

JUMO MIDAS S22 Ex



Betriebsanleitung
Operating Instructions
Notice de mise en service



40472000T90Z000K000

V3.00/DE-EN-FR/00678383/2024-06-03

JUMO MIDAS S22 Ex

Miniatur-Druckmessumformer für den Ex-Bereich



Betriebsanleitung

40472000T90Z000K000

DE/00678383/2024-06-03



Weitere Informationen und Downloads



qr-404720-de.jumo.info

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1 Sicherheitshinweise

1.1 Warnende Zeichen



GEFAHR!

Dieses Zeichen weist darauf hin, dass ein **Personenschaden durch Stromschlag** eintreten kann, wenn die entsprechenden Vorsichtsmaßnahmen nicht getroffen werden.



WARNUNG!

Dieses Zeichen in Verbindung mit dem Signalwort weist darauf hin, dass ein **Personenschaden** eintreten kann, wenn die entsprechenden Vorsichtsmaßnahmen nicht getroffen werden.



VORSICHT!

Dieses Zeichen in Verbindung mit dem Signalwort weist darauf hin, dass ein **Sachschaden oder ein Datenverlust** auftritt, wenn die entsprechenden Vorsichtsmaßnahmen nicht getroffen werden.



VORSICHT!

Dieses Zeichen weist darauf hin, dass durch elektrostatische Entladungen (ESD = Electro Static Discharge) **Bauteile zerstört werden** können, wenn die entsprechenden Vorsichtsmaßnahmen nicht getroffen werden.

Bei Rücksendungen von Geräteeinschüben, Baugruppen oder Bauelementen nur dafür vorgesehene ESD-Verpackungen verwenden.



DOKUMENTATION LESEN!

Dieses Zeichen – angebracht auf dem Gerät – weist darauf hin, dass die zugehörige **Gerätedokumentation** zu **beachten** ist. Dies ist erforderlich, um die Art der potenziellen Gefährdung zu erkennen und Maßnahmen zu deren Vermeidung zu ergreifen.

1.2 Hinweisende Zeichen



HINWEIS!

Dieses Zeichen weist auf eine **wichtige Information** über das Produkt oder dessen Handhabung oder Zusatznutzen hin.



VERWEIS!

Dieses Zeichen weist auf **weitere Informationen** in anderen Abschnitten, Kapiteln oder anderen Anleitungen hin.

1.3 Hybride Gemische

Hybride Gemische sind explosionsfähige Gemische aus brennbaren Gasen, Dämpfen oder Nebeln mit brennbaren Stäuben. Betriebsmittel für explosionsgefährdete Bereiche, in denen hybride Gemische vorhanden sind, müssen für diesen Einsatz besonders geprüft sein. Die Überprüfung der Eignung des Betriebsmittels für solche Einsätze liegt in der Verantwortung des Betreibers.

2 Einleitung

2.1 Allgemeines



GEFAHR!

Die Konformitätserklärung, die Baumusterprüfbescheinigung (jeweils am Ende dieser Betriebsanleitung) sowie entsprechende Vorschriften für Sensoren und Versorgungsgeräte in explosionsgefährdeten Bereichen sind zu beachten!

Entsprechend der Ausführung dürfen die Sensoren nur an eigensicheren Stromkreisen betrieben werden.

- ▶ Die zulässigen Werte sind der Bescheinigung zu entnehmen.

Der Typ 404720 erfüllt die Anforderungen

- der Gerätegruppe II im explosionsgefährdeten Bereich der Zone 1 und 2
- der Gerätegruppe III im explosionsgefährdeten Bereich der Zone 21 und 22

Die Prüfbescheinigungsnummer der EU-Baumusterprüfbescheinigung lautet:

SEV 21 ATEX 0537 X

Die Zertifikatsnummer des IECEx-Konformitätszertifikates lautet:

IECEx SEV 21.0011X

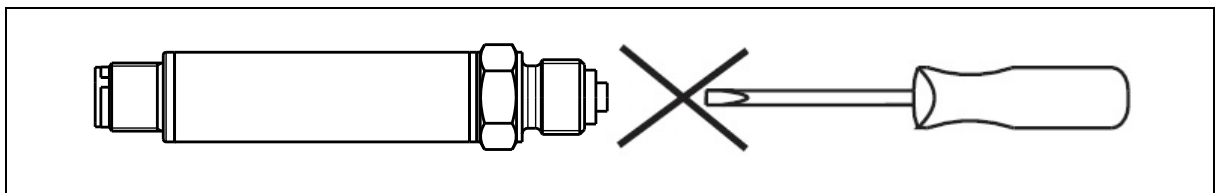


VORSICHT!

Die Membran des Druckmessumformers darf nicht beschädigt werden!

Folgende Maßnahmen sind zu beachten:

- Keine Gegenstände in die Bohrung des Druckanschlusses einführen!
- Keinen Druckstrahl auf die Membran richten!
- Die Membran darf nicht deformiert werden. Schon das Berühren der Membran mit den Fingern kann diese unter Umständen beschädigen.
- Der zu messende Druck darf auch in Druckspitzen den zulässigen Überdruck des Druckmessumformers nicht überschreiten. Sehr hohe Druckspitzen (Wasserhammer) können den Druckmessumformer zerstören. Bei diesen Bedingungen sind geeignete Vorkehrungen (z. B. der Einbau eines Dämpfungselementes) zu treffen.



VORSICHT!

Um Beschädigungen am Druckmessumformer zu vermeiden und den Prozess zu sichern, dürfen Montage, Installation und Inbetriebnahme ausschließlich durch qualifiziertes Fachpersonal erfolgen. Dieses muss mit den landesspezifischen Vorschriften vertraut sein und anwendungsorientierte Normen und Richtlinien kennen, um Körper- und Sachschäden zu vermeiden.

- ▶ Das Fachpersonal muss die Betriebsanleitung gelesen, das Typenschild beachtet und beides verstanden haben, so dass es die Anweisungen befolgen kann. Veränderungen und Reparaturen dürfen nur vorgenommen werden, wenn die Betriebsanleitung es zulässt.
Bewahren Sie die Betriebsanleitung an einem für alle Anwender jederzeit zugänglichen Ort auf.

2.2 Bestimmungsgemäße Verwendung

Das in dieser Anleitung beschriebene Gerät misst den Druck (Relativ- und Absolutdruck) von Gasen, Dämpfen und Flüssigkeiten an Pumpen, Behältern und Rohrleitungen. Die technischen Daten sind in dieser Anleitung spezifiziert. Das Gerät darf im explosionsgefährdeten Bereich Zone 1 (21) oder Zone 2 (22) eingesetzt werden.

Eine andere oder darüber hinausgehende Nutzung gilt – in Bezug auf den Einsatz in explosionsgefährdeten Bereichen – als nicht bestimmungsgemäß.

Für hieraus resultierende Schäden wird keine Haftung übernommen.

Bei jeglicher Veränderung des Gerätes erlischt die Ex-Zulassung!

Das Gerät ist entsprechend den gültigen Normen und Richtlinien so wie den geltenden sicherheitstechnischen Regeln gebaut. Dennoch können bei unsachgemäßer Verwendung Personen- oder Sachschäden entstehen.

Um Gefahren zu vermeiden, darf das Gerät nur benutzt werden

- für die bestimmungsgemäße Verwendung
- in sicherheitstechnisch einwandfreiem Zustand
- unter Beachtung dieser Betriebsanleitung



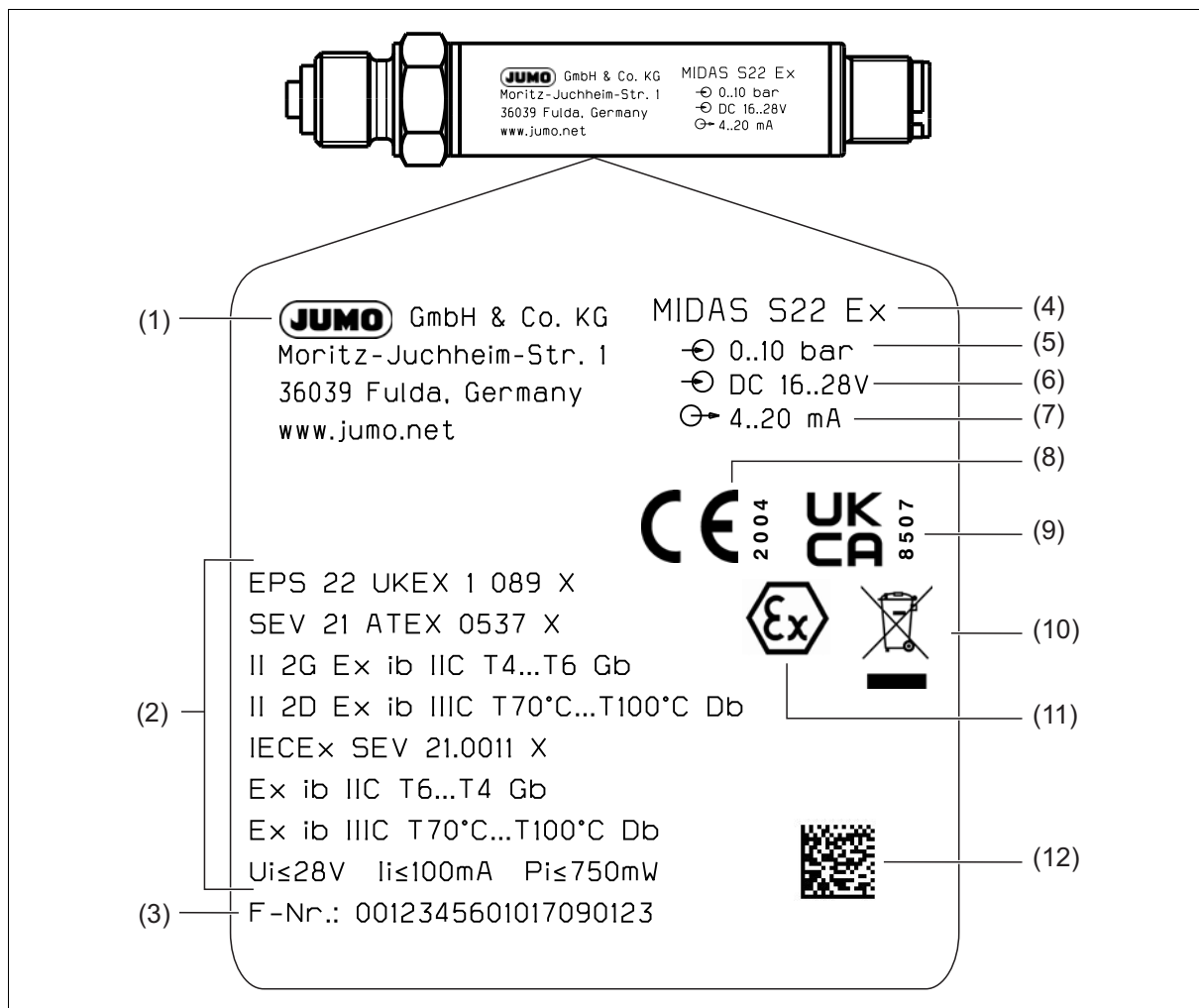
WARNUNG!

Bei nicht bestimmungsgemäßer Verwendung des Gerätes oder Nichtbeachtung der sicherheitsrelevanten Festlegungen dieser Betriebsanleitung erlischt die Ex-Zulassung.

3 Geräteausführung identifizieren

3.1 Typenschild

Beispiel:



- | | | | |
|---|----------------------------|----|--------------------|
| 1 | Hersteller und Anschrift | 7 | Ausgang |
| 2 | Ex-Angaben | 8 | CE-Kennzeichnung |
| 3 | Fabrikationsnummer (F-Nr.) | 9 | UKCA-Kennzeichnung |
| 4 | Gerätebezeichnung | 10 | Entsorgung |
| 5 | Messbereich | 11 | Ex-Kennzeichnung |
| 6 | Spannungsversorgung | 12 | DMC-Code |

3 Geräteausführung identifizieren

3.2 Bestellaangaben

	(1) Grundtyp
404720	JUMO MIDAS S22 Ex – Miniatur-Druckmessumformer für den Einsatz im Ex-Bereich
	(2) Grundtypergänzung
000	Ohne
	(3) Eingang
456	0 bis 2,5 bar Relativdruck
458	0 bis 6 bar Relativdruck
459	0 bis 10 bar Relativdruck
460	0 bis 16 bar Relativdruck
461	0 bis 25 bar Relativdruck
462	0 bis 40 bar Relativdruck
463	0 bis 60 bar Relativdruck
464	0 bis 100 bar Relativdruck
480	-1 bis +1,5 bar Relativdruck
481	-1 bis +3 bar Relativdruck
482	-1 bis +5 bar Relativdruck
483	-1 bis +9 bar Relativdruck
490	0 bis 2,5 bar Absolutdruck
491	0 bis 4 bar Absolutdruck
492	0 bis 6 bar Absolutdruck
493	0 bis 10 bar Absolutdruck
494	0 bis 16 bar Absolutdruck
495	0 bis 25 bar Absolutdruck
505	0 bis 40 bar Absolutdruck
506	0 bis 60 bar Absolutdruck
507	0 bis 100 bar Absolutdruck
998	Sondermessbereich Absolutdruck
999	Sondermessbereich Relativdruck
	(4) Ausgang
405	4 bis 20 mA, Zweileiter
	(5) Prozessanschluss
480	M12 × 1 innen
481	M12 × 1 mit Schutzkappe
502	G 1/4 DIN EN 837
530	M8 × 1 DIN 3852-1
531	M10 × 1 DIN 3852-1
532	M12 × 1,5 DIN 3852-1
544	7/16-20UNF SAE J514 mit O-Ring
561	G 1/4 frontbündig, 2-fach-Dichtung
562	7/16-20UNF
	(6) Werkstoff Prozessanschluss
20	CrNi (Edelstahl)
	(7) Elektrischer Anschluss
11	Festes Kabel, blau ^a

3 Geräteausführung identifizieren

36	Rundstecker M12 × 1
(8) Typenzusätze	
000	Ohne
085	UKEX-Zulassung
462	Invertiertes Ausgangssignal
591	Drossel im Druckkanal
624	Öl- und fettfrei
630	Vergrößerter Druckkanal

^a Die Standardlänge des Kabels beträgt 2 m. Weitere Längen sind auf Anfrage erhältlich.




	(1)		(2)		(3)		(4)		(5)		(6)		(7)		(8)
Bestellschlüssel	<input type="text"/>	/	<input type="text"/>	-	<input type="text"/>	-	<input type="text"/>	-	<input type="text"/>	-	<input type="text"/>	-	<input type="text"/>	/	<input type="text"/>
Bestellbeispiel	404720	/	000	-	459	-	405	-	502	-	20	-	11	/	000

3.3 Lieferumfang

Gerät in bestellter Ausführung
Betriebsanleitung

3 Geräteausführung identifizieren

3.4 Zubehör

Bezeichnung	Beschreibung	Teile-Nr.
Ex-i Speise- und Eingangstrennverstärker 	<p>Der Ex-i Speise- und Eingangstrennverstärker ist für den Betrieb von im Ex-Bereich installierten eigensicheren (Ex-i)-Messumformern und mA-Stromquellen ausgelegt.</p> <p>Zweileiter-Messumformer werden mit Energie versorgt und analog 0/4 bis 20 mA-Messwerte aus dem Ex-Bereich in den Nicht-Ex-Bereich übertragen. Der Ausgang des Moduls kann aktiv oder passiv betrieben werden. Weitere technische Daten sowie die entsprechenden Sicherheitsbestimmungen sind der Betriebsanleitung B 707530.0 zu entnehmen.</p>	00577948
Kabeldose, gerade 	Die PVC-Anschlussleitung ist 2 m lang und hat geräte-seitig einen 4-poligen, geraden M12 × 1-Stecker mit vergoldeten Kontakten.	00404585
Kabeldose, gewinkelt 	Die PVC-Anschlussleitung ist 2 m lang und hat geräte-seitig einen 4-poligen, gewinkelten M12 × 1-Stecker mit vergoldeten Kontakten.	00409334

4 Technische Daten

4.1 Allgemein

Referenzbedingungen	gemäß DIN EN 60770-1 und DIN IEC 61298-1
Sensor Material Druckübertragungsmittel zulässige Lastwechsel	Siliziumsensor mit Edelstahl-Trennmembran synthetisches Öl > 10 Millionen
Lage Montagelage Kalibrationslage	beliebig Gerät senkrecht stehend, Prozessanschluss unten

4.2 Messbereich und Genauigkeit

Messbereich bar	Linearität ^a % MSP ^f	Genauigkeit bei		Langzeit- stabilität ^b % MSP pro Jahr	Überlast- barkeit ^c bar	Berst- druck bar
		20 °C ^d % MSP	-20 bis +80 °C ^e % MSP			
-1 bis +1,5 bar Relativdruck	0,3	0,5	1,3	≤ 0,2	10	24
-1 bis +3 bar Relativdruck	0,3	0,5	1,2		20	50
-1 bis +5 bar Relativdruck	0,3	0,5	1,2		40	60
-1 bis +9 bar Relativdruck	0,3	0,5	1,0		50	60
0 bis 2,5 bar Relativdruck	0,3	0,5	1,3		10	24
0 bis 4 bar Relativdruck	0,3	0,5	1,2		20	50
0 bis 6 bar Relativdruck	0,3	0,5	1,2		40	60
0 bis 10 bar Relativdruck	0,3	0,5	1,0		50	60
0 bis 16 bar Relativdruck	0,3	0,5	1,0		100	150
0 bis 25 bar Relativdruck	0,3	0,5	1,0		120	180
0 bis 40 bar Relativdruck	0,3	0,5	1,0		300	400
0 bis 60 bar Relativdruck	0,3	0,5	1,0		300	400
0 bis 100 bar Relativdruck	0,3	0,5	1,0		300	400
0 bis 2,5 bar Absolutdruck	0,3	0,5	1,3		10	24
0 bis 4 bar Absolutdruck	0,3	0,5	1,2		20	50
0 bis 6 bar Absolutdruck	0,3	0,5	1,2		40	60
0 bis 10 bar Absolutdruck	0,3	0,5	1,0		50	60
0 bis 16 bar Absolutdruck	0,3	0,5	1,0		100	150
0 bis 25 bar Absolutdruck	0,3	0,5	1,0		120	180
0 bis 40 bar Absolutdruck	0,3	0,5	1,0		300	400
0 bis 60 bar Absolutdruck	0,3	0,5	1,0	300	400	
0 bis 100 bar Absolutdruck	0,3	0,5	1,0	300	400	

^a Linearität nach Grenzpunkteinstellung = 2 × BFSL (best fit straight line)

^b Referenzbedingungen EN 61298-1

^c Alle Druckmessumformer sind vakuumfest.

^d Beinhaltet: Linearität, Hysterese, Wiederholbarkeit, Abweichung Messbereichsanfangswert (Offset) und Messbereichsendwert

^e Beinhaltet: Linearität, Hysterese, Wiederholbarkeit, Abweichung Messbereichsanfangswert (Offset) und Messbereichsendwert, thermischer Einfluss auf Messbereichsanfang (Offset) und Messspanne

^f MSP = Messspanne

4.3 Ausgänge

Ausgangssignal Strom	4 bis 20 mA, Zweileiter
Sprungantwort T_{90}	≤ 3 ms
Bürde 4 bis 20 mA, Zweileiter Bürdeneinfluss	$R_B \leq (U_B - 16 \text{ V}) \div 0,022 \text{ A} (\Omega)$ $\leq 0,01 \%$ pro 100 Ω

4.4 Mechanische Eigenschaften

Werkstoff	
Prozessanschluss	316 Ti
Schutzkappe	PVC (bei M12 × 1 mit Schutzkappe)
Membran	316 L
Gehäuse	304
elektrischer Anschluss	304, PA (bei Rundstecker M12 × 1) 304, PUR (bei festem Kabel)
Kabel	PUR
Leitungsquerschnitt	0,22 mm ²
Biegeradius	max. 35 mm
Gewicht	ca. 55 g

4.5 Umwelteinflüsse

	Frontbündig	Nicht frontbündig
Umgebungstemperatur	10 bis 40 °C	-20 bis +85 °C
Lagertemperatur	10 bis 40 °C	-20 bis +85 °C
Mediumtemperatur	10 bis 40 °C	-20 bis +85 °C
Schutzart	DIN EN 60529 IP68	
Elektromagnetische Verträglichkeit (EMV)	DIN EN 61326-2-3:2022	
Störaussendung	Klasse B ^a	
Störfestigkeit	Industrieanforderung	
Mechanische Beanspruchung	DIN EN 60068-2-6, DIN EN 60068-2-27	
Schockfestigkeit	20 g/11 ms, 50 g für 1 ms	
Schwingungsfestigkeit	10 g bei 10 bis 2000 Hz	

^a Das Produkt ist für den industriellen Einsatz sowie für Haushalt und Kleingewerbe geeignet.



4 Technische Daten

4.6 Elektrische Daten

Spannungsversorgung U_B^a 4 bis 20 mA, Zweileiter	DC 16 bis 28 V
Stromaufnahme	≤ 23 mA
Stromkreis	Eigensicher

^a Restwelligkeit: Die Spannungsspitzen dürfen die angegebenen Werte der Spannungsversorgung nicht über- bzw. unterschreiten!

4.7 Zulassungen und Prüfzeichen

	Bezeichnung	ATEX
	Prüfstelle	Eurofins Electric & Electronic Product Testing AG
	Zertifikat-Nr.	SEV 21 ATEX 0537 X
	Prüfgrundlage	EN IEC 60079-0, EN 60079-11
	Kennzeichnung	II 2G Ex ib IIC T6 ... T4 Gb, II 2D Ex ib IIIC T70 °C ... T100 °C Db
	Gilt für	Typ 404720
	Bezeichnung	UKEX
	Prüfstelle	Bureau Veritas
	Zertifikat-Nr.	EPS 22 UKEX 1 089 X
	Prüfgrundlage	EN IEC 60079-0, EN 60079-11
	Kennzeichnung	II 2G Ex ib IIC T4 ... T6 Gb, II 2D Ex ib IIIC T70 °C ... T100 °C Db
	Gilt für	Typ 404720
	Bezeichnung	IECEX
	Prüfstelle	Eurofins Electric & Electronic Product Testing AG
	Zertifikat-Nr.	IECEX SEV 21.0011X
	Prüfgrundlage	IEC 60079-0, IEC 60079-11
	Kennzeichnung	Ex ib IIC T6 ... T4 Gb, Ex ib IIIC T70 °C ... T100 °C Db
	Gilt für	Typ 404720

Für die besonderen Bedingungen zur Verwendung die Baumusterprüfbescheinigung beachten.



GEFAHR!

Der Druckmessumformer entspricht nicht den Anforderungen „Ausrüstungsteil mit Sicherheitsfunktion“ gemäß Druckgeräte-Richtlinie 2014/68/EU.

- ▶ Bei gefährlichen Messstoffen, z. B. Sauerstoff, Acetylen, brennbaren und giftigen Stoffen, sowie bei Kälteanlagen, Druckbehältern usw. sind die bestehenden einschlägigen Vorschriften zu beachten! Die nationalen und internationalen Sicherheits- und Unfallverhütungsvorschriften müssen beachtet werden!
Nichtbeachten dieser Vorschriften kann Personen- oder Sachschäden verursachen!
Der Anlagenbetreiber ist für die Einhaltung der gesetzlichen Bestimmungen verantwortlich!
Nur entsprechend qualifizierte Personen dürfen an diesem Gerät arbeiten.

5.1 Allgemeines

Vor der Montage



GEFAHR!

Vor der Montage des Druckmessumformers ist die Anlage drucklos zu machen!



VORSICHT!

Der Druckmessumformer darf nur für solche Messstoffe verwendet werden, für die die Membran hinreichend chemisch beständig ist (Korrosion).

Eine elektrisch leitende Verbindung zwischen Druckmessumformer und Prozessanschluss (Anlage) muss gewährleistet sein.



HINWEIS!

Die Einbaustelle soll gut zugänglich, möglichst in der Nähe der Messstelle und erschütterungsarm sein. Die zulässige Umgebungstemperatur muss eingehalten werden (mögliche Wärmestrahlung beachten). Der Druckmessumformer kann oberhalb oder unterhalb der Druckentnahmestelle montiert werden.

5.2 Druckanschluss

Dichtungen



GEFAHR!

Bei der Zündschutzart Eigensicherheit muss bei entsprechendem Prozessanschluss eine Flachdichtung, z. B. nach DIN EN 837, verwendet werden!

- ▶ Nach Herstellen des Druckanschlusses muss dieser auf Dichtheit geprüft werden!
Wenn der Druckmessumformer in eine Gewindebohrung eingeschraubt wird, muss die **volle Länge** des Gewindes des Druckmessumformers im Einsatz sein!



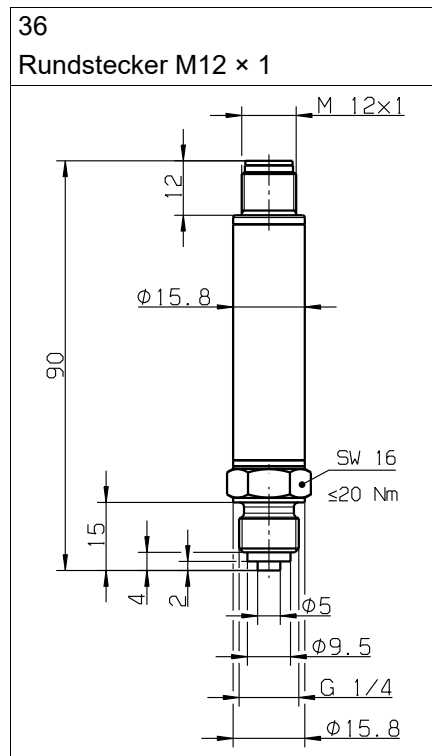
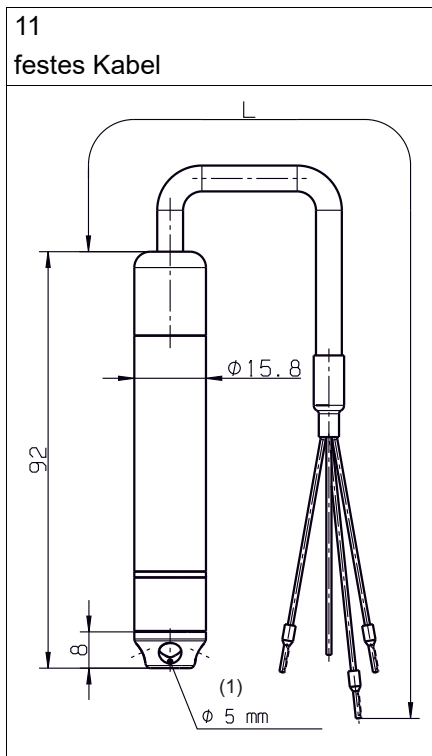
HINWEIS!

Das richtige Anzugsmoment ist abhängig von Größe, Werkstoff und Form der verwendeten Dichtung sowie dem Druckanschluss des Druckmessumformers.

5 Montage

5.3 Abmessungen

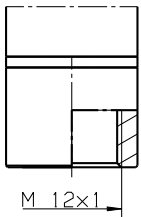
5.3.1 Elektrischer Anschluss



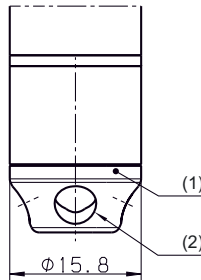
1 5× Bohrung

5.3.2 Prozessanschlüsse

480
M12 × 1 innen

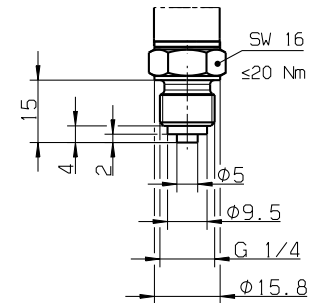


481
M12 × 1 mit Schutzkappe

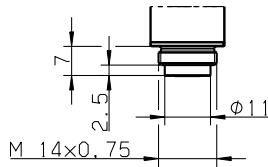


- 1 Schutzkappe
- 2 5× Bohrung Ø 5 mm

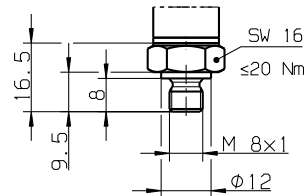
502
G 1/4 nach DIN EN 837



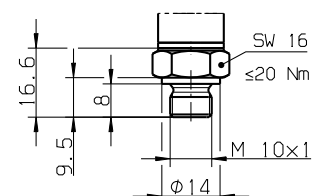
507 (auf Anfrage)
M14 × 0,75 frontbündig



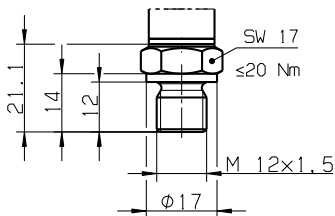
530
M8 (× 1) DIN 3852-1



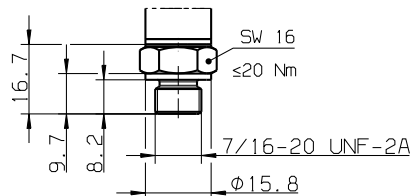
531
M10 (× 1) DIN 3852-1



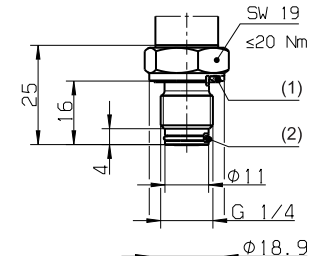
532
M12 (× 1,5) DIN 3852-1



544
7/16-20 UNF-2A

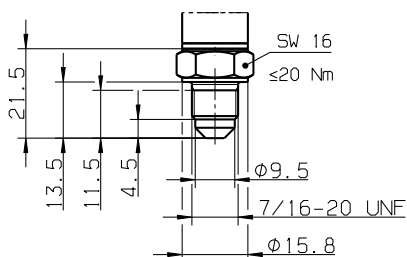


561
G 1/4 frontbündig, 2-fach-Dichtung



- 1 Profildichtung G 1/4
- 2 O-Ring 9×1

562
7/16-20 UNF SAE J514



6 Installation

6.1 Elektrischer Anschluss



GEFAHR!

Beim elektrischen Anschluss sind die einschlägigen Bestimmungen zu beachten:

- Verordnung über elektrische Anlagen in explosionsgefährdeten Räumen (Elex V)
- Bestimmung für das Errichten elektrischer Anlagen in explosionsgefährdeten Bereichen
- EU-Baumusterprüfbescheinigung

- ▶ Der elektrische Anschluss darf nur von qualifiziertem Personal durchgeführt werden!
Die Spannungsversorgung muss eigensicher sein und darf folgende Höchstwerte nicht überschreiten:

U_i : DC 28 V

I_i : 100 mA

P_i : 750 mW

wirksame innere Induktivität L: vernachlässigbar klein

wirksame innere Kapazität C: $\leq 10,4$ nF

In eigensicheren Stromkreisen dürfen nur eigensichere, zertifizierte Messgeräte verwendet werden!

Für den elektrischen Anschluss 11 (festes Kabel) ergeben sich in Abhängigkeit von der Kabellänge l folgende Werte:

$$U_i \leq 28 \text{ V}$$

$$I_i \leq 100 \text{ mA}$$

$$P_i \leq 750 \text{ mW}$$

$$C_i \leq 10,4 \text{ nF} + 107 \frac{\text{pF}}{\text{m}} \times l$$

$$L_i \leq 1 \frac{\mu\text{H}}{\text{m}} \times l$$

Allgemeines


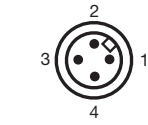


- maximale Leitungslänge 50 m
- minimaler Biegeradius 120 mm (bei fester Verlegung)
- Druckausgleichsschlauch im Kabel sowie im Zubehörteil Kabeldose (Kapitel 3.4 „Zubehör“, Seite 11) enthalten; sorgt bei Relativdruck-Ausführungen für automatische Kompensation von Umgebungsluftdruckschwankungen
- das Leitungsende vor Feuchtigkeitseintritt schützen
- bei der Verlängerung der Leitung auf längenabhängige Induktivitäten und Kapazitäten achten
- Signalleitungen getrennt von Kabeln mit Spannungen von > 60 V verlegen
- geschirmte Leitungen mit verdrehten Adern verwenden
- die Nähe von großen elektrischen Anlagen vermeiden



HINWEIS!

Der eigensichere Stromkreis muss auf die Überspannungskategorie I begrenzt werden, wie in IEC 60664-1 festgelegt, und die Speisung der Stromkreise erfolgt ausschließlich aus einer bescheinigten eigensicheren Stromquelle mit einem Schutzniveau „ib“.

6.2 Anschlussplan

Anschluss		Anschlussbelegung ^a			
					
		11 festes Kabel	36 Rundstecker M12 × 1	Zubehör Kabeldose gewinkelt/gerade	
				PVC	PUR
4 bis 20 mA, Zweileiter (Ausgang 405)					
Spannungsversorgung DC 16 bis 28 V	U _B /S+ 0 V/S-	WH BU	1 3	BN BU	WH BU
Abschirmung					
Achtung: Gerät erden! Alle angeschlossenen Geräte (z. B. Pumpen, Ventile) auf gleichem Potenzial erden!		BK	-	-	-

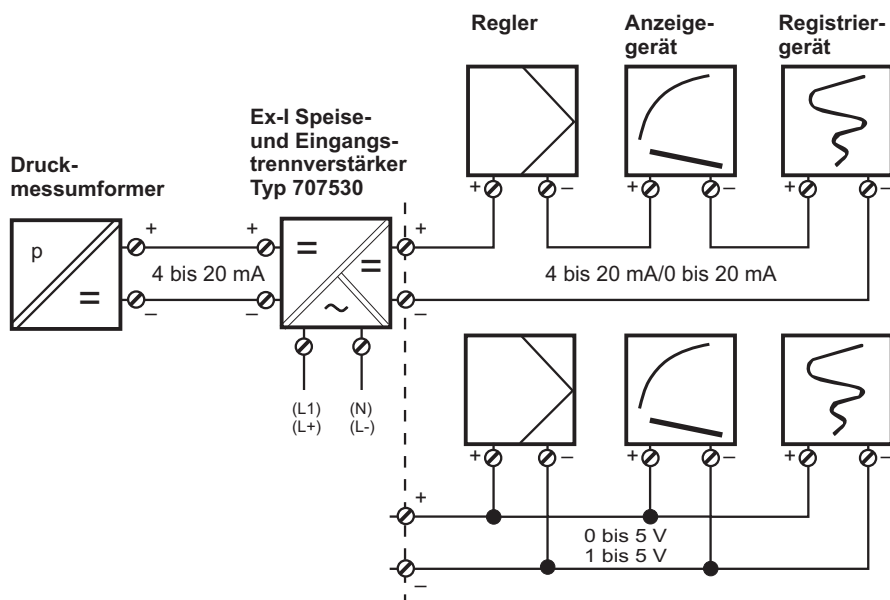
^a Abbildung: Anschluss am Druckmessumformer



VORSICHT!

Das Gehäuse des Druckmessumformers über den Prozessanschluss – zum Schutz vor elektromagnetischen Feldern und elektromagnetischen Aufladungen – erden (Funktionserdung)!

6.3 Anschlussbeispiele



7 Wartung, Reinigung, Rücksendung, Entsorgung

7.1 Wartung

Der Druckmessumformer ist wartungsfrei.

7.2 Reinigung



HINWEIS!

Schaden am Gerät durch unsachgemäße Reinigung vermeiden.

Druckmessumformer, besonders die medienberührten Teile, nicht beschädigen.
Reinigungsmittel darf Oberfläche und Dichtungen nicht angreifen.

7.3 Rücksendung



WARNUNG!

Personenschaden, Sachschaden, Umweltschaden

Messstoffreste am ausgebauten Produkt können Personen, Umwelt und Einrichtungen schädigen.

► Ausreichende Vorsichtsmaßnahmen ergreifen.



HINWEIS!

Das Gerät darf nur in einem sicheren und spannungsfreien Zustand der Anlage durch qualifiziertes Personal demontiert werden.

Vorgehen:

1. Das [Begleitschreiben für Produktrücksendungen](#) korrekt ausgefüllt und unterschrieben den Versandpapieren beilegen und vorzugsweise außen an der Verpackung anbringen.
2. Zum Versenden des Geräts die Originalverpackung oder einen geeigneten sicheren Transportbehälter verwenden.

7.4 Entsorgung



- Das Gerät oder ersetzte Teile nach Beendigung der Nutzung nicht in der Mülltonne entsorgen.
- Auf dem Gerät gespeicherte Programme und Daten löschen.
- Batterien, falls vorhanden, entnehmen, sofern dies ohne Beschädigung des Geräts möglich ist.
- Das Gerät sowie das Verpackungsmaterial ordnungsgemäß und umweltschonend entsorgen lassen.
- Die landesspezifischen Gesetze und Vorschriften zur Abfallbehandlung und Entsorgung beachten.

Gemäß Richtlinie 2012/19/EU über Elektro- und Elektronik-Altgeräte sind Hersteller verpflichtet, die Möglichkeit zur Rücknahme von Altgeräten anzubieten. Die Rückgabe beim Hersteller anfragen.

JUMO GmbH & Co. KGMoritz-Juchheim-Straße 1
36039 Fulda, GermanyTel.: +49 661 6003-0
Fax: +49 661 6003-500E-Mail: mail@jumo.net
Internet: www.jumo.netMore than **sensors + automation**

EU-Konformitätserklärung

EU declaration of conformity / Déclaration UE de conformité

Dokument-Nr. CE 817
Document No. / Document n°.

Hersteller JUMO GmbH & Co. KG
Manufacturer / Etabli par

Anschrift Moritz-Juchheim-Straße 1, 36039 Fulda, Germany
Address / Adresse

Produkt*Product / Produit***Name***Name / Nom***Typ***Type / Type***Typenblatt-Nr.***Data sheet no. / N°**Document**d'identification*

JUMO MIDAS S22 Ex

404720

404720

Produktbeschreibung*Product description / Description du produit*

Industrial pressure transmitter.

Wir erklären in alleiniger Verantwortung, dass das bezeichnete Produkt die Anforderungen der Europäischen Richtlinien erfüllt.

We hereby declare in sole responsibility that the designated product fulfills the requirements of the European Directives.

Nous déclarons sous notre seule responsabilité que le produit remplit les Directives Européennes.

Dokument-Nr.
Document No. / Document n°.

CE 817

EU-Konformitätserklärung

Seite: 1 von 5

8 Zertifikate

JUMO GmbH & Co. KG

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Tel.: +49 661 6003-0
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E-Mail: mail@jumo.net
Internet: www.jumo.net



More than **sensors + automation**

1. Richtlinie

Directive / Directive

Name EMC 2014/30/EU

Name / Nom

Konformitätsbewertungsverfahren Mod. A

Conformity assessment procedure /

Procédure d'évaluation de la conformité

Datum der Erstanbringung des CE-Zeichens auf dem Produkt 2021

Date of first application of the CE mark to the product /

Date de 1ère application du sigle sur le produit

Angewendete Normen/Spezifikationen

Standards/Specifications applied / Normes/Spécifications appliquées

Referenz	Ausgabe	Bemerkung
<i>Reference / Référence</i>	<i>Edition / Édition</i>	<i>Comment / Remarque</i>
EN 61326-1	2013	
EN 61326-2-3	2013	

Gültig für Typ

Valid for Type / Valable pour le type

404720/...

2. Richtlinie

Directive / Directive

Name ATEX 2014/34/EU

Name / Nom

Konformitätsbewertungsverfahren Mod. B+D

Conformity assessment procedure /

Procédure d'évaluation de la conformité

Datum der Erstanbringung des CE-Zeichens auf dem Produkt 2021

Date of first application of the CE mark to the product /

Date de 1ère application du sigle sur le produit

Dokument-Nr.
Document No. / Document n°.

CE 817

EU-Konformitätserklärung

Seite: 2 von 5

JUMO GmbH & Co. KG

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Internet: www.jumo.net



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Gültig für Typ

Valid for Type / Valable pour le type

404720/000-*-405-*-20-*

2.1 EU-Baumusterprüfbescheinigung

EU type examination certificate / Certificat d'examen de type UE

Zertifikatsnummer

Certificate number / Numéro de certificat

SEV 21 ATEX 0537 X Ausgabe 0

Notifizierte Stelle

Notified Body / Organisme notifié

Eurofins Electric & Electronic Product Testing
AG, Luppmenstrasse 3, 8320 Fehraltendorf,
Switzerland

Angewendete Normen/Spezifikationen

Standards/Specifications applied / Normes/Spécifications appliquées

Referenz

Reference / Référence

Ausgabe

Edition / Édition

Bemerkung

Comment / Remarque

EN 60079-0

2018

EN 60079-11

2012

Qualitätssicherung bezogen auf den Produktionsprozess

Quality assurance of the production process / L'assurance de la qualité de la production

Zertifikatsnummer

Certificate number / Numéro de certificat

Available on request

Notifizierte Stelle

Notified Body / Organisme notifié

BUREAU VERITAS Consumer Products
Services Germany GmbH, Wilhelm-Hennemann-
Straße 8, 19061 Schwerin, Germany

Kennnummer

Identification no. / N° d'identification

2004

Dokument-Nr.

Document No. / Document n°.

CE 817

EU-Konformitätserklärung

Seite: 3 von 5

8 Zertifikate

JUMO GmbH & Co. KG

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Internet: www.jumo.net



More than sensors + automation

3. Richtlinie

Directive / Directive

Name

RoHS 2011/65/EU

Name / Nom

Konformitätsbewertungsverfahren

Mod. A

Conformity assessment procedure /

Procédure d'évaluation de la conformité

Datum der Erstanbringung des CE-Zeichens auf dem Produkt

2021

Date of first application of the CE mark to the product /

Date de 1ère application du sigle sur le produit

Angewendete Normen/Spezifikationen

Standards/Specifications applied / Normes/Spécifications appliquées

Referenz

Reference / Référence

Ausgabe

Edition / Édition

Bemerkung

Comment / Remarque

VDK Umweltrelevante Aspekte V1

bei der Produktentwicklung und
-gestaltung

Gültig für Typ

Valid for Type / Valable pour le type

404720/...

Dokument-Nr.

Document No. / Document n°.

CE 817

EU-Konformitätserklärung

Seite: 4 von 5

JUMO GmbH & Co. KG

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Internet: www.jumo.net



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Aussteller

Issued by / Etabli par

JUMO GmbH & Co. KG

Ort, Datum

Place, date / Lieu, date

Fulda, 2023-05-10

Rechtsverbindliche Unterschriften

Legally binding signatures /

Signatures juridiquement valable

Bereichsleitung Globaler Vertrieb

i. V. Markus Belmer

Qualitätsbeauftragter und Leiter Qualitätswesen

i. V. Harald Gienger

Dokument-Nr.
Document No. / Document n°.

CE 817

EU-Konformitätserklärung

Seite: 5 von 5

8 Zertifikate



(1) **EU-Baumusterprüfbescheinigung**

- (2) Geräte und Schutzsysteme zur bestimmungsgemässen Verwendung in explosionsgefährdeten Bereichen - **Richtlinie 2014/34/EU**
- (3) Prüfbescheinigungsnummer: **SEV 21 ATEX 0537 X**
- (4) Produkt: Druckmessumformer Type: JUMO MIDAS S22 Ex 404720 / 000 - *** - 405 - *** - 20 - **
- (5) Hersteller: JUMO GmbH & Co. KG
- (6) Anschrift: Moritz-Juchheim-Strasse 1, 36039 Fulda, Germany
- (7) Die Bauart dieses Produktes sowie die verschiedenen zulässigen Ausführungen sind in der Anlage zu dieser Prüfbescheinigung festgelegt.
- (8) Eurofins, benannte Stelle Nr. 1258 nach Artikel 17 der Richtlinie 2014/34/EU des Parlaments der europäischen Gemeinschaften und des Rates vom 26. Februar 2014, bescheinigt die Erfüllung der grundlegenden Sicherheits- und Gesundheitsanforderungen für die Konzeption und den Bau von Produkten zur bestimmungsgemässen Verwendung in explosionsgefährdeten Bereichen gemäss Anhang II der Richtlinie.
Die Ergebnisse der Prüfung sind im vertraulichen Prüfbericht 20CH-01639.X01 festgehalten.
- (9) Die grundlegenden Sicherheits- und Gesundheitsanforderungen werden erfüllt durch Übereinstimmung mit:
EN IEC 60079-0:2018
EN 60079-11:2012
- Ausgenommen sind die Bedingungen welche unter Punkt 18 aufgeführt sind.
- (10) Falls «X» hinter der Bescheinigungsnummer steht, wird auf besondere Bedingungen für die sichere Anwendung des Produktes in der Anlage zu dieser Bescheinigung hingewiesen. Falls "U" hinter der Bescheinigungsnummer steht, sind die zertifizierten Geräte oder Schutzsysteme unvollständig. Solche Teilzertifizierungen können als Basis für Geräte- oder Schutzsystem-Zertifizierungen verwendet werden.
- (11) Diese EU-Baumusterprüfbescheinigung bezieht sich nur auf Konzeption und Bau des festgelegten Produktes. Weitere Anforderungen dieser Richtlinie gelten für die Herstellung und das Inverkehrbringen des Produktes, diese sind jedoch nicht Gegenstand dieser Bescheinigung.
- (12) Die Kennzeichnung des Produktes muss die folgenden Angaben enthalten:

 II 2G Ex ib IIC T6 ... T4 Gb
II 2D Ex ib IIIC T70 °C ... T100 °C Db

Eurofins Electric & Electronic Product Testing AG
Notified Body ATEX

Rahel Nydegger
Produktzertifizierung

www.eurofins.ch

Fehraltorf, 2021-06-10

Ausgabe: 0

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T8a_V01



(13)

Anlage

(14)

EU-Baumusterprüfbescheinigung SEV 21 ATEX 0537 X(15) **Beschreibung des Produktes**

Der Druckmessumformer JUMO MIDAS S22 Ex Typ 404710 / 000 - *** - 405 - *** - 20 - ** dient zur Umsetzung einer physikalischen Messgröße (Druck) in ein elektrisches Einheitssignal (Stromsignal 4... 20 mA). Er ist zum Einsatz innerhalb des explosionsgefährdeten Bereichs bestimmt. Der eigensichere Stromkreis wird mit festem Kabel (Kabellänge im Klartext), oder Rundstecker M12 x 1 verbunden.

Mess- und Versorgungsstromkreis in Zündschutzart Eigensicherheit

Exib IIC
Ex ib IIIC

Nur zum Anschluss an einen zertifizierten eigensicheren Stromkreis.

Installations- und Gebrauchsart:	stationär
Schutzart:	IP65
Umgebungstemperatur (°C):	Zündschutzart Gb Umgebungstemperatur: T4: -40 °C to +85 °C T5: -40 °C to +70 °C T6: -40 °C to +55 °C

Zündschutzart Db
Maximale Oberflächentemperatur:
T100 °C: -40 °C to +85 °C
T85 °C: -40 °C to +70 °C
T70 °C: -40 °C to +55 °C

Umgebungstemperatur für Ex-Komponenten (°C)	N/A
---	-----

Nenndaten:

Mess- und Versorgungsstromkreis in Zündschutzart Eigensicherheit
Ex ib IIC bzw. IIIC.
Nur zum Anschluss an einen zertifizierten eigensicheren Stromkreis.

Maximalwerte für Rundstecker M12x1:

$U_i \leq 28 \text{ V}$
 $I_i \leq 100 \text{ mA}$
 $P_i \leq 750 \text{ mW}$
 $C_i = 10.4 \text{ nF}$ (effektive interne Kapazität)
 $L_i = 0 \text{ uH}$ (effektive interne Induktivität)

Maximalwerte für Anschluss mit fest verbundenem Kabel:

$U_i \leq 28 \text{ V}$
 $I_i \leq 100 \text{ mA}$
 $P_i \leq 750 \text{ mW}$
 $C_i \leq 10.4 \text{ nF} + 107 \text{ pF/m} \cdot \text{Kabellänge}$
 $L_i \leq 1 \text{ uH/m} \cdot \text{Kabellänge}$

8 Zertifikate



Typenschlüssel:

Beispiel für Typbezeichnung 404720/000 - 543 - 405 - 507 - 20 - 36 / 000
(1) (2) (3) (4) (5) (6) (7) (8)

(1) Grundtyp

404720 JUMO MIDAS S22 Ex – Druckmessumformer für den Einsatz im Ex-Bereich

(2) Grundtypergänzung

/000 ohne

(3)* Eingang Nennmessbereich

480 -1 bis +1.5 bar Relativdruck
481 -1 bis +3 bar Relativdruck
482 -1 bis +5 bar Relativdruck
483 -1 bis +9 bar Relativdruck
456 0 bis 2.5 bar Relativdruck
457 0 bis 4 bar Relativdruck
458 0 bis 6 bar Relativdruck
459 0 bis 10 bar Relativdruck
460 0 bis 16 bar Relativdruck
461 0 bis 25 bar Relativdruck
462 0 bis 40 bar Relativdruck
463 0 bis 60 bar Relativdruck
464 0 bis 100 bar Relativdruck
463 0 bis 60 bar Relativdruck
464 0 bis 100 bar Relativdruck
490 0 bis 2.5 bar Absolutdruck
491 0 bis 4 bar Absolutdruck
492 0 bis 6 bar Absolutdruck
493 0 bis 10 bar Absolutdruck
494 0 bis 16 bar Absolutdruck
495 0 bis 25 bar Absolutdruck
505 0 bis 40 bar Absolutdruck
506 0 bis 60 bar Absolutdruck
507 0 bis 100 bar Absolutdruck
998 Sondermessbereich Absolutdruck
999 Sondermessbereich Relativdruck

(4) Ausgang

405 4 bis 20 mA, Zweileiter

(5)* Prozessanschluss

480 M12x1 innen
481 M12x1 mit Schutzkappe
502 G 1/4 nach DIN EN 837
507 M14x0.75 frontbündig
530 M8 (x1) nach DIN 3852-1
531 M10 (x1) nach DIN 3852-2
532 M12 (x1.5) nach DIN 3852-3
544 7/16-20 UNF-2A
561 G 1/4 frontbündig, 2-fach-Dichtung
562 7/16-20 UNF SAE J514
999 nach Kundenangabe

(6) Werkstoff Prozessanschluss

20 CrNi (Edelstahl)

(7) elektrischer Anschluss

11 mit festem Kabel
36 Rundstecker M12x1

(8)* Typenzusätze

000 ohne
462 invertiertes Ausgangssignal
591 Drossel im Druckkanal
624 öl- und fettfrei
630 vergrößerter Druckkanal

*) Die numerischen Typenschlüssel sind durch weitere hier nicht benannte Werte im Sinne der Basisprüfung erweiterbar. Diese Erweiterungen haben keinen Einfluss auf den Explosionsschutz und die allgemeine Sicherheit.





(16) **Besondere Bedingungen:**

- Die Angabe der zulässigen Umgebungstemperaturen und Temperaturklassen entnehmen Sie bitte dem Benutzerhandbuch.
- Der Druckmessumformer muss von einem Stromkreis der Überspannungskategorie I versorgt werden.

(17) **Grundlegende Sicherheits- und Gesundheitsanforderungen**

Zusätzlich zu den grundlegenden Sicherheits- und Gesundheitsanforderungen, welche durch die unter Punkt 9 aufgeführten Normen erfüllt sind, sind noch folgende im Testbericht überprüften Bedingungen relevant:

Paragraph	Thema
Keine	

(18) **Zeichnungen und Dokumente**

Siehe Testbericht „Hersteller Dokumente“



8 Zertifikate

	<h2>IECEX Certificate of Conformity</h2>	
INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres <small>for rules and details of the IECEx Scheme visit www.iecex.com</small>		
Certificate No.:	IECEX SEV 21.0011X	Page 1 of 4
Status:	Current	Issue No: 1
Date of Issue:	2023-04-27	Certificate history: Issue 0 (2021-06-10)
Applicant:	JUMO GmbH & Co KG Moritz-Juchheim-Straße 1, 36039 Fulda Germany	
Equipment:	Pressure transducer , Type: JUMO MIDAS S22 Ex 404720 / 000 - *** - 405 - *** - 20 - **	
Optional accessory:		
Type of Protection:	ib	
Marking:	Ex ib IIC T6 ... T4 Gb Ex ib IIIC T70 °C ... T100 °C Db	
Approved for issue on behalf of the IECEx Certification Body:		Thomas Köhntopp
Position:		Manager Product Certification
Signature: (for printed version) <i>Köhntopp</i>		
Date: (for printed version) <i>2023-04-27</i>		
<ul style="list-style-type: none">1. This certificate and schedule may only be reproduced in full.2. This certificate is not transferable and remains the property of the issuing body.3. The Status and authenticity of this certificate may be verified by visiting www.iecex.com or use of this QR Code.		
Certificate issued by: Eurofins Electric & Electronic Product Testing AG Luppenstrasse 3 8320 FEHRALTORF Switzerland		 eurofins E&E



IECEX Certificate of Conformity

Certificate No.: **IECEX SEV 21.0011X**

Page 2 of 4

Date of issue: 2023-04-27

Issue No: 1

Manufacturer: **JUMO GmbH & Co KG**
Moritz-Juchheim-Straße 1, 36039 Fulda
Germany

Manufacturing
locations:

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended

STANDARDS :

The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

IEC 60079-0:2017 Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

IEC 60079-11:2011 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "I"
Edition:6.0

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:

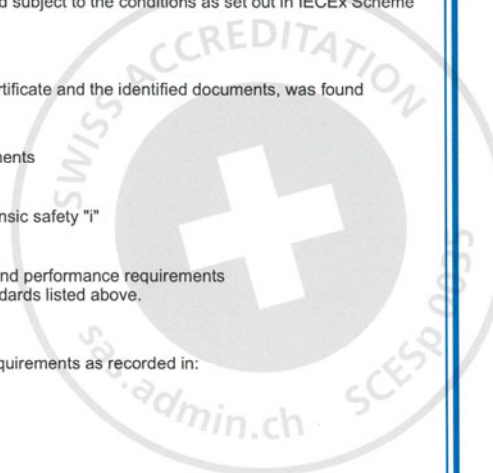
A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Report:

CH/SEV/ExTR21.0012/00

Quality Assessment Report:

DE/EPS/QAR23.0003/00



8 Zertifikate



IECEX Certificate of Conformity

Certificate No.: **IECEX SEV 21.0011X**

Page 3 of 4

Date of issue: 2023-04-27

Issue No: 1

EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

The pressure transducer JUMO MIDAS S22 Ex type 404710 / 000 - *** - 405 - *** - 20 - ** serves for converting a physical measured quantity (pressure) into a standardised electrical signal (current signal 4 ... 20 mA). It is intended for use within potentially explosive areas. The intrinsically safe circuit is connected with a non-detachable (cable length in plain text) or circular connector M12 x 1.

Measuring and supply circuit with the type of protection intrinsic safety

Ex ib IIC
Ex ib IIIC

Only for connection to a certified intrinsically safe circuit.

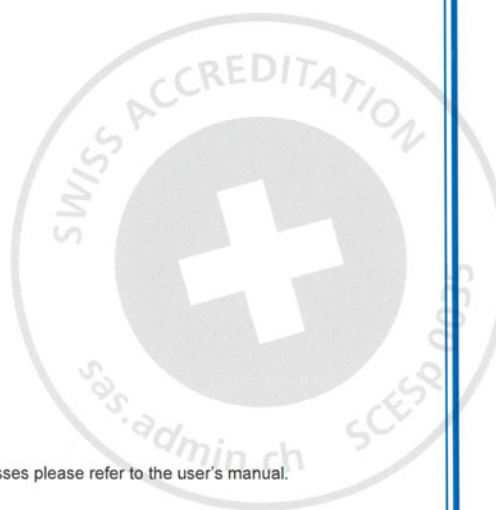
Classification of installation and use: stationary
Ingress protection: IP65
Rated ambient temperature range (°C): Equipment protection level Gb
Ambient temperature:
T4: -40 °C to +85 °C
T5: -40 °C to +70 °C
T6: -40 °C to +55 °C

Equipment protection level Db
maximum surface temperature:
T100 °C: -40 °C to +85 °C
T85 °C: -40 °C to +70 °C
T70 °C: -40 °C to +55 °C

Rated ambient temperature range (°C)
for Ex Components N/A

SPECIFIC CONDITIONS OF USE: YES as shown below:

- For details concerning the admissible ambient temperatures and temperature classes please refer to the user's manual.
- The pressure transducer shall be supplied by a circuit of Overvoltage category I.





IECEX Certificate of Conformity

Certificate No.: **IECEX SEV 21.0011X**

Page 4 of 4

Date of issue: 2023-04-27

Issue No: 1

DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)
Change of ExCB for quality system. Link to QAR updated.

Annex:

[IECEX SEV 21.0011 Annexe i1.pdf](#)



8 Zertifikate



Annexe to: IECEx SEV 21.0011X

Issue No.: 1

page 1 of 2

Applicant Name: JUMO GmbH & Co. KG
Moritz-Juchheim-Strasse 1, 36039 Fulda, GERMANY

Electrical Apparatus: Pressure transducer

Rating:

Input and supply circuits:

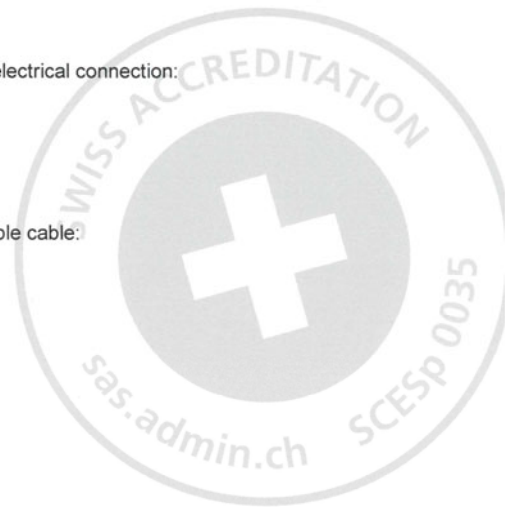
With type of protection intrinsic safety Ex ib IIC and IIIC.
Only for connection to certified intrinsically safe circuit.

Maximum values for circular connector M12x1 and special electrical connection:

$U_i \leq 28 \text{ V}$
 $I_i \leq 100 \text{ mA}$
 $P_i \leq 750 \text{ mW}$
 $C_i = 10.4 \text{ nF}$ (effective internal capacitance)
 $L_i \approx 0 \text{ uH}$ (effective internal inductance)

Maximum values for electrical connection with non-detachable cable:

$U_i \leq 28 \text{ V}$
 $I_i \leq 100 \text{ mA}$
 $P_i \leq 750 \text{ mW}$
 $C_i \leq 10.4 \text{ nF} + 107 \text{ pF/m} \cdot \text{cable length}$
 $L_i \leq 1 \text{ uH/m} \cdot \text{cable length}$



Eurofins Electric & Electronic Product Testing AG
Swiss Certification Body

Luppenstrasse 3 Tel. +41 58 220 32 00
CH-8320 Fehraltorf CustomerCenter@eurofins.ch
www.eurofins.ch



Annexe to: IECEx SEV 21.0011X

Issue No.: 1
page 2 of 2

Type designation:

Example of type designation 404720/000 - 543 - 405 - 507 - 20 - 36 / 000
(1) (2) (3) (4) (5) (6) (7) (8)

(1) Basic type

404720 JUMO MIDAS S22 Ex – Pressure transducer for use in potentially explosive atmospheres

(2) Basic type changes

/000 None

(3)* Pressure rated measuring range

480 -1 to +1.5 bar relative pressure
481 -1 to +3 bar relative pressure
482 -1 to +5 bar relative pressure
483 -1 to +9 bar relative pressure
456 0 to 2.5 bar relative pressure
457 0 to 4 bar relative pressure
458 0 to 6 bar relative pressure
459 0 to 10 bar relative pressure
460 0 to 16 bar relative pressure
461 0 to 25 bar relative pressure
462 0 to 40 bar relative pressure
463 0 to 60 bar relative pressure
464 0 to 100 bar relative pressure
463 0 to 60 bar relative pressure
464 0 to 100 bar relative pressure
490 0 to 2.5 bar absolute pressure
491 0 to 4 bar absolute pressure
492 0 to 6 bar absolute pressure
493 0 to 10 bar absolute pressure
494 0 to 16 bar absolute pressure
495 0 to 25 bar absolute pressure
505 0 to 40 bar absolute pressure
506 0 to 60 bar absolute pressure
507 0 to 100 bar absolute pressure
998 special measuring range for absolute pressure
999 special measuring range for relative pressure

(4) Electrical output

405 4 to 20 mA, two-wire

(5)* Process connection

480 M12x1 inside
481 M12x1 with protection cap
502 G 1/4 according to DIN EN 837
507 M14x0.75 flush with front
530 M8 (x1) according to DIN 3852-1
531 M10 (x1) according to DIN 3852-2
532 M12 (x1.5) according to DIN 3852-3
544 7/16-20 UNF-2A
561 G 1/4 flush with front, two-times sealing
562 7/16-20 UNF SAE J514
999 according to customer specification

(6) Material of process connection

20 CrNi (stainless steel)

(7) Electrical connection

11 attached cable
36 round plug M12x1

(8)* Additional options

000 without
462 inverted output signal
591 choking coil in pressure channel
624 free from oil and grease
630 widened pressure channel

*) The numerical type keys can be extended with values not named here in the sense of the basic test. These extensions have no effect on the explosion protection and general safety.

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Internet: www.jumo.net



More than sensors + automation

UK Declaration of Conformity

Document No. UK 170
Manufacturer JUMO GmbH & Co. KG
Address Moritz-Juchheim-Straße 1, 36039 Fulda, Germany

Product
Name JUMO MIDAS S22 Ex
Type 404720
Data sheet no. 404720

Product description
Miniature pressure transmitter for Ex areas.

We hereby declare in sole responsibility that the designated product fulfills the requirements of the statutory instruments.

1. Statutory instrument

Name Electromagnetic Compatibility Regulations 2016
2016 No. 1091
Conformity assessment procedure Mod. A
Date of first application of the UKCA mark to the product 2023

Standards/Specifications applied

Reference	Edition	Comment
EN 61326-1	2013	
EN 61326-2-3	2013	

Valid for Type
404720/...

Document No. UK 170 UK Declaration of Conformity Seite: 1 von 3

JUMO GmbH & Co. KG

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Internet: www.jumo.net



More than **sensors + automation**

2. Statutory instrument

Name The Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016 2016 No. 1107

Conformity assessment procedure Mod. B+D

Date of first application of the UKCA mark to the product 2023

Valid for Type

404720/000-* -405-* -20-*

2.1 Type examination certificate

Certificate number EPS 22 UKEX 1 089 X

Designated body Bureau Veritas Consumer Products Services United Kingdom Limited, 31 Kingsland Grange, Woolston, Warrington, Cheshire, WA1 4RW

Standards/Specifications applied

Reference	Edition	Comment
EN 60079-0	2018	
EN 60079-11	2012	

Quality assurance of the production process

Certificate number EPS 22 UKEX Q 434

Designated body Bureau Veritas Consumer Products Services United Kingdom Limited, 31 Kingsland Grange, Woolston, Warrington, Cheshire, WA1 4RW

Identification no. 8507

8 Zertifikate

JUMO GmbH & Co. KG

Moritz-Juchheim-Straße 1
36039 Fulda, Germany

Tel.: +49 661 6003-0
Fax: +49 661 6003-500

E-Mail: mail@jumo.net
Internet: www.jumo.net



More than **sensors + automation**

3. Statutory instrument

Name The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012 2012 No. 3032

Conformity assessment procedure Mod. A

Date of first application of the UKCA mark to the product 2023

Standards/Specifications applied

Reference	Edition	Comment
[VDK] Umweltrelevante Aspekte V1 bei der Produktentwicklung und -gestaltung		

Valid for Type

404720/...

Issued by

JUMO GmbH & Co. KG

Place, date

Fulda, 2023-01-03

Legally binding signatures

Director of Global Sales
Markus Belmer

Head of Quality Department
Harald Gienger

Document No.

UK 170

UK Declaration of Conformity

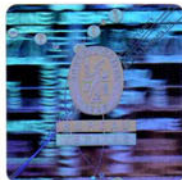
Seite: 3 von 3



UK - Type Examination Certificate

- (1) **UK - Type Examination Certificate**
- (2) Equipment and protective systems intended for use in potentially explosive atmospheres – **UKSI 2016:1107 (as amended)**
- (3) UK - Type Examination Certificate Number
- EPS 22 UKEX 1 089 X** **Revision 0**
- (4) Equipment: Pressure transducer JUMO MIDAS S22 Ex 404720 / 000 - *** - 405 - *** - 20 - **
- (5) Manufacturer: JUMO GmbH & Co. KG
- (6) Address: Moritz-Juchheim-Straße 1
36039 Fulda
Germany
- (7) This equipment and any acceptable variation thereto are specified in the annex to this certificate and the documentation therein referred to.
- (8) Bureau Veritas Consumer Products Services United Kingdom Limited, approved body No. 8507 in accordance with UKSI 2016:1107 (as amended) Part 4, certifies that this equipment has been found to comply with the essential health and safety requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres, given in Schedule 1 of UKSI 2016:1107 (as amended). The examination and test results are recorded in the confidential documentation under the reference number 22TH0289.
- (9) Compliance with the essential health and safety requirements has been assured by compliance with:
- EN IEC 60079-0:2018** **EN 60079-11:2012**
- (10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the annex to this certificate.
- (11) This UK - Type Examination Certificate relates only to the design and construction of the specified equipment in accordance with UKSI 2016:1107 (as amended). Further requirements apply to the manufacture of this equipment and its placing on the market. Those requirements are not covered by this certificate.
- (12) The marking of the equipment shall include the following:

II 2G Ex ib IIC T4 ... T6 Gb
 II 2D Ex ib IIIC T70°C ... T100°C Db



Certification department of explosion protection

Warrington, 14-12-2022



Natalie Wilkinson

Certificates without signature and seal are void. This certificate is allowed to be distributed only if not modified. Extracts or modifications must be authorized by Bureau Veritas Consumer Products Services United Kingdom Limited, EPS 22 UKEX 1 089 X, Revision 0.

Bureau Veritas Consumer Products Services United Kingdom Limited
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Registered in England & Wales
 Company Number: 00852439

ZERT-0003-GBR-ZE-EX-V03 / TEMP-0005-GBR-ZE-EX-V01

1/4



(13)

Annex

(14) **UK - Type Examination Certificate EPS 22 UKEX 1 089 X**

Revision 0

(15) Description of equipment:

The pressure transducer JUMO MIDAS S22 Ex type 404720 / 000 - *** - 405 - *** - 20 - ** serves for converting a physical measured quantity (pressure) into a standardized electrical signal (current signal 4 .. 20 mA). It is intended for use within potentially explosive areas.

The intrinsically safe circuit is connected with a non-detachable (cable length in plain text) or circular connector M12x1.

Measuring and supply circuit with the type of protection intrinsic safety

Ex ib IIC
Ex ib IIIC

Only for connection to a certified intrinsically safe circuit.

Equipment protection level Gb Ambient temperature:

T4: -40 °C to +85 °C

T5: -40 °C to +70 °C

T6: -40 °C to +55 °C

Equipment protection level Db maximum surface temperature:

T100 °C: -40 °C to +85 °C

T85 °C: -40 °C to +70 °C

T70 °C: -40 °C to +55 °C

Details of Rating:

Input and supply circuits:

With type of protection intrinsic safety Ex ib IIC and IIIC.

Only for connection to certified intrinsically safe circuit.

Maximum values for circular connector M12x1 and special electrical connection:

$U_i \leq 28 \text{ V}$

$I_i \leq 100 \text{ mA}$

$P_i \leq 750 \text{ mW}$

$C_i = 10.4 \text{ nF}$ (effective internal capacitance)

$L_i = 0 \text{ uH/m}$ (effective internal inductance)

Maximum values for electrical connection with non-detachable cable:

$U_i \leq 28 \text{ V}$

$I_i \leq 100 \text{ mA}$

$P_i \leq 750 \text{ mW}$

$C_i \leq 10.4 \text{ nF} + 107 \text{ pF/m} \cdot \text{cable length}$

$L_i \leq 1 \text{ uH/m} \cdot \text{cable length}$

Type designation:

Example of type designation 404720/000 - 543 - 405 - 507 - 20 - 36 / 000

(1) (2) (3) (4) (5) (6) (7) (8)

(1) Basic type

404720/000 JUMO MIDAS S22 Ex – Pressure transducer for use in potentially explosive atmospheres

(2) Basic type changes

/000 None

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2/4



UK - Type Examination Certificate EPS 22 UKEX 1 089 X

Revision 0

(3)* Pressure rated measuring range

- 480 -1 to +1.5 bar relative pressure
- 481 -1 to +3 bar relative pressure
- 482 -1 to +5 bar relative pressure
- 483 -1 to +9 bar relative pressure
- 456 0 to 2.5 bar relative pressure
- 457 0 to 4 bar relative pressure
- 458 0 to 6 bar relative pressure
- 459 0 to 10 bar relative pressure
- 460 0 to 16 bar relative pressure
- 461 0 to 25 bar relative pressure
- 462 0 to 40 bar relative pressure
- 463 0 to 60 bar relative pressure
- 464 0 to 100 bar relative pressure
- 490 0 to 2.5 bar absolute pressure
- 491 0 to 4 bar absolute pressure
- 492 0 to 6 bar absolute pressure
- 493 0 to 10 bar absolute pressure
- 494 0 to 16 bar absolute pressure
- 495 0 to 25 bar absolute pressure
- 506 0 to 60 bar absolute pressure
- 507 0 to 100 bar absolute pressure
- 998 special measuring range for absolute pressure
- 999 special measuring range for relative pressure

(4) Electrical output

- 405 4 to 20 mA, two-wire

(5)* Process connection

- 480 M12x1 inside
- 481 M12x1 with protection cap
- 502 G 1/4 according to DIN EN 837
- 507 M14x0.75 flush with front
- 530 M8 (x1) according to DIN 3852-1
- 531 M10 (x1) according to DIN 3852-2
- 532 M12 (x1.5) according to DIN 3852-3
- 544 7/16-20 UNF-2A
- 561 G 1/4 flush with front, two-times sealing
- 562 7/16-20 UNF SAE J514
- 999 according to customer specification

(6) Material of process connection

- 20 CrNi (stainless steel)

(7) Electrical connection

- 11 attached cable
- 36 round plug M12x1

(8)* Additional options

- 000 without
- 462 inverted output signal
- 591 choking coil in pressure channel
- 624 free from oil and grease
- 630 widened pressure channel

*) The numerical type keys can be extended with values not named here in the sense of the basic test. These extensions have no effect on the explosion protection and general safety.

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3/4

CERTIFIED

8 Zertifikate



UK - Type Examination Certificate EPS 22 UKEX 1 089 X

Revision 0

(16) Reference number: 22TH0289

(17) Special conditions for safe use:

1. For details concerning the admissible ambient temperatures and temperature classes please refer to the user's manual.
2. The pressure transducer shall be supplied by a circuit of Overvoltage category I.

(18) Essential health and safety requirements:

Met by compliance with standards.

Certification department of explosion protection

Warrington, 14-12-2022



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ZERT-0003-GBR-ZE-EX-V03 / TEMP-0005-GBR-ZE-EX-V01

4/4

		产品中有害物质的名称及含量 China EEP Hazardous Substances Information						
		铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)	
产品组别 Product group: 404720	部件名称 Component Name							
	外壳 Housing (Gehäuse)	○	○	○	○	○	○	○
	过程连接 Process connection (Prozessanschluss)	X	○	○	○	○	○	○
	螺母 Nuts (Mutter)	○	○	○	○	○	○	○
	螺栓 Screw (Schraube)	○	○	○	○	○	○	○

本表格依据SJ/T 11364的规定编制。
 This table is prepared in accordance with the provisions SJ/T 11364.
 ○：表示该有害物质在该部件所有均质材料中的含量均在GB/T 26572规定的限量要求以下。
 Indicate the hazardous substances in all homogeneous materials' for the part is below the limit of the GB/T 26572.
 x：表示该有害物质至少在该部件的某一均质材料中的含量超出GB/T 26572规定的限量要求。
 Indicate the hazardous substances in at least one homogeneous materials' of the part is exceeded the limit of the GB/T 26572.



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JUMO MIDAS S22 Ex

Miniature pressure transmitters for Ex-areas



Operating Manual

40472000T90Z000K000

EN/00678383/2024-06-03



Weitere Informationen und Downloads



qr-404720-en.jumo.info

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1 Safety information

1.1 Warning symbols



DANGER!

This symbol indicates that **personal injury from electrocution** may occur if the appropriate precautionary measures are not taken.



WARNING!

This symbol in connection with the signal word indicates that **personal injury** may occur if the respective precautionary measures are not carried out.



CAUTION!

This symbol in connection with the signal word indicates that **material damage or data loss** will occur if the respective precautionary measures are not taken.



CAUTION!

This symbol indicates that **components could be destroyed** by electrostatic discharge (ESD = Electro Static Discharge) if the respective cautionary measures are not taken.

Only use the ESD packages intended for this purpose to return device inserts, assembly groups, or assembly components.



READ THE DOCUMENTATION!

This symbol, which is attached to the device, indicates that the associated **documentation for the device** must be **observed**. This is necessary to identify the nature of the potential hazard, and to take measures to prevent it.

1.2 Note symbols



NOTE!

This symbol refers to **important information** about the product, its handling, or additional benefits.



REFERENCE!

This symbol refers to **additional information** in other sections, chapters, or other manuals.

1.3 Hybrid mixtures

Hybrid mixtures are explosive mixtures of flammable gases, vapors, or mists with flammable dusts. In particular, equipment used in potentially explosive areas where hybrid mixtures are present must be checked. The operator is responsible for checking that the equipment is suitable for such uses.

2 Introduction

2.1 General information



DANGER!

The declaration of conformity, the examination certificate (both found at the end of this operating manual), and the relevant regulations for sensors and supply units in potentially explosive areas must be observed!

The sensors must only be operated on intrinsically safe electrical circuits appropriate for the version.

- ▶ The admissible values can be found in the certificate.
-

The type 404720 meets the requirements:

- of device group II in the potentially explosive area of zones 1 and 2
- of device group III in the potentially explosive area of zones 21 und 22

The test certificate number of the EU type examination certificate is:

SEV 21 ATEX 0537 X

The certificate number of the IECEx certificate of conformity is:

IECEx SEV 21.0011X

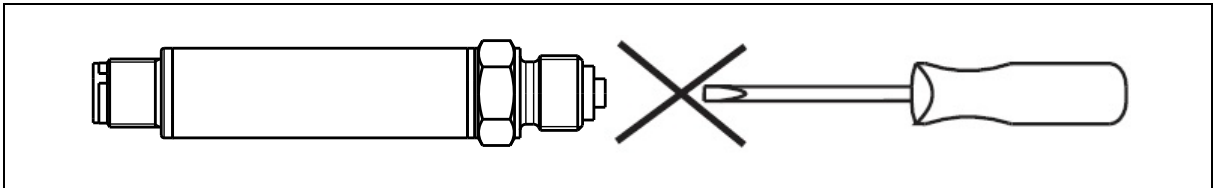


CAUTION!

Do not damage the membrane of the pressure transmitter!

The followings measures must be observed:

- Do not insert any articles into the pressure connection hole!
- Do not direct the pressure blast at the membrane!
- Do not deform the membrane. Under certain circumstances, even touching the membrane with your fingers may cause damage.
- The pressure to be measured must not exceed the admissible overpressure of the pressure transmitter even at pressure peaks. Very high pressure peaks (water hammer) may damage the pressure transmitter. Under these conditions, take the appropriate measures (e.g. insert a damping element).



CAUTION!

In order to prevent damage to the pressure transmitter and to safeguard the process, mounting, installation, and startup must only be performed by qualified personnel. Personnel must be familiar with country-specific regulations and be aware of applied standards and directives to prevent bodily injuries and material damage.

- ▶ Qualified personnel must have read the operating manual, noted the nameplate and understood both so that the instructions can be followed. Modifications and repairs must only be carried out if the operating manual permits it.
Keep the operating manual at a location that is readily accessible to all users.
-

2.2 Intended use

The device described in this manual measures the pressure (relative pressure and absolute pressure) of gases, steams, and liquids at pumps, containers, and pipelines. The technical data are specified in this manual. The device may be used in the potentially explosive areas zone 1 (21) or zone 2 (22).

Another use or one that goes beyond the specified use – with respect to use in potentially explosive areas – is considered as not being in accordance with the intended use.

Liability for resulting damages will not be assumed.

Any and all changes to the device cause the Ex approval to become null and void!

The device is built according to the relevant standards and directives as well as to the applicable safety regulations. Nevertheless, improper use may lead to personal injury or material damage.

To avoid danger, only use the device:

- For the intended use
- When in good order and condition
- Under consideration of this operating manual



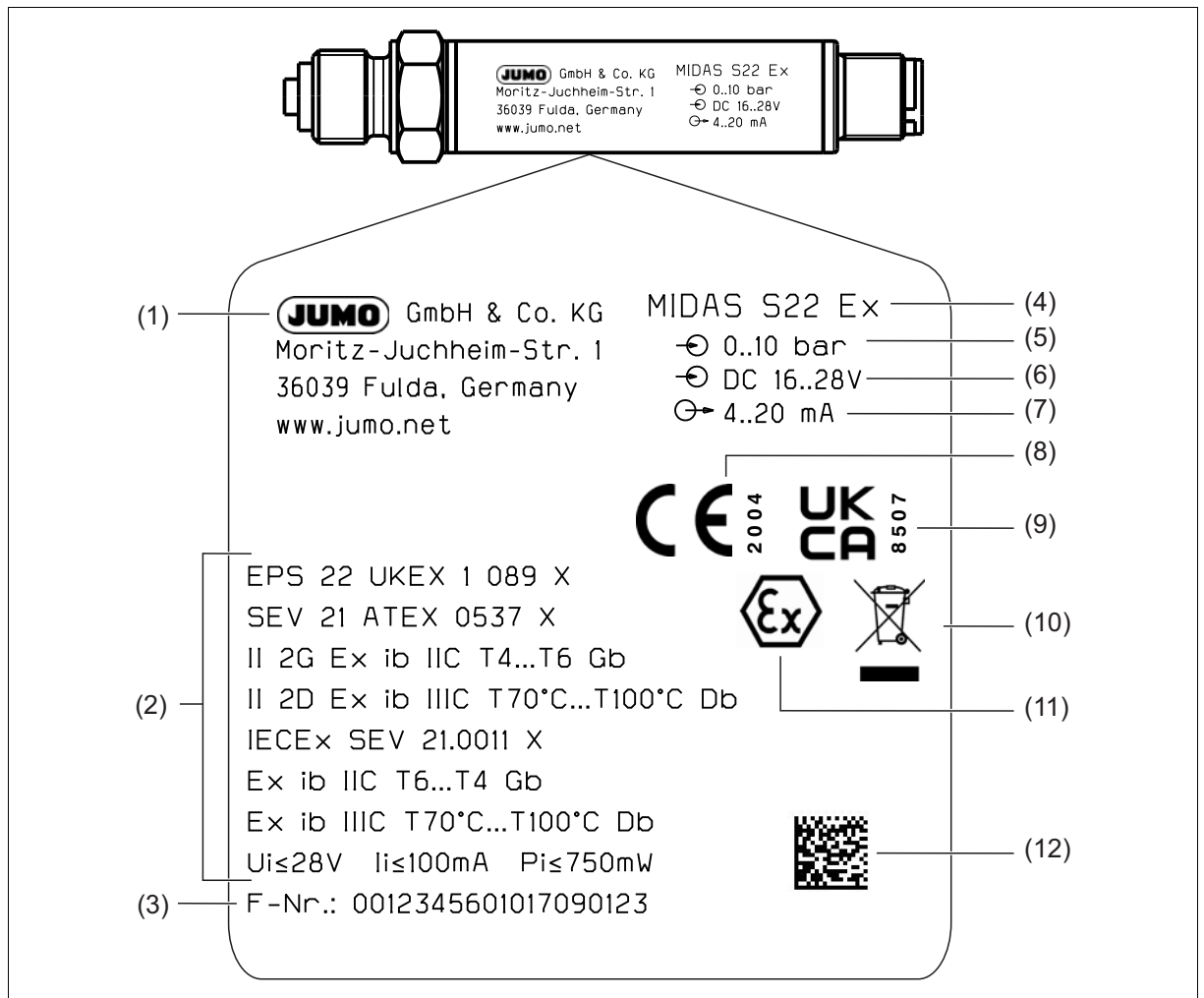
WARNING!

The Ex approval becomes null and void if the device is used contrary to its intended use or if the safety requirements in this operating manual are not complied with.

3 Identifying the device version

3.1 Nameplate

Example:



- | | | | |
|---|----------------------------|----|-----------------------------|
| 1 | Manufacturer and adresse | 7 | Output |
| 2 | Ex details | 8 | CE identification marking |
| 3 | Fabrication number (F-Nr.) | 9 | UKCA identification marking |
| 4 | Device designation | 10 | Disposal |
| 5 | Measuring range | 11 | Ex identification marking |
| 6 | Voltage supply | 12 | DMC code |

3 Identifying the device version

3.2 Order details

	(1) Basic type
404720	JUMO MIDAS S22 Ex - Miniature Pressure Transmitter for Use in Ex-Areas
	(2) Basic type extension
000	None
	(3) Input
456	0 to 2.5 bar relative pressure
458	0 to 6 bar relative pressure
459	0 to 10 bar relative pressure
460	0 bar to 16 bar relative pressure
461	0 bar to 25 bar relative pressure
462	0 bar to 40 bar relative pressure
463	0 bar to 60 bar relative pressure
464	0 bar to 100 bar relative pressure
480	-1 to +1.5 bar relative pressure
481	-1 to +3 bar relative pressure
482	-1 to +5 bar relative pressure
483	-1 to +9 bar relative pressure
490	0 to 2.5 bar absolute pressure
491	0 to 4 bar absolute pressure
492	0 to 6 bar absolute pressure
493	0 to 10 bar absolute pressure
494	0 to 16 bar absolute pressure
495	0 to 25 bar absolute pressure
505	0 to 40 bar absolute pressure
506	0 to 60 bar absolute pressure
507	0 to 100 bar absolute pressure
998	Special measuring range for absolute pressure
999	Special measuring range for relative pressure
	(4) Output
405	4 to 20 mA, 2-wire
	(5) Process connection
480	M12 × 1 internal
481	M12 × 1 with protective cap
502	G 1/4 DIN EN 837
530	M8 × 1 DIN 3852-1
531	M10 × 1 DIN 3852-1
532	M12 × 1.5 DIN 3852-1
544	7/16-20UNF SAE J514 with O-ring
561	G 1/4 front-flush, double seal
562	7/16-20UNF
	(6) Process connection material
20	CrNi (stainless steel)
	(7) Electrical connection
11	Attached cable, blue ^a
36	Round plug M12 × 1

3 Identifying the device version

(8) Extra codes	
000	None
085	UKEX approval
462	Inverted output signal
591	Choke in the pressure channel
624	Oil and grease free
630	Enlarged pressure channel

^a The standard cable length is 2 m. Further lengths are available upon request.




	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)							
Order code	<input type="text"/>	/	<input type="text"/>	-	<input type="text"/>	-	<input type="text"/>	-	<input type="text"/>	-	<input type="text"/>	-	<input type="text"/>	/	<input type="text"/>
Order example	404720	/	000	-	459	-	405	-	502	-	20	-	11	/	000

3.3 Scope of delivery

Device in the ordered version
Operating manual

3 Identifying the device version

3.4 Accessories

Description	Description	Part no.
<p>Ex-i repeater power supply / input isolating amplifier</p> 	<p>The Ex-i repeater power supply / input isolating amplifier is designed for operating intrinsically safe transmitters (Ex-i) and mA current sources installed in potentially explosive (Ex) areas.</p> <p>Two-wire transmitters are supplied with energy and analog 0/4 to 20 mA measured values are transmitted from the Ex-area to the non-Ex-area. The output of the module can be operated actively or passively. Further technical data and the relevant safety requirements are available in the operating manual B 707530.0.</p>	00577948
<p>Cable box, straight</p> 	<p>The PVC connecting cable is 2 m long and has a 4-pin, straight M12 × 1 connector with gold-plated contacts on the device side.</p>	00404585
<p>Cable box, angled</p> 	<p>The PVC connecting cable is 2 m long and has a 4-pin, angled M12 × 1 connector with gold-plated contacts on the device side.</p>	00409334

4 Technical data

4.1 General Information

Reference conditions	According to DIN EN 60770-1 and DIN IEC 61298-1
Sensor	
Material	Silicon sensor with stainless steel separating membrane
Pressure transfer medium	Synthetic oil
Admissible load changes	> 10 million
Position	
Mounting position	Any
Calibration position	Device upright, process connection at the bottom

4.2 Measuring range and accuracy

Measuring range bar	Linearity ^a % MSP ^f	Accuracy at		Long-term stability ^b % MSP per year	Overload capability ^c bar	Burst pressure bar
		20 °C ^d % MSP	-20 to +80 °C ^e % MSP			
-1 to +1.5 bar relative pressure	0.3	0.5	1.3	≤ 0.2	10	24
-1 to +3 bar relative pressure	0.3	0.5	1.2		20	50
-1 to +5 bar relative pressure	0.3	0.5	1.2		40	60
-1 to +9 bar relative pressure	0.3	0.5	1.0		50	60
0 to 2.5 bar relative pressure	0.3	0.5	1.3		10	24
0 to 4 bar relative pressure	0.3	0.5	1.2		20	50
0 to 6 bar relative pressure	0.3	0.5	1.2		40	60
0 to 10 bar relative pressure	0.3	0.5	1.0		50	60
0 bar to 16 bar relative pressure	0.3	0.5	1.0		100	150
0 bar to 25 bar relative pressure	0.3	0.5	1.0		120	180
0 bar to 40 bar relative pressure	0.3	0.5	1.0		300	400
0 bar to 60 bar relative pressure	0.3	0.5	1.0		300	400
0 bar to 100 bar relative pressure	0.3	0.5	1.0		300	400
0 to 2.5 bar absolute pressure	0.3	0.5	1.3		10	24
0 to 4 bar absolute pressure	0.3	0.5	1.2		20	50
0 to 6 bar absolute pressure	0.3	0.5	1.2		40	60
0 to 10 bar absolute pressure	0.3	0.5	1.0		50	60
0 to 16 bar absolute pressure	0.3	0.5	1.0		100	150
0 to 25 bar absolute pressure	0.3	0.5	1.0		120	180
0 to 40 bar absolute pressure	0.3	0.5	1.0		300	400
0 to 60 bar absolute pressure	0.3	0.5	1.0	300	400	
0 to 100 bar absolute pressure	0.3	0.5	1.0	300	400	

^a Linearity according to limit point setting = 2 × BFSL (best fit straight line)

^b Reference conditions EN 61298-1

^c All pressure transmitters are vacuum proof.

^d Includes: linearity, hysteresis, repeatability, deviation of measuring range initial value (offset), and measuring range end value

^e Includes: linearity, hysteresis, repeatability, deviation of measuring range initial value (offset), measuring range end value, thermal effect on measuring range start (offset), and measuring span

^f MSP = measuring span

4.3 Outputs

Output signal Current	4 to 20 mA, 2-wire
Step response T_{90}	≤ 3 ms
Burden 4 to 20 mA, 2-wire Burden influence	$R_B \leq (U_B - 16 \text{ V}) \div 0.022 \text{ A} (\Omega)$ $\leq 0.01 \% \text{ pro } 100 \Omega$

4.4 Mechanical features

Material	
Process connection	316Ti
Protective cap	PVC (for M12 × 1 with protective cap)
Membrane	316L
Housing	304
Electrical connection	304, PA (for round plug M12 × 1) 304, PUR (for attached cable)
Cable	PUR
Conductor cross section	0.22 mm ²
Bending radius	Max. 35 mm
Weight	Approx. 55 g

4.5 Environmental influences

	Front-flush	Not front-flush
Ambient temperature	10 to 40 °C	-20 °C to +85 °C
Storage temperature	10 to 40 °C	-20 °C to +85 °C
Medium temperature	10 to 40 °C	-20 °C to +85 °C
Protection type	DIN EN 60529 IP68	
Electromagnetic compatibility (EC)	DIN EN 61326-2-3:2022	
Interference emission	Class B ^a	
Interference immunity	Industrial requirement	
Mechanical load	DIN EN 60068-2-6, DIN EN 60068-2-27	
Shock resistance	20 g/11 ms, 50 g for 1 ms	
Vibration resistance	10 g at 10 to 2000 Hz	

^a The product is suitable for industrial use as well as for households and small businesses.



4 Technical data

4.6 Electrical data

Voltage supply U_B^a 4 to 20 mA, two-wire	DC 16 to 28 V
Current consumption	≤ 23 mA
Electrical circuit	Intrinsically safe

^a Residual ripple: the voltage peaks must not exceed or fall below the specified voltage supply values!

4.7 Approvals and approval marks

	Designation	ATEX
	Testing agency	Eurofins Electric & Electronic Product Testing AG
	Certificate no.	SEV 21 ATEX 0537 X
	Inspection basis	EN IEC 60079-0, EN 60079-11
	Mark	II 2G Ex ib IIC T6 ... T4 Gb, II 2D Ex ib IIIC T70 °C ... T100 °C Db
	Valid for	Type 404720
	Designation	UKEX
	Testing agency	Bureau Veritas
	Certificate no.	EPS 22 UKEX 1 089 X
	Inspection basis	EN IEC 60079-0, EN 60079-11
	Mark	II 2G Ex ib IIC T4 ... T6 Gb, II 2D Ex ib IIIC T70 °C ... T100 °C Db
	Valid for	Type 404720
	Designation	IECEx
	Testing agency	Eurofins Electric & Electronic Product Testing AG
	Certificate no.	IECEx SEV 21.0011X
	Inspection basis	IEC 60079-0, IEC 60079-11
	Mark	Ex ib IIC T6 ... T4 Gb, Ex ib IIIC T70 °C ... T100 °C Db
	Valid for	Type 404720

For the special conditions for use, observe the examination certificate.



DANGER!

The pressure transmitter does not meet the "Equipment with safety function" requirements according to the Pressure Equipment Directive 2014/68/EU.

- ▶ The current relevant regulations must be observed for dangerous media, e.g. oxygen, acetylene, flammable, and poisonous substances, as well as for cooling systems and pressure tanks etc. The national and international safety and accident prevention regulations must be observed! Failure to observe these guidelines may result in bodily injuries and material damage! The plant operator is responsible for compliance with the legal regulations! Only suitably qualified persons are permitted to work at this device.

5.1 General information

Prior to mounting



DANGER!

Depressurize the plant prior to mounting the pressure transmitter!



CAUTION!

The pressure transmitter may only be used for media to which the membrane is sufficiently chemically resistant (corrosion). Ensure there is an electrically conductive connection between the pressure transmitter and the process connection (plant).



NOTE!

Select a freely accessible and low-vibration installation location, preferably near the measuring point. Ensure that the admissible ambient temperature is adhered to (take possible heat radiation into account).

The pressure transmitter can be installed above or below the pressure sensing point.

5.2 Pressure connection

Seals



DANGER!

A flat seal, e.g. according to DIN EN 837, must be used for the appropriate process connection for the ignition protection type intrinsic safety!

- ▶ The pressure connection must be checked for seal tightness once established! If the pressure transmitter is screwed into a threaded hole, the **full length** of the thread of the pressure transmitter must be used!



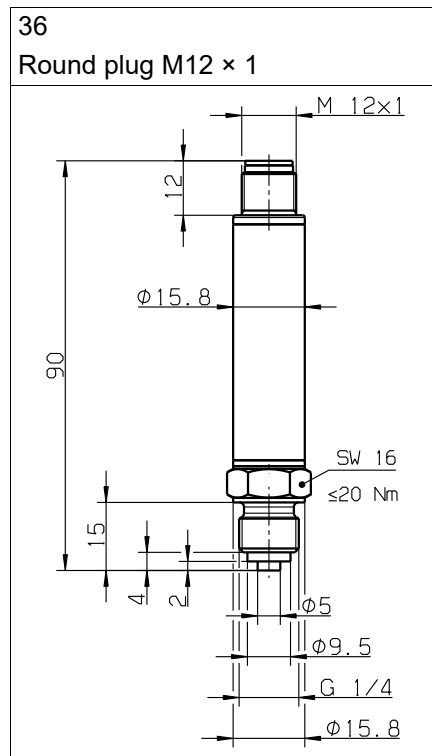
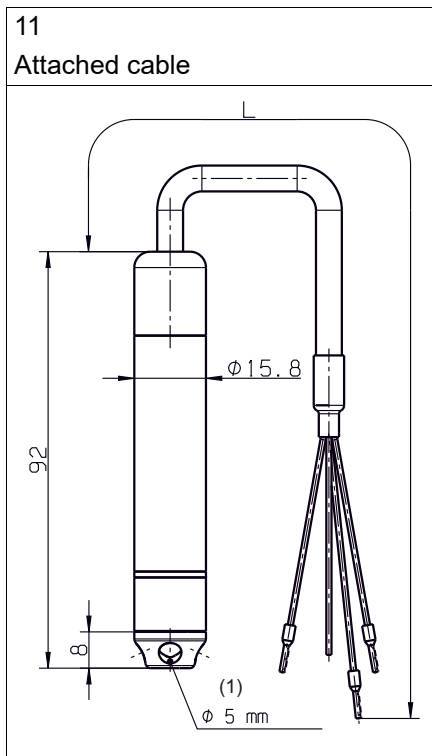
NOTE!

The correct tightening torque is dependent on the size, material, and form of the seal used, as well as the pressure connection of the pressure transmitter.

5 Mounting

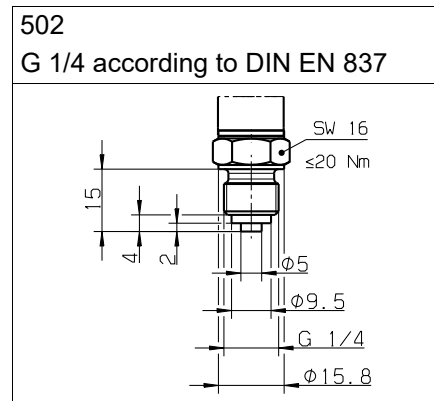
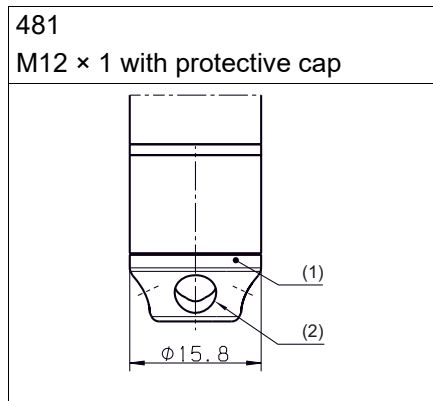
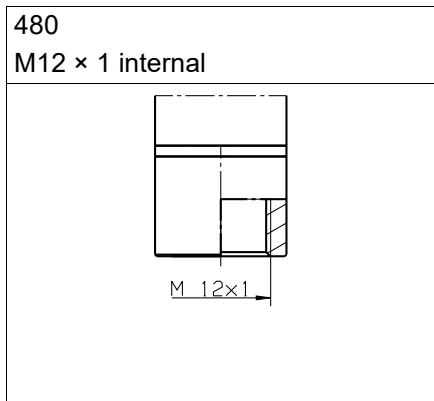
5.3 Dimensions

5.3.1 Electrical connection

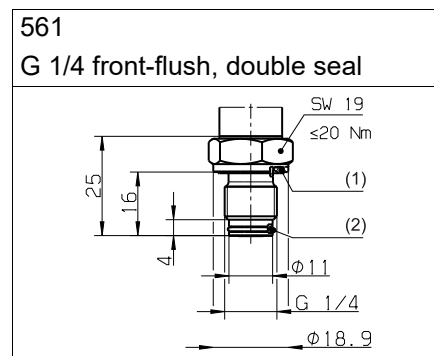
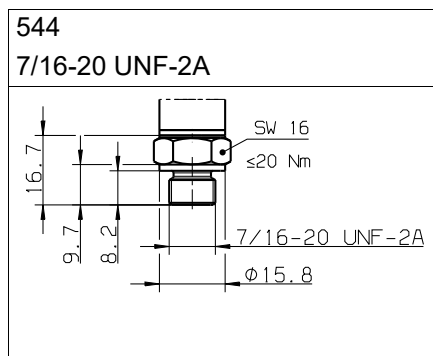
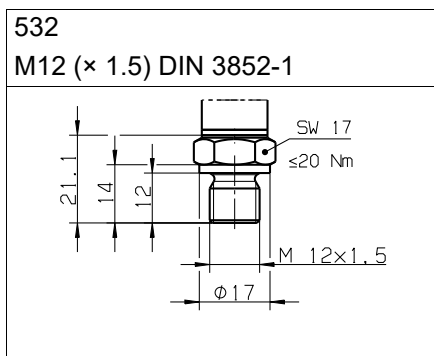
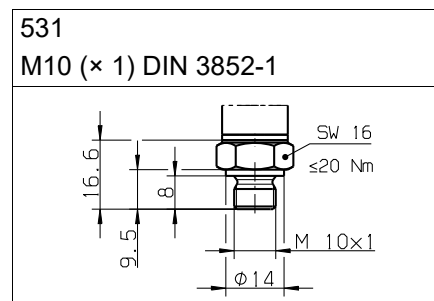
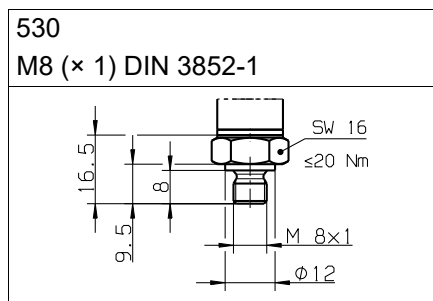
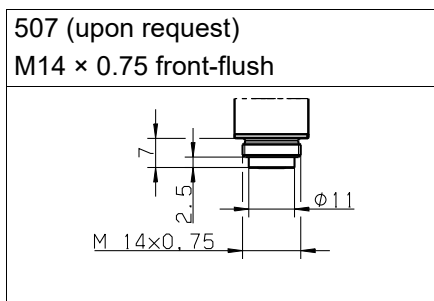


1 5× drilled hole

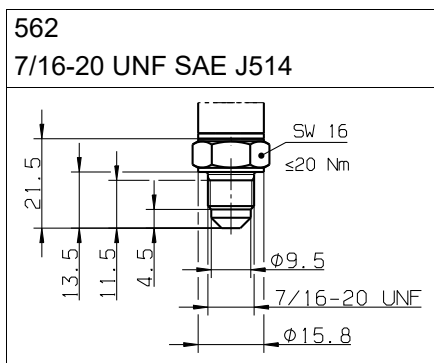
5.3.2 Process connections



- 1 Protective cap
- 2 5× drilled hole \varnothing 5 mm



- 1 Profile seal G 1/4
- 2 O-ring 9×1



6 Installation

6.1 Electrical connection



DANGER!

The relevant regulations must be observed for an electrical connection:

- Decree on electrical systems in potentially explosive areas (Elex V)
- Regulations for the installation of electrical systems in potentially explosive areas
- EC declaration conformity

► The electrical connection may only be performed by qualified personnel!

The voltage supply must be intrinsically safe and must not exceed the following maximum values:

U_i : DC 28 V

I_i : 100 mA

P_i : 750 mW

effective internal inductance L : negligibly small

effective internal capacitance C : ≤ 10.4 nF

Only intrinsically safe, certified measuring devices may be used in intrinsically safe electrical circuits!

The following values arise for the electrical connection 11 (attached cable) depend on the cable length l :

$$U_i \leq 28 \text{ V}$$

$$I_i \leq 100 \text{ mA}$$

$$P_i \leq 750 \text{ mW}$$

$$C_i \leq 10.4 \text{ nF} + 107 \frac{\text{pF}}{\text{m}} \times l$$

$$L_i \leq 1 \frac{\mu\text{H}}{\text{m}} \times l$$

General information


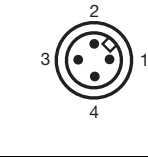


- Maximum cable length 50 m
- Minimum bending radius 120 mm (for permanent laying)
- Pressure equalization hose included in the cable and in the cable box (straight) accessory part (chapter 3.4 "Accessories", Page 11); provides automatic compensation of ambient air pressure fluctuations for relative pressure versions
- Protect the cable end against humidity
- Observe the length-dependent inductances and capacities if lengthening the cable
- Lay the signal lines isolated from cables with a voltage of > 60 V
- Use protected cables with twisted cores
- Keep away from large, electrical plants



NOTE!

The intrinsically safe electrical circuit must be restricted to overvoltage category I as stipulated in IEC 60664-1. The electrical circuit supply is only to be provided by a certified, intrinsically safe power source with a protection level of "ib".

6.2 Connection diagram

Connection		Terminal assignment ^a			
					
		11 Attached cable	36 Round plug M12 × 1	Accessories Cable box angled/straight	
				PVC	PUR
4 to 20 mA, 2-wire (output 405)					
Voltage supply DC 16 to 28 V	U _B /S+ 0 V/S-	WH BU	1 3	BN BU	WH BU
Shielding					
Caution: ground the device! Ground all connected devices (such as pumps and valves) to the same potential!		BK	-	-	-

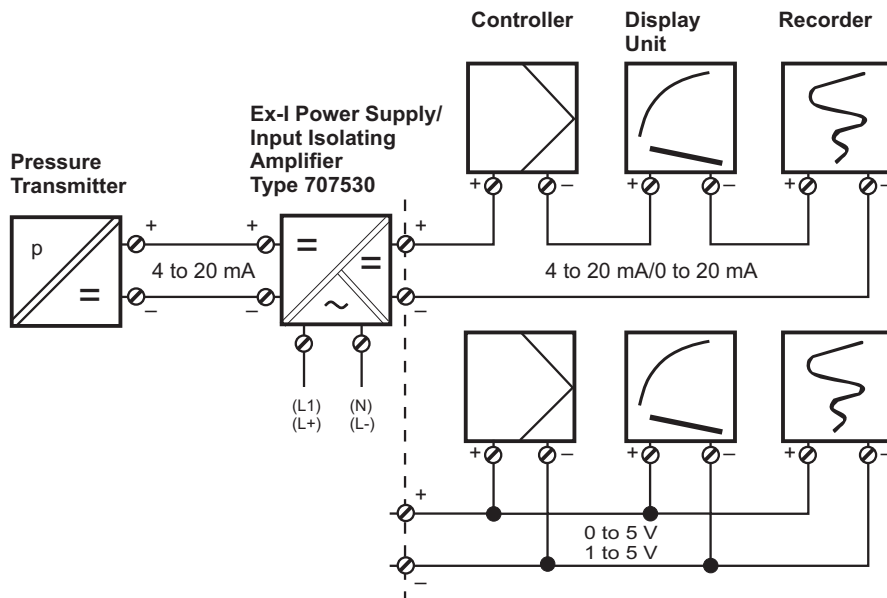
^a Figure: Connection to the pressure transmitter



CAUTION!

Ground (functional grounding) the housing of the pressure transmitter using the process connection to protect against electromagnetic fields and electromagnetic charges!

6.3 Connection examples



7 Maintenance, cleaning, returns, disposal

7.1 Maintenance

The pressure transmitter is maintenance-free.

7.2 Cleaning



NOTE!

Avoid damage to the device due to improper cleaning.

Do not damage the pressure transmitter, in particular the parts that come into contact with media. The cleaning agent must not attack the surface or seals.

7.3 Returns



WARNING!

Personal injury, property damage, environmental damage

Residual medium on the removed product can cause damage to persons, the environment and equipment.

- ▶ Take adequate precautionary measures.
-



NOTE!

The device may only be disassembled in a safe and voltage-free state of the plant by qualified personnel.

Procedure:

1. The [supplementary sheet for product returns](#) must first be completed correctly and signed. Then enclose it with the shipping documents and attach it to the packaging, ideally on the outside.
2. Use the original packaging or a suitably secure container for sending the device.

7.4 Disposal



- Do not dispose of the device or replaced parts in the trash after use.
- Delete programs and data stored on the device.
- Remove batteries, if any, if this can be done without damaging the device.
- Dispose of the device and the packaging material in a responsible and environmentally friendly manner.
- Observe the country-specific laws and regulations for waste treatment and disposal.

In accordance with Directive 2012/19/EU on Waste from Electrical and Electronic Equipment, manufacturers are obliged to offer the option of returning waste equipment. Request the return from the manufacturer.

8 Certificates

JUMO GmbH & Co. KG

Moritz-Juchheim-Straße 1
36039 Fulda, Germany

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Fax: +49 661 6003-500

E-Mail: mail@jumo.net
Internet: www.jumo.net



More than **sensors + automation**

1. Richtlinie

Directive / Directive

Name EMC 2014/30/EU

Name / Nom

Konformitätsbewertungsverfahren Mod. A

Conformity assessment procedure /

Procédure d'évaluation de la conformité

Datum der Erstanbringung des CE-Zeichens auf dem Produkt 2021

Date of first application of the CE mark to the product /

Date de 1ère application du sigle sur le produit

Angewendete Normen/Spezifikationen

Standards/Specifications applied / Normes/Spécifications appliquées

Referenz

Reference / Référence

Ausgabe

Edition / Édition

Bemerkung

Comment / Remarque

EN 61326-1

2013

EN 61326-2-3

2013

Gültig für Typ

Valid for Type / Valable pour le type

404720/...

2. Richtlinie

Directive / Directive

Name ATEX 2014/34/EU

Name / Nom

Konformitätsbewertungsverfahren Mod. B+D

Conformity assessment procedure /

Procédure d'évaluation de la conformité

Datum der Erstanbringung des CE-Zeichens auf dem Produkt 2021

Date of first application of the CE mark to the product /

Date de 1ère application du sigle sur le produit

Dokument-Nr.

Document No. / Document n°.

CE 817

EU-Konformitätserklärung

Seite: 2 von 5

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More than **sensors + automation**

Gültig für Typ

Valid for Type / Valable pour le type

404720/000-*-405-*-20-*

2.1 EU-Baumusterprüfbescheinigung

EU type examination certificate / Certificat d'examen de type UE

Zertifikatsnummer

Certificate number / Numéro de certificat

SEV 21 ATEX 0537 X Ausgabe 0

Notifizierte Stelle

Notified Body / Organisme notifié

Eurofins Electric & Electronic Product Testing
AG, Luppmenstrasse 3, 8320 Fehraltdorf,
Switzerland

Angewendete Normen/Spezifikationen

Standards/Specifications applied / Normes/Spécifications appliquées

Referenz

Reference / Référence

Ausgabe

Edition / Édition

Bemerkung

Comment / Remarque

EN 60079-0

2018

EN 60079-11

2012

Qualitätssicherung bezogen auf den Produktionsprozess

Quality assurance of the production process / L'assurance de la qualité de la production

Zertifikatsnummer

Certificate number / Numéro de certificat

Available on request

Notifizierte Stelle

Notified Body / Organisme notifié

BUREAU VERITAS Consumer Products
Services Germany GmbH, Wilhelm-Hennemann-
Straße 8, 19061 Schwerin, Germany

Kennnummer

Identification no. / N° d'identification

2004

Dokument-Nr.

Document No. / Document n°.

CE 817

EU-Konformitätserklärung

Seite: 3 von 5

8 Certificates

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More than **sensors + automation**

3. Richtlinie

Directive / Directive

Name RoHS 2011/65/EU

Name / Nom

Konformitätsbewertungsverfahren Mod. A

Conformity assessment procedure /

Procédure d'évaluation de la conformité

Datum der Erstanbringung des CE-Zeichens auf dem Produkt 2021

Date of first application of the CE mark to the product /

Date de 1ère application du sigle sur le produit

Angewendete Normen/Spezifikationen

Standards/Specifications applied / Normes/Spécifications appliquées

Referenz

Reference / Référence

Ausgabe

Edition / Édition

Bemerkung

Comment / Remarque

VDK Umweltrelevante Aspekte V1

bei der Produktentwicklung und
-gestaltung

Gültig für Typ

Valid for Type / Valable pour le type

404720/...

Dokument-Nr.

Document No. / Document n°.

CE 817

EU-Konformitätserklärung

Seite: 4 von 5

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More than **sensors + automation**

Aussteller

Issued by / Etabli par

JUMO GmbH & Co. KG

Ort, Datum

Place, date / Lieu, date

Fulda, 2023-05-10

Rechtsverbindliche Unterschriften

Legally binding signatures /

Signatures juridiquement valable

Bereichsleitung Globaler Vertrieb

i. V. Markus Belmer

Qualitätsbeauftragter und Leiter Qualitätswesen

i. V. Harald Gienger

8 Certificates



EU-Type Examination Certificate

- (1)
- (2) Equipment or protective system intended for use in potentially explosive atmospheres - **Directive 2014/34/EU**
- (3) Certificate number: **SEV 21 ATEX 0537 X**
- (4) Product: Pressure transducer Type: JUMO MIDAS S22 Ex 404720 / 000 - *** - 405 - *** - 20 - **
- (5) Manufacturer: JUMO GmbH & Co. KG
- (6) Address: Moritz-Juchheim-Strasse 1, 36039 Fulda, Germany
- (7) The equipment and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.
- (8) Eurofins, notified body No. 1258, in accordance with article 17 of Directive 2014/34/EU of the European parliament and of the council, dated 26 February 2014, certifies that this product has been found to comply with the essential health and safety requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.
The examination and test results are recorded in confidential report no 20CH-01639.X01
- (9) Compliance with the essential health and safety requirements has been assured by compliance with:
EN IEC 60079-0:2018
EN 60079-11:2012
Except in respect of those requirements listed at item 18 of the schedule.
- (10) If the sign «X» is placed after the certificate number, it indicates that the product is subjected to special conditions for safe use specified in the schedule to this certificate. The sign "U" is placed after the certificate number. It indicates that this certificate must not be mistaken for a certificate intended for an equipment or protective system. This partial certification may be used as a basis for certification of an equipment or protective system.
- (11) This EU type examination certificate relates only to design and construction of the specified product. Further requirements of this directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.
- (12) The marking of the product shall include the following:

 II 2G Ex ib IIC T6 ... T4 Gb
II 2D Ex ib IIIC T70 °C ... T100 °C Db

Eurofins Electric & Electronic Product Testing AG
Notified Body ATEX

Rahel Nydegger
Product Certification



www.eurofins.ch

Fehraltorf, 2021-06-10

Issue: 0

Page 1 of 4

T8a_V01

(13)

Appendix

(14)

EU-Type Examination Certificate no. SEV 21 ATEX 0537 X

(15) **Description of product**

The pressure transducer JUMO MIDAS S22 Ex type 404710 / 000 - *** - 405 - *** - 20 - ** serves for converting a physical measured quantity (pressure) into a standardised electrical signal (current signal 4 ... 20 mA). It is intended for use within potentially explosive areas.

The intrinsically safe circuit is connected with a non-detachable (cable length in plain text) or circular connector M12 x 1.

Measuring and supply circuit with the type of protection intrinsic safety

Ex ib IIC

Ex ib IIIC

Only for connection to a certified intrinsically safe circuit.

Classification of installation and use:	stationary
Ingress protection:	IP65
Rated ambient temperature range (°C):	Equipment protection level Gb
	Ambient temperature:
	T4: -40 °C to +85 °C
	T5: -40 °C to +70 °C
	T6: -40 °C to +55 °C
	Equipment protection level Db
	maximum surface temperature:
	T100 °C: -40 °C to +85 °C
	T85 °C: -40 °C to +70 °C
	T70 °C: -40 °C to +55 °C
Rated ambient temperature range (°C) for Ex Components	N/A

Rating:

Input and supply circuits:

With type of protection intrinsic safety Ex ib IIC and IIIC.

Only for connection to certified intrinsically safe circuit.

Maximum values for circular connector M12x1 and special electrical connection:

$U_i \leq 28 \text{ V}$

$I_i \leq 100 \text{ mA}$

$P_i \leq 750 \text{ mW}$

$C_i = 10.4 \text{ nF}$ (effective internal capacitance)

$L_i \approx 0 \text{ uH}$ (effective internal inductance)

Maximum values for electrical connection with non-detachable cable:

$U_i \leq 28 \text{ V}$

$I_i \leq 100 \text{ mA}$

$P_i \leq 750 \text{ mW}$

$C_i \leq 10.4 \text{ nF} + 107 \text{ pF/m} \cdot \text{cable length}$

$L_i \leq 1 \text{ uH/m} \cdot \text{cable length}$

8 Certificates



Type designation:

Example of type designation 404720/000 - 543 - 405 - 507 - 20 - 36 / 000
(1) (2) (3) (4) (5) (6) (7) (8)

(1) Basic type

404720 JUMO MIDAS S22 Ex – Pressure transducer for use in potentially explosive atmospheres

(2) Basic type changes

/000 None

(3)* Pressure rated measuring range

480 -1 to +1.5 bar relative pressure
481 -1 to +3 bar relative pressure
482 -1 to +5 bar relative pressure
483 -1 to +9 bar relative pressure
456 0 to 2.5 bar relative pressure
457 0 to 4 bar relative pressure
458 0 to 6 bar relative pressure
459 0 to 10 bar relative pressure
460 0 to 16 bar relative pressure
461 0 to 25 bar relative pressure
462 0 to 40 bar relative pressure
463 0 to 60 bar relative pressure
464 0 to 100 bar relative pressure
463 0 to 60 bar relative pressure
464 0 to 100 bar relative pressure
490 0 to 2.5 bar absolute pressure
491 0 to 4 bar absolute pressure
492 0 to 6 bar absolute pressure
493 0 to 10 bar absolute pressure
494 0 to 16 bar absolute pressure
495 0 to 25 bar absolute pressure
505 0 to 40 bar absolute pressure
506 0 to 60 bar absolute pressure
507 0 to 100 bar absolute pressure
998 special measuring range for absolute pressure
999 special measuring range for relative pressure

(4) Electrical output

405 4 to 20 mA. two-wire

(5)* Process connection

480 M12x1 inside
481 M12x1 with protection cap
502 G 1/4 according to DIN EN 837
507 M14x0.75 flush with front
530 M8 (x1) according to DIN 3852-1
531 M10 (x1) according to DIN 3852-2
532 M12 (x1.5) according to DIN 3852-3
544 7/16-20 UNF-2A
561 G 1/4 flush with front, two-times sealing
562 7/16-20 UNF SAE J514
999 according to customer specification

(6) Material of process connection

20 CrNi (stainless steel)

(7) Electrical connection

11 attached cable
36 round plug M12x1

(8)* Additional options

000 without
462 inverted output signal
591 choking coil in pressure channel
624 free from oil and grease
630 widened pressure channel

*) The numerical type keys can be extended with values not named here in the sense of the basic test. These extensions have no effect on the explosion protection and general safety.





(16) **Special conditions for safe use:**

- For details concerning the admissible ambient temperatures and temperature classes please refer to the user's manual.
- The pressure transducer shall be supplied by a circuit of Overvoltage category I.

(17) **Essential health and safety requirements**

In addition to the essential health and safety requirements (EHSRs) covered by the standards listed at item 9, the following are considered relevant to this product, and conformity is demonstrated in the report:

Clause	Subject
None	

(18) **Drawings and Documents**

See test report "Manufacturer's Documents"



8 Certificates

	<h2>IECEX Certificate of Conformity</h2>	
INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres for rules and details of the IECEx Scheme visit www.iecex.com		
Certificate No.:	IECEX SEV 21.0011X	Page 1 of 4
Status:	Current	Issue No: 1
Date of Issue:	2023-04-27	Certificate history: Issue 0 (2021-06-10)
Applicant:	JUMO GmbH & Co KG Moritz-Juchheim-Straße 1, 36039 Fulda Germany	
Equipment:	Pressure transducer , Type: JUMO MIDAS S22 Ex 404720 / 000 - *** - 405 - *** - 20 - **	
Optional accessory:		
Type of Protection:	ib	
Marking:	Ex ib IIC T6 ... T4 Gb Ex ib IIIC T70 °C ... T100 °C Db	
Approved for issue on behalf of the IECEx Certification Body:		Thomas Köhntopp
Position:		Manager Product Certification
Signature: (for printed version) <i>Köhntopp</i>		
Date: (for printed version) <i>2023-04-27</i>		
<ol style="list-style-type: none">1. This certificate and schedule may only be reproduced in full.2. This certificate is not transferable and remains the property of the issuing body.3. The Status and authenticity of this certificate may be verified by visiting www.iecex.com or use of this QR Code.		
Certificate issued by: Eurofins Electric & Electronic Product Testing AG Luppenstrasse 3 8320 FEHRALTORF Switzerland		 E&E



IECEX Certificate of Conformity

Certificate No.: **IECEX SEV 21.0011X**

Page 2 of 4

Date of issue: 2023-04-27

Issue No: 1

Manufacturer: **JUMO GmbH & Co KG**
Moritz-Juchheim-Straße 1, 36039 Fulda
Germany

Manufacturing
locations:

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended

STANDARDS :

The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

IEC 60079-0:2017 Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

IEC 60079-11:2011 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "I"
Edition:6.0

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:

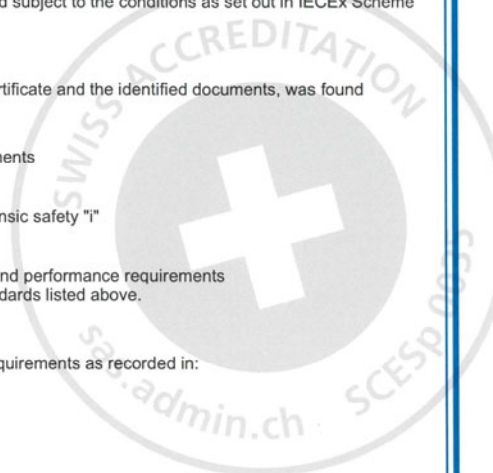
A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Report:

CH/SEV/ExTR21.0012/00

Quality Assessment Report:

DE/EPS/QAR23.0003/00



8 Certificates



IECEX Certificate of Conformity

Certificate No.: **IECEX SEV 21.0011X**

Page 3 of 4

Date of issue: 2023-04-27

Issue No: 1

EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

The pressure transducer JUMO MIDAS S22 Ex type 404710 / 000 - *** - 405 - *** - 20 - ** serves for converting a physical measured quantity (pressure) into a standardised electrical signal (current signal 4 ... 20 mA). It is intended for use within potentially explosive areas. The intrinsically safe circuit is connected with a non-detachable (cable length in plain text) or circular connector M12 x 1.

Measuring and supply circuit with the type of protection intrinsic safety

Ex ib IIC
Ex ib IIIC

Only for connection to a certified intrinsically safe circuit.

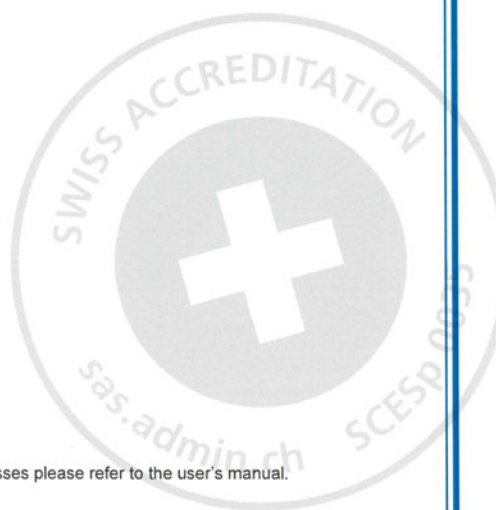
Classification of installation and use: stationary
Ingress protection: IP65
Rated ambient temperature range (°C): Equipment protection level Gb
Ambient temperature:
T4: -40 °C to +85 °C
T5: -40 °C to +70 °C
T6: -40 °C to +55 °C

Equipment protection level Db
maximum surface temperature:
T100 °C: -40 °C to +85 °C
T85 °C: -40 °C to +70 °C
T70 °C: -40 °C to +55 °C

Rated ambient temperature range (°C)
for Ex Components N/A

SPECIFIC CONDITIONS OF USE: YES as shown below:

- For details concerning the admissible ambient temperatures and temperature classes please refer to the user's manual.
- The pressure transducer shall be supplied by a circuit of Overvoltage category I.





IECEX Certificate of Conformity

Certificate No.: **IECEX SEV 21.0011X**

Page 4 of 4

Date of issue: 2023-04-27

Issue No: 1

DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)
Change of ExCB for quality system. Link to QAR updated.

Annex:

[IECEX SEV 21.0011 Annexe i1.pdf](#)



8 Certificates



Annexe to: IECEx SEV 21.0011X

Issue No.: 1

page 1 of 2

Applicant Name: JUMO GmbH & Co. KG
Moritz-Juchheim-Strasse 1, 36039 Fulda, GERMANY

Electrical Apparatus: Pressure transducer

Rating:

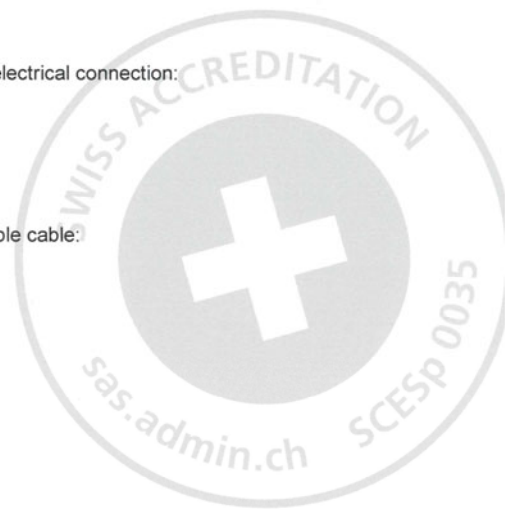
Input and supply circuits:
With type of protection intrinsic safety Ex ib IIC and IIIC.
Only for connection to certified intrinsically safe circuit.

Maximum values for circular connector M12x1 and special electrical connection:

$U_i \leq 28 \text{ V}$
 $I_i \leq 100 \text{ mA}$
 $P_i \leq 750 \text{ mW}$
 $C_i = 10.4 \text{ nF}$ (effective internal capacitance)
 $L_i \approx 0 \text{ uH}$ (effective internal inductance)

Maximum values for electrical connection with non-detachable cable:

$U_i \leq 28 \text{ V}$
 $I_i \leq 100 \text{ mA}$
 $P_i \leq 750 \text{ mW}$
 $C_i \leq 10.4 \text{ nF} + 107 \text{ pF/m} \cdot \text{cable length}$
 $L_i \leq 1 \text{ uH/m} \cdot \text{cable length}$



Eurofins Electric & Electronic Product Testing AG
Swiss Certification Body

Luppenstrasse 3 Tel. +41 58 220 32 00
CH-8320 Fehraltorf CustomerCenter@eurofins.ch
www.eurofins.ch



Annexe to: IECEx SEV 21.0011X

Issue No.: 1
page 2 of 2

Type designation:

Example of type designation 404720/000 - 543 - 405 - 507 - 20 - 36 / 000
(1) (2) (3) (4) (5) (6) (7) (8)

(1) Basic type

404720 JUMO MIDAS S22 Ex – Pressure transducer for use in potentially explosive atmospheres

(2) Basic type changes

/000 None

(3)* Pressure rated measuring range

480 -1 to +1.5 bar relative pressure
481 -1 to +3 bar relative pressure
482 -1 to +5 bar relative pressure
483 -1 to +9 bar relative pressure
456 0 to 2.5 bar relative pressure
457 0 to 4 bar relative pressure
458 0 to 6 bar relative pressure
459 0 to 10 bar relative pressure
460 0 to 16 bar relative pressure
461 0 to 25 bar relative pressure
462 0 to 40 bar relative pressure
463 0 to 60 bar relative pressure
464 0 to 100 bar relative pressure
463 0 to 60 bar relative pressure
464 0 to 100 bar relative pressure
490 0 to 2.5 bar absolute pressure
491 0 to 4 bar absolute pressure
492 0 to 6 bar absolute pressure
493 0 to 10 bar absolute pressure
494 0 to 16 bar absolute pressure
495 0 to 25 bar absolute pressure
505 0 to 40 bar absolute pressure
506 0 to 60 bar absolute pressure
507 0 to 100 bar absolute pressure
998 special measuring range for absolute pressure
999 special measuring range for relative pressure

(4) Electrical output

405 4 to 20 mA, two-wire

(5)* Process connection

480 M12x1 inside
481 M12x1 with protection cap
502 G 1/4 according to DIN EN 837
507 M14x0.75 flush with front
530 M8 (x1) according to DIN 3852-1
531 M10 (x1) according to DIN 3852-2
532 M12 (x1.5) according to DIN 3852-3
544 7/16-20 UNF-2A
561 G 1/4 flush with front, two-times sealing
562 7/16-20 UNF SAE J514
999 according to customer specification

(6) Material of process connection

20 CrNi (stainless steel)

(7) Electrical connection

11 attached cable
36 round plug M12x1

(8)* Additional options

000 without
462 inverted output signal
591 choking coil in pressure channel
624 free from oil and grease
630 widened pressure channel

*) The numerical type keys can be extended with values not named here in the sense of the basic test. These extensions have no effect on the explosion protection and general safety.

8 Certificates

JUMO GmbH & Co. KG

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Fax: +49 661 6003-500

E-Mail: mail@jumo.net
Internet: www.jumo.net



More than sensors + automation

UK Declaration of Conformity

Document No. UK 170
Manufacturer JUMO GmbH & Co. KG
Address Moritz-Juchheim-Straße 1, 36039 Fulda, Germany

Product
Name JUMO MIDAS S22 Ex
Type 404720
Data sheet no. 404720

Product description
Miniature pressure transmitter for Ex areas.

We hereby declare in sole responsibility that the designated product fulfills the requirements of the statutory instruments.

1. Statutory instrument

Name Electromagnetic Compatibility Regulations 2016
2016 No. 1091

Conformity assessment procedure Mod. A

Date of first application of the UKCA mark to the product 2023

Standards/Specifications applied

Reference	Edition	Comment
EN 61326-1	2013	
EN 61326-2-3	2013	

Valid for Type

404720/...

Document No.

UK 170

UK Declaration of Conformity

Seite: 1 von 3

JUMO GmbH & Co. KG

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Fax: +49 661 6003-500

E-Mail: mail@jumo.net
Internet: www.jumo.net



More than **sensors + automation**

2. Statutory instrument

Name The Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016 2016 No. 1107

Conformity assessment procedure Mod. B+D

Date of first application of the UKCA mark to the product 2023

Valid for Type

404720/000-* -405-* -20-*

2.1 Type examination certificate

Certificate number EPS 22 UKEX 1 089 X

Designated body Bureau Veritas Consumer Products Services United Kingdom Limited, 31 Kingsland Grange, Woolston, Warrington, Cheshire, WA1 4RW

Standards/Specifications applied

Reference	Edition	Comment
EN 60079-0	2018	
EN 60079-11	2012	

Quality assurance of the production process

Certificate number EPS 22 UKEX Q 434

Designated body Bureau Veritas Consumer Products Services United Kingdom Limited, 31 Kingsland Grange, Woolston, Warrington, Cheshire, WA1 4RW

Identification no. 8507

8 Certificates

JUMO GmbH & Co. KG

Moritz-Juchheim-Straße 1
36039 Fulda, Germany

Tel.: +49 661 6003-0
Fax: +49 661 6003-500

E-Mail: mail@jumo.net
Internet: www.jumo.net



More than **sensors + automation**

3. Statutory instrument

Name The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012 2012 No. 3032

Conformity assessment procedure Mod. A

Date of first application of the UKCA mark to the product 2023

Standards/Specifications applied

Reference	Edition	Comment
[VDK] Umweltrelevante Aspekte V1 bei der Produktentwicklung und -gestaltung		

Valid for Type

404720/...

Issued by

JUMO GmbH & Co. KG

Place, date

Fulda, 2023-01-03

Legally binding signatures

Director of Global Sales
Markus Belmer

Head of Quality Department
Harald Gienger

Document No.

UK 170

UK Declaration of Conformity

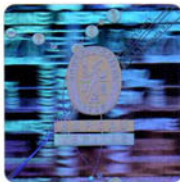
Seite: 3 von 3



UK - Type Examination Certificate

- (1) **UK - Type Examination Certificate**
- (2) Equipment and protective systems intended for use in potentially explosive atmospheres – **UKSI 2016:1107 (as amended)**
- (3) UK - Type Examination Certificate Number
- EPS 22 UKEX 1 089 X** **Revision 0**
- (4) Equipment: Pressure transducer JUMO MIDAS S22 Ex 404720 / 000 - *** - 405 - *** - 20 - **
- (5) Manufacturer: JUMO GmbH & Co. KG
- (6) Address: Moritz-Juchheim-Straße 1
36039 Fulda
Germany
- (7) This equipment and any acceptable variation thereto are specified in the annex to this certificate and the documentation therein referred to.
- (8) Bureau Veritas Consumer Products Services United Kingdom Limited, approved body No. 8507 in accordance with UKSI 2016:1107 (as amended) Part 4, certifies that this equipment has been found to comply with the essential health and safety requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres, given in Schedule 1 of UKSI 2016:1107 (as amended). The examination and test results are recorded in the confidential documentation under the reference number 22TH0289.
- (9) Compliance with the essential health and safety requirements has been assured by compliance with:
- EN IEC 60079-0:2018** **EN 60079-11:2012**
- (10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the annex to this certificate.
- (11) This UK - Type Examination Certificate relates only to the design and construction of the specified equipment in accordance with UKSI 2016:1107 (as amended). Further requirements apply to the manufacture of this equipment and its placing on the market. Those requirements are not covered by this certificate.
- (12) The marking of the equipment shall include the following:

II 2G Ex ib IIC T4 ... T6 Gb
 II 2D Ex ib IIIC T70°C ... T100°C Db



Certification department of explosion protection

Warrington, 14-12-2022



Natalie Wilkinson

Certificates without signature and seal are void. This certificate is allowed to be distributed only if not modified. Extracts or modifications must be authorized by Bureau Veritas Consumer Products Services United Kingdom Limited, EPS 22 UKEX 1 089 X, Revision 0.

Bureau Veritas Consumer Products Services United Kingdom Limited
<https://www.bureauveritas.co.uk/consumer-products-testing>
 +44 (0) 1925 854 360

Registered Office: 31 Kingsland Grange,
 Woolston, Warrington, Cheshire, WA1 4RW

Registered in England & Wales
 Company Number: 00852439

ZERT-0003-GBR-ZE-EX-V03 / TEMP-0005-GBR-ZE-EX-V01

1/4

8 Certificates



(13)

Annex

(14) **UK - Type Examination Certificate EPS 22 UKEX 1 089 X**

Revision 0

(15) Description of equipment:

The pressure transducer JUMO MIDAS S22 Ex type 404720 / 000 - *** - 405 - *** - 20 - ** serves for converting a physical measured quantity (pressure) into a standardized electrical signal (current signal 4 .. 20 mA). It is intended for use within potentially explosive areas.

The intrinsically safe circuit is connected with a non-detachable (cable length in plain text) or circular connector M12x1.

Measuring and supply circuit with the type of protection intrinsic safety

Ex ib IIC
Ex ib IIIC

Only for connection to a certified intrinsically safe circuit.

Equipment protection level Gb Ambient temperature:

T4: -40 °C to +85 °C

T5: -40 °C to +70 °C

T6: -40 °C to +55 °C

Equipment protection level Db maximum surface temperature:

T100 °C: -40 °C to +85 °C

T85 °C: -40 °C to +70 °C

T70 °C: -40 °C to +55 °C

Details of Rating:

Input and supply circuits:

With type of protection intrinsic safety Ex ib IIC and IIIC.

Only for connection to certified intrinsically safe circuit.

Maximum values for circular connector M12x1 and special electrical connection:

$U_i \leq 28 \text{ V}$

$I_i \leq 100 \text{ mA}$

$P_i \leq 750 \text{ mW}$

$C_i = 10.4 \text{ nF}$ (effective internal capacitance)

$L_i = 0 \text{ uH/m}$ (effective internal inductance)

Maximum values for electrical connection with non-detachable cable:

$U_i \leq 28 \text{ V}$

$I_i \leq 100 \text{ mA}$

$P_i \leq 750 \text{ mW}$

$C_i \leq 10.4 \text{ nF} + 107 \text{ pF/m} \cdot \text{cable length}$

$L_i \leq 1 \text{ uH/m} \cdot \text{cable length}$

Type designation:

Example of type designation 404720/000 - 543 - 405 - 507 - 20 - 36 / 000

(1) (2) (3) (4) (5) (6) (7) (8)

(1) Basic type

404720/000 JUMO MIDAS S22 Ex – Pressure transducer for use in potentially explosive atmospheres

(2) Basic type changes

/000 None

Certificates without signature and seal are void. This certificate is allowed to be distributed only if not modified. Extracts or modifications must be authorized by Bureau Veritas Consumer Products Services United Kingdom Limited, EPS 22 UKEX 1 089 X, Revision 0.

Bureau Veritas Consumer Products Services United Kingdom Limited
<https://www.bureauveritas.co.uk/consumer-products-testing>
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UK - Type Examination Certificate EPS 22 UKEX 1 089 X

Revision 0

(3)* Pressure rated measuring range

- 480 -1 to +1.5 bar relative pressure
- 481 -1 to +3 bar relative pressure
- 482 -1 to +5 bar relative pressure
- 483 -1 to +9 bar relative pressure
- 456 0 to 2.5 bar relative pressure
- 457 0 to 4 bar relative pressure
- 458 0 to 6 bar relative pressure
- 459 0 to 10 bar relative pressure
- 460 0 to 16 bar relative pressure
- 461 0 to 25 bar relative pressure
- 462 0 to 40 bar relative pressure
- 463 0 to 60 bar relative pressure
- 464 0 to 100 bar relative pressure
- 490 0 to 2.5 bar absolute pressure
- 491 0 to 4 bar absolute pressure
- 492 0 to 6 bar absolute pressure
- 493 0 to 10 bar absolute pressure
- 494 0 to 16 bar absolute pressure
- 495 0 to 25 bar absolute pressure
- 506 0 to 60 bar absolute pressure
- 507 0 to 100 bar absolute pressure
- 998 special measuring range for absolute pressure
- 999 special measuring range for relative pressure

(4) Electrical output

- 405 4 to 20 mA, two-wire

(5)* Process connection

- 480 M12x1 inside
- 481 M12x1 with protection cap
- 502 G 1/4 according to DIN EN 837
- 507 M14x0.75 flush with front
- 530 M8 (x1) according to DIN 3852-1
- 531 M10 (x1) according to DIN 3852-2
- 532 M12 (x1.5) according to DIN 3852-3
- 544 7/16-20 UNF-2A
- 561 G 1/4 flush with front, two-times sealing
- 562 7/16-20 UNF SAE J514
- 999 according to customer specification

(6) Material of process connection

- 20 CrNi (stainless steel)

(7) Electrical connection

- 11 attached cable
- 36 round plug M12x1

(8)* Additional options

- 000 without
- 462 inverted output signal
- 591 choking coil in pressure channel
- 624 free from oil and grease
- 630 widened pressure channel

*) The numerical type keys can be extended with values not named here in the sense of the basic test. These extensions have no effect on the explosion protection and general safety.

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 Company Number: 00852439

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3/4

CERTIFIED

8 Certificates



UK - Type Examination Certificate EPS 22 UKEX 1 089 X

Revision 0

- (16) Reference number: 22TH0289
- (17) Special conditions for safe use:
1. For details concerning the admissible ambient temperatures and temperature classes please refer to the user's manual.
 2. The pressure transducer shall be supplied by a circuit of Overvoltage category I.
- (18) Essential health and safety requirements:

Met by compliance with standards.

Certification department of explosion protection

Warrington, 14-12-2022



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Registered in England & Wales
Company Number: 00852439

ZERT-0003-GBR-ZE-EX-V03 / TEMP-0005-GBR-ZE-EX-V01

4/4

		产品中有害物质的名称及含量 China EEP Hazardous Substances Information						
		铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)	
产品组别 Product group: 404720	部件名称 Component Name							
	外壳 Housing (Gehäuse)	○	○	○	○	○	○	
	过程连接 Process connection (Prozessanschluss)	X	○	○	○	○	○	
	螺母 Nuts (Mutter)	○	○	○	○	○	○	
	螺钉 Screw (Schraube)	○	○	○	○	○	○	

本表格依据SJ/T 11364的规定编制。
 This table is prepared in accordance with the provisions SJ/T 11364.
 ○：表示该有害物质在该部件所有均质材料中的含量均在GB/T 26572规定的限量要求以下。
 Indicate the hazardous substances in all homogeneous materials' for the part is below the limit of the GB/T 26572.
 x：表示该有害物质至少在该部件的某一均质材料中的含量超出GB/T 26572规定的限量要求。
 Indicate the hazardous substances in at least one homogeneous materials' of the part is exceeded the limit of the GB/T 26572.

8 Certificates



JUMO GmbH & Co. KG

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36039 Fulda, Germany

Delivery address:
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36039 Fulda, Germany

Postal address:
36035 Fulda, Germany

Phone: +49 661 6003-0
Fax: +49 661 6003-607
Email: mail@jumo.net
Internet: www.jumo.net

JUMO UKL TD

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Phone: +44 1279 63 55 33
Fax: +44 1279 62 50 29
Email: sales@jumo.co.uk
Internet: www.jumo.co.uk

JUMO Process Control, Inc.

6724 Joy Road
East Syracuse, NY 13057, USA

Phone: +1 315 437 5866
Fax: +1 315 437 5860
Email: info.us@jumo.net
Internet: www.jumousa.com



JUMO MIDAS S22 Ex

Convertisseur de pression miniature
pour utilisation en zone Ex



Notice de mise en service



40472000T90Z000K000

FR/00678383/2024-06-03

Weitere Informationen und Downloads



qr-404720-fr.jumo.info

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1 Instructions relatives à la sécurité

1.1 Symboles d'avertissement



DANGER!

Ce pictogramme signale que la non-observation des mesures de précaution peut provoquer des **dommages corporels par électrocution**.



AVERTISSEMENT!

Ce pictogramme est utilisé lorsque la non-observation ou l'observation imprécise des instructions peut provoquer des **dommages corporels ou un décès par électrocution**.



ATTENTION!

Ce pictogramme associé à un mot clé signale que si l'on ne prend pas des mesures adéquates, cela provoque des **dégâts matériels ou des pertes de données**.



ATTENTION!

Ce pictogramme signale que si l'on ne prend pas des mesures adéquates des **composants peuvent être détruits** par décharge électrostatique (ESD = Electro Static Discharge).

Si vous retournez des châssis, des modules ou des composants, n'utilisez que les emballages ESD prévus à cet effet.



LISEZ LA DOCUMENTATION !

Ce pictogramme – posé sur l'appareil – signale que la **documentation appareil** doit être **respectée**. Ceci est nécessaire, pour reconnaître la nature des risques potentiels et les mesures à prendre pour les éviter.

1.2 Symboles indiquant une remarque



REMARQUE !

Ce pictogramme renvoie à une **information importante** sur le produit, sur son maniement ou ses applications annexes.



Renvoi !

Ce pictogramme renvoie à des **informations supplémentaires** dans d'autres sections, chapitres ou notices.

1.3 Mélanges hybrides

Les mélanges hybrides sont des mélanges explosibles composés de gaz combustibles, de vapeurs ou brouillards avec poussières combustibles. Le matériel destiné à des atmosphères explosives, en présence de mélanges hybrides, doit être particulièrement contrôlé pour cette application. Il incombe à l'exploitant de vérifier que le matériel est adapté à de telles applications.

2 Introduction

2.1 Généralités



DANGER!

Veillez tenir compte de la Déclaration CE de conformité, de l'Attestation d'examen CE de type (à la fin de cette notice de mise en service) ainsi que des instructions relatives aux capteurs en atmosphères explosibles !

Selon l'exécution, les capteurs ne peuvent être utilisés que dans des circuits à sécurité intrinsèque.

► Les valeurs admissibles sont énumérées dans l'attestation.

Le convertisseur de pression, type 404720 satisfait les exigences

- du groupe d'explosion II dans les atmosphères explosibles des zones 1 et 2
- du groupe d'explosion III dans les atmosphères explosibles des zones 21 et 22

Le numéro du certificat d'examen de type CE est :

SEV 21 ATEX 0537 X

Le numéro du certificat de conformité IECEx est :

IECEx SEV 21.0011X

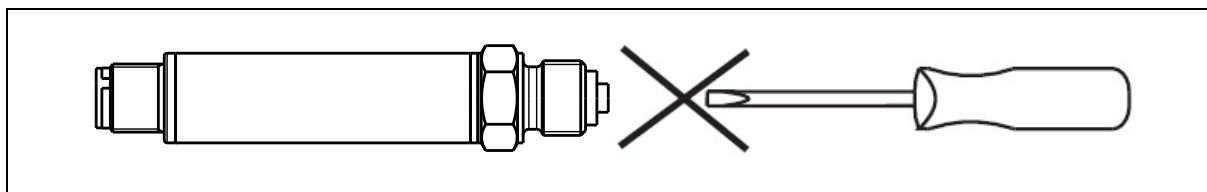


ATTENTION!

La membrane du convertisseur de pression ne doit pas être endommagée !

Les mesures suivantes doivent être respectées :

- Ne pas introduire d'objet dans le perçage du raccord de pression !
- Ne pas diriger de jet de pression sur la membrane !
- La membrane ne doit pas être déformée. Toucher la membrane avec les doigts suffit pour l'endommager.
- La pression à mesurer ne doit pas dépasser, même en cas de pointes de pression, la surpression autorisée. Des pointes de pression élevées (coup de bélier) peuvent détruire le convertisseur de pression. Dans ces conditions, il faut prendre toutes les mesures préventives nécessaires (par ex. monter un élément amortisseur).



ATTENTION!

Pour éviter des détériorations sur le convertisseur de pression et sécuriser vos process, le montage, l'installation et la mise en service ne doivent être effectués que par du personnel qualifié. Ce personnel doit connaître les règlements locaux ainsi que les normes et directives applicables pour éviter les dommages corporels et les dégâts matériels.

- Le personnel spécialisé doit lire la notice de mise en service ainsi que la plaque signalétique et les avoir comprises de telle sorte qu'il peut suivre les instructions. Les modifications et les réparations ne peuvent être effectuées que si elles sont autorisées dans la notice de mise de service. Conservez la notice de mise en service dans un endroit accessible à tous les utilisateurs à tout moment..

2.2 Utilisation conforme aux prescriptions

L'instrument de mesure décrit dans cette notice sert à mesurer la pression (relative et absolue) des gaz, vapeurs et liquides sur des pompes, réservoirs et conduites. Les caractéristiques techniques sont spécifiées dans cette notice. L'appareil peut être utilisé dans des atmosphères explosibles : zone 1 (21) ou zone 2 (22).

Toute autre utilisation est considérée comme non conforme – par rapport à une utilisation dans des atmosphères explosibles.

Nous déclinons toute responsabilité quant aux dommages que peut occasionner une utilisation non conforme.

Toute modification de l'appareil met fin à l'homologation Ex.

L'appareil est fabriqué conformément aux normes et directives applicables ainsi qu'aux règles de sécurité en vigueur. Toutefois une utilisation inappropriée peut provoquer des dommages corporels ou des dégâts matériels.

Pour écarter tout danger, l'appareil ne peut être utilisé que :

- conformément à sa destination
- dans des conditions de sécurité irréprochables
- dans le respect de cette notice de mise en service



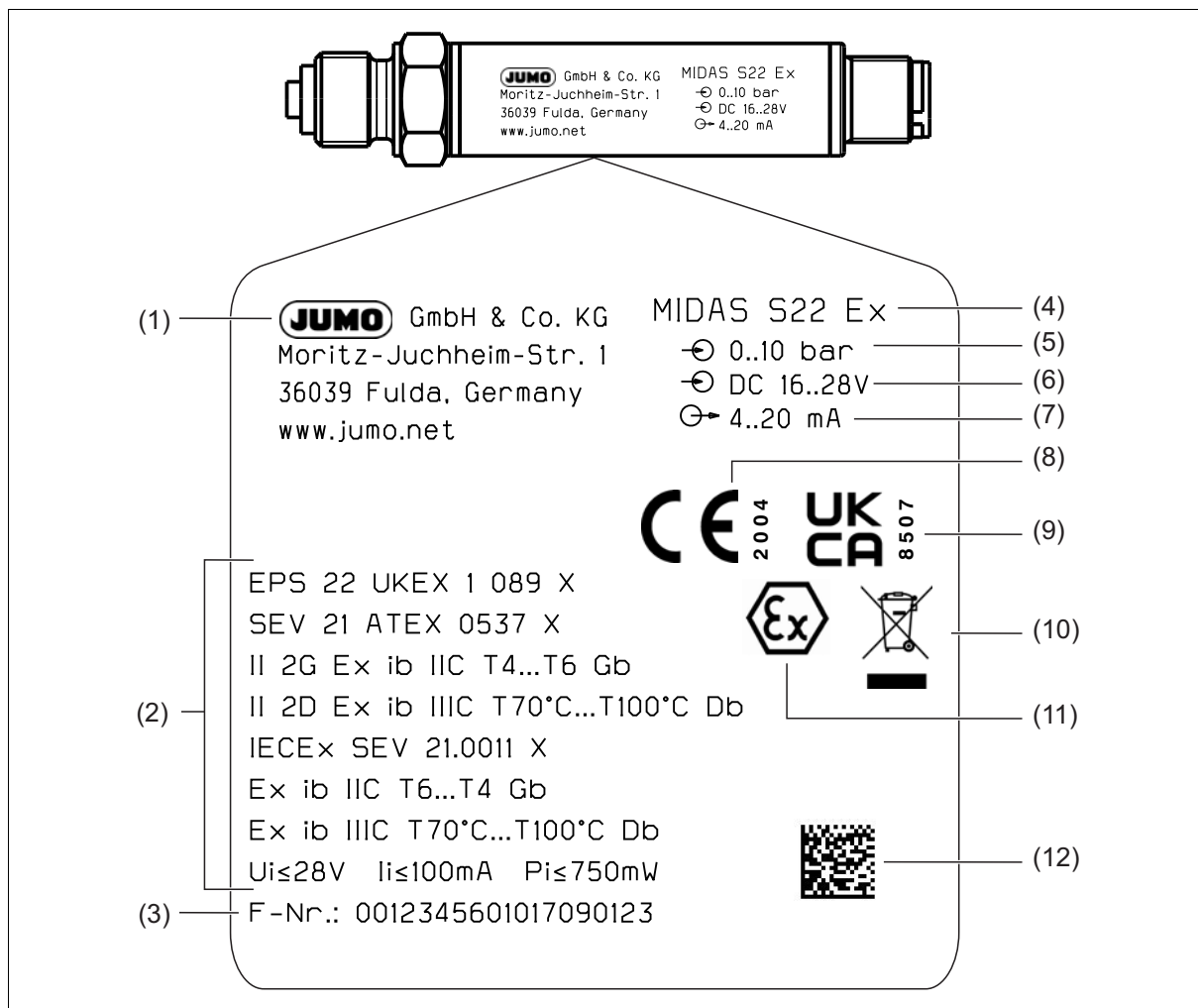
AVERTISSEMENT!

L'utilisation non conforme de l'appareil ou le non-respect des consignes de sécurité de cette notice de mise en service mettent fin à l'homologation Ex.

3 Identification de l'exécution de l'appareil

3.1 Plaque signalétique

Exemple :



- | | | | |
|---|-------------------------------|----|------------------------|
| 1 | Fabricant et adresse | 7 | Sortie |
| 2 | Indications Ex | 8 | Marquage CE |
| 3 | Numéro de fabrication (F-Nr.) | 9 | Marquage UKCA |
| 4 | Désignation de l'appareil | 10 | Traitement des déchets |
| 5 | Etendue de mesure | 11 | Marquage Ex |
| 6 | Alimentation | 12 | Code DMC |

3 Identification de l'exécution de l'appareil

3.2 Références de commande

	(1) Type de base
404720	JUMO MIDAS S22 Ex – Convertisseur de pression miniature pour utilisation en zone Ex
	(2) Extension du type de base
000	Sans
	(3) Entrée
456	0 à 2,5 bar pression relative
458	0 à 6 bar pression relative
459	0 à 10 bar pression relative
460	0 à 16 bar pression relative
461	0 à 25 bar pression relative
462	0 à 40 bar pression relative
463	0 à 60 bar pression relative
464	0 à 100 bar pression relative
480	-1 à +1,5 bar pression relative
481	-1 à +3 bar pression relative
482	-1 à +5 bar pression relative
483	-1 à +9 bar pression relative
490	0 à 2,5 bar pression absolue
491	0 à 4 bar pression absolue
492	0 à 6 bar pression absolue
493	0 à 10 bar pression absolue
494	0 à 16 bar pression absolue
495	0 à 25 bar pression absolue
505	0 à 40 bar pression absolue
506	0 à 60 bar pression absolue
507	0 à 100 bar pression absolue
998	Etendue de mesure spéciale, pression absolue
999	Etendue de mesure spéciale, pression relative
	(4) Sortie
405	4 à 20 mA, 2 fils
	(5) Raccord de process
480	M12 × 1 femelle
481	M12 × 1 avec capuchon protecteur
502	G 1/4 DIN EN 837
530	M8 × 1 DIN 3852-1
531	M10 × 1 DIN 3852-1
532	M12 × 1,5 DIN 3852-1
544	7/16-20 UNF SAE J514 avec joint torique
561	G 1/4 affleurant avec double joint
562	7/16-20UNF
	(6) Matériau du raccord de process
20	CrNi (acier inoxydable)
	(7) Raccordement électrique
11	Câble fixe, bleu ^a
36	Connecteur coaxial M12 × 1

3 Identification de l'exécution de l'appareil

(8) Options	
000	Sans
085	Homologation UKEX
462	Signal de sortie inversé
591	Etranglement dans le canal de pression
624	Sans huile ni graisse
630	Canal de pression agrandi

^a Longueur standard du câble : 2 m. Autres longueurs sur demande.

Code de commande (1) (2) (3) (4) (5) (6) (7) (8)
 / - - - - - - /
Exemple de commande 404720 / 000 - 459 - 405 - 502 - 20 - 11 / 000

3.3 Matériel livré

Appareil dans l'exécution commandée
Notice de mise en service

3 Identification de l'exécution de l'appareil

3.4 Accessoires

Désignation	Description	Référence article
<p>Amplificateur séparateur d'entrée et alimentation à séparation galvanique Ex-i</p> 	<p>L'ampli-séparateur d'alimentation Ex "i" et l'ampli-séparateur d'entrée sont conçus pour utilisation de convertisseurs de pression à sécurité intrinsèque (Ex-i) et sources de courant mA en zone Ex.</p> <p>Les convertisseurs de mesure en technique 2 fils sont alimentés et les valeurs mesurées 0/4 à 20 mA sont transmises de la zone Ex vers la zone non Ex. La sortie du module peut être active ou passive. Vous trouverez les caractéristiques techniques ainsi que les prescriptions de sécurité correspondantes dans la notice de mise en service B 70753.0.</p>	00577948
<p>Connecteur, droit</p> 	<p>Le câble de raccordement en PVC a une longueur de 2 m et dispose d'un connecteur droit M12 × 1 à 4 pôles et contacts dorés du côté de l'appareil.</p>	00404585
<p>Connecteur, coudé</p> 	<p>Le câble de raccordement en PVC de 2 m de long dispose d'un connecteur M12 × 1 coudé à 4 pôles et contacts dorés du côté de l'appareil.</p>	00409334

4 Caractéristiques techniques

4.1 Généralités

Normes de référence	suivant EN 60770-1 et IEC 61298-1
Capteur	
Matériau	Capteur en silicium avec membrane de séparation en acier inoxydable
Agent de transmission de pression	Huile synthétique
Cycles d'effort admissibles	> 10 millions
Position	
Position de montage	Quelconque
Position de calibrage	Appareil à la verticale, raccord de process vers le bas

4.2 Etendue de mesure et précision

Etendue de mesure bar	Linéarité ^a % MSP ^f	Précision pour		Stabilité à long terme ^b % MSP par an	Capacité de surcharge ^c bar	Pression d'éclatement bar
		20 °C ^d % MSP	-20 à +80 °C ^e % MSP			
-1 à +1,5 bar pression relative	0,3	0,5	1,3	≤ 0,2	10	24
-1 à +3 bar pression relative	0,3	0,5	1,2		20	50
-1 à +5 bar pression relative	0,3	0,5	1,2		40	60
-1 à +9 bar pression relative	0,3	0,5	1,0		50	60
0 à 2,5 bar pression relative	0,3	0,5	1,3		10	24
0 à 4 bar pression relative	0,3	0,5	1,2		20	50
0 à 6 bar pression relative	0,3	0,5	1,2		40	60
0 à 10 bar pression relative	0,3	0,5	1,0		50	60
0 à 16 bar pression relative	0,3	0,5	1,0		100	150
0 à 25 bar pression relative	0,3	0,5	1,0		120	180
0 à 40 bar pression relative	0,3	0,5	1,0		300	400
0 à 60 bar pression relative	0,3	0,5	1,0		300	400
0 à 100 bar pression relative	0,3	0,5	1,0		300	400
0 à 2,5 bar pression absolue	0,3	0,5	1,3		10	24
0 à 4 bar pression absolue	0,3	0,5	1,2		20	50
0 à 6 bar pression absolue	0,3	0,5	1,2		40	60
0 à 10 bar pression absolue	0,3	0,5	1,0		50	60
0 à 16 bar pression absolue	0,3	0,5	1,0		100	150
0 à 25 bar pression absolue	0,3	0,5	1,0		120	180
0 à 40 bar pression absolue	0,3	0,5	1,0		300	400
0 à 60 bar pression absolue	0,3	0,5	1,0	300	400	
0 à 100 bar pression absolue	0,3	0,5	1,0	300	400	

^a Linéarité suivant réglage du point de coupure = 2 × BFSL (best fit straight line)

^b Normes de référence EN 61298-1

^c Tous les convertisseurs de pression tiennent au vide.

^d Comprend : linéarité, hystérésis, reproductibilité, écart entre la valeur de début d'étendue (offset) et de fin d'étendue de mesure

^e Comporte : linéarité, hystérésis, reproductibilité, écart des valeurs de début (offset) et de fin d'étendue de mesure, influence thermique sur le début de l'étendue de mesure (offset) et l'intervalle de mesure

^f MSP = Intervalle de mesure

4 Caractéristiques techniques

4.3 Sorties

Signal de sortie Courant	4 à 20 mA, 2 fils
Réponse à un échelon T_{90}	≤ 3 ms
Charge 4 à 20 mA, 2 fils Influence de la charge	$R_B \leq (U_B - 16 \text{ V}) \div 0,022 \text{ A } (\Omega)$ $\leq 0,01 \%$ par 100 Ω

4.4 Caractéristiques mécaniques

Matériau	
Raccord de process	316 Ti
Capuchon protecteur	PVC (pour M12 × 1 avec capuchon protecteur)
Membrane	316 L
Boîtier	304
Raccordement électrique	304, PA (pour connecteur rond M12 × 1) 304, PUR (pour câble fixe)
Câble	PUR
Section de fil	0,22 mm ²
Rayon de courbure	max. 35 mm
Poids	env. 55 g

4.5 Influences de l'environnement

	Affleurant	Non affleurant
Température ambiante	10 à 40 °C	-20 à +85 °C
Température de stockage	10 à 40 °C	-20 à +85 °C
Température du milieu	10 à 40 °C	-20 à +85 °C
Indice de protection	DIN EN 60529 IP68	
Compatibilité électromagnétique (CEM)	DIN EN 61326-2-3:2022	
Emission de parasites	Classe B ^a	
Résistance aux parasites	Normes industrielles	
Contrainte mécanique	DIN EN 60068-2-6, DIN EN 60068-2-27	
Résistance aux chocs	20 g/11 ms, 50 g pour 1 ms	
Résistance aux vibrations	10 g pour 10 à 2000 Hz	

^a Le produit est adapté à l'usage industriel tout comme aux ménages et aux petites entreprises.








4 Caractéristiques techniques

4.6 Caractéristiques électriques

Alimentation U_B^a 4 à 20 mA, 2 fils	DC 16 à 28 V
Puissance absorbée	≤ 23 mA
Circuit électrique	à sécurité intrinsèque

^a Ondulation résiduelle : les pointes de tension ne doivent pas être supérieures ou inférieures aux valeurs indiquées pour l'alimentation !

4.7 Homologations et marques de contrôle

	Désignation	ATEX
	Organisme d'essai	Eurofins Electric & Electronic Product Testing AG
	Certificate n°	SEV 21 ATEX 0537 X
	Base d'essai	EN IEC 60079-0, EN 60079-11
	Marquage	II 2G Ex ib IIC T6 ... T4 Gb, II 2D Ex ib IIIC T70 °C ... T100 °C Db
	S'applique à	Type 404720
	Désignation	UKEX
	Organisme d'essai	Bureau Veritas
	Certificate n°	EPS 22 UKEX 1 089 X
	Base d'essai	EN IEC 60079-0, EN 60079-11
	Marquage	II 2G Ex ib IIC T4 ... T6 Gb, II 2D Ex ib IIIC T70 °C ... T100 °C Db
	S'applique à	Type 404720
	Désignation	IECEX
	Organisme d'essai	Eurofins Electric & Electronic Product Testing AG
	Certificate n°	IECEX SEV 21.0011X
	Base d'essai	IEC 60079-0, IEC 60079-11
	Marquage	Ex ib IIC T6 ... T4 Gb, Ex ib IIIC T70 °C ... T100 °C Db
	S'applique à	Type 404720

Pour les conditions particulières d'utilisation, se référer au certificat d'examen de type.



DANGER!

Le convertisseur de pression n'est pas conforme aux exigences „Equipement avec fonction de sécurité“ suivant la directive relative aux équipements sous pression 2014/68/UE.

- ▶ En présence de matières dangereuses, par ex. oxygène, acétylène, matières combustibles et toxiques, ainsi que des installations frigorifiques, réservoirs sous pression etc. les prescriptions s'y rapportant doivent être respectées !
Les prescriptions de sécurité et les instructions pour la prévention des accidents nationales et internationales doivent être respectées !
Le non respect de ces instructions peut causer des dégâts corporels et matériels !
L'exploitant de l'installation est responsable du respect des dispositions légales !
Seules les personnes qualifiées peuvent intervenir sur cet appareil.

5.1 Généralités

Avant le montage



DANGER!

Avant le montage du convertisseur de pression, l'installation doit être placée hors tension !



ATTENTION!

Le convertisseur de pression ne peut être utilisé que dans des milieux pour lesquels la membrane est suffisamment résistante chimiquement (corrosion). Une liaison électriquement conductrice doit être assurée entre le convertisseur de pression et le raccord de process (installation).



REMARQUE !

Le lieu de montage doit être facilement accessible, aussi près que possible du point de mesure ; il ne doit pas être soumis à des vibrations. Il faut respecter la température ambiante admissible (attention aux éventuels rayonnements thermiques). Le convertisseur de pression peut être monté au-dessus ou en-dessous du point de prise de pression.

5.2 Raccord de pression

Joint



DANGER!

Pour le mode de protection à sécurité intrinsèque, il faut utiliser une garniture plate pour le raccord de process s'y rapportant, par ex. suivant EN 837 !

- ▶ Après la mise en place du raccordement au process, il faut vérifier son étanchéité !
Si le convertisseur de pression est vissé dans un orifice taraudé, il faut utiliser **la longueur totale** du filetage du convertisseur de pression !



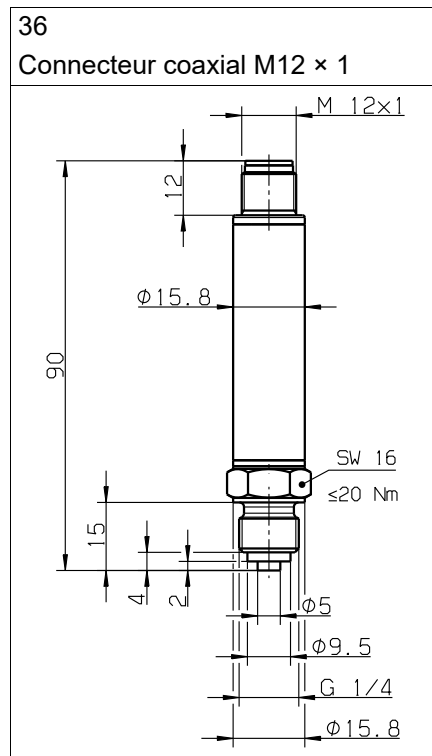
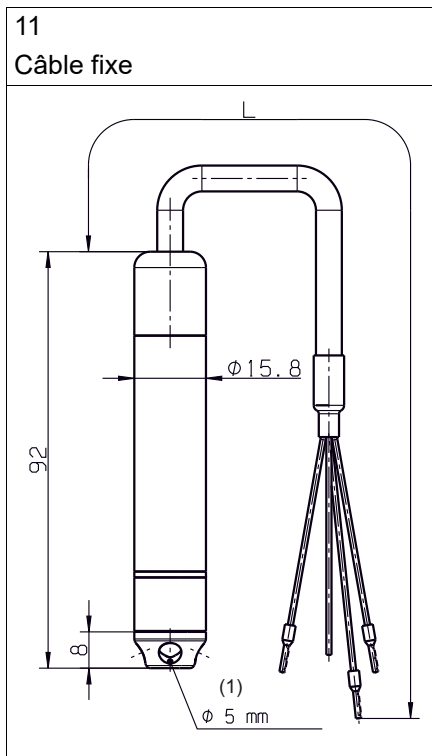
REMARQUE !

Si le convertisseur de pression est vissé dans un orifice taraudé, il faut utiliser la longueur totale du filetage du convertisseur de pression.

5 Montage

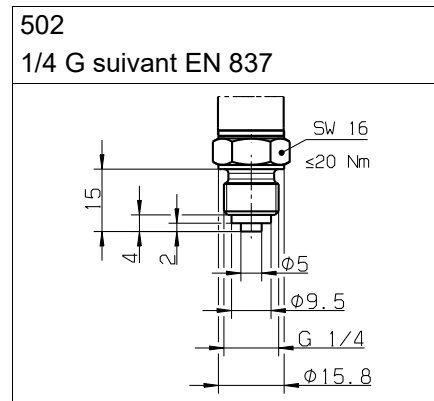
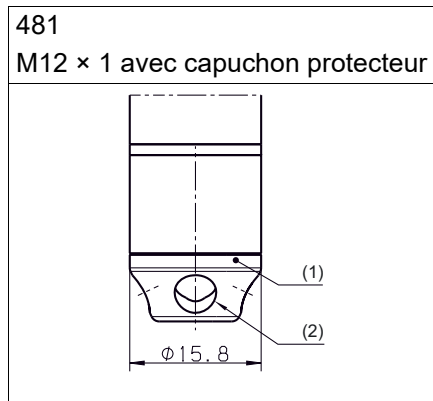
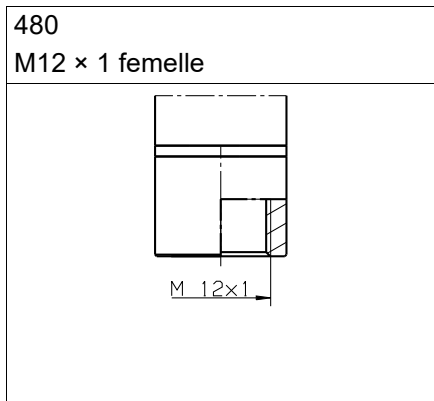
5.3 Dimensions

5.3.1 Raccordement électrique

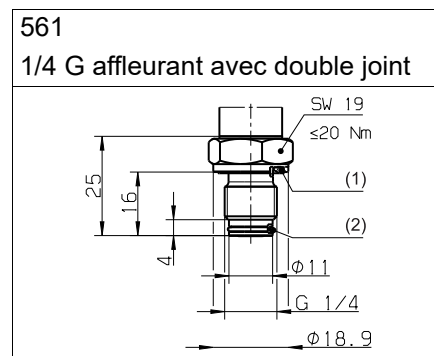
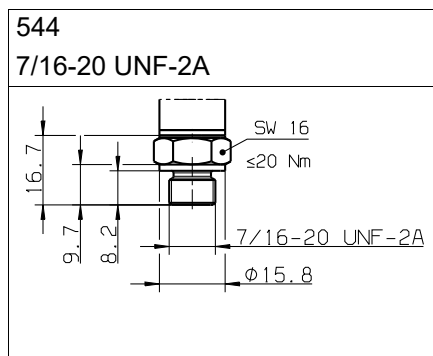
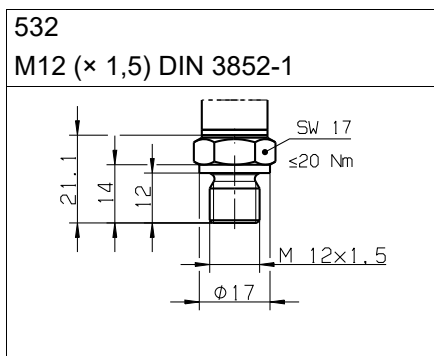
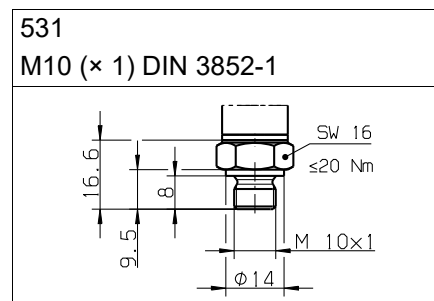
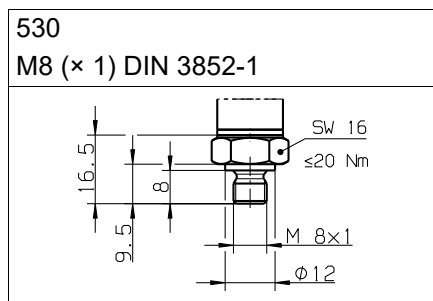
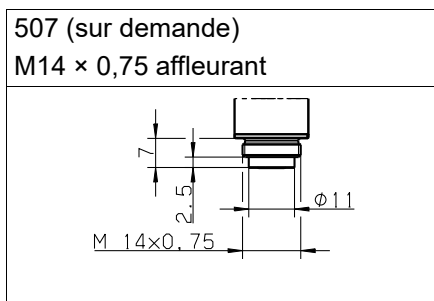


1 5 \times perçage

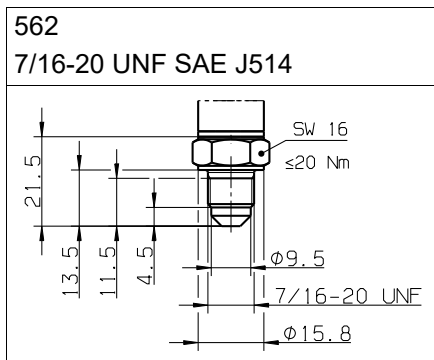
5.3.2 Raccords de process



- 1 Capuchon protecteur
- 2 5× perçage $\phi 5$ mm



- 1 Bague d'étanchéité profilée 1/4 G
- 2 Joint torique 9 × 1



6 Installation

6.1 Raccordement électrique



DANGER!

Lors de la réalisation du raccordement électrique, il convient de respecter les réglementations en vigueur :

- Règlement sur les installations électriques en atmosphères explosibles (Elex V)
- Règlement relative à la mise en place d'installations électriques en atmosphères explosibles
- Déclaration de conformité CE

- ▶ Le raccordement électrique ne doit être effectué que par du personnel qualifié !
Die L'alimentation doit être à sécurité intrinsèque et ne doit pas dépasser les valeurs maximales suivantes :
U_i : DC 28 V
I_i : 100 mA
P_i : 750 mW
inductance interne effective L : capacité interne effective négligeable C : ≤ 10,4 nF
Seuls les appareils de mesure certifiés à sécurité intrinsèque peuvent être utilisés dans des circuits à sécurité intrinsèque !

Pour le raccordement électrique 11 (câble fixe) les valeurs suivantes sont obtenues en fonction de la longueur de câble l :

$$U_i \leq 28 \text{ V}$$

$$I_i \leq 100 \text{ mA}$$

$$P_i \leq 750 \text{ mW}$$

$$C_i \leq 10,4 \text{ nF} + 107 \frac{\text{pF}}{\text{m}} \times l$$

$$L_i \leq 1 \frac{\mu\text{H}}{\text{m}} \times l$$

Généralités


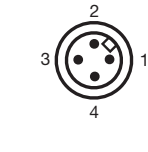


- Longueur du câble max. 50 m
- Rayon de courbure min. 120 mm (pour pose fixe)
- Tuyau de compensation de pression inclus dans le câble ainsi que dans la prise du câble accessoire (chapitre 3.4 "Accessoires", Page 11) ; permet la compensation automatique des fluctuations de la pression de l'air ambiant pour les versions à pression relative
- Empêcher la pénétration d'humidité dans l'extrémité du câble
- En cas de prolongation du câble, attention aux inductances et capacités qui dépendent de la longueur
- Les câbles de signal doivent cheminer séparément des câbles avec des tensions > 60 V
- Utiliser du câble blindé avec des conducteurs torsadés
- Éviter la proximité d'installations électriques puissantes



REMARQUE !

Le circuit électrique à sécurité intrinsèque doit être limité à la catégorie de surtension I, comme défini dans IEC 60664-1 et l'alimentation des circuits est réalisée exclusivement à partir d'une source d'alimentation de sécurité intrinsèque certifiée avec un niveau de protection „ib“.

6.2 Schéma de raccordement

Raccordement		Brochage ^a			
					
		11 Câble fixe	36 Connecteur coaxial M12 x 1	Accessoire Connecteur, coudé/droit	
				PVC	PUR
4 à 20 mA, 2 fils (sortie 405)					
Alimentation 16 à 28 V DC	$U_B/S+$ 0 V/S-	WH BU	1 3	BN BU	WH BU
Blindage					
Attention : mettre l'appareil à la terre ! Tous les appareils raccordés (par ex. pompes, soupapes) doivent être mis à la terre sur le même potentiel !			BK	-	-

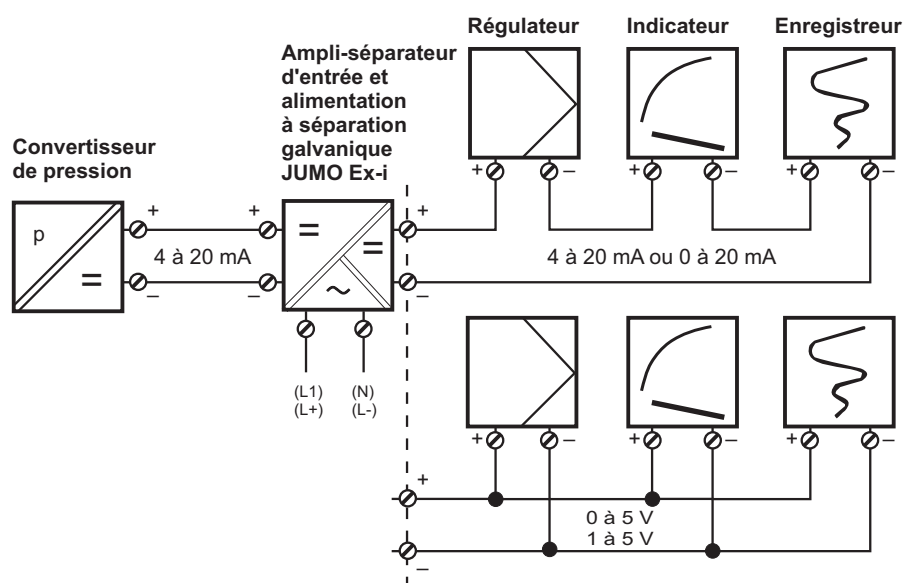
^a Figure : raccordement au convertisseur de pression



ATTENTION!

Mettre le boîtier du convertisseur de pression à la terre via le raccord de process — pour la protection contre les champs électromagnétiques et les charges électromagnétiques — (mise à la terre pour des raisons fonctionnelles) !

6.3 Exemples de raccordement



7 Entretien, nettoyage, retour, mise, rebut

7.1 Maintenance

Le convertisseur de pression ne nécessite aucun entretien.

7.2 Nettoyage



REMARQUE !

Évitez d'endommager l'appareil en raison d'un nettoyage inadéquat.

Ne pas endommager l'appareil, en particulier les parties en contact avec l'eau.
Le produit de nettoyage ne doit pas attaquer la surface et les joints.

7.3 Retour



AVERTISSEMENT!

Dommages corporels, dommages matériels, dommages environnementaux

Les résidus du produit sur le produit retiré peuvent endommager les personnes, l'environnement et les équipements.

► Prenez les précautions nécessaires.



REMARQUE !

L'appareil ne peut être démonté que par du personnel qualifié lorsque le système est dans un état sûr et hors tension.

Procéder :

1. Remplir correctement le [la lettre d'accompagnement pour les retours de produits](#) et joindre les documents d'expédition signés et les apposer de préférence à l'extérieur de l'emballage.
2. Pour le retour d'un appareil, utiliser l'emballage d'origine ou un conteneur de transport sûr et approprié.

7.4 Traitement des déchets



- Cet appareil, ou les pièces remplacées, ne doit pas être jeté à la poubelle après utilisation.
- Effacer les programmes et les données enregistrés sur l'appareil.
- Retirer les piles, s'il y en a, sans endommager l'appareil dans la mesure du possible.
- Jeter l'appareil ainsi que les matériaux d'emballage conformément aux règlements et de façon non polluante.
- Respecter les lois et prescriptions de votre pays en matière d'évacuation et de traitement des déchets.

Conformément à la directive 2012/19/UE relative aux déchets d'équipements électriques et électroniques, les fabricants sont tenus d'offrir la possibilité de reprendre les appareils usagés. Demander la reprise au fabricant.

JUMO GmbH & Co. KGMoritz-Juchheim-Straße 1
36039 Fulda, GermanyTel.: +49 661 6003-0
Fax: +49 661 6003-500E-Mail: mail@jumo.net
Internet: www.jumo.netMore than **sensors + automation**

EU-Konformitätserklärung

EU declaration of conformity / Déclaration UE de conformité

Dokument-Nr. CE 817
Document No. / Document n°.

Hersteller JUMO GmbH & Co. KG
Manufacturer / Etabli par

Anschrift Moritz-Juchheim-Straße 1, 36039 Fulda, Germany
Address / Adresse

Produkt*Product / Produit***Name***Name / Nom***Typ***Type / Type***Typenblatt-Nr.***Data sheet no. / N°**Document**d'identification*

JUMO MIDAS S22 Ex	404720	404720
-------------------	--------	--------

Produktbeschreibung*Product description / Description du produit*

Industrial pressure transmitter.

Wir erklären in alleiniger Verantwortung, dass das bezeichnete Produkt die Anforderungen der Europäischen Richtlinien erfüllt.

We hereby declare in sole responsibility that the designated product fulfills the requirements of the European Directives.

Nous déclarons sous notre seule responsabilité que le produit remplit les Directives Européennes.

Dokument-Nr.
Document No. / Document n°.

CE 817

EU-Konformitätserklärung

Seite: 1 von 5

8 Certificats

JUMO GmbH & Co. KG

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36039 Fulda, Germany

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E-Mail: mail@jumo.net
Internet: www.jumo.net



More than sensors + automation

1. Richtlinie

Directive / Directive

Name EMC 2014/30/EU

Name / Nom

Konformitätsbewertungsverfahren Mod. A

Conformity assessment procedure /

Procédure d'évaluation de la conformité

Datum der Erstanbringung des CE-Zeichens auf dem Produkt 2021

Date of first application of the CE mark to the product /

Date de 1ère application du sigle sur le produit

Angewendete Normen/Spezifikationen

Standards/Specifications applied / Normes/Spécifications appliquées

Referenz

Reference / Référence

Ausgabe

Edition / Édition

Bemerkung

Comment / Remarque

EN 61326-1

2013

EN 61326-2-3

2013

Gültig für Typ

Valid for Type / Valable pour le type

404720/...

2. Richtlinie

Directive / Directive

Name ATEX 2014/34/EU

Name / Nom

Konformitätsbewertungsverfahren Mod. B+D

Conformity assessment procedure /

Procédure d'évaluation de la conformité

Datum der Erstanbringung des CE-Zeichens auf dem Produkt 2021

Date of first application of the CE mark to the product /

Date de 1ère application du sigle sur le produit

Dokument-Nr.

Document No. / Document n°.

CE 817

EU-Konformitätserklärung

Seite: 2 von 5

JUMO GmbH & Co. KG

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Internet: www.jumo.net



More than **sensors + automation**

Gültig für Typ

Valid for Type / Valable pour le type

404720/000-*-405-*-20-*

2.1 EU-Baumusterprüfbescheinigung

EU type examination certificate / Certificat d'examen de type UE

Zertifikatsnummer

Certificate number / Numéro de certificat

SEV 21 ATEX 0537 X Ausgabe 0

Notifizierte Stelle

Notified Body / Organisme notifié

Eurofins Electric & Electronic Product Testing
AG, Luppmenstrasse 3, 8320 Fehraltdorf,
Switzerland

Angewendete Normen/Spezifikationen

Standards/Specifications applied / Normes/Spécifications appliquées

Referenz

Reference / Référence

Ausgabe

Edition / Édition

Bemerkung

Comment / Remarque

EN 60079-0

2018

EN 60079-11

2012

Qualitätssicherung bezogen auf den Produktionsprozess

Quality assurance of the production process / L'assurance de la qualité de la production

Zertifikatsnummer

Certificate number / Numéro de certificat

Available on request

Notifizierte Stelle

Notified Body / Organisme notifié

BUREAU VERITAS Consumer Products
Services Germany GmbH, Wilhelm-Hennemann-
Straße 8, 19061 Schwerin, Germany

Kennnummer

Identification no. / N° d'identification

2004

Dokument-Nr.

Document No. / Document n°.

CE 817

EU-Konformitätserklärung

Seite: 3 von 5

8 Certificats

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More than sensors + automation

3. Richtlinie

Directive / Directive

Name

RoHS 2011/65/EU

Name / Nom

Konformitätsbewertungsverfahren

Mod. A

Conformity assessment procedure /

Procédure d'évaluation de la conformité

Datum der Erstanbringung des CE-Zeichens auf dem Produkt

2021

Date of first application of the CE mark to the product /

Date de 1ère application du sigle sur le produit

Angewendete Normen/Spezifikationen

Standards/Specifications applied / Normes/Spécifications appliquées

Referenz

Reference / Référence

Ausgabe

Edition / Édition

Bemerkung

Comment / Remarque

VDK Umweltrelevante Aspekte V1

bei der Produktentwicklung und
-gestaltung

Gültig für Typ

Valid for Type / Valable pour le type

404720/...

Dokument-Nr.

Document No. / Document n°.

CE 817

EU-Konformitätserklärung

Seite: 4 von 5

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Internet: www.jumo.net



More than **sensors + automation**

Aussteller

Issued by / Etabli par

JUMO GmbH & Co. KG

Ort, Datum

Place, date / Lieu, date

Fulda, 2023-05-10

Rechtsverbindliche Unterschriften

Legally binding signatures /

Signatures juridiquement valable

Bereichsleitung Globaler Vertrieb

i. V. Markus Belmer

Qualitätsbeauftragter und Leiter Qualitätswesen

i. V. Harald Gienger

8 Certificats



EU-Type Examination Certificate

- (1)
- (2) Equipment or protective system intended for use in potentially explosive atmospheres - **Directive 2014/34/EU**
- (3) Certificate number: **SEV 21 ATEX 0537 X**
- (4) Product: Pressure transducer Type: JUMO MIDAS S22 Ex 404720 / 000 - *** - 405 - *** - 20 - **
- (5) Manufacturer: JUMO GmbH & Co. KG
- (6) Address: Moritz-Juchheim-Strasse 1, 36039 Fulda, Germany
- (7) The equipment and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.
- (8) Eurofins, notified body No. 1258, in accordance with article 17 of Directive 2014/34/EU of the European parliament and of the council, dated 26 February 2014, certifies that this product has been found to comply with the essential health and safety requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.
The examination and test results are recorded in confidential report no 20CH-01639.X01
- (9) Compliance with the essential health and safety requirements has been assured by compliance with:
EN IEC 60079-0:2018
EN 60079-11:2012
Except in respect of those requirements listed at item 18 of the schedule.
- (10) If the sign «X» is placed after the certificate number, it indicates that the product is subjected to special conditions for safe use specified in the schedule to this certificate. The sign "U" is placed after the certificate number. It indicates that this certificate must not be mistaken for a certificate intended for an equipment or protective system. This partial certification may be used as a basis for certification of an equipment or protective system.
- (11) This EU type examination certificate relates only to design and construction of the specified product. Further requirements of this directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.
- (12) The marking of the product shall include the following:

 II 2G Ex ib IIC T6 ... T4 Gb
II 2D Ex ib IIIC T70 °C ... T100 °C Db

Eurofins Electric & Electronic Product Testing AG
Notified Body ATEX

Rahel Nydegger
Product Certification



www.eurofins.ch

Fehraltorf, 2021-06-10

Issue: 0

Page 1 of 4

T8a_V01

(13)

Appendix

(14)

EU-Type Examination Certificate no. SEV 21 ATEX 0537 X

(15) **Description of product**

The pressure transducer JUMO MIDAS S22 Ex type 404710 / 000 - *** - 405 - *** - 20 - ** serves for converting a physical measured quantity (pressure) into a standardised electrical signal (current signal 4 ... 20 mA). It is intended for use within potentially explosive areas.

The intrinsically safe circuit is connected with a non-detachable (cable length in plain text) or circular connector M12 x 1.

Measuring and supply circuit with the type of protection intrinsic safety

Ex ib IIC

Ex ib IIIC

Only for connection to a certified intrinsically safe circuit.

Classification of installation and use:	stationary
Ingress protection:	IP65
Rated ambient temperature range (°C):	Equipment protection level Gb
	Ambient temperature:
	T4: -40 °C to +85 °C
	T5: -40 °C to +70 °C
	T6: -40 °C to +55 °C
	Equipment protection level Db
	maximum surface temperature:
	T100 °C: -40 °C to +85 °C
	T85 °C: -40 °C to +70 °C
	T70 °C: -40 °C to +55 °C
Rated ambient temperature range (°C) for Ex Components	N/A

Rating:

Input and supply circuits:

With type of protection intrinsic safety Ex ib IIC and IIIC.

Only for connection to certified intrinsically safe circuit.

Maximum values for circular connector M12x1 and special electrical connection:

$U_i \leq 28 \text{ V}$

$I_i \leq 100 \text{ mA}$

$P_i \leq 750 \text{ mW}$

$C_i = 10.4 \text{ nF}$ (effective internal capacitance)

$L_i \approx 0 \text{ uH}$ (effective internal inductance)

Maximum values for electrical connection with non-detachable cable:

$U_i \leq 28 \text{ V}$

$I_i \leq 100 \text{ mA}$

$P_i \leq 750 \text{ mW}$

$C_i \leq 10.4 \text{ nF} + 107 \text{ pF/m} \cdot \text{cable length}$

$L_i \leq 1 \text{ uH/m} \cdot \text{cable length}$

8 Certificats



Type designation:

Example of type designation 404720/000 - 543 - 405 - 507 - 20 - 36 / 000
(1) (2) (3) (4) (5) (6) (7) (8)

(1) Basic type

404720 JUMO MIDAS S22 Ex – Pressure transducer for use in potentially explosive atmospheres

(2) Basic type changes

/000 None

(3)* Pressure rated measuring range

480 -1 to +1.5 bar relative pressure
481 -1 to +3 bar relative pressure
482 -1 to +5 bar relative pressure
483 -1 to +9 bar relative pressure
456 0 to 2.5 bar relative pressure
457 0 to 4 bar relative pressure
458 0 to 6 bar relative pressure
459 0 to 10 bar relative pressure
460 0 to 16 bar relative pressure
461 0 to 25 bar relative pressure
462 0 to 40 bar relative pressure
463 0 to 60 bar relative pressure
464 0 to 100 bar relative pressure
463 0 to 60 bar relative pressure
464 0 to 100 bar relative pressure
490 0 to 2.5 bar absolute pressure
491 0 to 4 bar absolute pressure
492 0 to 6 bar absolute pressure
493 0 to 10 bar absolute pressure
494 0 to 16 bar absolute pressure
495 0 to 25 bar absolute pressure
505 0 to 40 bar absolute pressure
506 0 to 60 bar absolute pressure
507 0 to 100 bar absolute pressure
998 special measuring range for absolute pressure
999 special measuring range for relative pressure

(4) Electrical output

405 4 to 20 mA. two-wire

(5)* Process connection

480 M12x1 inside
481 M12x1 with protection cap
502 G 1/4 according to DIN EN 837
507 M14x0.75 flush with front
530 M8 (x1) according to DIN 3852-1
531 M10 (x1) according to DIN 3852-2
532 M12 (x1.5) according to DIN 3852-3
544 7/16-20 UNF-2A
561 G 1/4 flush with front, two-times sealing
562 7/16-20 UNF SAE J514
999 according to customer specification

(6) Material of process connection

20 CrNi (stainless steel)

(7) Electrical connection

11 attached cable
36 round plug M12x1

(8)* Additional options

000 without
462 inverted output signal
591 choking coil in pressure channel
624 free from oil and grease
630 widened pressure channel

*) The numerical type keys can be extended with values not named here in the sense of the basic test. These extensions have no effect on the explosion protection and general safety.





(16) **Special conditions for safe use:**

- For details concerning the admissible ambient temperatures and temperature classes please refer to the user's manual.
- The pressure transducer shall be supplied by a circuit of Overvoltage category I.

(17) **Essential health and safety requirements**

In addition to the essential health and safety requirements (EHSRs) covered by the standards listed at item 9, the following are considered relevant to this product, and conformity is demonstrated in the report:

Clause	Subject
None	

(18) **Drawings and Documents**

See test report "Manufacturer's Documents"



8 Certificats

	<h2>IECEX Certificate of Conformity</h2>	
INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres <small>for rules and details of the IECEx Scheme visit www.iecex.com</small>		
Certificate No.:	IECEX SEV 21.0011X	Page 1 of 4
Status:	Current	Issue No: 1
Date of Issue:	2023-04-27	Certificate history: Issue 0 (2021-06-10)
Applicant:	JUMO GmbH & Co KG Moritz-Juchheim-Straße 1, 36039 Fulda Germany	
Equipment:	Pressure transducer , Type: JUMO MIDAS S22 Ex 404720 / 000 - *** - 405 - *** - 20 - **	
Optional accessory:		
Type of Protection:	ib	
Marking:	Ex ib IIC T6 ... T4 Gb Ex ib IIIC T70 °C ... T100 °C Db	
Approved for issue on behalf of the IECEx Certification Body:		Thomas Köhntopp
Position:		Manager Product Certification
Signature: (for printed version) <i>Köhntopp</i>		
Date: (for printed version) <i>2023-04-27</i>		
<ul style="list-style-type: none">1. This certificate and schedule may only be reproduced in full.2. This certificate is not transferable and remains the property of the issuing body.3. The Status and authenticity of this certificate may be verified by visiting www.iecex.com or use of this QR Code.		
Certificate issued by: Eurofins Electric & Electronic Product Testing AG Luppenstrasse 3 8320 FEHRALTORF Switzerland		 eurofins E&E



IECEX Certificate of Conformity

Certificate No.: **IECEX SEV 21.0011X** Page 2 of 4
Date of issue: 2023-04-27 Issue No: 1

Manufacturer: **JUMO GmbH & Co KG**
Moritz-Juchheim-Straße 1, 36039 Fulda
Germany

Manufacturing locations:

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended

STANDARDS :
The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

IEC 60079-0:2017 Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

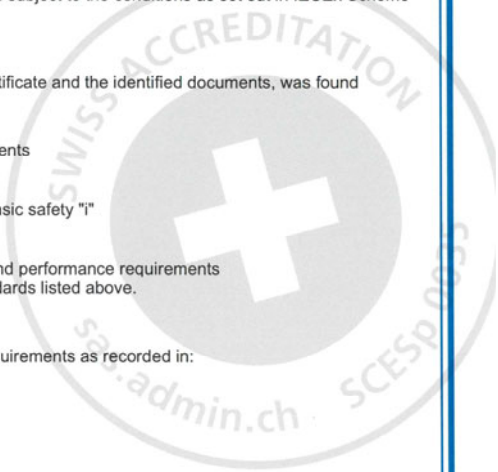
IEC 60079-11:2011 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "I"
Edition:6.0

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:
A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Report:
[CH/SEV/ExTR21.0012/00](#)

Quality Assessment Report:
[DE/EPS/QAR23.0003/00](#)



8 Certificats



IECEX Certificate of Conformity

Certificate No.: **IECEX SEV 21.0011X**

Page 3 of 4

Date of issue: 2023-04-27

Issue No: 1

EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

The pressure transducer JUMO MIDAS S22 Ex type 404710 / 000 - *** - 405 - *** - 20 - ** serves for converting a physical measured quantity (pressure) into a standardised electrical signal (current signal 4 ... 20 mA). It is intended for use within potentially explosive areas. The intrinsically safe circuit is connected with a non-detachable (cable length in plain text) or circular connector M12 x 1.

Measuring and supply circuit with the type of protection intrinsic safety

Ex ib IIC
Ex ib IIIC

Only for connection to a certified intrinsically safe circuit.

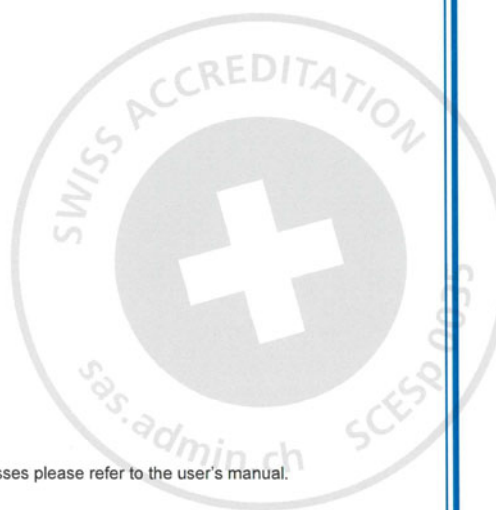
Classification of installation and use: stationary
Ingress protection: IP65
Rated ambient temperature range (°C): Equipment protection level Gb
Ambient temperature:
T4: -40 °C to +85 °C
T5: -40 °C to +70 °C
T6: -40 °C to +55 °C

Equipment protection level Db
maximum surface temperature:
T100 °C: -40 °C to +85 °C
T85 °C: -40 °C to +70 °C
T70 °C: -40 °C to +55 °C

Rated ambient temperature range (°C)
for Ex Components N/A

SPECIFIC CONDITIONS OF USE: YES as shown below:

- For details concerning the admissible ambient temperatures and temperature classes please refer to the user's manual.
- The pressure transducer shall be supplied by a circuit of Overvoltage category I.





IECEX Certificate of Conformity

Certificate No.: **IECEX SEV 21.0011X**

Page 4 of 4

Date of issue: 2023-04-27

Issue No: 1

DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)
Change of ExCB for quality system. Link to QAR updated.

Annex:

[IECEX SEV 21.0011 Annexe i1.pdf](#)



8 Certificats



Annexe to: IECEx SEV 21.0011X

Issue No.: 1

page 1 of 2

Applicant Name: JUMO GmbH & Co. KG
Moritz-Juchheim-Strasse 1, 36039 Fulda, GERMANY

Electrical Apparatus: Pressure transducer

Rating:

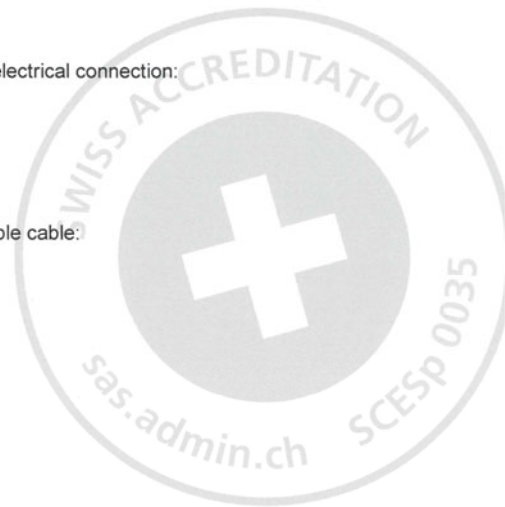
Input and supply circuits:
With type of protection intrinsic safety Ex ib IIC and IIIC.
Only for connection to certified intrinsically safe circuit.

Maximum values for circular connector M12x1 and special electrical connection:

$U_i \leq 28 \text{ V}$
 $I_i \leq 100 \text{ mA}$
 $P_i \leq 750 \text{ mW}$
 $C_i = 10.4 \text{ nF}$ (effective internal capacitance)
 $L_i \approx 0 \text{ uH}$ (effective internal inductance)

Maximum values for electrical connection with non-detachable cable:

$U_i \leq 28 \text{ V}$
 $I_i \leq 100 \text{ mA}$
 $P_i \leq 750 \text{ mW}$
 $C_i \leq 10.4 \text{ nF} + 107 \text{ pF/m} \cdot \text{cable length}$
 $L_i \leq 1 \text{ uH/m} \cdot \text{cable length}$



Eurofins Electric & Electronic Product Testing AG
Swiss Certification Body

Luppenstrasse 3 Tel. +41 58 220 32 00
CH-8320 Fehraltorf CustomerCenter@eurofins.ch
www.eurofins.ch



Annexe to: IECEx SEV 21.0011X

Issue No.: 1
page 2 of 2

Type designation:

Example of type designation 404720/000 - 543 - 405 - 507 - 20 - 36 / 000
(1) (2) (3) (4) (5) (6) (7) (8)

(1) Basic type

404720 JUMO MIDAS S22 Ex – Pressure transducer for use in potentially explosive atmospheres

(2) Basic type changes

/000 None

(3)* Pressure rated measuring range

480 -1 to +1.5 bar relative pressure
481 -1 to +3 bar relative pressure
482 -1 to +5 bar relative pressure
483 -1 to +9 bar relative pressure
456 0 to 2.5 bar relative pressure
457 0 to 4 bar relative pressure
458 0 to 6 bar relative pressure
459 0 to 10 bar relative pressure
460 0 to 16 bar relative pressure
461 0 to 25 bar relative pressure
462 0 to 40 bar relative pressure
463 0 to 60 bar relative pressure
464 0 to 100 bar relative pressure
463 0 to 60 bar relative pressure
464 0 to 100 bar relative pressure
490 0 to 2.5 bar absolute pressure
491 0 to 4 bar absolute pressure
492 0 to 6 bar absolute pressure
493 0 to 10 bar absolute pressure
494 0 to 16 bar absolute pressure
495 0 to 25 bar absolute pressure
505 0 to 40 bar absolute pressure
506 0 to 60 bar absolute pressure
507 0 to 100 bar absolute pressure
998 special measuring range for absolute pressure
999 special measuring range for relative pressure

(4) Electrical output

405 4 to 20 mA, two-wire

(5)* Process connection

480 M12x1 inside
481 M12x1 with protection cap
502 G 1/4 according to DIN EN 837
507 M14x0.75 flush with front
530 M8 (x1) according to DIN 3852-1
531 M10 (x1) according to DIN 3852-2
532 M12 (x1.5) according to DIN 3852-3
544 7/16-20 UNF-2A
561 G 1/4 flush with front, two-times sealing
562 7/16-20 UNF SAE J514
999 according to customer specification

(6) Material of process connection

20 CrNi (stainless steel)

(7) Electrical connection

11 attached cable
36 round plug M12x1

(8)* Additional options

000 without
462 inverted output signal
591 choking coil in pressure channel
624 free from oil and grease
630 widened pressure channel

*) The numerical type keys can be extended with values not named here in the sense of the basic test. These extensions have no effect on the explosion protection and general safety.

8 Certificats

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More than sensors + automation

UK Declaration of Conformity

Document No. UK 170
Manufacturer JUMO GmbH & Co. KG
Address Moritz-Juchheim-Straße 1, 36039 Fulda, Germany

Product
Name JUMO MIDAS S22 Ex
Type 404720
Data sheet no. 404720

Product description
Miniature pressure transmitter for Ex areas.

We hereby declare in sole responsibility that the designated product fulfills the requirements of the statutory instruments.

1. Statutory instrument

Name Electromagnetic Compatibility Regulations 2016
2016 No. 1091
Conformity assessment procedure Mod. A
Date of first application of the UKCA mark to the product 2023

Standards/Specifications applied

Reference	Edition	Comment
EN 61326-1	2013	
EN 61326-2-3	2013	

Valid for Type
404720/...

Document No.

UK 170

UK Declaration of Conformity

Seite: 1 von 3

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Internet: www.jumo.net



More than sensors + automation

2. Statutory instrument

Name The Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016 2016 No. 1107

Conformity assessment procedure Mod. B+D

Date of first application of the UKCA mark to the product 2023

Valid for Type

404720/000-* -405-* -20-*

2.1 Type examination certificate

Certificate number EPS 22 UKEX 1 089 X

Designated body Bureau Veritas Consumer Products Services United Kingdom Limited, 31 Kingsland Grange, Woolston, Warrington, Cheshire, WA1 4RW

Standards/Specifications applied

Reference	Edition	Comment
EN 60079-0	2018	
EN 60079-11	2012	

Quality assurance of the production process

Certificate number EPS 22 UKEX Q 434

Designated body Bureau Veritas Consumer Products Services United Kingdom Limited, 31 Kingsland Grange, Woolston, Warrington, Cheshire, WA1 4RW

Identification no. 8507

8 Certificats

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Fax: +49 661 6003-500

E-Mail: mail@jumo.net
Internet: www.jumo.net



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3. Statutory instrument

Name The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012 2012 No. 3032

Conformity assessment procedure Mod. A

Date of first application of the UKCA mark to the product 2023

Standards/Specifications applied

Reference	Edition	Comment
[VDK] Umweltrelevante Aspekte V1 bei der Produktentwicklung und -gestaltung		

Valid for Type

404720/...

Issued by

JUMO GmbH & Co. KG

Place, date

Fulda, 2023-01-03

Legally binding signatures

Director of Global Sales
Markus Belmer

Head of Quality Department
Harald Gienger

Document No.

UK 170

UK Declaration of Conformity

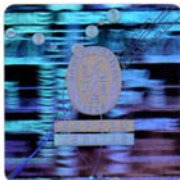
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UK - Type Examination Certificate

- (1) **UK - Type Examination Certificate**
- (2) Equipment and protective systems intended for use in potentially explosive atmospheres – **UKSI 2016:1107 (as amended)**
- (3) UK - Type Examination Certificate Number
- EPS 22 UKEX 1 089 X** **Revision 0**
- (4) Equipment: Pressure transducer JUMO MIDAS S22 Ex 404720 / 000 - *** - 405 - *** - 20 - **
- (5) Manufacturer: JUMO GmbH & Co. KG
- (6) Address: Moritz-Juchheim-Straße 1
36039 Fulda
Germany
- (7) This equipment and any acceptable variation thereto are specified in the annex to this certificate and the documentation therein referred to.
- (8) Bureau Veritas Consumer Products Services United Kingdom Limited, approved body No. 8507 in accordance with UKSI 2016:1107 (as amended) Part 4, certifies that this equipment has been found to comply with the essential health and safety requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres, given in Schedule 1 of UKSI 2016:1107 (as amended). The examination and test results are recorded in the confidential documentation under the reference number 22TH0289.
- (9) Compliance with the essential health and safety requirements has been assured by compliance with:
- EN IEC 60079-0:2018** **EN 60079-11:2012**
- (10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the annex to this certificate.
- (11) This UK - Type Examination Certificate relates only to the design and construction of the specified equipment in accordance with UKSI 2016:1107 (as amended). Further requirements apply to the manufacture of this equipment and its placing on the market. Those requirements are not covered by this certificate.
- (12) The marking of the equipment shall include the following:

II 2G Ex ib IIC T4 ... T6 Gb
 II 2D Ex ib IIIC T70°C ... T100°C Db



Certification department of explosion protection

Warrington, 14-12-2022



Natalie Wilkinson

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Bureau Veritas Consumer Products Services United Kingdom Limited
<https://www.bureauveritas.co.uk/consumer-products-testing>
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Registered Office: 31 Kingsland Grange,
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Registered in England & Wales
 Company Number: 00852439

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8 Certificats



(13)

Annex

(14) **UK - Type Examination Certificate EPS 22 UKEX 1 089 X**

Revision 0

(15) Description of equipment:

The pressure transducer JUMO MIDAS S22 Ex type 404720 / 000 - *** - 405 - *** - 20 - ** serves for converting a physical measured quantity (pressure) into a standardized electrical signal (current signal 4 .. 20 mA). It is intended for use within potentially explosive areas.

The intrinsically safe circuit is connected with a non-detachable (cable length in plain text) or circular connector M12x1.

Measuring and supply circuit with the type of protection intrinsic safety

Ex ib IIC
Ex ib IIIC

Only for connection to a certified intrinsically safe circuit.

Equipment protection level Gb Ambient temperature:

T4: -40 °C to +85 °C

T5: -40 °C to +70 °C

T6: -40 °C to +55 °C

Equipment protection level Db maximum surface temperature:

T100 °C: -40 °C to +85 °C

T85 °C: -40 °C to +70 °C

T70 °C: -40 °C to +55 °C

Details of Rating:

Input and supply circuits:

With type of protection intrinsic safety Ex ib IIC and IIIC.

Only for connection to certified intrinsically safe circuit.

Maximum values for circular connector M12x1 and special electrical connection:

$U_i \leq 28 \text{ V}$

$I_i \leq 100 \text{ mA}$

$P_i \leq 750 \text{ mW}$

$C_i = 10.4 \text{ nF}$ (effective internal capacitance)

$L_i = 0 \text{ uH/m}$ (effective internal inductance)

Maximum values for electrical connection with non-detachable cable:

$U_i \leq 28 \text{ V}$

$I_i \leq 100 \text{ mA}$

$P_i \leq 750 \text{ mW}$

$C_i \leq 10.4 \text{ nF} + 107 \text{ pF/m} \cdot \text{cable length}$

$L_i \leq 1 \text{ uH/m} \cdot \text{cable length}$

Type designation:

Example of type designation 404720/000 - 543 - 405 - 507 - 20 - 36 / 000

(1) (2) (3) (4) (5) (6) (7) (8)

(1) Basic type

404720/000 JUMO MIDAS S22 Ex – Pressure transducer for use in potentially explosive atmospheres

(2) Basic type changes

/000 None

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UK - Type Examination Certificate EPS 22 UKEX 1 089 X

Revision 0

(3)* Pressure rated measuring range

- 480 -1 to +1.5 bar relative pressure
- 481 -1 to +3 bar relative pressure
- 482 -1 to +5 bar relative pressure
- 483 -1 to +9 bar relative pressure
- 456 0 to 2.5 bar relative pressure
- 457 0 to 4 bar relative pressure
- 458 0 to 6 bar relative pressure
- 459 0 to 10 bar relative pressure
- 460 0 to 16 bar relative pressure
- 461 0 to 25 bar relative pressure
- 462 0 to 40 bar relative pressure
- 463 0 to 60 bar relative pressure
- 464 0 to 100 bar relative pressure
- 490 0 to 2.5 bar absolute pressure
- 491 0 to 4 bar absolute pressure
- 492 0 to 6 bar absolute pressure
- 493 0 to 10 bar absolute pressure
- 494 0 to 16 bar absolute pressure
- 495 0 to 25 bar absolute pressure
- 506 0 to 60 bar absolute pressure
- 507 0 to 100 bar absolute pressure
- 998 special measuring range for absolute pressure
- 999 special measuring range for relative pressure

(4) Electrical output

- 405 4 to 20 mA, two-wire

(5)* Process connection

- 480 M12x1 inside
- 481 M12x1 with protection cap
- 502 G 1/4 according to DIN EN 837
- 507 M14x0.75 flush with front
- 530 M8 (x1) according to DIN 3852-1
- 531 M10 (x1) according to DIN 3852-2
- 532 M12 (x1.5) according to DIN 3852-3
- 544 7/16-20 UNF-2A
- 561 G 1/4 flush with front, two-times sealing
- 562 7/16-20 UNF SAE J514
- 999 according to customer specification

(6) Material of process connection

- 20 CrNi (stainless steel)

(7) Electrical connection

- 11 attached cable
- 36 round plug M12x1

(8)* Additional options

- 000 without
- 462 inverted output signal
- 591 choking coil in pressure channel
- 624 free from oil and grease
- 630 widened pressure channel

*) The numerical type keys can be extended with values not named here in the sense of the basic test. These extensions have no effect on the explosion protection and general safety.

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UK - Type Examination Certificate EPS 22 UKEX 1 089 X

Revision 0

- (16) Reference number: 22TH0289
- (17) Special conditions for safe use:
1. For details concerning the admissible ambient temperatures and temperature classes please refer to the user's manual.
 2. The pressure transducer shall be supplied by a circuit of Overvoltage category I.
- (18) Essential health and safety requirements:

Met by compliance with standards.

Certification department of explosion protection

Warrington, 14-12-2022



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		产品中有害物质的名称及含量 China EEP Hazardous Substances Information						
		铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)	
产品组别 Product group: 404720	部件名称 Component Name							
	外壳 Housing (Gehäuse)	○	○	○	○	○	○	○
	过程连接 Process connection (Prozessanschluss)	X	○	○	○	○	○	○
	螺母 Nuts (Mutter)	○	○	○	○	○	○	○
	螺栓 Screw (Schraube)	○	○	○	○	○	○	○

本表格依据SJ/T 11364的规定编制。
 This table is prepared in accordance with the provisions SJ/T 11364.
 ○：表示该有害物质在该部件所有均质材料中的含量均在GB/T 26572规定的限量要求以下。
 Indicate the hazardous substances in all homogeneous materials' for the part is below the limit of the GB/T 26572.
 x：表示该有害物质至少在该部件的某一均质材料中的含量超出GB/T 26572规定的限量要求。
 Indicate the hazardous substances in at least one homogeneous materials' of the part is exceeded the limit of the GB/T 26572.

8 Certificats



JUMO GmbH & Co. KG

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