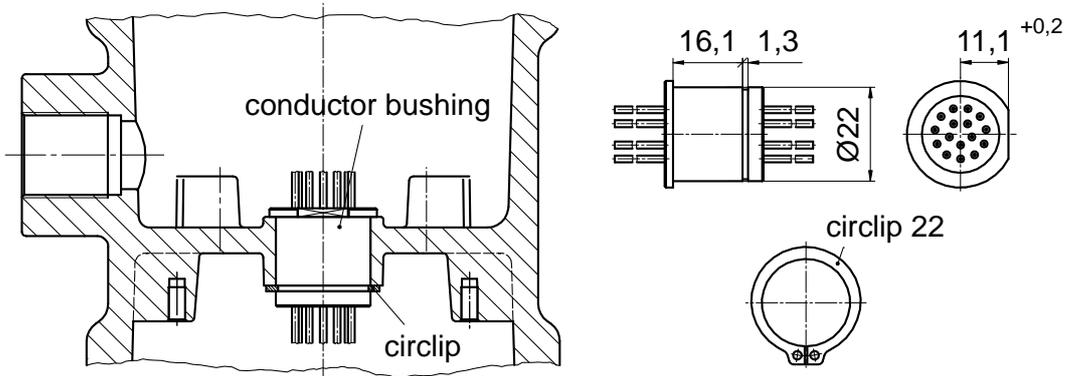


2
max. possible to achieve IP68
LIMATHERM RESPONSIBILITY
<ul style="list-style-type: none"> • thread execution quality
CUSTOMER RESPONSIBILITY
<ul style="list-style-type: none"> • choice of type of connection between housing-sensor • housing-sensor sealing



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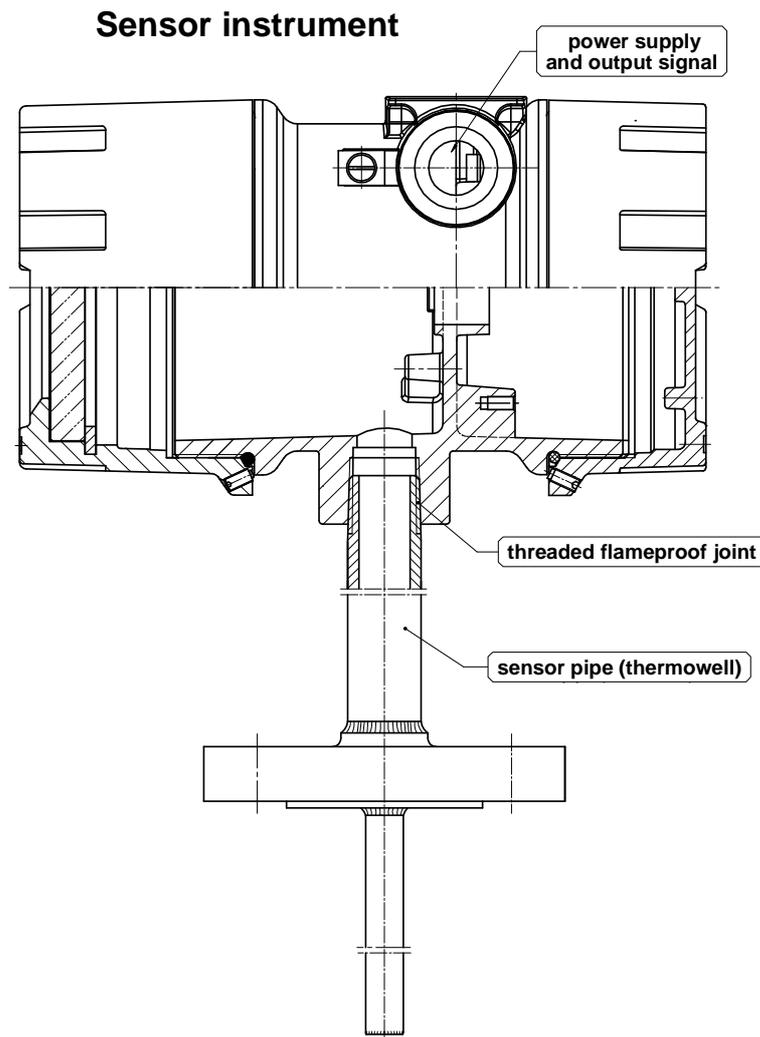
7. ASSEMBLY OF INSIDE CONDUCTOR BUSHING.



8. WAY OF MOUNTING.

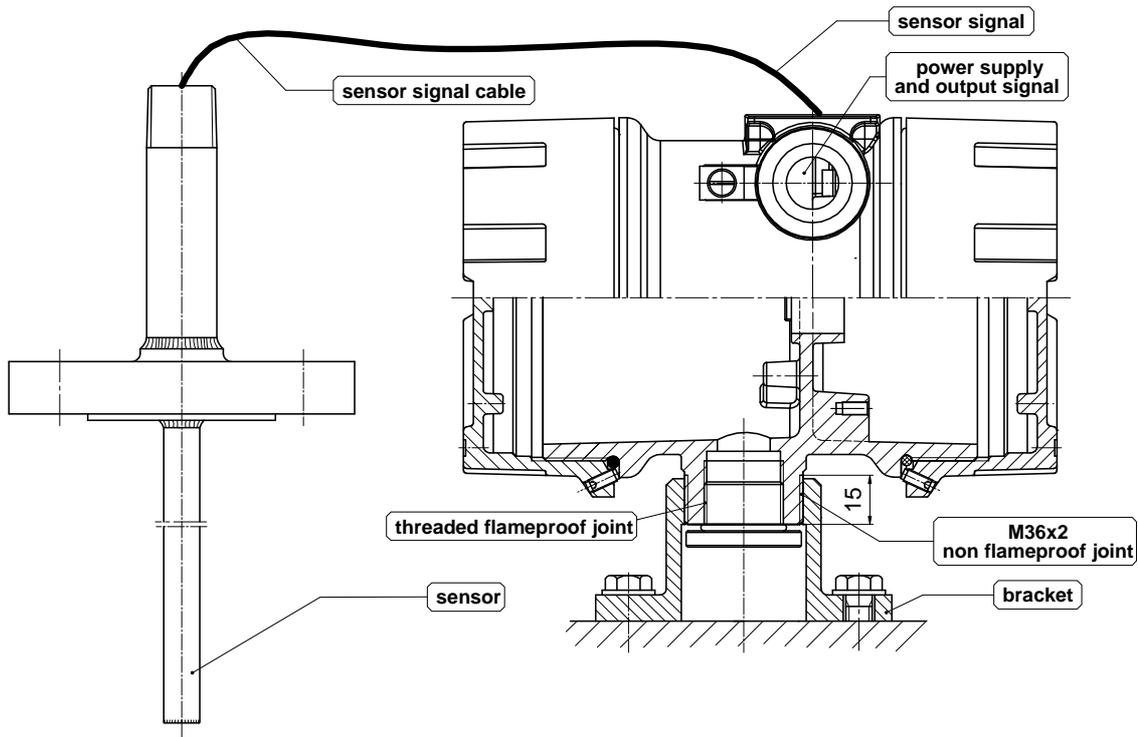
There are two ways of mounting of the housing:

- on the sensor pipe (sensor instrument),
- on the bracket screwed on the outer thread on the D₁ boss (remote instrument).

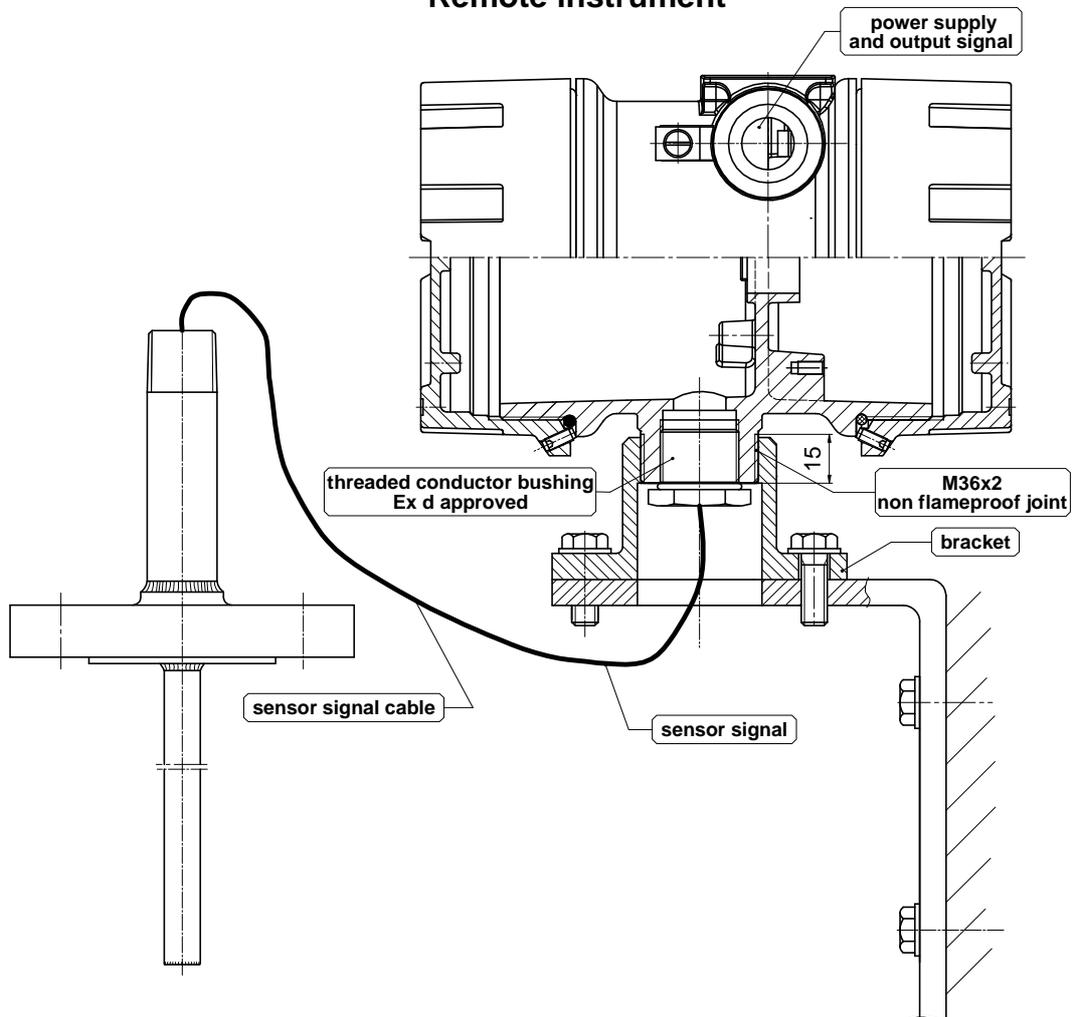


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Remote instrument



Remote instrument



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9. MARKING

Limatherm label with marking is put inside the housing.

The label can be glued on the outside or inside surface, it's up to customer.

Producer of assembled instrument should apply additional own label with the marking of complete sensor or transfer valuable information from Limatherm's label to instrument nameplate.

