



N-L4256

Updated: 06.07.2018

APPLICATION MANUAL

Universal Instrument Housing types:

**XD-S120, XD-S120win
XD-S120L, XD-S120Lwin**



Contents:

1. Destination.
2. Flameproof joints.
3. Pressure test.
4. Earth and protection terminals.
5. Cover locking.
6. Protection degree.
7. Way of fixing.
8. Marking.

NOTES OF SAFETY

The XD-S120 series is designed to accommodate various electronic instruments. If used incorrectly it is possible that application-related dangers may arise.

The XD-S120win universal instrument housing may be used by qualified and authorized company and people only, under strict observance of this application manual and relevant standards, legal requirements, and, where appropriate the certificate.

Only the empty XD-S120 series instrument housing is certified. When used as part of an end product assembly, subsequent approval of the end use equipment assembly is required.

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1. DESTINATION.

- Universal instrument housing XD-S120 series is designed to accommodate different electronic instruments or devices working in hazardous areas.
- Rotating machines or other devices which create turbulence shall not be incorporated.
- Oil-filled circuit-breakers and contactors shall not be used.

- Marking

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

- Standards:

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

- Service temperature

Housing type	T _{serv}	
	o-ring VMQ rubber	o-ring FKM rubber
XD-S120 XD-S120L	-50 to +150°C	-20 to +200°C
XD-S120win XD-S120Lwin	-50 to +85°C	-20 to +85°C

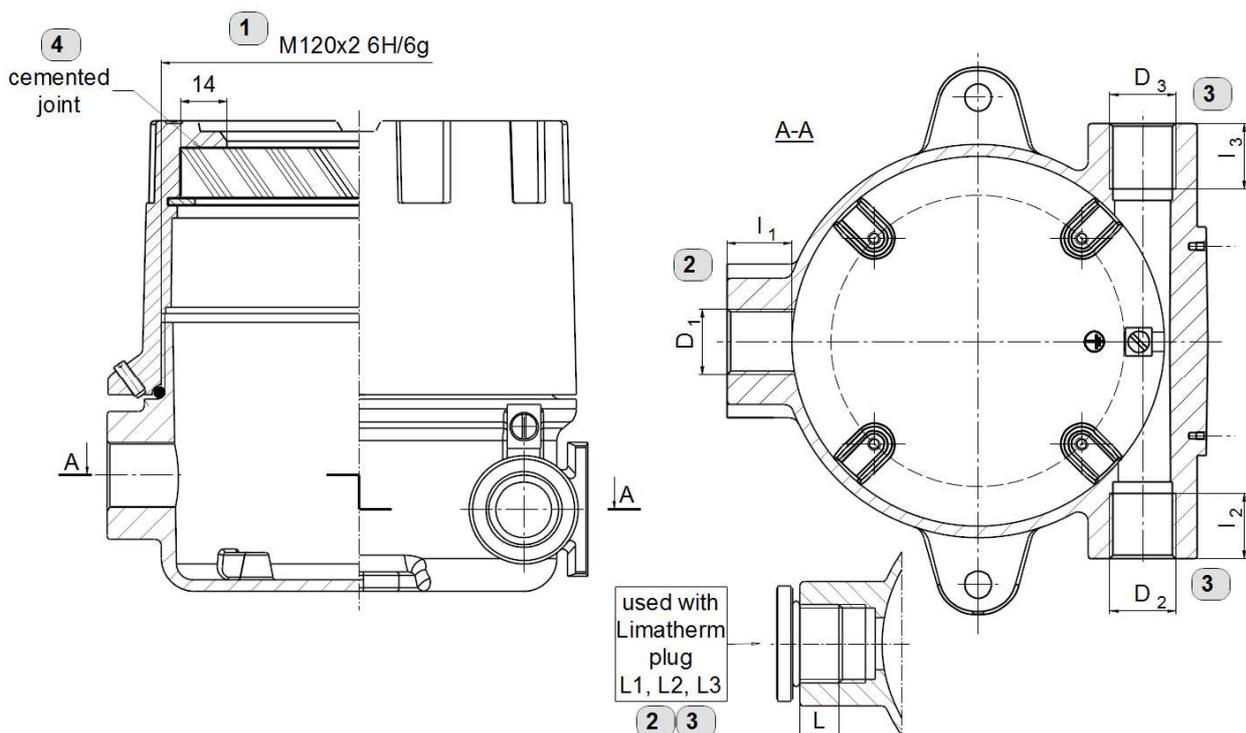
- Possible zone application

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

! The content of the housing may be placed in any arrangement provided that an area of at least 40% (group IIC) or 20% (group I) of each cross-sectional area remains free to permit unimpeded gas flow and, therefore, unrestricted development of an explosion. Separate relief areas may be aggregated, provided that each areas has a minimum dimension in any direction of 12,5mm !

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	M120x2 6H/6g		threads engaged ≥ 5	9						
			depth of engagement ≥ 8 mm	18mm						
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		
			depth of engagement ≥ 8 mm		should be ensured by customer, possible to reach: 18mm			10mm		
		½NPTmod ¾NPTmod	threads provided on each part ≥ 5	l ₁	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		
		1NPTmod	threads provided on each part ≥ 5	l ₁	9 male part should be ensured by customer		L ₁	-		
			threads engaged		should be ensured by customer, possible to reach: 5,0 ÷ 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	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	Cemented joint			min. length of joint 10mm	14mm					

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 appropriate **certificated Ex d flameproof cable glands**, fill sealing fittings, flexible couplings or thermowells.

Each D₁, D₂ and D₃ opening can be **plugged**.

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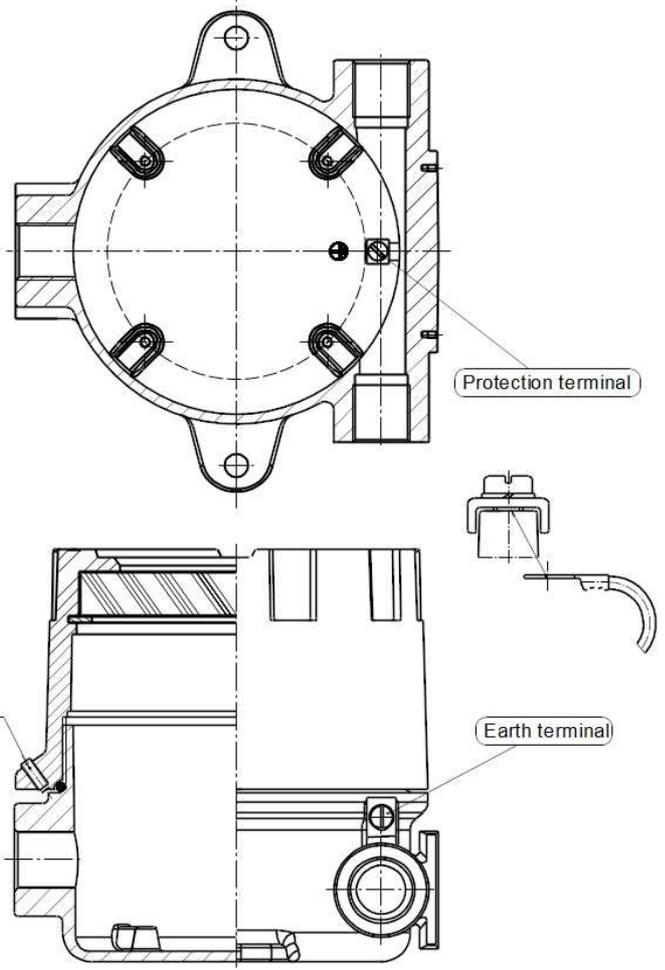
3. PRESSURE TEST.

Overpressure test using pressure **80 bar** (4x reference pressure 20 bar) was made for universal instrument housing types **XD-S120** and **XD-S120win**.

Overpressure test using pressure **33 bar** (4x reference pressure 8,14 bar) was made for universal instrument housing types **XD-S120L** and **XD-S120Lwin**.

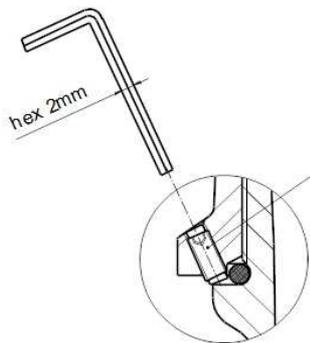
4. EARTH AND PROTECTION TERMINALS

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

Cover is locked by screw with hex socket using hex spanner with across flat 2 [mm].



Locking screw M4

6. PROTECTION DEGREE

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	67
Thread tightened with O-ring	67

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

! ATTENTION !

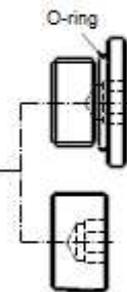
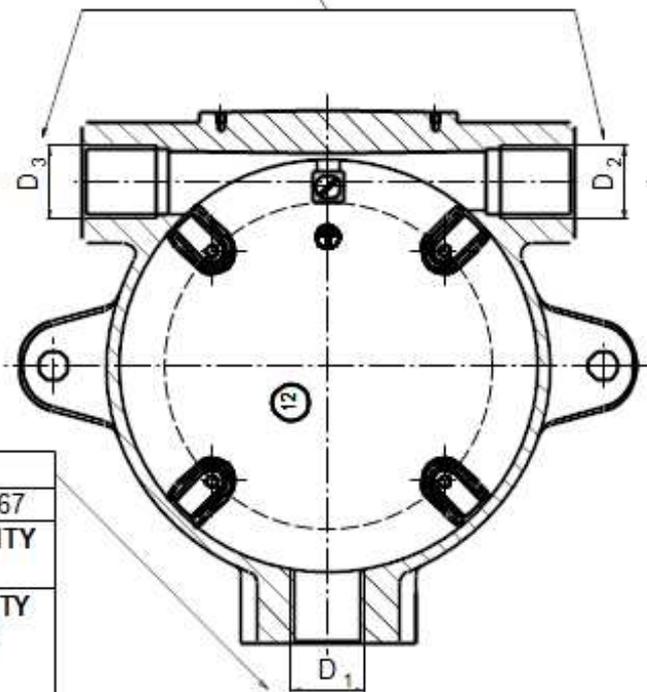
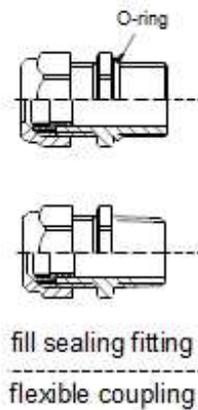
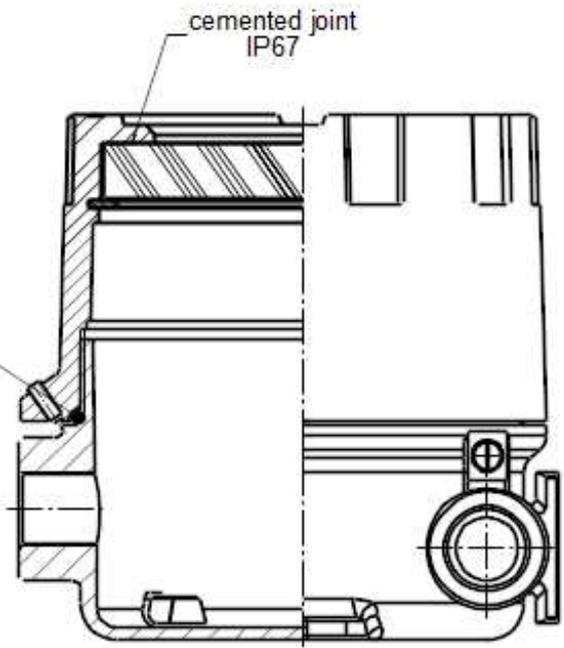
It is required min IP65 protection for instruments designed for dust zones.

(Besides zone 22, non-conductive dust, where min IP54 protection is required)

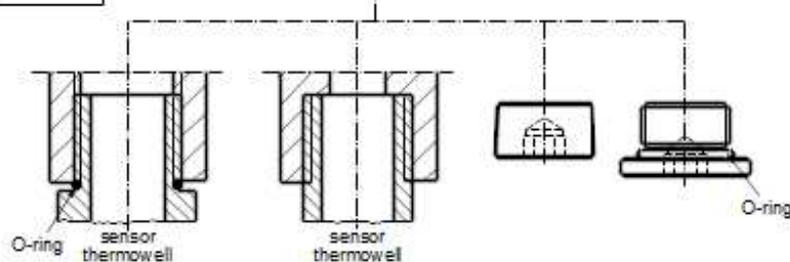
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1
max. possible to achieve IP67
LIMATHERM RESPONSIBILITY
<ul style="list-style-type: none"> • design • execution quality
CUSTOMER RESPONSIBILITY
<ul style="list-style-type: none"> • rate of screw tightness

3
max. possible to achieve IP67
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

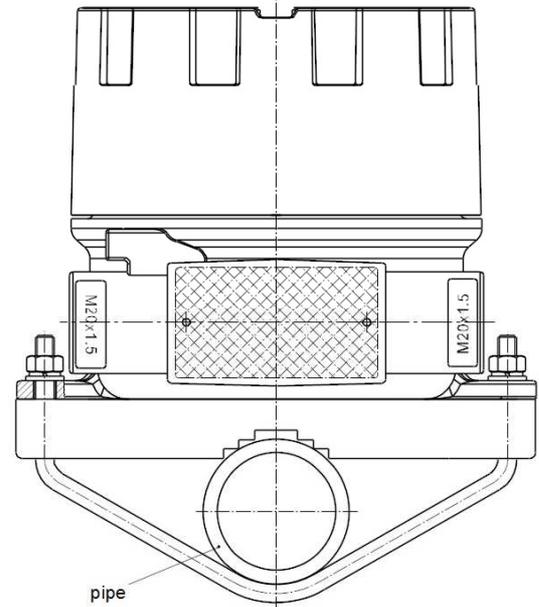
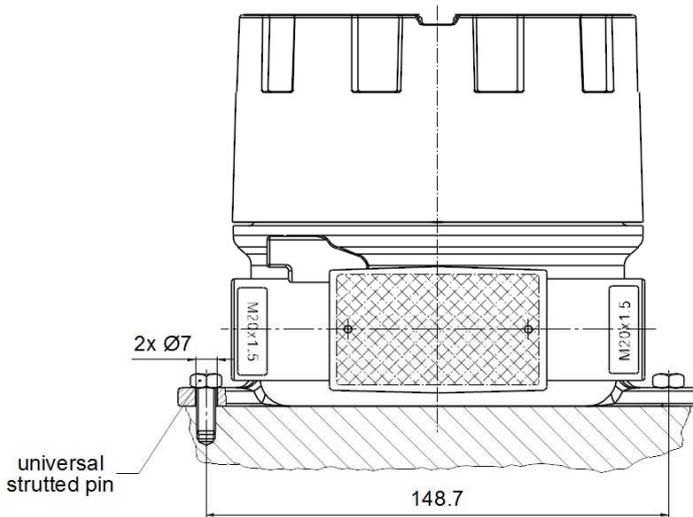


2
max. possible to achieve IP67
LIMATHERM RESPONSIBILITY
<ul style="list-style-type: none"> • thread execution quality
CUSTOMER RESPONSIBILITY
<ul style="list-style-type: none"> • choice of type of connection between housing-sensor • housing-sensor sealing



7. WAY OF FIXING.

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8. 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.

