HYDAC ELECTRONIC

Bedienungsanleitung (Originalanleitung)
Druckmessumformer Serie HDA 4000
für das Medium Wasserstoff
Eigensicher, nicht funkend.
ATEX, IECEx 2-fach Zulassung

Operating Instructions (Translation of the original operating instructions)
Pressure Transmitter Series HDA 4000
for medium hydrogen,
Intrinsically safe,
non-sparking.
ATEX, IECEx dual approval

Schutzklassen und Einsatzbereiche / Protection Types and Zones:

ATEX		
KEMA 05ATEX1016X	**I M1**	**Ex ia I Ma**
	II 1G	**Ex ia IIC T6 Ga**
	II 1/2 G	**Ex ia IIC T6 Ga/Gb**
	II 2 G	**EX ia IIC T6 Gb**
	II 1D	**Ex ia IIIC T85°C Da**
	II 3G	**Ex nA IIC T6, T5, T4 Gc**
	II 3G	**Ex ic IIC T6, T5, T4 Gc**
	II 3D	**Ex ic IIIC T80/T90/T100°C Dc**
IECEx		
IECEx KEM 08.0014X	**Ex ia I Ma**	
	Ex ia IIC T6 Ga	
	Ex ia IIC T6 Ga/Gb	
	Ex ia IIC T6 Gb	
	Ex ia IIIC T85°C Da	
	Ex nA IIC T6, T5, T4 Gc	
	Ex ic IIC T6, T5, T4 Gc	
	Ex ic IIIC T80/T90/T100°C Dc	

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1 Allgemeines

Falls Sie Fragen bezüglich der technischen Daten oder Eignung für Ihre Anwendungen haben, wenden Sie sich bitte an unseren **technischen Vertrieb**. Die Druckmessumformer der Serie HDA 4000 werden auf rechnergesteuerten Prüfplätzen abgeglichen und einem Endtest unterzogen. Sie sind wartungsfrei und sollten beim Einsatz innerhalb der Spezifikationen (siehe Technische Daten) einwandfrei arbeiten. Falls trotzdem Fehler auftreten, wenden Sie sich bitte an den **HYDAC-Service**. Fremdeingriffe in das Gerät führen zum Erlöschen jeglicher Gewährleistungsansprüche sowie der ATEX und IECEx-Zulassungen.

2 Funktion

Das vom Sensor gemessene Drucksignal wird in ein dem Druck proportionales, analoges 4..20 mA Signal umgewandelt.

3 Montage und Inbetriebnahme

Die Druckmessumformer können auf Prozess-Seite direkt über den Gewindeanschluss montiert werden. Es ist darauf zu achten, dass die Membrane während der Montage nicht beschädigt wird.

Um in kritischen Anwendungsfällen (z.B. starke Vibrationen oder Schläge) einer mechanischen Zerstörung vorzubeugen, empfehlen wir das Gerät mittels einer Schelle mit Elastomereinsatz zu befestigen, sowie den Hydraulikanschluss über eine Minimessleitung zu entkoppeln.

Anzugsdrehmoment siehe Abmessungen.

Druckmessumformer mit einem Nenndruck ≤100 bar (≤1500 psi) besitzen einen Druckausgleich zum Umgebungsdruck. Hierzu befindet sich unter der Steckerbefestigung eine kleine Bohrung. Diese ist von innen mit einer speziellen Membrane abgedeckt, die verhindert, dass Feuchtigkeit von außen in das Gerät eindringen kann. Um eine Verstopfung der Bohrung zu verhindern, sollte bei feuchter und staubhaltiger Umgebung die Montage daher waagerecht oder senkrecht mit dem Druckanschluss nach unten erfolgen.

Bei Druckmessumformern mit einem Nenndruck von ≤100 bar (≤1500 psi) und einem ½-14 Conduit elektrischen Anschluss ist der Druckausgleich bei Einzeladern mittels einer kurzen Entlüftungslitze realisiert, bei Mantelkabel mittels einem im Kabel integrierten Entlüftungsschlauch. Es ist sicherzustellen, dass die Entlüftung nur im Nicht-Ex-Bereich erfolgt.

Die Installation muss von einem Fachmann nach den jeweiligen Landesvorschriften zu potentiell explosionsgefährdeten Umgebungen durchgeführt werden (z.B. IEC / EN 60079-14).

Die Druckmessumformer der Serie HDA 4000 tragen das CE - Zeichen. Die Konformitätserklärung befindet sich im Anhang.

Die Forderungen der Normen (siehe techn. Daten) werden nur bei ordnungsgemäßer und fachmännischer Erdung des Druckmessumformergehäuses mittels des Prozessanschlusses oder dem ½ NPT Conduit erreicht. Sofern eine grün/gelbe Ader vorhanden ist, darf diese zusätzlich, aber nicht zur alleinigen Erdung verwendet werden. Bei Schlauchmontage des Druckmessumformers muss das Gehäuse separat geerdet werden.

Die zugehörigen eigensicheren Geräte (z.B. Zenerbarrieren) sind ebenfalls zu erden. Ein Potentialausgleich entlang des eigensicheren Stromkreises ist in der Ausführungsvariante N (Isolationsspannung <= 50 VAC) erforderlich.

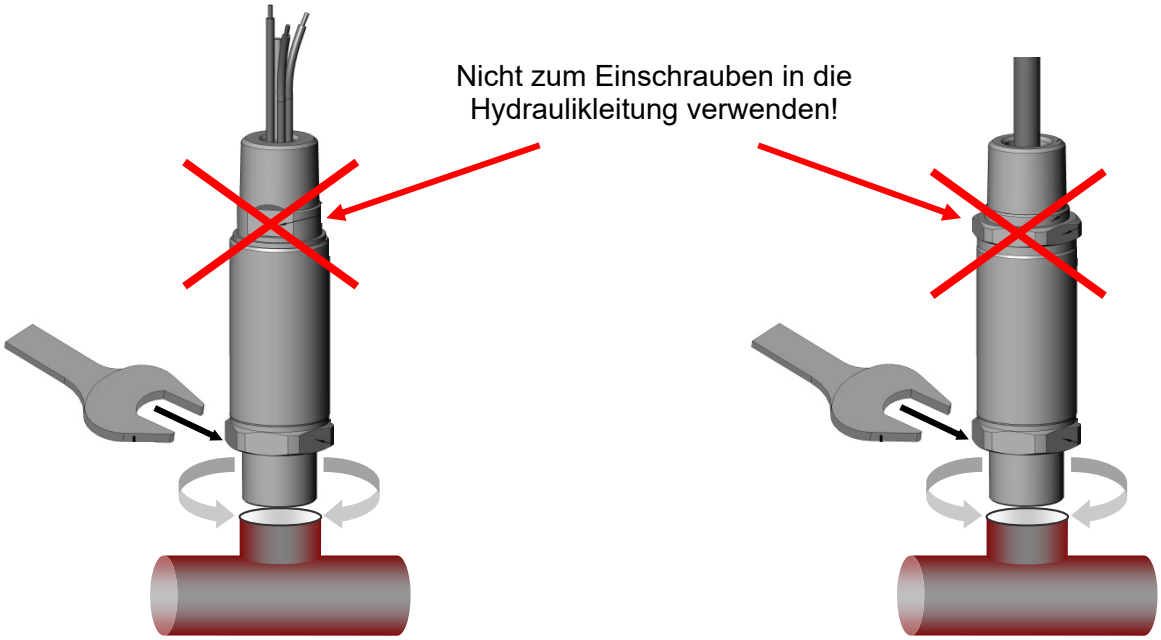
Bei der Serie HDA 4000 in der Ausführungsform H (Isolationsspannung ≤ 500 VAC) darf die Kabellänge zum Druckmessumformer maximal 30m betragen (Überspannungsschutz nach DIN EN 61000-6-2). Wenn die Kabellänge 30m überschreitet, muss der Überspannungsschutz kundenseitig sichergestellt werden.

4 Wichtige Hinweise für die Installation

4.1 Installationshinweise für Geräte mit ½-14 NPT Conduit

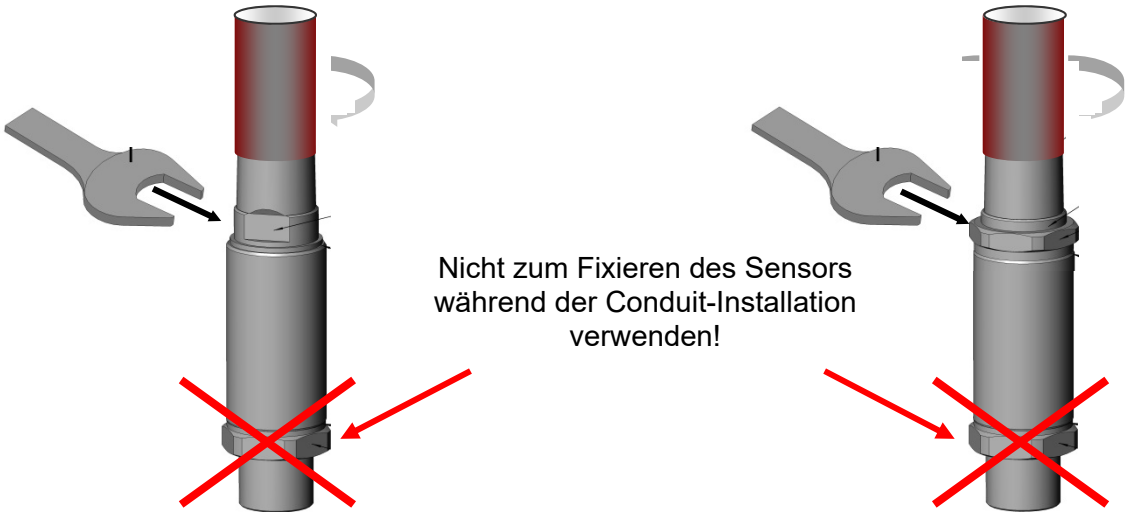
Mechanische Installation

Für die Montage des Prozessanschlusses darf nur die Schlüsselfläche an der Prozessanschlussseite des Druckmessumformers verwendet werden.



Elektrische Installation

Die Schlüsselfläche an der Seite des elektrischen Anschlusses am ½-14 NPT Conduit dient nur zum Fixieren des Druckmessumformers bei der Conduit-Installation.



4.2 Installationshinweise für Geräte mit Schlagschutz

Installationshinweise für Geräte mit M12×1 Stecker mit Schlagschutz-/Sicherungs- Metallhülse für den Einsatz in:

ATEX
II 3G Ex nA IIC T6, T5 Gc

IECEx
Ex nA IIC T6, T5 Gc

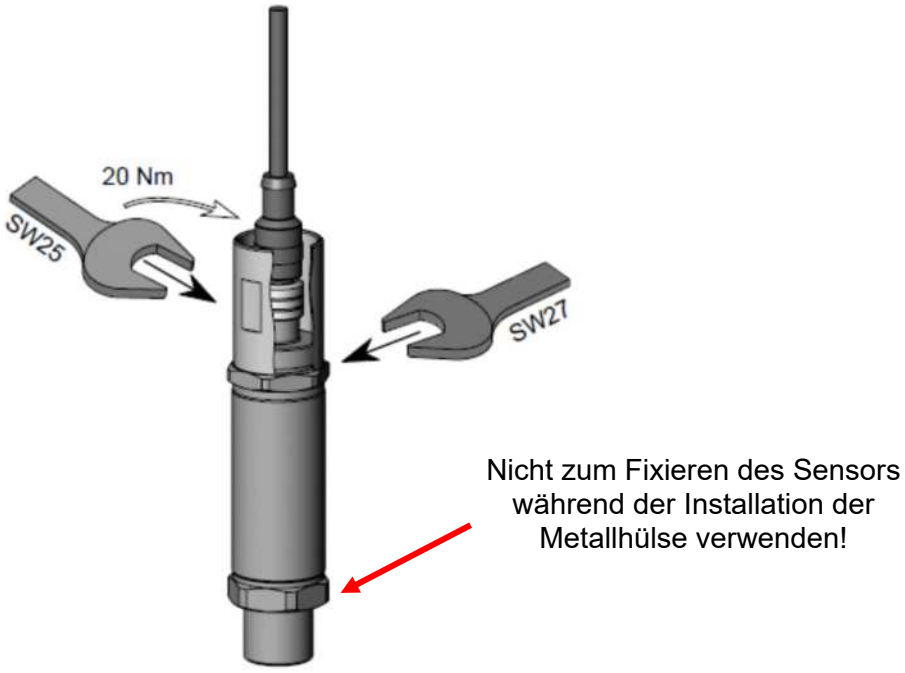
Zur Einhaltung der Sicherheitsrichtlinien ist, für diese Schutzklassen und Einsatzbereiche, die Verwendung der Schlagschutz-/ Sicherungs- Metallhülse zwingend erforderlich.

Die Schlüsselfläche 27mm an der Seite des elektrischen Anschlusses dient nur zum Fixieren des Druckmessumformers bei Installation der Schlagschutz-/Sicherungs-Metallhülse.

Das Anschlusskabel mit M12x1 Stecker muss im spannungslosen Zustand ordnungsgemäß angeschlossen werden, damit sich die Steckverbindung bei Vibrationen nicht lösen kann.

Die mitgelieferte Schlagschutz-/Sicherungs-Metallhülse muss ebenfalls ordnungsgemäß mit einem Anzugsdrehmoment von 20 Nm montiert werden.

Auch die Trennung des M12x1 Steckers darf nur im spannungslosen Zustand erfolgen.



5 Sicherheitshinweise

Wenn das Etikett nicht mehr lesbar ist, muss der Druckmessumformer außer Betrieb gesetzt werden.
Die Druckmessumformer sind generell mit einer geeigneten, eigensicheren Barriere zu betreiben.

Die Dichtungen sind in regelmäßigen Abständen, in Abhängigkeit der klimatischen Bedingungen und dem Medieneinfluss, auf ihre Funktionstüchtigkeit zu kontrollieren, und wenn erforderlich auszutauschen. Ersatzdichtungen und –flachdichtungen können von der HYDAC ELECTRONIC GMBH bezogen werden. (Standarddichtungen siehe technische Daten). Diese Überprüfung muss mindestens alle drei Jahre durchgeführt werden.

Bei gleichzeitigem Einsatz in Zone 0 und 1 wirkt die Metall-Messmembrane des Druckmessumformers als "Trennwand" zwischen Zone 0 und Zone 1. Die Dicke dieser "Trennwand" ist generell ≤ 1mm und bei Nenndruck unter 100 bar ≤ 0,2 mm. Zur Sicherstellung dieser Trennfunktion ist unbedingt auf die Verträglichkeit der Messmedien mit den verwendeten Werkstoffen des Druckmessumformers zu achten, ebenso sind die Überlast- und Berstdrücke unbedingt einzuhalten (Angaben hierzu siehe "Technische Daten").

Es ist unbedingt auf die Verträglichkeit der Messmedien mit den Dichtungen und den verwendeten Werkstoffen des Druckmessumformers zu achten, ebenso sind die Überlast- und Berstdrücke unbedingt einzuhalten (Angaben hierzu siehe "Technische Daten" und "Sicherheitstechnische Daten" der EG Baumusterprüfbescheinigung).

Die interne Messmembrane des Druckmessumformers ist unbedingt vor mechanischer Beschädigung zu schützen.

Ebenso ist auf eine ausreichende Dichtung zwischen den Zonen zu achten.

Die Daten hinsichtlich der Nutzung in explosionsgefährdeten Umgebungen sind in jedem Fall zu berücksichtigen.

Der Betrieb ist nur zulässig, wenn anwendungs- und prozessbedingte intensive elektrostatische Aufladungsprozesse ausgeschlossen sind.

Aus Sicherheitsgründen sollten Stromversorgung / Ausgangsstromkreis des Druckmessumformers geerdet werden.

Zur Einhaltung der Sicherheitsrichtlinien ist für die Schutzklassen und Einsatzbereiche:
ATEX: II 3G Ex nA IIC T6, T5 Gc
IECEx: Ex nA IIC T6, T5 Gc
die Verwendung der Schlagschutz-/ Sicherungs- Metallhülse zwingend erforderlich.
Die Schlagschutz-/Sicherungs- Metallhülse ist mit einem Anzugsdrehmoment von 20 Nm anzuziehen.

6 Technische Daten HDA 4000

Eingangskenngrößen												
Messbereiche	bar	16	25	40	60	100	200	250	400	500	600	1050
Überlastbereiche	bar	50	50	80	120	200	500	500	800	1000	1000	1400
Berstdruck	bar	125	125	200	300	500	1250	1250	2000	3000	3000	3000
Messbereiche	psi	300	500	750	1500	3000	5000	6000	9000	15000		
Überlastbereiche	psi	725	1160	1740	2900	7250	11600	14500	14500	20300		
Berstdruck	psi	1800	2900	4350	7250	18000	29000	43500	43500	43500		
Mechanischer Anschluss (Anzugsdrehmoment, empfohlen)	SF250CX20, Autoclave (7/16-20 UNF 2B) (15 Nm für Messbereich ≤ 600 bar/9000 psi) (20 Nm für Messbereich 1050 bar/15000 psi) G 1/4 B DIN EN 837 (20 Nm für Messbereich ≤ 600 bar/ 9000 psi) (40 Nm für Messbereich 1050 bar/15000 psi) 3/4-16 UNF 2A (SAE8) (20 Nm für Messbereich ≤ 600 bar/ 9000 psi)											
Medienberührende Teile	Edelstahl	1.4435; (Ni Gehalt ≥13%)										
	Messzelle	goldbeschichtet										
	Dichtung	Kupfer (Cu-DHP) (G 1/4 B) Zurcon ® Z22 (SAE 8)										

Ausgangsgrößen		**HDA 4400**	**HDA 4700**
Ausgangssignal, zulässige Bürde		4 .. 20 mA (2-Leiter), $R_{Lmax.} = (U_B – 12\ V) / 20\ mA\ [k\Omega]$	4 .. 20 mA (2-Leiter), $R_{Lmax.} = (U_B – 12\ V) / 20\ mA\ [k\Omega]$
Genauigkeit nach DIN 16086, Grenzpunkteinstellung	Typ. Max.	≤ ± 0,5 % FS ≤ ± 1,0 % FS	≤ ± 0,25 % FS ≤ ± 0,5 % FS
Genauigkeit bei Kleinstwerteinstellung (B.F.S.L)	Typ. Max.	≤ ± 0,25 % FS ≤ ± 0,5 % FS	≤ ± 0,15 % FS ≤ ± 0,25 % FS
Temperaturkompensation Nullpunkt	Typ. Max.	≤ ± 0,015 % FS/°C [≤ ± 0,0085 % FS/°F] ≤ ± 0,025 % FS/°C [≤ ± 0,014 % FS/°F]	≤ ± 0,008 % FS/°C [≤ ± 0,0045 % FS/°F] ≤ ± 0,015 % FS/°C [≤ ± 0,0085 % FS/°F]
Temperaturkompensation Spanne	Typ. Max.	≤ ± 0,015 % FS/°C [≤ ± 0,0085 % FS/°F] ≤ ± 0,025 % FS/°C [≤ ± 0,014 % FS/°F]	≤ ± 0,008 % FS/°C [≤ ± 0,0045 % FS/°F] ≤ ± 0,015 % FS/°C [≤ ± 0,0085 % FS/°F]
Nicht-Linearität beiGrenzpunkt-einstellung nach DIN 16086	Max.	≤ ± 0,3 % FS	≤ ± 0,3 % FS
Hysterese	Max.	≤ ± 0,4 % FS	≤ ± 0,1 % FS
Wiederholbarkeit		≤ ± 0,1 % FS	≤ ± 0,1 % FS
Anstiegszeit		≤ 2 ms	≤ 2 ms
Langzeitdrift	Typ.	≤ ± 0,3 % FS / Jahr	≤ ± 0,3 % FS / Jahr
Umgebungsbedingungen			
Kompensierter Temperaturbereich		-25 .. 85 °C [-13 .. 185 °F]	
Betriebs-/ Umgebungs-Mediumstemperaturbereich		T6, T80/T85 °C: Ta = -40 .. +60 °C [-40 .. 140 °F] T5, T90 °C: Ta = -40 .. +70 °C [-40 .. 158 °F] T100 °C: Ta = -40 .. +80 °C [-40 .. 176 °F] T4: Ta = -40 .. +85 °C [-40 .. 185 °F]	
Lagertemperaturbereich		-40 .. +100 °C [-40 .. 212 °F]	
CE - Zeichen		EN 61000-6-1/ 2/ 3/ 4; EN 60079-0/ 11/ 15/ 26; EN 50303	
Vibrationsbeständigkeit nach DIN EN 60068-2-6 bei 10 .. 500Hz		≤ 20 g ≤ 10 g bei Geräten mit elektr. Anschluss ½-14 NPT Conduit	
Schockfestigkeit nach DIN EN 60068-2-27		≤ 100 g / 6 ms	
Schutzart nach DIN EN 60529 [1)] ISO 20653		IP 67 (Gerätestecker) IP 6K9K (1/2-14 NPT Conduit)	

Relevante Daten für die Ex-Anwendung		**Ex ia, ic**	**Ex nA**
Versorgungsspannung		Ui = 12 .. 28 V	12 .. 28 V
Maximaler Speisestrom		Ii = 100 mA	
Maximale Speiseleistung		Pi = 1W	Max. Leistungsaufnahme ≤ 1W
Anschlusskapazität des Sensors		C_i = ≤ 22 nF	
Induktivität des Sensors		L_i = 0 mH	
Isolationsspannung [2)]		50 V AC, mit integriertem Überspannungsschutz nach EN 61000-6-2 oder 500 VAC	
Sonstige Größen			
Verpolungsschutz der Versorgungsspannung, Überspannung-, Übersteuerungsschutz Lastkurzschlussfestigkeit		vorhanden	
Restwelligkeit Versorgungsspannung		≤ 5 %	
Stromaufnahme		≤ 25 mA	
Lebensdauer		> 10 Mio. Lastwechsel 0 .. 100% FS	
Gewicht		ca. 150 g (Gerätestecker) ca. 300 g (1/2-14 NPT Conduit)	

Anm: Verpolungsschutz der Versorgungsspannung, Überspannungs-, Übersteuerungsschutz, Lastkurzschlussfestigkeit sind vorhanden.

FS (**F**ull **S**cale) = bezogen auf den vollen Messbereich

B.F.S.L. = **B**est **F**it **S**traight **L**ine

[1)] Bei montierter Kupplungsdose entsprechender Schutzart

[2)] Siehe Typenschlüssel „Isolationsspannung“

7 Typenschlüssel zur Identifikation des gelieferten Gerätes

7.1 Typenschlüssel HDA 4000

HDA 4 X X X - A - XXXXX - E X X - H00 (psi) XX inch

Genauigkeit

4 = 1 % FS max.
7 = 0,5 % FS max.

Anschlussart, mechanisch

C = SF250CX20, Autoclave (7/16-20 UNF 2B), Innengewinde
G = 1/4 B DIN EN 837
H = 3/4-16 UNF 2A (SAE8)

Anschlussart, elektrisch

5 = Gerätestecker EN 175301-803, 3-pol.+PE (inkl. Kupplungsdose IP 67)
6 = Gerätestecker M12x1, 4-pol. (ohne Kupplungsdose)
9 = 1/2-14 NPT Conduit (Außengewinde), Einzeladern

Ausgangssignal

A = 4 .. 20 mA, 2 Leiter

Messbereiche

Angabe in bar oder psi (bei psi zusätzliches Kennzeichen nach der Modifikationsnummer)

Zulassung

E = ATEX und IECEx (genauere Angaben siehe Zertifikate)

Isolationsspannung

H = 500 V AC gegen Gehäuse
N = 50 V AC gegen Gehäuse

Schutzklassen und Einsatzgebiete (siehe auch Tabelle, Kap.7.2)

	ATEX	**IECEx**
1 =	I M1 Ex ia I Ma II 1G Ex ia IIC T6 Ga II 1/2G Ex ia IIC T6 Ga/Gb II 2G Ex ia IIC T6 Gb II 1D Ex ia IIIC T85°C Da	Ex ia I Ma Ex ia IIC T6 Ga Ex ia IIC T6 Ga/Gb Ex ia IIC T6 Gb Ex ia IIIC T85°C Da
9 =	II 3G Ex nA IIC T6, T5 Gc [1)]	Ex nA IIC T6, T5 Gc [1)]
C =	II 3G Ex ic IIC T6, T5 Gc II 3D Ex ic IIIC T80/T90°C Dc	Ex ic IIC T6, T5 Gc Ex ic IIIC T80/T90°C Dc

Modifikationsnummer

H00 = Für das Medium Wasserstoff
(andere Nummer wird z.B. verwendet für andere Anschlussbelegung)

(**psi**)

Zusätzliche Kennzeichnung für psi-Messbereiche (entfällt bei bar-Messbereichen)

Kabellänge (z.B. für Conduit-Aanschluss, entfällt bei Gerätesteckern)

Angabe in m oder inch im Klartext

[1)] Nicht für elektrischen Anschluss "5" (EN 175301-803). Nur in Verbindung mit elektrischem Anschluss "6" und der Schlagschutz-Sicherungs-Metallhülse

7.2 Auswertetabelle: Zuordnung der Schutzklassen

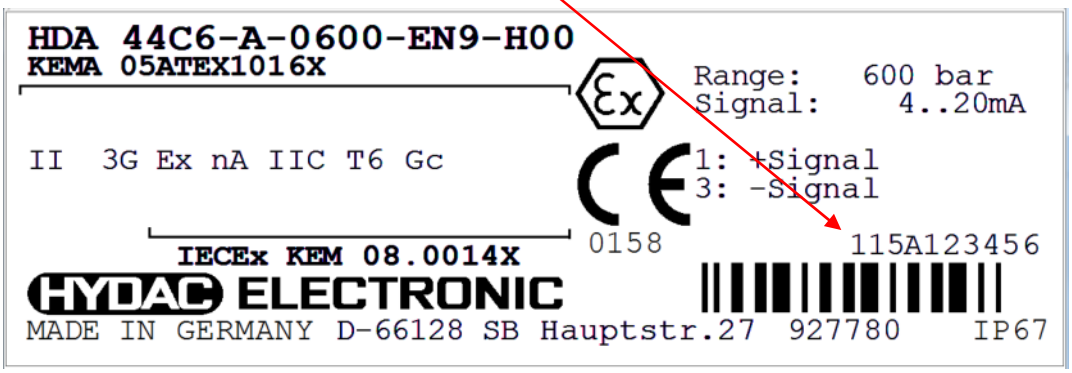
Kennzahl - Typenschlüssel	1			9	C
ATEX KEMA 05 ATEX 1016X	I M1 Ex ia I Ma	II 1G Ex ia IIC T6 Ga II 1/2G Ex ia IIC T6 Ga/Gb II 1D Ex ia IIIC T85°C Da	II 2G Ex ia IIC T6 Gb	II 3G Ex nA IIC T6,T5 Gc	II 3G Ex ic IIC T6,T5 Gc II 3D Ex ic IIIC T80/T90°C Dc
IECEx KEMA 08.0014X	Ex ia I Ma	Ex ia IIC T6 Ga Ex ia IIC T6 Ga/Gb Ex ia IIIC T85°C Da	Ex ia IIC T6 Gb	Ex nA IIC T6,T5 Gc	Ex ic IIC T6,T5 Gc Ex ic IIIC T80/T90°C Dc
Einsatzgebiete	Bergbau Schutzart: eigensicher ia mit Barriere	Gase/ leitender Staub Schutzart: eigensicher ia mit Barriere	Gase Schutzart: eigensicher ia mit Barriere	Gase Schutzart: nicht funkend nA	Gase/ leitender Staub Schutzart: Eigensicher ic mit Barriere
Elektrischer Anschluss (siehe Typenschlüssel)	5, 6, 9			6, 9	5, 6, 9

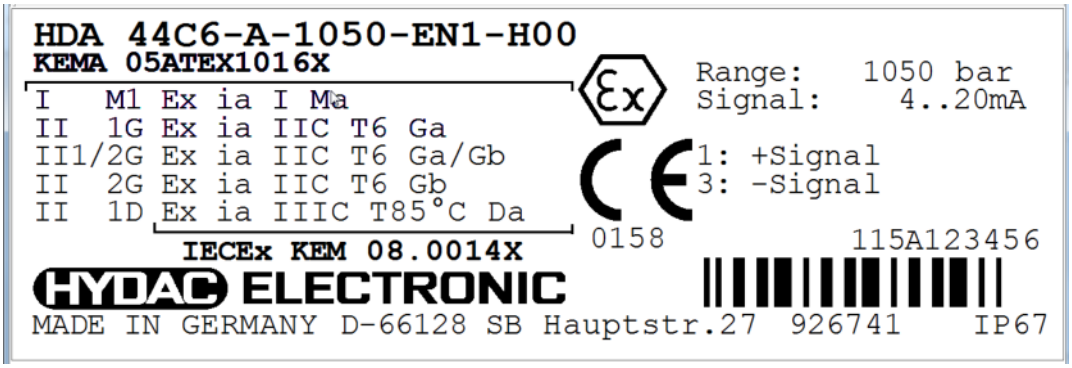
8 Seriennummer

In der Seriennummer ist neben der fortlaufenden Seriennummer die Kalenderwoche und das Jahr der Herstellung des Geräts enthalten.

Aufbau Seriennummer: xyykzzzzzz

X	Fertigungsjahr	z.B. : 1 → 2021
yy	Kalenderwoche	z.B. : 15 → KW 15
k	Seriennummer-Index	z.B. : -, A, B
zzzzzz	fortlaufende Seriennummer	z.B. : 000050



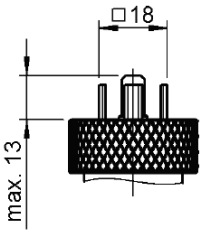


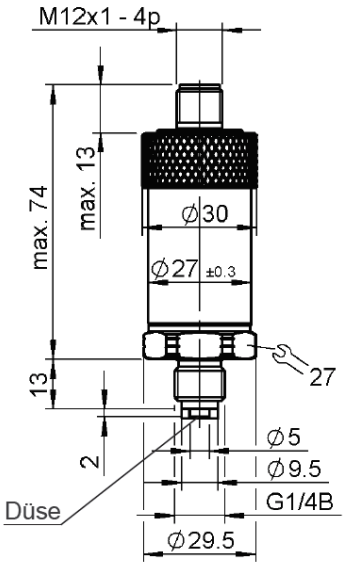
9 Anschlussbelegung

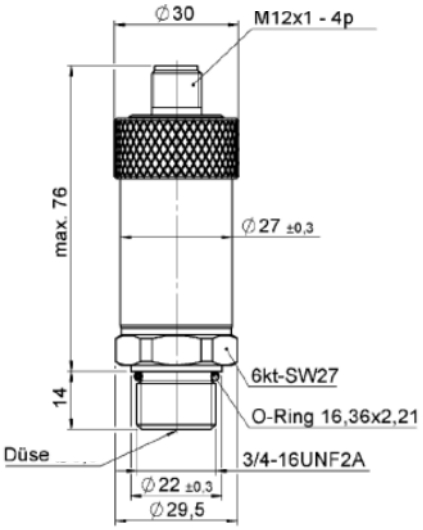
Die Anschlussbelegung für den elektrischen Anschluss ist sowohl im Kapitel “Kontrollzeichnung“, als auch auf dem Typenschild des Druckmessumformers dargestellt.

10 Geräteabmessungen

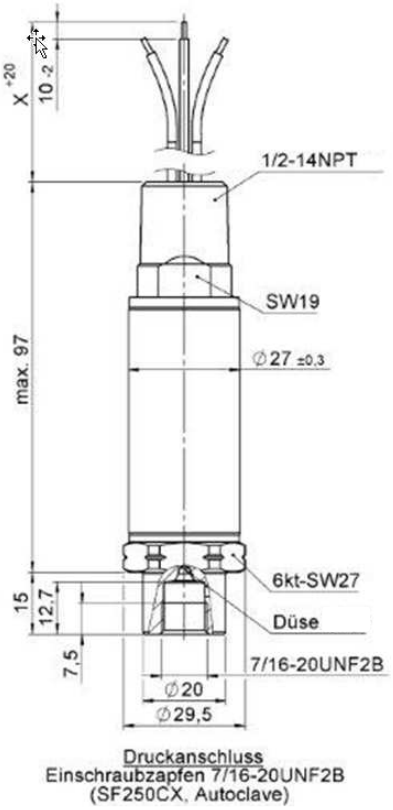
Gerätestecker
EN175301-803, 3pol+PE



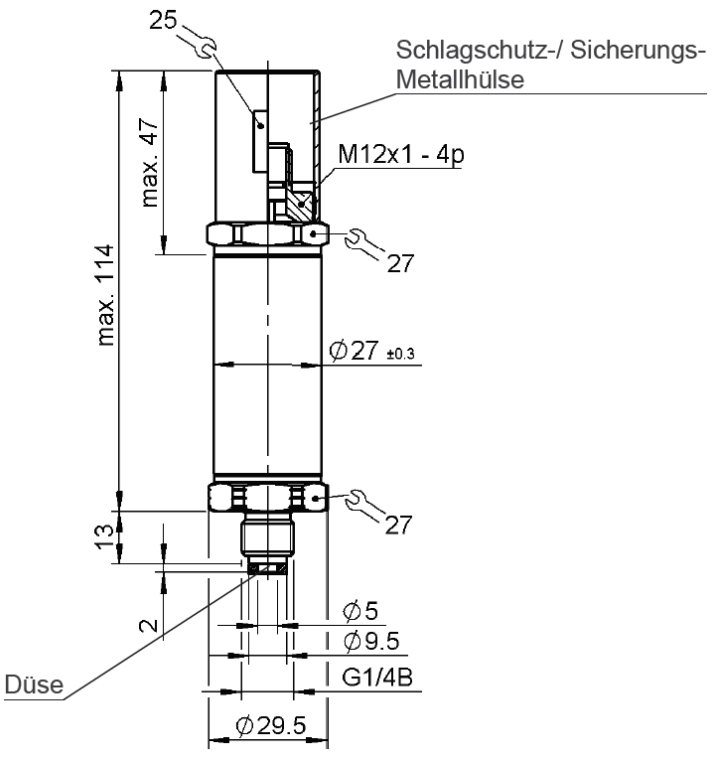




Mit 1/2-14 NPT Conduit



Mit Schlagschutz-/Sicherungsmetallhülse



Notizen

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HYDAC Service
Für Fragen zu Reparaturen steht Ihnen der HYDAC Service zur Verfügung:

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Anmerkung

Die Angaben in diesem Handbuch beziehen sich auf die beschriebenen Betriebsbedingungen und Einsatzfälle. Bei abweichenden Einsatzfällen und/oder Betriebsbedingungen wenden Sie sich bitte an die entsprechende Fachabteilung.

Bei technischen Fragen, Hinweisen oder Störungen nehmen Sie bitte Kontakt mit Ihrer HYDAC - Vertretung auf.

Technische Änderungen sind vorbehalten.

1 General

If you have any queries regarding technical details or the suitability of the unit for your application, please contact our **Technical Sales Department**. The series HDA 4000 pressure transmitters are individually tested and calibrated at a computer operated test station. They are maintenance-free and operate perfectly when used according to the data (see Technical Specifications). However, if there is a cause for complaint, please contact **HYDAC Service**. Interference by anyone other than HYDAC personnel will invalidate all warranty claims as well as the ATEX and IECEx approvals.

2 Function

The pressure signal measured by the sensor is converted into a proportional analog 4..20 mA signal.

3 Installation and commissioning information

The pressure transmitters can be installed directly on the process side via the threaded connection. It is important to ensure that the membrane is protected from mechanical damage during installation.

In order to prevent mechanical damage when dealing with critical applications involving heavy vibrations or blows, for example, we recommend securing the unit with an elastomer clamp and decoupling the hydraulic ports via a Minimess hose.

Tightening torque see dimensions.

Pressure transmitters with a rated pressure of < 100 bar (≤ 1500 psi) provide for pressure equalization with the ambient pressure. This is enabled by a small hole underneath the plug connector. The connector is covered on the inside by a special membrane which prevents moisture from seeping into the unit from the outside. In order to prevent the hole from becoming clogged, mounting should be done in a horizontal position in moist or dusty environments, or vertically with the pressure port pointing downwards.

On units with a rated pressure of ≤100 bar (≤1500 psi) and a ½-14 conduit electrical connection, the pressure equalization with single conductor is realized by means of a short vent line, using jacketed cable, it is realized by means of a cable with an integrated venting hose. It must be ensured that the venting only takes place outside the hazardous area.

Connection is to be done by a properly qualified specialist in accordance with the pertinent regulations pertaining to potentially explosive environments (e.g. EN 60079-14).

The series HDA 4000 pressure transmitters carry the CE -mark. The certificate of conformity can be found in the annex.

The requirements of the standards (see technical data) cannot be satisfied unless the pressure transmitter housing is properly grounded via the mechanical connection or the ½-14 NPT Conduit. If a green-yellow wire is available, it can be used additionally for grounding, but may not be used on its own as the grounding connection. When using hose mounting the housing has to be grounded separately.

The related intrinsically safe devices (e.g. zener barriers) must also be grounded. A potential equalisation is required along the intrinsically safe electrical circuit in the N type model (dielectric strength ≤ 50 VAC).

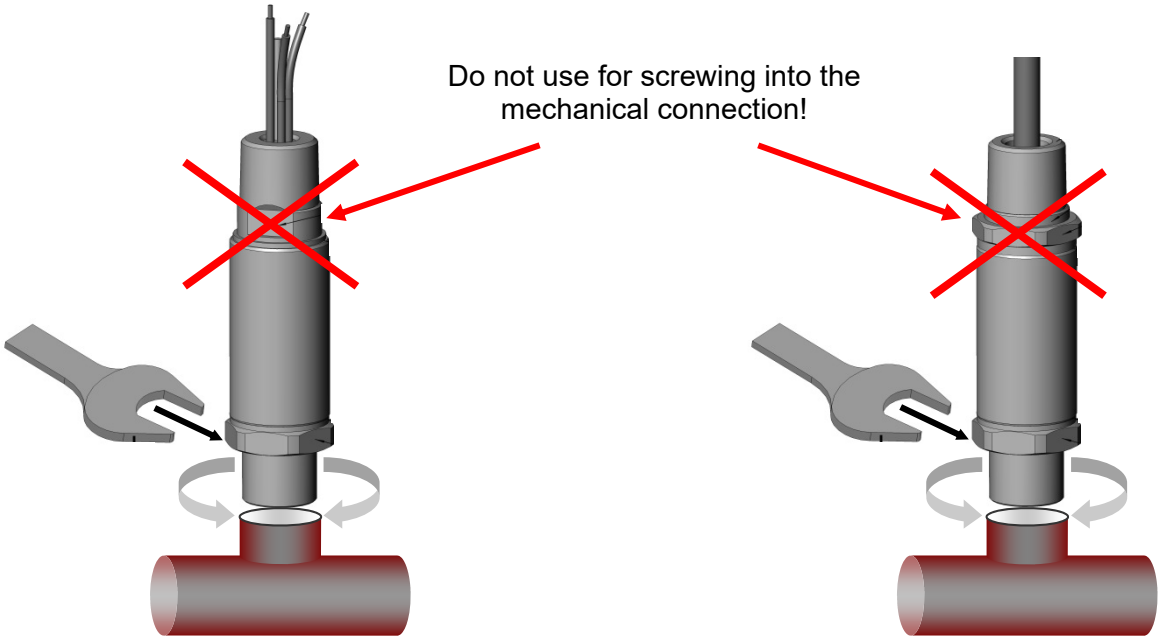
On the HDA 4000 series, type H (isolation voltage ≤ 500 VAC), the cable length to the pressure transmitter must be max. 30 m (overvoltage protection to DIN EN 61000-6-2). If the cable length exceeds 30 m, overvoltage protection must be provided by the customer.

4 Important mounting instructions

4.1 Installation instructions for units with ½-14 NPT conduit

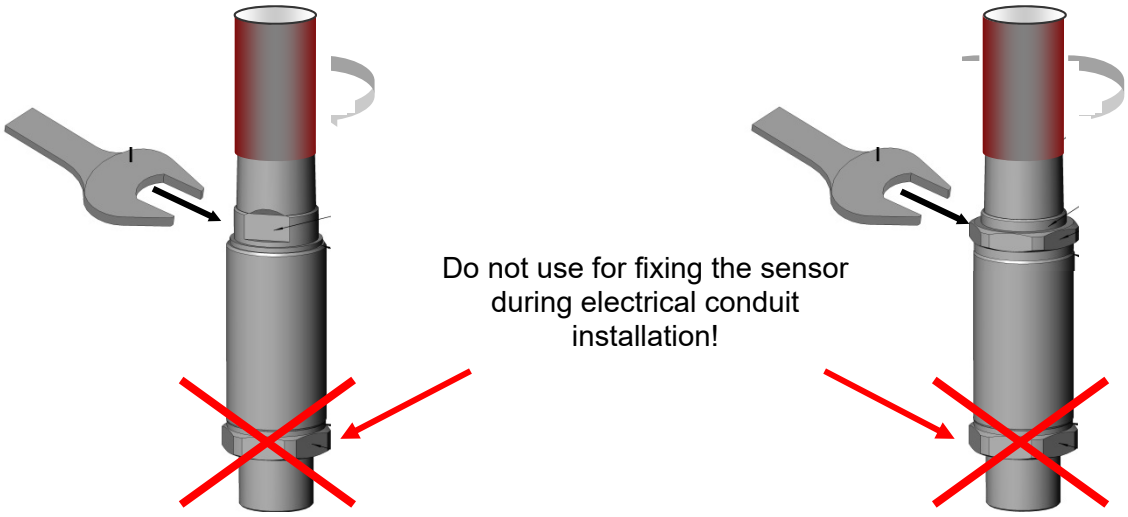
Mechanical Installation

The process installation of the transmitters may only be carried out utilizing the flats on the process connection side.



Electrical Installation

The flats at the electrical connection side next to the ½-14 NPT conduit only serves to fix the transmitter during conduit installation.



4.2 Installation instructions for units with impact protection

Installation instructions for units with M12x1 connector with an impact protection metal safety sleeve for the use in zones:

ATEX
II 3G Ex nA IIC T6, T5 Gc

IECEx
Ex nA IIC T6, T5 Gc

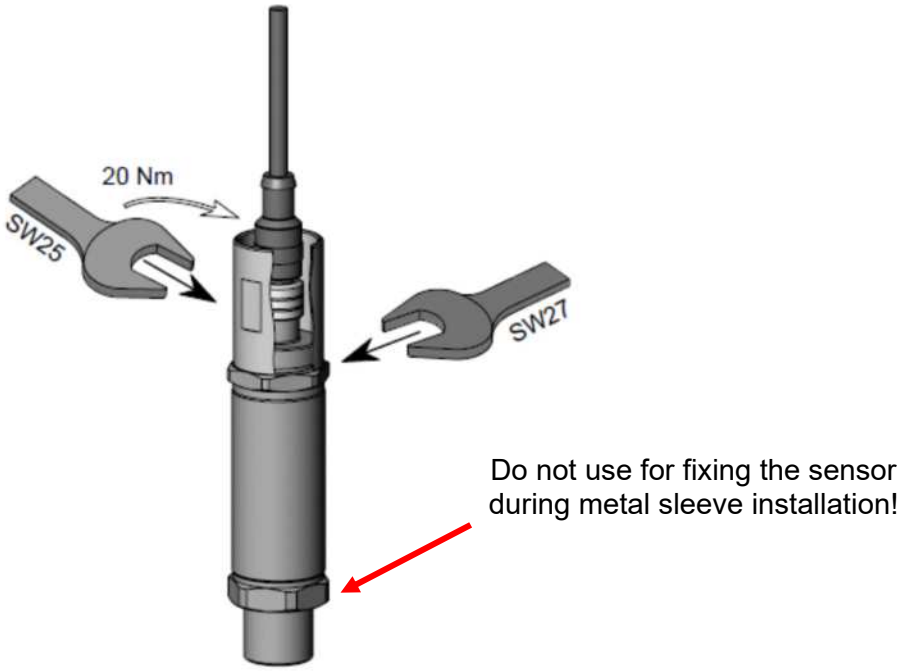
By adherence to safety guidelines in the protection rating and applications: the usage of the impact protection metal safety sleeve is stringently required.

The electrical installation of the transmitter may only be carried out utilizing the hex. 27 mm flats on the installation of the impact protection metal safety sleeve.

The connection of the cable with M12x1 plug may only be carried out properly in order to prevent the connection from loosing due to vibrations and it must be carried out in voltage-free condition.

The impact protection metal safety sleeve must be properly tightened with a torque of 20 Nm.

Also the separation of the M12x1 connector may only be carried out if the system is in voltage-free condition.



5 Safety information

The pressure transmitter may no longer be used when the label becomes illegible.
The pressure transmitters are to be used in general with a suitable intrinsically safe barrier.

The seals and gaskets are to be checked to see that they function properly prior to mounting and at regular intervals in keeping with the climatic conditions and the influence of the fluid, and to be changed as needed. Replacement seals and gaskets can be obtained from HYDAC ELECTRONIC GMBH. (Standard seal see technical data) This check is to be conducted at least every three years.

If used simultaneously in zones 0 and 1, the metal membrane of the pressure transmitter serves as a partition wall between zones 0 and 1. The thickness of this partition wall is generally ≤ 1mm, and with a nominal pressure ranging below 100 bar, ≤0.2 mm. In order to ensure this partition function, the compatibility of the measuring fluids with the used materials is compulsory, as well as the overload and bursting pressures must absolutely be complied with (further details, please see "Technical Data").

It is imperative that the measurement fluid is compatible with the materials used in the pressure transmitter; similarly, the overload pressures and bursting pressures must be adhered to without fail (for these specifications, see the “Technical Specifications” and “Safety Information” of the EC type examination certificate).

The internal measurement membrane of the pressure transmitter is to be protected against mechanical damage.

Please ensure sufficient sealing between the zones as well.

The data pertaining to use in Hazardous Location is to be heeded in any event.

Operation is only permitted when operational and process related intensive electrostatic changes are eliminated.

From a safety point of view, the supply / output circuit of pressure transmitter shall be considered to be connected to earth.

By adherence to safety guidelines in the protection rating and applications:
ATEX: II 3G Ex nA IIC T6, T5 Gc
IECEx: Ex nA IIC T6, T5 Gc
the usage of the impact protection metal safety sleeve is stringently required.
The impact protection metal safety sleeve must be tightened with a torque of 20 Nm.

6 Technical data HDA 4000

Input data												
Measuring ranges	bar	16	25	40	60	100	200	250	400	500	600	1050
Overload ranges	bar	50	50	80	120	200	500	500	800	1000	1000	1400
Burst pressure	bar	125	125	200	300	500	1250	1250	2000	3000	3000	3000
Measuring ranges	psi	300	500	750	1500	3000	5000	6000	9000	15000		
Overload ranges	psi	725	1160	1740	2900	7250	11600	14500	14500	20300		
Burst pressure	psi	1800	2900	4350	7250	18000	29000	43500	43500	43500		
Mechanical connection (Tigthening torque, recommended)	SF250CX20, Autoclave (7/16-20 UNF 2B) (15 Nm for measuring range ≤ 600 bar/9000 psi) (20 Nm for measuring range 1050 bar/15000 psi) G 1/4 B DIN EN 837 (20 Nm for measuring range ≤ 600 bar/ 9000 psi) (40 Nm for measuring range 1050 bar/15000 psi) 3/4-16 UNF 2A (SAE8) (20 Nm für Messbereich ≤ 600 bar/ 9000 psi)											
Parts in contact with fluid	Stainless steel	1.4435 (Ni content ≥ 13 %)										
	Measuring cell	gold-plated										
	Seal	Copper (Cu-DHP) (G 1/4 B) Zurcon ® Z22 (SAE 8)										

Output data		**HDA 4400**	**HDA 4700**
Output signal, permitted load resistance		4 .. 20 mA (2-conductor), $R_{Lmax.} = (U_B – 12\ V) / 20\ mA\ [k\Omega]$	4 .. 20 mA (2-conductor), $R_{Lmax.} = (U_B – 12\ V) / 20\ mA\ [k\Omega]$
Accuracy acc. to DIN 16086, terminal based	Typ. Max.	≤ ± 0.5 % FS ≤ ± 1.0 % FS	≤ ± 0.25 % FS ≤ ± 0.5 % FS
Accuracy, B.F.S.L	Typ. Max.	≤ ± 0.25 % FS ≤ ± 0.5 % FS	≤ ± 0.15 % FS ≤ ± 0.25 % FS
Temperature compensation Zero point	Typ. Max.	≤ ± 0.015 % FS/°C [≤ ± 0.0085 % FS/°F] ≤ ± 0.025 % FS/°C [≤ ± 0.014 % FS/°F]	≤ ± 0.008 % FS/°C [≤ ± 0.0045 % FS/°F] ≤ ± 0.015 % FS/°C [≤ ± 0.0085 % FS/°F]
Temperature compensation Span	Typ. Max.	≤ ± 0.015 % FS/°C [≤ ± 0.0085 % FS/°F] ≤ ± 0.025 % FS/°C [≤ ± 0.014 % FS/°F]	≤ ± 0.008 % FS/°C [≤ ± 0.0045 % FS/°F] ≤ ± 0.015 % FS/°C [≤ ± 0.0085 % FS/°F]
Non-linearity acc. to DIN 16086, terminal based	Max.	≤ ± 0.3% FS	≤ ± 0.3% FS
Hysteresis	Max.	≤ ± 0.4 % FS	≤ ± 0.1 % FS
Repeatability		≤ ± 0.1 % FS	≤ ± 0.1 % FS
Rise time		≤ 2 ms	≤ 2 ms
Long-term drift	Typ.	≤ ± 0.3 % FS / year	≤ ± 0.3 % FS / year

Environmental conditions		
Compensated temperature range		-25 .. 85 °C [-13 .. 185 °F]
Operation / ambient / fluid temperature range		T6, T80/T85 °C: Ta = -40 .. +60 °C [-40 .. 140 °F] T5, T90 °C: Ta = -40 .. +70 °C [-40 .. 158 °F] T100 °C: Ta = -40 .. +80 °C [-40 .. 176 °F] T4: Ta = -40 .. +85 °C [-40 .. 185 °F]
Storage temperature range		-40 .. +100 °C [-40 .. 212 °F]
CE- mark		EN 61000-6-1/ 2/ 3/ 4 ; EN 60079-0/ 11/ 15/ 26 ; EN 50303
Vibration resistance acc. to DIN EN 60068-2-6 at 10 .. 500Hz		≤ 20 g ≤ 10 g for devices with electrical connection ½-14 NPT conduit
Shock resistance acc. to DIN EN 60068-2-27		≤ 100 g / 6 ms
Protection type acc. to DIN EN 60529 [1)] ISO 20653		IP 67 (connector versions) IP 6K9K (1/2-14 NPT conduit)

Relevant data for Ex Application		**Ex ia, ic**	**Ex nA**
Supply voltage		Ui = 12 .. 28 V	12 .. 28 V
Max. input current		Ii = 100 mA	
Maximum input power		Pi = 1 W	Max. power consuption ≤ 1W
Connection capacitance of the sensor		C_i = ≤ 22 nF	
Inductance of the sensor		L_i = 0 mH	
Insulation voltage [2)]		50 V AC, with integrated overvoltage protection acc. to EN 61000-6-2 or 500 V AC	
Other data			
Residual ripple supply voltage		≤ 5 %	
Current consumption		≤ 25 mA	
Life expectancy		> 10 million load cycles 0 .. 100 % FS	
Weight		approx. 150 g (connector versions) approx. 300 g (1/2-14 NPT conduit)	

Note: Reverse polarity protection of the supply voltage, excess voltage, override, and short circuit protection are provided.

FS (**F**ull **S**cale) = relative to the full measuring range

B.F.S.L. = **B**est **F**it **S**traight **L**ine

[1)] With mounted mating connector in corresponding protection class.

[2)] See model code for "insulation voltage"

7 Model code to identify the delivered part

7.1 Model code HDA 4000

HDA 4 X X X - A - XXXXX - E X X - H00 (psi) XX inch

Accuracy
4 = 1 % FS max.
7 = 0.5 % FS max.

Mechanical connection

C = SF250CX, Autoclave (7/16-20 UNF 2B), female
G = 1/4 B DIN EN 837
H = 3/4-16 UNF 2A (SAE8)

Electrical connection

5 = Male connector, EN 175301-803, 3 pole + PE
(IP 67 mating connector included)
6 = Male connector M12x1, 4 pole (mating connector not included)
9 = 1/2-14 NPT conduit male, singe leads

Output signal

A = 4 .. 20 mA, 2- conductor

Measuring ranges

Measuring ranges are shown in bar or psi (in case of psi see additional psi declaration in model code)

Approval

E = ATEX and IECEx (further details, see certificates)

Insulation voltage

H = 500 V AC to housing
N = 50 V AC to housing

Protection types and applications: (see also chart chapter 7.2)

	ATEX	IECEx
1 =	I M1 Ex ia I Ma II 1G Ex ia IIC T6 Ga II 1/2G Ex ia IIC T6 Ga/Gb II 2G Ex ia IIC T6 Gb II 1D Ex ia IIIC T85°C Da	Ex ia I Ma Ex ia IIC T6 Ga Ex ia IIC T6 Ga/Gb Ex ia IIC T6 Gb Ex ia IIIC T85°C Da
9 =	II 3G Ex nA IIC T6, T5 Gc [1)]	Ex nA IIC T6, T5 Gc [1)]
C =	II 3G Ex ic IIC T6, T5 Gc II 3D Ex ic IIIC T80/90°C Dc	Ex ic IIC T6, T5 Gc Ex ic IIIC T80/90°C Dc

Modification Number

H00 = For hydrogen applications
(other numbers are used for e.g. for customized pin connection)

(psi)

Additional declaration for psi version (not applicable for bar version)

Cable length (e.g. for conduit connection , not applicable for connector versions)

Shown in m or inch

[1)] Not for electrical connection "5" (EN 175301-803)
With electrical connection "6" only in conjunction with the impact protection metal safety sleeve

7.2 Evaluation table: Classification of the protection type

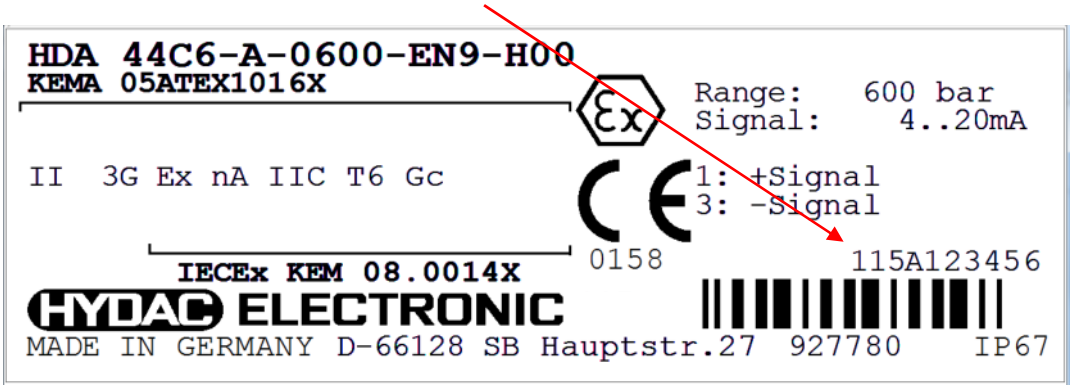
Code for use in model code	1			9	C
ATEX KEMA 05 ATEX 1016X	I M1 Ex ia I Ma	II 1G Ex ia IIC T6 Ga II 1/2G Ex ia IIC T6 Ga/Gb II 1D Ex ia IIIC T85°C Da	II 2G Ex ia IIC T5,T6 Gb	II 3G Ex nA IIC T6,T5 Gc	II 3G Ex ic IIC T6,T5 Gc II 3D Ex ic IIIC T80/T90°C Dc
IECEx KEMA 08.0014X	Ex ia I Ma	Ex ia IIC T6 Ga Ex ia IIC T6 Ga/Gb Ex ia IIIC T85°C Da	Ex ia IIC T6 Gb	Ex nA IIC T6,T5 Gc	Ex ic IIC T6,T5 Gc Ex ic IIIC T80/T90°C Dc
Application areas	Mining Protection class: Intrinsically safe ia with barrier	Gases/ conductive dust Protection class: Intrinsically safe ia with barrier	Gases Protection class: Intrinsically safe ia with barrier	Gases Protection class: Non-sparking nA	Gases/ conductive dust Protection class: Intrinsically safe ic with barrier
Electrical connection (See model code)	5, 6, 9			6, 9	5, 6, 9

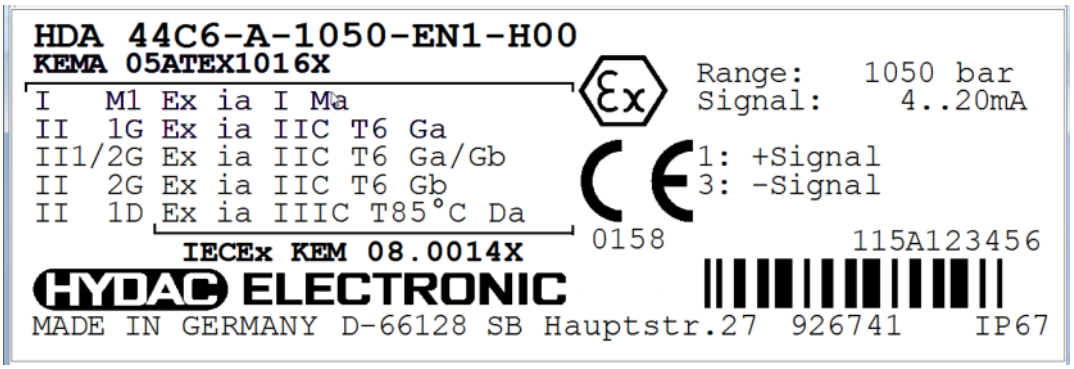
8 Serial Number

The serial number includes the calendar week and year of manufacture of the unit, adjacent to the sequential serial number.

Configuration of serial number (SN): xyykzzzzzz

XX	Manufacturing date	e.g. : 1 → 2021
yy	Calendar week	e.g. : 15 → KW 15
k	Change control status	e.g. : -, A, B
zzzzzz	Sequential serial number	e.g. : 000050



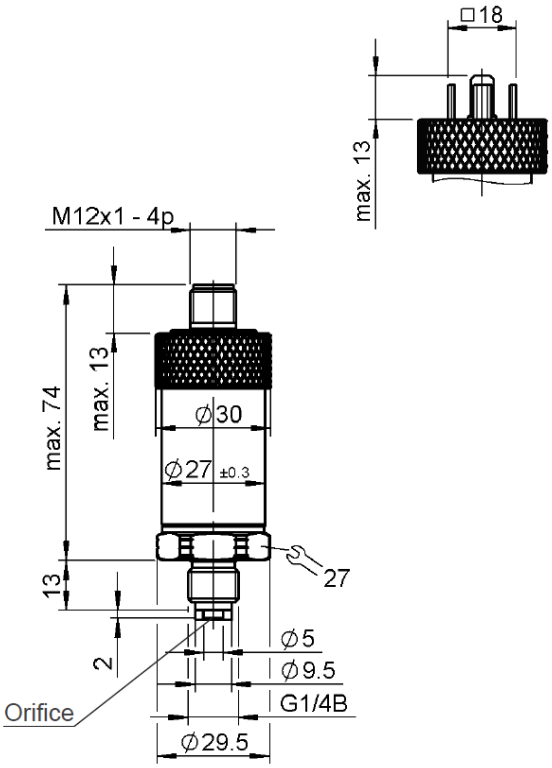


9 Pin assignment

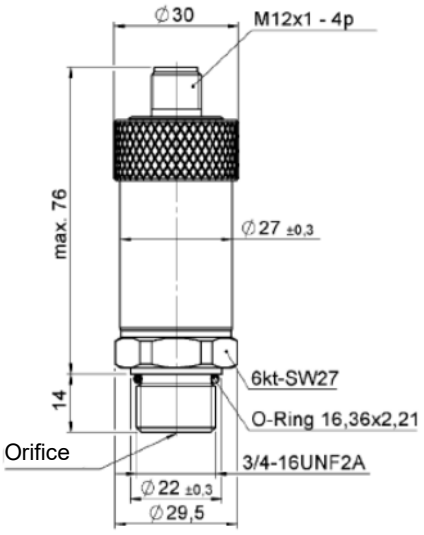
The pin assignment for the electrical connection is mentioned in the chapter “Control Drawing” as well as at the label of the pressure transmitter.

10 Dimensions

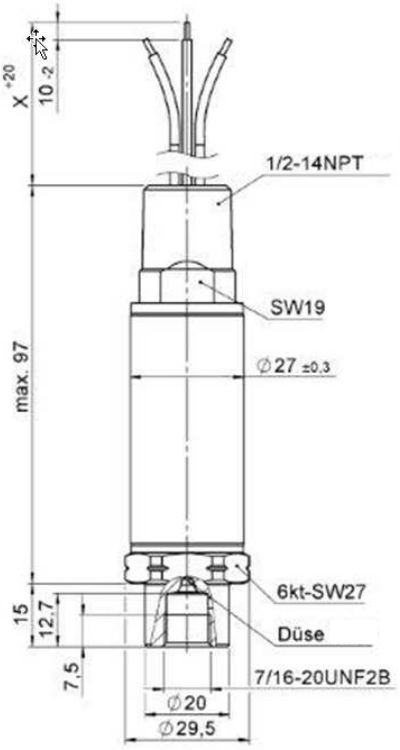
Male connector EN175301-803,
3 pole + PE



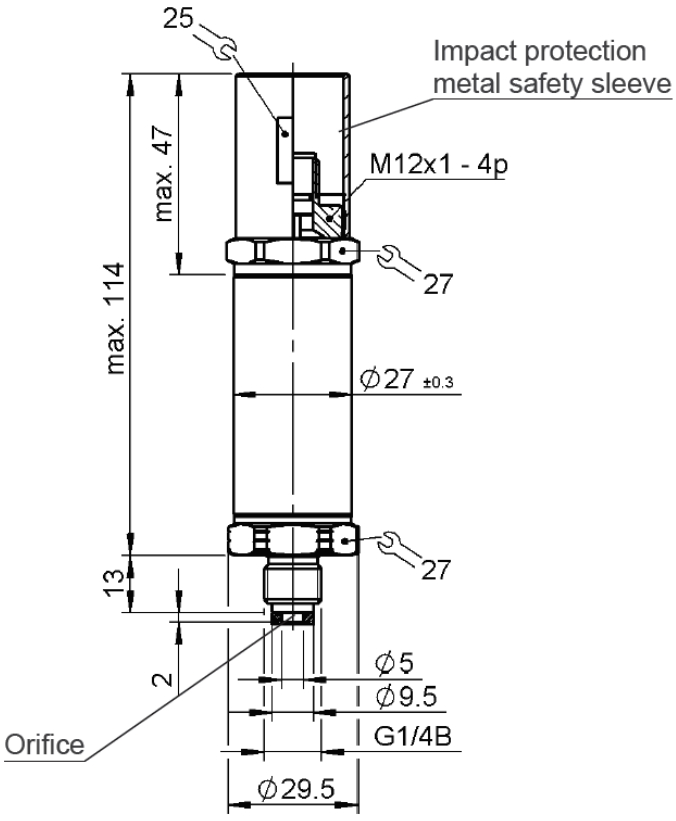
With ½-14 NPT Conduit



With impact protection metal safety sleeve



Female thread 7/16-20 UF2B
(SF 250 CX 20, Autoclave



HYDAC ELECTRONIC GMBH
Hauptstraße 27
D-66128 Saarbrücken
Germany

Web: www.hydac.com
E-Mail: electronic@hydac.com
Tel.: +49-(0)6897-509-01
Fax: +49-(0)6897-509-1726

HYDAC Service
If you have any questions concerning repair work, please do not hesitate to contact HYDAC Service:

HYDAC SERVICE GMBH
Hauptstr. 27
D-66128 Saarbruecken
Germany

Tel.: +49-(0)6897-509-1936
Fax: +49-(0)6897-509-1933

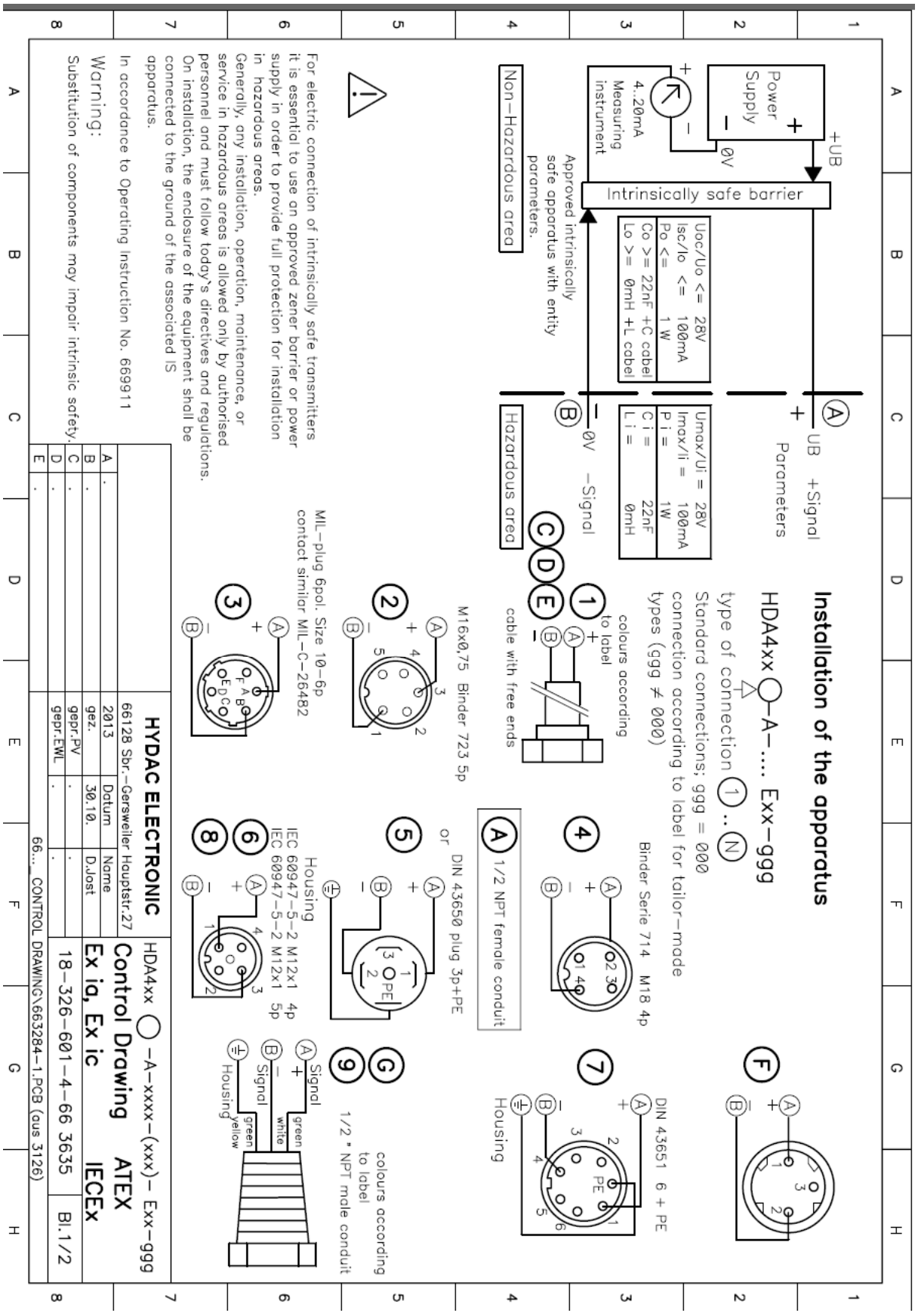
Note

The information and particulars provided in this manual apply to the operating conditions and applications described herein. For applications and operating conditions not described, please contact the relevant technical department.

If you have any questions, suggestions, or encounter any problems of a technical nature, please contact your Hydac representative.

Subject to technical modifications.

11 Kontrollzeichnung / Control Drawing



Installation of the apparatus
HDA4xx ◯–A–.... Exx–ggg
type of connection ① .. ⑨
Standard connections; ggg = 000
connection according to label for tailor–made types (ggg ≠ 000)
Power Supply
+UB
0V
U ≤ 28 V
P ≤ 1 W
4..20mA Measuring instrument
Shunt
Non–Hazardous area
Hazardous area
+Signal
–Signal
UB +
UB –
Parameters
colours according to label
cable with free ends
IEC 60947–5–2 M12x1 4p
IEC 60947–5–2 M12x1 5p
with stroke protection (metall tube)
Do not disconnect under voltage
Generally, any installation, operation, maintenance, or service in hazardous areas is allowed only by authorised personnel and must follow today's directives and regulations.
Ta amb max. see label (minimum is 60° C)
In accordance to Operating Instruction No. 669911
Warning:
Substitution of components may impair intrinsic safety.
colours according to label
1/2 " NPT male conduit
Signal +
Signal –
Housing
green
white
green
yellow
HYDAC ELECTRONIC
66128 Sbr.–Gersweiler Hauptstr.27
HDA4xx ◯ –A–xxxx–(xxx)– Exx–ggg
Control Drawing
ATEX
Ex nA; Ex ta,tb,tc;
IECEx
18–326–601–4–66 3635
Bl.2/2
66... CONTROL DRAWING\663284–1.PCB (aus 3126)
2013
gez.
gepr.PV
gepr.EWL.
Datum
30.10.
Name
D.Jost

12 Zertifikate / Certificate

12.1 IECEx

IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.:	IECEx KEM 08.0014X	Issue No: 4	Certificate history:
Status:	**Current**	Page 1 of 5	Issue No. 4 (2016-06-01) Issue No. 3 (2014-09-16) Issue No. 2 (2013-01-25) Issue No. 1 (2009-07-08) Issue No. 0 (2008-04-28)
Date of Issue:	**2016-06-01**		
Applicant:	**Hydac Electronic GmbH** Hauptstraße 27 66128 Saarbrücken **Germany**		
Electrical Apparatus:	**Pressure Transmitter Type HDA 4...-A-...-(...)-I..-..., Type HDA 4...-A-...-(...)-E..-... and Type HDA 4...-AA-...-...-E..-... (..)**		
Optional accessory:			
Type of Protection:	**Ex ia, ic, nA, ta, tb, tc**		
Marking:	Ex ia I Ma Ex ia IIC T6/T5 Ga, Ex ia IIC T6/T5 Ga/Gb, Ex ia IIC T6/T5 Gb Ex ic IIC T6/T5/T4 Gc Ex nA IIC T6/T5/T4 Gc Ex ia IIIC 85/95 °C Da Ex ic IIIC T80/85/90/95/100/105 °C Dc Ex ta IIIC T80/85/90/95/100/105 °C T_{500}90/100/110/120/130/140 °C Da Ex tb IIIC T80/85/90/95/100/105 °C Db Ex tc IIIC T80/85/90/95/100/105 °C Dc For details refer to nomenclature in Annex 1 to Certificate of Conformity IECEx KEM 08.0014X, issue 4.		

Approved for issue on behalf of the IECEx Certification Body: R.H.D. Pommé

Position: Certification Manager

Signature: (for printed version)

Date: 2016-06-01

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 the Official IECEx Website.

Certificate issued by:

IECEx Certificate of Conformity

Certificate No:	IECEx KEM 08.0014X	Issue No: 4
Date of Issue:	**2016-06-01**	Page 2 of 5

DEKRA Certification B.V.
Meander 1051
6825 MJ Arnhem
The Netherlands

DEKRA

IECEx Certificate of Conformity

Certificate No:	IECEx KEM 08.0014X	Issue No: 4
Date of Issue:	**2016-06-01**	Page 3 of 5
Manufacturer:	**Hydac Electronic GmbH** Hauptstraße 27 66128 Saarbrücken **Germany**	
Additional Manufacturing location(s):		

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 electrical apparatus 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 : 2011 Edition:6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-11 : 2011 Edition:6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-15 : 2010 Edition:4	Explosive atmospheres - Part 15: Equipment protection by type of protection "n"
IEC 60079-26 : 2014-10 Edition:3.0	Explosive atmospheres – Part 26: Equipment with Equipment Protection Level (EPL) Ga
IEC 60079-31 : 2013 Edition:2	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"

*This Certificate **does not** indicate compliance with electrical 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:

NL/KEM/ExTR08.0003/04

Quality Assessment Report:

DE/BVS/QAR06.0017/07

IECEx Certificate of Conformity

Certificate No: IECEx KEM 08.0014X Issue No: 4

Date of Issue: **2016-06-01** Page 4 of 5

Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

Pressure Transmitter Type HDA 4...-A-....-(...)-I..-... and Type HDA 4...-A-....-(...)-E..-... is a two wire transmitter used to convert a pressure signal into a 4 – 20 mA output signal. Double Pressure Transmitter Type HDA 4...-AA-....-....-E..-... (..) is the same type, but fully redundant. Two pressure sensor cells each separated and both are designed as a two-wire (4 - 20 mA) system.

The electrical components of the transmitter are completely encapsulated within a metal enclosure; the electrical connections are done by a connector or via a permanently connected cable. The enclosure of Pressure Transmitter Type HDA 4...-A-....-(...)-..g-... and Type HAD 4...-AA-....-....-..g-... (..) (with g = 9, A, B or C) provides a degree of protection of at least IP64 in accordance with IEC 60529.

All variations of electrical connections are allowed for the intrinsically safe versions.

For thermal data, nomenclature and electrical data refer to Annex 1 to Certificate of Conformity IECEx KEM 08.0014X, issue 4.

CONDITIONS OF CERTIFICATION: YES as shown below:

Pressure transmitters with an enclosure containing light metals, when used in a potentially explosive atmosphere requiring apparatus of equipment Equipment Protection Level Ga or Ma (Category 1 G or M1), shall be installed such, that even in the event of rare incidents, an ignition source due to impact or friction between the enclosure and iron/steel is excluded.

For installation of the pressure transmitter between areas where the use of Equipment Protection Level Ga or Da (Category 1) apparatus is required and areas where the use of Equipment Level Gb or Db (Category 2) apparatus is required, the following applies: The internal separation element shall be protected against environmental stress, which might adversely affect the separation element. The material of the separation element shall be obtained from the data supplied by the manufacturer.

The pressure transmitter may alternatively be used with separately supplied certified cable entries or conduit entries that are rated for the intended application.

IECEx Certificate of Conformity

Certificate No: IECEx KEM 08.0014X Issue No: 4

Date of Issue: **2016-06-01** Page 5 of 5

DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

The following product modifications have been assessed:
- added Pressure Transmitter Type HDA 4abc-AA-d-e-Efg-hjj (k), which is the same type as previous evaluated as given in report NL/KEM/ExTR08.0003/03, but conducted completely redundant. Two pressure sensor cells each separated and both are designed as a two-wire (4 ... 20 mA) system;
- the maximum value of Pi is changed from 1 W to 1,4 W (2 x 0,7 W) for the redundant version;
- assessment in accordance with latest edition of EN 60079-26 and EN 60079-31
- KEMA 05ATEX1021 Iss 2 intergrated in this report, Identical products with types of protection Ex ic, Ex nA and Ex tc.

Annex:

219063200 - Annex 1 to CoC KEM 08.0014X-I04.pdf

Annex 1 to Certificate of Conformity IECEx KEM 08.0014X, issue 4
Annex 1 to IECEx test report NL/KEM/ExTR08.0003/04

Description

Pressure Transmitter Type HDA 4...-A-....-(...)-I..-... and Type HDA 4...-A-....-(...)-E..-... is a two wire transmitter used to convert a pressure signal into a 4 – 20 mA output signal. Double Pressure Transmitter Type HDA 4...-AA-....-....-E..-... (..) is the same type, but fully redundant. Two pressure sensor cells each separated and both are designed as a two-wire (4 - 20 mA) system.

The electrical components of the transmitter are completely encapsulated within a metal enclosure; the electrical connections are done by a connector or via a permanently connected cable. The enclosure of Pressure Transmitter Type HDA 4...-A-....-(...)-..g-... and Type HAD 4...-AA-....-....-..g-... (..) (with g = 9, A, B or C) provides a degree of protection of at least IP64 in accordance with IEC 60529.

All variations of electrical connections are allowed for the intrinsically safe versions.

Thermal data

Ambient temperature range:

For Pressure Transmitter Type HDA 4abc-A-d-(e)-Ifg-h-i1 j k and Type HDA 4abc-A-d-(e)-Efg-h-i1 j k (versions with a single pressure sensor cell):
- apparatus in types of protection Ex ia I, Ex ia IIC and Ex ia IIIC: -40 °C to +60 °C;
- apparatus in types of protection Ex ic IIIC, Ex ta IIIC, Ex tb IIIC and Ex tc IIIC: -40 °C to +80 °C;
- apparatus in types of protection Ex nA IIC, and Ex ic IIC: -40 °C to +85 °C.

For Double Pressure Transmitter Type HDA 4abc-AA-d-e-Efg-hjj (k) (version with two pressure sensor cells):
- apparatus in types of protection Ex ia I, Ex ia IIC and Ex ia IIIC: -40 °C to +70 °C;
- apparatus in types of protection Ex ic IIIC, Ex ta IIIC, Ex tb IIIC and Ex tc IIIC: -40 °C to +80 °C;
- apparatus in types of protection Ex nA IIC, and Ex ic IIC: -40 °C to +85 °C.

Temperature class and the maximum surface temperature:

The temperature class and the maximum surface temperature T and T_{500} are depending on the maximum ambient temperature:

For Pressure Transmitter Type HDA 4abc-A-d-(e)-Ifg-h-i1 j k and Type HDA 4abc-A-d-(e)-Efg-h-i1 j k (versions with a single pressure sensor cell):

Maximum ambient temperature	Temperature class	Max surface temperature T	Max surface temperature T_{500}
60 °C	T6	80 °C / 85 °C	90 °C
70 °C	T5	90 °C	100 °C
80 °C		100 °C	110 °C
85 °C	T4		

For Double Pressure Transmitter Type HDA 4abc-AA-d-e-Efg-hjj (k) (version with two pressure sensor cells):

Maximum ambient temperature	Temperature class	Max surface temperature T	Max surface temperature T_{500}
60 °C	T6	85 °C	120 °C
70 °C	T5	95 °C	130 °C
80 °C		105 °C	140 °C
85 °C	T4		

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Annex 1 to Certificate of Conformity IECEx KEM 08.0014X, issue 4
Annex 1 to IECEx test report NL/KEM/ExTR08.0003/04

Nomenclature

Pressure Transmitter Type: **HDA 4**abc-**A**-d-(e)-**I**fg-h-i1 j k
Approval: **I** = IECEx

a =	measurement accuracy	1 digit
b =	mechanical connection process	alphanumerical code (1 digit)
c =	electrical connection	alphanumerical code (1 digit)
d =	measuring range	4 digits in bar / 5 digits in psi
(e) =	mechanical connection, only for flush mount version, b = Z	alphanumerical code (3 digits)
f =	isolation variants	H = 500 VAC isolation from enclosure N = 50 VAC isolation from enclosure (functional only)
g =	approval variants	1 = Ex ia I Ma Ex ia IIC T6 Ga and Ex ia IIC T6 Ga/Gb and Ex ia IIC T6 Gb 2 = Ex ia I Ma Ex ia IIC T6 Gb 3 = Ex ia IIC T6 Gb 4 = Ex ia IIC T6 Ga and Ex ia IIC T6 Ga/Gb and Ex ia IIC T6 Gb Ex ia IIIC T85 °C Da 5 = Ex ia I Ma 9 = Ex nA IIC T6, T5, T4 Gc A = Ex ta IIIC T80 °C T_{500} 90 °C or T90 °C T_{500} 100 °C or T100 °C T_{500} 110 °C Da and Ex tb IIIC T80 °C or T90 °C or T100 °C Db B = Ex tc IIIC T80 °C or T90 °C or T100 °C Dc C = Ex ic IIC T6, T5, T4 Gc Ex ic IIIC T80 °C or T90 °C or T100 °C Dc D = Ex ia I Ma Ex ia IIC T6 Ga and Ex ia IIC T6 Ga/Gb and Ex ia IIC T6 Gb Ex ia IIIC T85 °C Da
h =	3 digit indication for modifications	000 = for standard version
i =	sealing material *)	E = EPDM sealing F = FPM sealing H = HNBR sealing N = NBR sealing P = PU sealing
1 =	stainless steel medium connection *)	
j =	unit of measurement	psi = imperial unit psi none bar
(k) = k =	length of cable (if applicable) no paranthesis in case, j = psi	in cm or m or inch as indicated
NOTE	*) only applicable for models with a = 1 or 3	

Annex 1 to Certificate of Conformity IECEx KEM 08.0014X, issue 4
Annex 1 to IECEx test report NL/KEM/ExTR08.0003/04

Nomenclature (continued)

Pressure Transmitter Type: **HDA 4**abc-**A**-d-(e)-**E**fg-h-i1 j k
Approval: **E** = IECEx + ATEX

a =	measurement accuracy	1 digit
b =	mechanical connection process	alphanumerical code (1 digit)
c =	electrical connection	alphanumerical code (1 digit)
d =	measuring range	4 digits in bar / 5 digits in psi
(e) =	mechanical connection, only for flush mount version, b = Z	alphanumerical code (3 digits)
f =	isolation variants	H = 500 VAC isolation from enclosure N = 50 VAC isolation from enclosure (functional only)
g =	approval variants	1 = Ex ia I Ma Ex ia IIC T6 Ga and Ex ia IIC T6 Ga/Gb and Ex ia IIC T6 Gb Ex ia IIIC T85 °C Da 2 = Ex ia I Ma Ex ia IIC T6 Gb 3 = Ex ia IIC T6 Gb 4 = Ex ia IIC T6 Ga and Ex ia IIC T6 Ga/Gb and Ex ia IIC T6 Gb Ex ia IIIC T85 °C Da 5 = Ex ia I Ma 9 = Ex nA IIC T6, T5, T4 Gc A = Ex ta IIIC T80 °C T_{500} 90 °C or T90 °C T_{500} 100 °C or T100 °C T_{500} 110 °C Da and Ex tb IIIC T80 °C or T90 °C or T100 °C Db B = Ex tc IIIC T80 °C or T90 °C or T100 °C Dc C = Ex ic IIC T6, T5, T4 Gc Ex ic IIIC T80 °C or T90 °C or T100 °C Dc
h =	3 digit indication for modifications	000 = for standard version
i =	sealing material *)	E = EPDM sealing F = FPM sealing H = HNBR sealing N = NBR sealing P = PU sealing
1 =	stainless steel medium connection *)	
j =	unit of measurement	psi = imperial unit psi none bar
(k) = k =	length of cable (if applicable) no paranthesis in case, j = psi	in cm or m or inch as indicated
NOTE *) only applicable for models with a = 1 or 3		

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Annex 1 to Certificate of Conformity IECEx KEM 08.0014X, issue 4
Annex 1 to IECEx test report NL/KEM/ExTR08.0003/04

Nomenclature (continued)

Double Pressure Transmitter Type: **HDA 4**abc-**AA**-d-e-**E**fg-hjj (k)
Approval: **E** = IECEx + ATEX

a =	measurement accuracy	1 digit
b =	mechanical connection process	alphanumerical code (1 digit)
c =	electrical connection	alphanumerical code (1 digit)
d =	measuring range channel 1	4 digits in bar / 5 digits in psi
e =	measuring range channel 2	4 digits in bar / 5 digits in psi
f =	isolation variants	H = 500 VAC isolation from enclosure N = 50 VAC isolation from enclosure (functional only)
g =	approval variants	1 = Ex ia I Ma Ex ia IIC T6/T5 Ga and Ex ia IIC T6/T5 Ga/Gb and Ex ia IIC T6/T5 Gb Ex ia IIIC T85 °C or T95 °C Da 2 = Ex ia I Ma Ex ia IIC T6/T5 Gb 3 = Ex ia IIC T6/T5 Gb 4 = Ex ia IIC T6/T5 Ga and Ex ia IIC T6/T5 Ga/Gb and Ex ia IIC T6/T5 Gb Ex ia IIIC T85 °C or T95°C Da 5 = Ex ia I Ma 9 = Ex nA IIC T6, T5, T4 Gc A = Ex ta IIIC T85 °C T_{500} 120 °C or T95 °C T_{500} 130 °C or T105 °C T_{500} 140 °C Da and Ex tb IIIC T85 °C or T95 °C or T105 °C Db B = Ex tc IIIC T85 °C or T95 °C or T105 °C Dc C = Ex ic IIC T6, T5, T4 Gc Ex ic IIIC T85 °C or T95 °C or T105 °C Dc
hjj =	3 digit indication for modifications	000 = for standard version (tube diameter 27) 1xx = Modification (tube diameter 35 and 2 x M12x1)
(k) =	length of cable (if applicable)	in cm or m or inch as indicated

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Annex 1 to Certificate of Conformity IECEx KEM 08.0014X, issue 4
Annex 1 to IECEx test report NL/KEM/ExTR08.0003/04

Electrical data

Intrinsically safe versions:

Supply/output circuit (connections + and -):
in type of protection intrinsic safety Ex ia I, Ex ia IIC, Ex ic IIC and Ex ia IIIC, only for connection to a certified intrinsically safe circuit, with the following maximum values:
Pressure Transmitter Type HDA 4abc-A-d-(e)-.fg-h-i1 j k:
U_i = 28 V; I_i = 100 mA; P_i = 1 W; C_i = 22 nF; L_i = 0 mH.

Double Pressure Transmitter Type HDA 4abc-AA-d-e-Efg-hjj (k), when connected to 2 intrinsically safe power supplies:
Signal 1: U_i = 28 V; I_i = 100 mA; P_i = 0.7 W; C_i = 22 nF; L_i = 0 mH;
Signal 2: U_i = 28 V; I_i = 100 mA; P_i = 0.7 W; C_i = 22 nF; L_i = 0 mH.

Double Pressure Transmitter Type HDA 4abc-AA-d-e-Efg-hjj (k), when connected to 1 intrinsically safe power supply:
Signals 1 + 2: U_i = 28 V; I_i = 100 mA; P_i = 0.7 W; C_i = 33 nF; L_i = 0 mH.

From a safety point of view, the supply/output circuit of Pressure Transmitter Type HDA 4...-A-....-(...)-.N.-...-... and Type HDA 4...-AA-....-....-.N.-... (..) shall be considered to be connected to earth.

Other versions:

Supply/output circuit (connections + and -):
U ≤ 28 V All models;
P ≤ 1 W Pressure Transmitter Type HDA 4abc-A-d-(e)-.fg-h-i1 j k;
P ≤ 1.4 W Double Pressure Transmitter Type HDA 4abc-AA-d-e-Efg-hjj (k)
Signal 1 ≤ 0.7 W and signal 2 ≤ 0.7 W.

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12.2 ATEX

CERTIFICATE

EU-Type Examination

(1)

(2) Equipment or protective systems intended for use in potentially explosive atmospheres - Directive 2014/34/EU

(3) EU-Type Examination Certificate Number: **KEMA 05ATEX1016 X** Issue Number: **4**

(4) Product: **PressureTransmitter Type HDA 4...-A-....-(...)-A..-..., Type HDA 4...-A-....-(...)-E..-... and Type HDA 4...-AA-....-....-E..-... (..)**

(5) Manufacturer: **Hydac Electronic GmbH**

(6) Address: **Hauptstraße 27, 66128 Saarbrücken, Germany**

(7) This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

(8) DEKRA Certification B.V., Notified Body number 0344 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 test report number NL/KEM/ExTR08.0003/04.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60079-0 : 2012 + A11 **EN 60079-11 : 2012** **EN 60079-15 : 2010**
EN 60079-26 : 2015 **EN 60079-31 : 2014** **EN 50303 : 2000**

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 subject to the Specific Conditions of Use specified in the schedule to this certificate.

(11) This EU-Type Examination Certificate relates only to the design and construction of the specified product. Further requirements of the 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:

I M 1	Ex ia I Ma		
II 1 G	Ex ia IIC T6/T5 Ga,	II 1 D	Ex ia IIIC Txx °C Da
II 1/2 G	Ex ia IIC T6/T5 Ga/Gb	II 3 D	Ex ic IIIC Txx °C Dc
II 2 G	Ex ia IIC T6/T5 Gb;	II 1 D	Ex ta IIIC Txx °C T500yy °C Da
II 3 G	Ex ic IIC T6, T5, T4 Gc	II 2 D	Ex tb IIIC Txx °C Db
II 3 G	Ex nA IIC T6, T5, T4 Gc	II 3 D	Ex tc IIIC Txx Dc

For details refer to nomenclature in the schedule to this certificate.

Date of certification: 1 June 2016

DEKRA Certification B.V.

R.H.D. Pomme
Certification Manager

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(13) **SCHEDULE**

(14) **to EU-Type Examination Certificate KEMA 05ATEX1016 X** Issue No. **4**

(15) **Description**

Pressure Transmitter Type HDA 4...-A-....-(...)-A..-... and Type HDA 4...-A-....-(...)-E..-... is a two wire transmitter used to convert a pressure signal into a 4 – 20 mA output signal. Double Pressure Transmitter Type HDA 4...-AA-....-....-E..-... (..) is the same type, but fully redundant. Two pressure sensor cells each separated and both are designed as a two-wire (4...20 mA) system.

The electrical components of the transmitter are completely encapsulated within a metal enclosure; the electrical connections are done by a connector or via a permanently connected cable. The enclosure of Pressure Transmitter Type HDA 4...-A-....-(...)-..g-... and Type HAD 4...-AA-....-....-..g-... (..) (with g = 9, A, B or C) provides a degree of protection of at least IP64 in accordance with EN 60529.

All variations of electrical connections are allowed for the intrinsically safe versions.

Thermal data

Ambient temperature range:

For Pressure Transmitter Type HDA 4abc-A-d-(e)-Afg-h-i1 j k and
Type HDA 4abc-A-d-(e)-Efg-h-i1 j k (versions with a single pressure sensor cell):
- apparatus in types of protection Ex ia I, Ex ia IIC and Ex ia IIIC: -40 °C to +60 °C;
- apparatus in types of protection Ex ic IIIC, Ex ta IIIC, Ex tb IIIC and Ex tc IIIC: -40 °C to +80 °C;
- apparatus in types of protection Ex nA IIC, and Ex ic IIC: -40 °C to +85 °C.

For Double Pressure Transmitter Type HDA 4abc-AA-d-e-Efg-hjj (k) (version with two pressure sensor cells):
- apparatus in types of protection Ex ia I, Ex ia IIC and Ex ia IIIC: -40 °C to +70 °C;
- apparatus in types of protection Ex ic IIIC, Ex ta IIIC, Ex tb IIIC and Ex tc IIIC: -40 °C to +80 °C;
- apparatus in types of protection Ex nA IIC, and Ex ic IIC: -40 °C to +85 °C.

Temperature class and the maximum surface temperature:

The temperature class and the maximum surface temperature T and T_{500} are depending on the maximum ambient temperature:

For Pressure Transmitter Type HDA 4abc-A-d-(e)-Afg-h-i1 j k and Type HDA 4abc-A-d-(e)-Efg-h-i1 j k (versions with a single pressure sensor cell):

Maximum ambient temperature	Temperature class	Max surface temperature T	Max surface temperature T_{500}
60 °C	T6	80 °C / 85 °C	90 °C
70 °C	T5	90 °C	100 °C
80 °C		100 °C	110 °C
85 °C	T4		

For Double Pressure Transmitter Type HDA 4abc-AA-d-e-Efg-hjj (k) (version with two pressure sensor cells):

Maximum ambient temperature	Temperature class	Max surface temperature T	Max surface temperature T_{500}
60 °C	T6	85 °C	120 °C
70 °C	T5	95 °C	130 °C
80 °C		105 °C	140 °C
85 °C	T4		

Form 227A
Version 1 (2016-04)

DEKRA

(13) **SCHEDULE**

(14) to EU-Type Examination Certificate KEMA 05ATEX1016 X Issue No. 4

Nomenclature

Pressure Transmitter Type: **HDA 4abc-A-d-(e)-Afg-h-i1 j k**
Approval: **A** = ATEX

a =	measurement accuracy	1 digit
b =	mechanical connection process	alphanumerical code (1 digit)
c =	electrical connection	alphanumerical code (1 digit)
d =	measuring range	4 digits in bar / 5 digits in psi
(e) =	mechanical connection, only for flush mount version, b = Z	alphanumerical code (3 digits)
f =	isolation variants	H = 500 VAC isolation from enclosure N = 50 VAC isolation from enclosure (functional only)
g =	approval variants	1 = I M 1 Ex ia I Ma and II 1 G Ex ia IIC T6 Ga and II 1/2 G Ex ia IIC T6 Ga/Gb and II 2 G Ex ia IIC T6 Gb II 1 D Ex ia IIIC T85 °C Da 2 = I M 1 Ex ia I Ma and II 2 G Ex ia IIC T6 Gb 3 = II 2 G Ex ia IIC T6 Gb 4 = II 1 G Ex ia IIC T6 Ga and II 1/2 G Ex ia IIC T6 Ga/Gb and II 2 G Ex ia IIC T6 Gb II 1 D Ex ia IIIC T85 °C Da 5 = I M 1 Ex ia I Ma 9 = II 3 G Ex nA IIC T6, T5, T4 Gc A = II 1 D Ex ta IIIC T80 °C T_{500} 90 °C or T90 °C T_{500} 100 °C or T100 °C T_{500} 110 °C Da and II 2 D Ex tb IIIC T80 °C or T90 °C or T100 °C Db B = II 3 D Ex tc IIIC T80 °C or T90 °C or T100 °C Dc C = II 3 G Ex ic IIC T6, T5, T4 Gc II 3 D Ex ic IIIC T80 °C or T90 °C or T100 °C Dc
h =	3 digit indication for modifications	000 = for standard version
i =	sealing material *)	E = EPDM sealing F = FPM sealing H = HNBR sealing N = NBR sealing P = PU sealing
1 =	stainless steel medium connection *)	
j =	unit of measurement	psi = imperial unit psi none bar
(k) = k =	length of cable (if applicable) no paranthesis in case, j = psi	in cm or m or inch as indicated
NOTE *) only applicable for models with a = 1 or 3		

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Form 227A
Version 1 (2016-04)

DEKRA

(13) **SCHEDULE**

(14) to EU-Type Examination Certificate KEMA 05ATEX1016 X Issue No. 4

Nomenclature (continued)

Pressure Transmitter Type: HDA 4abc-A-d-(e)-Efg-h-i1 j k
Approval: E = IECEx + ATEX

a =	measurement accuracy	1 digit
b =	mechanical connection process	alphanumerical code (1 digit)
c =	electrical connection	alphanumerical code (1 digit)
d =	measuring range	4 digits in bar / 5 digits in psi
(e) =	mechanical connection, only for flush mount version, b = Z	alphanumerical code (3 digits)
f =	isolation variants	H = 500 VAC isolation from enclosure N = 50 VAC isolation from enclosure (functional only)
g =	approval variants	1 = I M 1 Ex ia I Ma and II 1 G Ex ia IIC T6 Ga and II 1/2 G Ex ia IIC T6 Ga/Gb and II 2 G Ex ia IIC T6 Gb II 1 D Ex ia IIIC T85 °C Da 2 = I M 1 Ex ia I Ma and II 2 G Ex ia IIC T6 Gb 3 = II 2 G Ex ia IIC T6 Gb 4 = II 1 G Ex ia IIC T6 Ga and II 1/2 G Ex ia IIC T6 Ga/Gb and II 2 G Ex ia IIC T6 Gb II 1 D Ex ia IIIC T85 °C Da 5 = I M 1 Ex ia I Ma 9 = II 3 G Ex nA IIC T6, T5, T4 Gc A = II 1 D Ex ta IIIC T80 °C T_{500} 90 °C or T90 °C T_{500} 100 °C or T100 °C T_{500} 110 °C Da and II 2 D Ex tb IIIC T80 °C or T90 °C or T100 °C Db B = II 3 D Ex tc IIIC T80 °C or T90 °C or T100 °C Dc C = II 3 G Ex ic IIC T6, T5, T4 Gc II 3 D Ex ic IIIC T80 °C or T90 °C or T100 °C Dc
h =	3 digit indication for modifications	000 = for standard version
i =	sealing material *)	E = EPDM sealing F = FPM sealing H = HNBR sealing N = NBR sealing P = PU sealing
1 =	stainless steel medium connection *)	
j =	unit of measurement	psi = imperial unit psi none bar
(k) = k =	length of cable (if applicable) no paranthesis in case, j = psi	in cm or m or inch as indicated
NOTE *) only applicable for models with a = 1 or 3		

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(13) **SCHEDULE**

(14) to EU-Type Examination Certificate **KEMA 05ATEX1016 X** Issue No. **4**

Nomenclature (continued)

Double Pressure Transmitter Type: **HDA 4abc-AA-d-e-Efg-hjj (k)**
Approval: E = IECEx + ATEX

a =	measurement accuracy	1 digit
b =	mechanical connection process	alphanumerical code (1 digit)
c =	electrical connection	alphanumerical code (1 digit)
d =	measuring range channel 1	4 digits in bar / 5 digits in psi
e =	measuring range channel 2	4 digits in bar / 5 digits in psi
f =	isolation variants	H = 500 VAC isolation from enclosure N = 50 VAC isolation from enclosure (functional only)
g =	approval variants	1 = I M 1 Ex ia I Ma II 1 G Ex ia IIC T6/T5 Ga and II 1/2 G Ex ia IIC T6/T5 Ga/Gb and II 2 G Ex ia IIC T6/T5 Gb II 1 D Ex ia IIIC T85 °C or T95 °C Da 2 = I M 1 Ex ia I Ma II 2 G Ex ia IIC T6/T5 Gb 3 = II 2 G Ex ia IIC T6/T5 Gb 4 = II 1 G Ex ia IIC T6/T5 Ga and II 1/2 G Ex ia IIC T6/T5 Ga/Gb and II 2 G Ex ia IIC T6/T5 Gb II 1 D Ex ia IIIC T85 °C or T95°C Da 5 = I M 1 Ex ia I Ma 9 = II 3 G Ex nA IIC T6, T5, T4 Gc A = II 1 D Ex ta IIIC T85 °C T_{500} 120 °C or T95 °C T_{500} 130 °C or T105 °C T_{500} 140 °C Da and II 2 D Ex tb IIIC T85 °C or T95 °C or T105 °C Db B = II 3 D Ex tc IIIC T85 °C or T95 °C or T105 °C Dc C = II 3 G Ex ic IIC T6, T5, T4 Gc II 3 D Ex ic IIIC T85 °C or T95 °C or T105 °C Dc
hjj =	3 digit indication for modifications	000 = for standard version (tube diameter 27) 1xx = Modification (tube diameter 35 and 2 x M12x1)
(k) =	length of cable (if applicable)	in cm or m or inch as indicated

DEKRA

(13) **SCHEDULE**

(14) **to EU-Type Examination Certificate KEMA 05ATEX1016 X** Issue No. **4**

Electrical data

Intrinsically safe versions:

Supply/output circuit (connections + and -):
in type of protection intrinsic safety Ex ia I, Ex ia IIC, Ex ic IIC and Ex ia IIIC, only for connection to a certified intrinsically safe circuit, with the following maximum values:
Pressure Transmitter Type HDA 4abc-A-d-(e)-.fg-h-i1 j k:
Ui = 28 V; Ii = 100 mA; Pi = 1 W; Ci = 22 nF; Li = 0 mH.

Double Pressure Transmitter Type HDA 4abc-AA-d-e-Efg-hjj (k), when connected to 2 intrinsically safe power supplies:
Signal 1: Ui = 28 V; Ii = 100 mA; Pi = 0,7 W; Ci = 22 nF; Li = 0 mH;
Signal 2: Ui = 28 V; Ii = 100 mA; Pi = 0,7 W; Ci = 22 nF; Li = 0 mH.

Double Pressure Transmitter Type HDA 4abc-AA-d-e-Efg-hjj (k), when connected to 1 intrinsically safe power supply:
Signals 1 + 2: Ui = 28 V; Ii = 100 mA; Pi = 0,7 W; Ci = 33 nF; Li = 0 mH.

From a safety point of view, the supply/output circuit of Pressure Transmitter Type HDA 4...-A-....-(...)-.N.-...-... and Type HDA 4...-AA-....-....-.N.-... (..) shall be considered to be connected to earth.

Other versions:

Supply/output circuit (connections + and -):

U ≤ 28 V	All models;
P ≤ 1 W	Pressure Transmitter Type HDA 4abc-A-d-(e)-.fg-h-i1 j k;
P ≤ 1,4 W	Double Pressure Transmitter Type HDA 4abc-AA-d-e-Efg-hjj (k) Signal 1 ≤ 0,7 W and signal 2 ≤ 0,7 W.

Installation instructions

The instructions provided with the product shall be followed in detail to assure safe operation.

(16) **Report Number**

No. NL/KEM/ExTR08.0003/04.

(13) **SCHEDULE**

(14) to EU-Type Examination Certificate **KEMA 05ATEX1016 X** Issue No. **4**

(17) **Specific conditions of use**

Pressure transmitters with an enclosure containing light metals, when used in a potentially explosive atmosphere requiring apparatus of equipment Category 1 G or M1, shall be installed such, that even in the event of rare incidents, an ignition source due to impact or friction between the enclosure and iron/steel is excluded.

For installation of the pressure transmitter between areas where the use of Category 1 apparatus is required and areas where the use of Category 2 apparatus is required, the following applies:
The internal separation element shall be protected against environmental stress, which might adversely affect the separation element. The material of the separation element shall be obtained from the data supplied by the manufacturer.

The pressure transmitter may alternatively be used with separately supplied certified cable entries or conduit entries that are rated for the intended application.

(18) **Essential Health and Safety Requirements**

Covered by the standards listed at item (9)

(19) **Test documentation**

As listed in Report No. NL/KEM/ExTR08.0003/04.

(20) **Certificate history**

Issue 1 Project no. 207380100:
- initial assessment.

Issue 2 Project no. 212870200:
- assessment to latest editions of the standards;
- added models in types of protection Ex nA IIC and Ex ic IIC;
- added versions with new electrical and mechanical connections;
- added models in types of protection Ex ta, Ex tb and Ex tc.

Issue 3 Project no. 217430700:
- added models E Series
- assessment of minor changes that do not affect the type of protection.

Issue 4 Project no. 219063200:
- added Pressure Transmitter Type HDA 4abc-AA-d-e-Efg-hjj (k), which is the same type as previous evaluated as given in report NL/KEM/ExTR08.0003/03, but conducted completely redundant. Two pressure sensor cells each separated and both are designed as a two-wire (4 ... 20 mA) system;
- the maximum value of P_i is changed from 1 W to 1,4 W (2 x 0,7 W) for the redundant version;
- assessment in accordance with latest edition of EN 60079-26 and EN 60079-31
- KEMA 05ATEX1021 Iss 2 intergrated in this certificate, Identical products with types of protection Ex ic, Ex nA and Ex tc.

13 Konformitätserklärung / Declaration of conformity

HYDAC ELECTRONIC

HYDAC ELECTRONIC GMBH, Hauptstraße 27, 66128 Saarbrücken

HYDAC ELECTRONIC GMBH

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Fax Einkauf 06897 509-1745
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Internet: www.hydac.com
siehe dort auch: Allgemeine Geschäftsbedingungen (AGB)

Datum
Ihr Zeichen
Ihre Nachricht
Unser Zeichen

Telefon direkt
Telefax direkt
E-Mail

CE 0158

Betreff

EU-Konformitätserklärung / EC declaration of conformity 18 / 115d / 16

Hiermit erkären wir, dass das nachfolgend bezeichnete Produkt auf Grund seiner Konzeption und Bauart, sowie in der von uns in Verkehr gebrachten Ausführung, den grundlegenden Sicherheits- und Gesundheitsanforderungen der unten aufgeführten Normen entspricht.
Bei einer nicht mit uns schriftlich abgestimmten Änderung des Produktes verliert diese Erklärung ihre Gültigkeit.

We herewith declare that, with regard to its design and construction and to the model brought onto the market by us, the product designated below conforms with the fundamental safety and health requirements of the standards listed below.
This declaration ceases to be valid if the product is modified without our written consent.

Bezeichnung / Designation	Druckmessumformer / Pressure Transducer
Typ	HDA 41/ 3 / 4 / 7 xxx-A-xxxx-A/Exx....
EMV Richtlinie / EMC Guideline	2014/30 EU
Normen	DIN EN 61000-6-1 Okt 07/ -2-März06/ - 3 /4 Sept 11
Geräte für explosionsgefährdete Bereiche / Equipment for use in potentially explosive atmospheres	2014/34 EU
Normen	EN 60079-0: 2012+ A11 ; -11: 2012 ; -15: 2010 -26: 2015, -31: 2014 ; EN 50303 : 2000
EG Baumusterprüfbescheinigung / EC -Type Examination Certificate :	KEMA 05 ATEX 1016X Issue: 4
	DEKRA Certifikation B.V. (No. 0344) Meander 1051 ; NL 6825 MJ Arnhem
Prüfstelle / notified body :	DEKRA EXAM Nr. : no: 0158

Schutzartkennzeichen / Code for Type protection ;

I M1 Exia I Ma
II 1G Ex ia IIC T6 Ga
II 2D Ex tb IIIC T80..100°C Db
II 1D Ex ia IIIC T85°C Da
II 3D Ex ic IIIC T80…100°C Dc

II 1/2G Ex ia IIC T6 Ga/Gb
II 3G Ex nA IIC T6,T5,T4 Gc
II 1D Ex ta IIIC T80..100°C and T_{500} 90...110°C Da;
II 3D Ex tc IIIC T80…100°C Dc

II 2G Ex ia IIC T6 Gb
II 3G Ex ic IIC T6,T5,T4 Gc

19.12.2016 ppa. J. Morsch

Datum / Date

Geschäftsführer
Dr. Franz Josef Eckle

Sitz der Gesellschaft Saarbrücken
Registergericht Saarbrücken, HRB 8707
USt-Identnummer: DE 138 277 443
Steuernummer: 040/110/50684

Bankverbindung in Saarbrücken
(CE Beauftragter / CE authorized person)
Commerzbank AG
Nr. 316888800, BLZ 590 800 90
BIC: DRES DE FF 590
IBAN: DE77 5908 0090 0316 8888 00

Hypo Vereinsbank
Nr. 353560264, BLZ 590 200 90
BIC: HYVE DE MM 432
IBAN: DE59 5902 0090 0353 5682 64

Saar LB
Nr. 5250006, BLZ 590 500 00
BIC: SALA DE 55 XXX
IBAN: DE51 5905 0000 0005 2500 06

Deutsche Bank AG
Nr. 035380000, BLZ 590 700 00
BIC: DEUT DE 5M 555
IBAN: DE54 5907 0000 0035 5800 00

630408

Notes